

EUROPEAN ATM MASTER PLAN

Digitalising
Europe's
Aviation
Infrastructure

Implementation view

Technical Annex - Engineering View

Implementation Objectives - Detailed Description



SESAR
JOINT UNDERTAKING

founding members



Plan 2020

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1. INTRODUCTION

1.1. Technical Annex – Engineering View

“ Technical Annex ” - Engineering view, this document, is a separate soft copy document accompanying MPL3 Plan 2020 and is available online, on the European ATM Master Plan Portal <https://www.eatmportal.eu/working/signin> and at EUROCONTROL website <https://www.eurocontrol.int/master-planarchitecture-and-monitoring#key-documents>. It provides a complete description for each Implementation Objective, including detailed descriptions of Stakeholder Lines of Action (SLOAs) and relevant supporting material (standards, specifications, guidelines etc.).

EUROCONTROL Provisional Council endorses the new and substantially changed Implementation Objectives.

1.2. Objective and scope of L3 Plan 2020

The ATM Master Plan Level 3, Implementation Plan, constitutes the “Implementation view” or Level 3 of the European ATM Master Plan (MP). It is based on the ATM MP L1 and L2, SDM Deployment Programme (DP), the Network Strategy Plan, as well as SES Interoperability regulations.

The Implementation Plan brings together and provides the framework for the commonly agreed actions to be taken by ECAC stakeholders, in the context of the implementation of SESAR. It addresses V3 validated SESAR Solutions, PCP AFs and pre-requisites, SESAR Baseline solutions, SES and ICAO requirements. The Implementation Plan is updated every year and covers short to medium term horizon (around 5 years ahead). This planning is without prejudice to reprioritisation actions that may have been put in place by stakeholders in 2020 due to the COVID19 crisis.

This plan focuses primarily on the deployment phase V5, at the solutions that have reached the necessary operational and technical maturity and for which stakeholders have expressed a common agreement/interest in their operational implementation. However, it shows an outlook to the SESAR Solutions in the Industrialisation and Standardisation Phase V4 too.

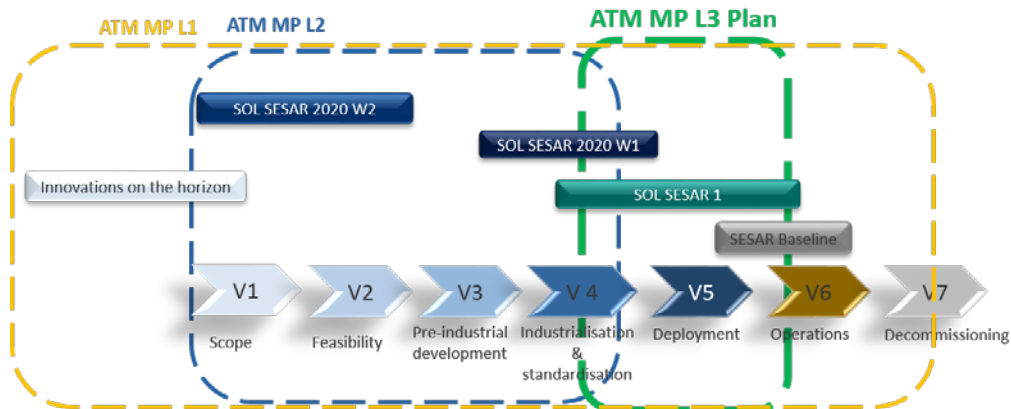


Figure 1.1-1 Focus of the Level 3 Implementation Plan 2020

The ambition of the Master Plan remains to reach all the States within the ECAC area. For this, joint governance of SJU Admin Board (through the Master Planning Committee) and EUROCONTROL Provisional Council is very beneficial. EUROCONTROL provides the working arrangements that serve as vehicle to extend the agreed implementation actions to the whole of ECAC, as well as the method for implementation planning, monitoring and reporting consisting of the implementation objectives and LSSIP mechanism.

The ‘Implementation Objectives’ represent consolidated implementation actions, addressing operationally and technically mature SESAR solutions for which stakeholders have expressed a common agreement/interest in their operational implementation with.

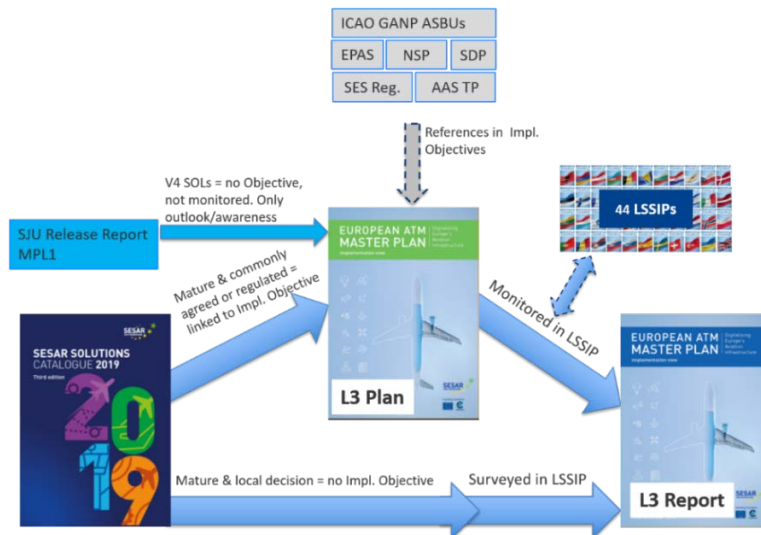


Figure 1.1-2 Mechanism supporting L3 Plan and implementation of Solutions

In terms of implementation planning and monitoring mechanism supporting L3 Plan deployment, an implementation objective may have a different applicability area(s) used in planning, monitoring and reporting via LSSIP mechanism.

An applicability area lists the States/Airports having committed to implement the objective and/or being mandated to do so by a Regulation.

An implementation objective may have a "Local" scope too, i.e. without a predefined Applicability Area and Full Operational Capability (FOC) date. They are subject to local business decisions by any stakeholder concerned.

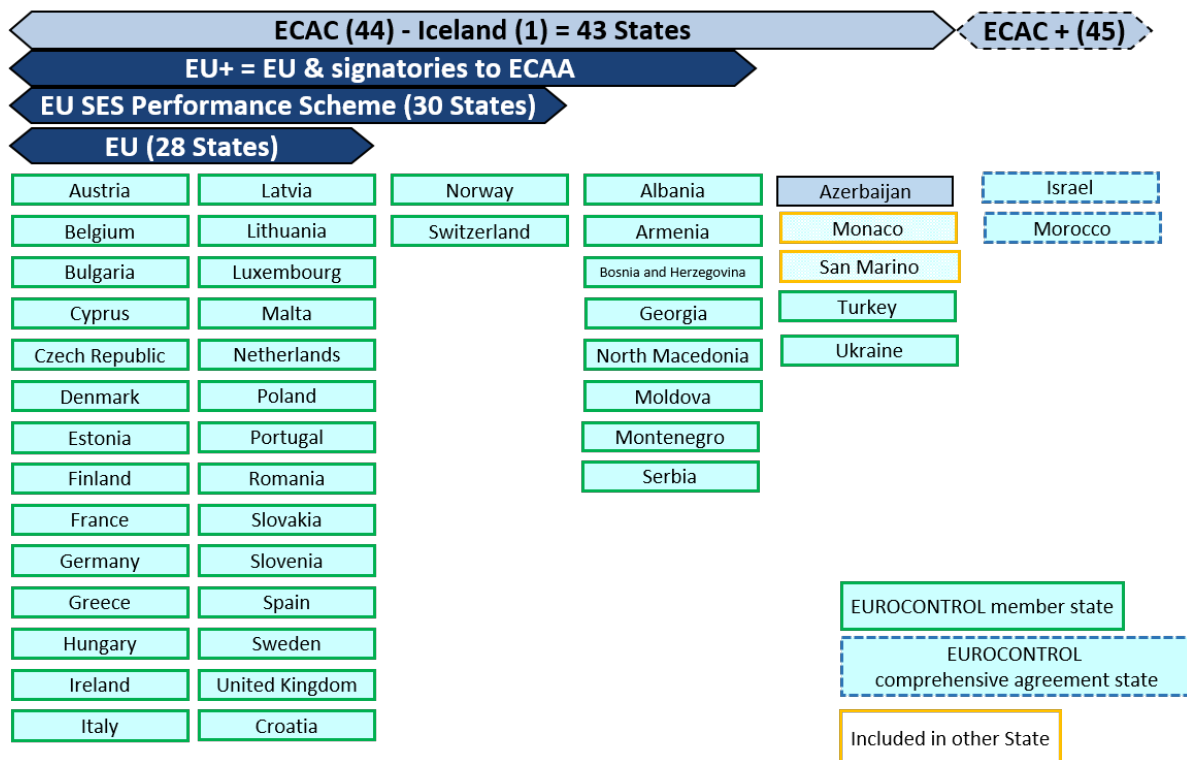


Figure 1.1-3 Scope of planning and monitoring mechanism supporting L3 Plan

1.3. The main definitions of the terminology used in Implementation Objectives

The following stakeholder group designators are used:

REG – State Authorities	INT – International Organisations and Regional Bodies
ASP – Air Navigation Service Providers (Civil & Military providing services to GAT)	IND – Aeronautics Industry
APO – Airport Operators	AGY - EUROCONTROL Agency (non-Network Manager)
USE – Airspace Users	NM – EUROCONTROL Network Manager

The Key Performance Areas used in this document are in line with those defined in Chapter 3 ('Performance View) of the Level 1 of the European ATM Master Plan Edition 2020.

The implementation objective designators consists of acronym identifying one of the designated ATM areas of work and a serial number for the objective within the area of work it covers.

AOM = Airspace Organisation and Management	HUM = Human Factors
AOP = Airport Operations	INF = Information Management
ATC = Air Traffic Control	ITY = Interoperability
COM = Communications	NAV = Navigation
ENV = Environment	SAF = Safety Management
FCM = Flow and Capacity Management	

The Implementation Objectives (IOs) set out the operational, technical and institutional improvements which contribute to meet the performance requirements for the key performance areas (KPAs) cost-efficiency, operational efficiency, capacity, environment, safety and security, as defined in the ATM Master Plan Level 1.

They also reflect the outcomes from the Planning and Architecture level (Level 2) in considering the integration of operational changes, which have reached the necessary operational and technical maturity, and are supported by common agreement for their inclusion in the plan and, where applicable, their deployment. This includes Objectives derived from existing (EU) Regulations in ATM, including the Pilot Common Project (PCP) and the upcoming Common Project 1 (CP1) Regulations.

Implementation Objectives describe Stakeholder Lines of Action (SLoAs) or ANS Providers, National Regulators, Airport Operators, Military Authorities, Airspace Users that address the deployment and operational introduction aspects of the functionalities described in the IO. The industrialisation phase (i.e. the V4 phase in the E-OCVM) is currently not addressed.

An implementation objective present in L3 Plan may have one of the following statuses:

- **Active** - objective in the L3 Plan fully ready for implementation and monitored in LSSIP;
- **Initial** - objective introduced in L3 Plan but some elements still require validation/commitment and therefore it is not monitored in LSSIP yet.

An implementation objective present in L3 Plan may have one of the following applicability area(s) defined as follows:

- **ECAC**: Refers to the States members of the European Civil Aviation Conference + Maastricht UAC.
- **ECAC +**: Refers to all ECAC states plus the states signed Comprehensive Agreement with EUROCONTROL, i.e. Israel and Morocco.
- **EU +**: Refers to the States members of the European Union (including Maastricht UAC) + the states signatory to the European Common Aviation Area Agreement (ECAA), Albania, Bosnia and Herzegovina, North Macedonia, Georgia, Montenegro, Serbia and Moldova, + NO and CH.
- **EU SES**: Refers to the States members of the European Union (including Maastricht UAC) + Norway and Switzerland who have signed agreements with the EU contractual commitment to implement the SES legislation.
- **EU**: Refers to the States members of the European Union.

- **25 PCP Airports:** Refers to the airports identified in ATM Functionality 2 of the PCP Regulation as the Geographical Scope for all its sub-functionalities except ‘Time-Based Separation’. The 25 airports are: London-Heathrow, Paris-CDG, London-Gatwick, Paris-Orly, London-Stansted, Milan-Malpensa, Frankfurt International, Madrid-Barajas, Amsterdam Schiphol, Munich Franz Josef Strauss, Rome-Fiumicino, Barcelona El Prat, Zurich Kloten, Düsseldorf International, Brussels National, Oslo Gardermoen, Stockholm-Arlanda, Berlin Brandenburg Airport, Manchester Ringway, Palma De Mallorca Son San Juan, Copenhagen Kastrup, Vienna Schwechat, Dublin, and Nice Cote d’Azur and Istanbul Ataturk Airport.
- **17 PCP Airports:** Refers to the airports identified in ATM Functionality 2 of the PCP Regulation as the Geographical Scope for the sub-functionality ‘Time-Based Separation’. The 17 airports are: London-Heathrow, London-Gatwick, Paris-Orly, Milan-Malpensa, Frankfurt International, Madrid-Barajas, Amsterdam-Schiphol, Munich Franz Josef Strauss, Rome-Fiumicino, Zurich Kloten, Düsseldorf International, Oslo Gardermoen, Manchester Ringway, Copenhagen Kastrup, Vienna Schwechat, Dublin and Istanbul Ataturk Airport.
- **Local:** an implementation objective may have a “Local” scope too, i.e. without a predefined Applicability Area and Full Operational Capability (FOC) date. They are subject to local business decisions by any stakeholder concerned.

1.4. What is new in this edition

The Implementation Plan 2020 includes a number of changes with regard to the previous edition, that are summarised in the bullet points here below:

- Alignment with the 2020 edition of ATM Master Plan Level 1 (i.e. use of Essential Operational Changes)
- Creation of a new Implementation Objective (ATC21) addressing SESAR Solution #114 (Composite surveillance (ADS-B/WAM)) and with the status ‘Initial’, therefore indicating its expected evolution into an ‘active’ objective in the near future;
- Removal from the plan of Implementation Objective on Extended Flight Plan (FCM08), linked to solution Sol #37 Extended Flight Plan, as incompatible with the evolution of this subject matter. In the next edition of the Plan, a new objective will be created, addressing the implementation of e-FPL in line with the ICAO FF-ICE (Flight and Flow information for a Collaborative Environment);
- Overall alignment to the new ICAO GANP, SESAR Deployment Programme (SDP), Network Strategy Plan (NSP), European Plan for Aviation Safety and Airspace Architecture Study Transition Plan (AAS-TP).
- Alignment of FOC dates in the Implementation Objectives

The criteria for changing current L3 Plan FOC date to L3 Plan 2020 NEW FOC date are as follows, starting with the highest priority first:

1. Objective is regulated by IR (Regulation), **NEW FOC = IR date**
2. Objective has DP Family, **NEW FOC = DP Family Date.**
3. Objective is:
 - I. not Regulated,
 - II. no reference to DP Family,
 - III. is not LOCAL objective, and
 - IV. has SESAR SOL reference,
 - **NEW FOC = Deployment Scenario Date as specified in MPL1.**
4. Objective is:
 - I. not Regulated,
 - II. no reference to DP Family,
 - III. no reference to SESAR SOL,
 - IV. with SESAR SOL but SOL is not identified in any DS.
 - **NEW FOC = Open end i.e. no date, unless there is a previous EUROCONTROL PC commitment.**

Figure 1.3-1 The criteria used for alignment of FOC date

The following table provides a complete list of all Implementation Objectives for which their FOC has been changed in 2020. Only those marked with a (c) represent a substantial change, i.e. modifying the commitment towards their implementation. For the Edition 2020, ten (10) objectives were substantially changed. Those where the date has been moved by one day for a full alignment with the SESAR Deployment Manager ‘Deployment Programme’, or those related to ‘Initial’(i.e. not committed and not monitored) objectives are rather considered editorial changes and are not subject to an approval process.

Obj. ID	ObjectiveTitle	Old FOC Date	New FOC Date Plan 2020
AOM19.1 (c)	ASM Support Tools to Support Advanced FUA	31/12/2018	01/01/2022
AOM19.2	ASM Management of Real-Time Airspace Data	31/12/2021	01/01/2022
AOM19.3	Full Rolling ASM/ATFCM Process and ASM Information Sharing	31/12/2021	01/01/2022
AOM19.4	Management of Pre-defined Airspace Configurations	31/12/2021	01/01/2022
AOM21.2	Free Route Airspace	31/12/2021	01/01/2022
AOP04.1 (c)	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance	31/12/2011	01/01/2021
AOP04.2 (c)	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA)	31/12/2017	01/01/2021
AOP05 (c)	Airport Collaborative Decision Making	31/12/2016	01/01/2021
AOP10	Time-Based Separation	31/12/2023	01/01/2024
AOP11 (c)	Initial Airport Operations Plan	31/12/2021	01/01/2021
AOP12	Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC)	31/12/2020	01/01/2021
AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing	31/12/2023	01/01/2024
ATC02.8 (c)	Ground-Based Safety Nets	31/12/2016	01/01/2022
ATC07.1	AMAN Tools and Procedures	31/12/2019	01/01/2020
ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring	31/12/2021	01/01/2022
ATC15.2	Arrival Management Extended to En-route Airspace	31/12/2023	01/01/2024
ATC17 (c)	Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer	31/12/2018	01/01/2022
COM11.1	Voice over Internet Protocol (VoIP) in En-Route	31/12/2021	01/01/2022
COM12 (c)	New Pan-European Network Service (NewPENS)	33 ANSPs: 31-12-2020 Other STKs: 31-12-2024	01/01/2025
FCM03 (c)	Collaborative Flight Planning	31/12/2017	01/01/2022
FCM04.2	Short Term ATFCM Measures (STAM) - Phase 2	31/12/2021	01/01/2022
FCM05	Interactive Rolling NOP	31/12/2021	01/01/2022
FCM06	Traffic Complexity Assessment	31/12/2021	01/01/2022
-	-	-	-
FCM07	CTOT to TTA for ATFCM purposes	31/12/2021	01/01/2022
INF07 (c)	Electronic Terrain and Obstacle Data (eTOD)	31/05/2018	01/01/2019
INF08.1	Information Exchanges using the SWIM Yellow TI Profile	31/12/2024	01/01/2025
INF08.2	Information Exchanges using the SWIM Blue TI Profile	Nil (initial)	01/01/2027

SESAAR		Active					ECAC+	
AOM13.1		Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Ensure that the principles, rules and procedures for OAT and GAT handling can be commonly applied to the maximum possible extent within ECAC airspace.

The needs of military aviation and ATM support are often beyond the scope of civil aviation and therefore not sufficiently covered by ICAO provisions for General Air Traffic (GAT). This requires the military to use Operational Air Traffic (OAT) as the means to provide the regulatory provisions and ATM arrangements necessary for successful military training and mission accomplishment. However, each State has developed different OAT rules, which need to be harmonised in line with the Functional Airspace Blocks (FAB) principles in order to further enhance civil-military coordination and in particular to progress and implement the interoperability of GAT and OAT structures and operations.

Harmonisation of OAT/GAT handling covers the following main actions:

- Identifying the various types of military operations which cannot be accommodated applying GAT rules and require additional rules and procedures (OAT);
- Defining EUROAT rules and procedures for handling military operations in European Civil Aviation Conference (ECAC) airspace whilst developing common civil military principles for the safe handling of civil and military traffic in one continuum of airspace.
- Harmonisation of military aeronautical information in Europe through European Aeronautical Service (EAD).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Albania, Latvia, Luxembourg, Malta, Moldova, Morocco		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2012		Applicability Area
Full operational capability		31/12/2018	Applicability Area

References

European ATM Master Plan

OI step -	[AOM-0301]-Harmonised EUROCONTROL ECAC Area Rules for OAT-IFR and GAT Interface								
Enablers -	PRO-181								
OI step -	[AOM-0303]-Pan-European OAT Transit Service								
Enablers -	A/C-72	AAMS-10a	AIMS-06	AIMS-19b	AOC-ATM-14	ER APP ATC 143	MIL-STD-03	MIL-STD-04	
	NIMS-35 FCM06	PRO-014	PRO-015						
OI step -	- No OI Link -								
Enablers -	AAMS-10a	AIMS-19b							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

- Regulation (EU) No 805/2011 laying down detailed rules for air traffic controllers- licences and certain certificates pursuant to Regulation (EC) No 216/2008
- Regulation (EC) No 2150/2005 laying down common rules for the flexible use of airspace

Essential Operational Changes

ATM Interconnected Network

ICAO GANP – ASBUs

- none -

AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling
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Deployment Programme

- none -	
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route	
Network	

Stakeholder Lines of Action (SLOAs)

SloA ref.	Title	From	By
AOM13.1-REG01	Revise national legislation as required	01/01/2012	31/12/2018
AOM13.1-ASP01	Apply common principles, rules and procedures for OAT handling and OAT/GAT interface	01/01/2012	31/12/2018
AOM13.1-ASP02	Train staff as necessary	01/01/2012	31/12/2018
AOM13.1-MIL01	Apply common principles, rules and procedures for OAT handling and OAT/GAT interface	01/01/2012	31/12/2018
AOM13.1-MIL02	Provide feedback on result of conformance analysis between national rules to EUROAT	01/01/2011	31/12/2012
AOM13.1-MIL03	Implement a harmonized OAT Flight Plan	DELETED	
AOM13.1-MIL04	Migrate military aeronautical information to EAD	01/01/2010	31/12/2015
AOM13.1-MIL05	Implementing a pan-European OAT-IFR Transit Service (OATTS)	DELETED	

Description of finalised and deleted SLOAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Less risk of error through the use of common rules and procedures for OAT handling and for OAT/GAT interface.
Capacity:	-
Operational Efficiency:	Increased efficiency of civil-military operations through the use of harmonised procedures at pan-European level.
Cost Efficiency:	-
Environment:	-
Security:	Increased through robust pan-European OAT provisions and structures to effectively support national and multinational military operations.

Detailed SLOA Descriptions

AOM13.1-REG01	Revise national legislation as required	From:	By:
		01/01/2012	31/12/2018
Action by:	State Authorities		
Description & purpose:	<p>Enact regulatory material for implementation of new principles, rules and procedures for OAT/GAT handling in a mixed environment.</p> <p>Perform conformance analysis between existing rules and the EUROCONTROL Specification for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT). Based on these findings, determine change of regulatory material, if required.</p> <p>Develop Annex with national regulations and rules pertinent to this specification.</p> <p>Upon official reception of the Specification, the States are asked to examine their implementation options and come to a respective decision latest within one year.</p> <p>Following the respective national implementation decision, inform EUROCONTROL about the official national implementation date and provide the additional required information as detailed in Annex 1 of the EUROAT Specification.</p>		
Supporting material(s):	<p>EUROCONTROL - EUROCONTROL Specification for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 / 02/2019</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace</p>		

AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling		
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Finalisation criteria:	<p>1 - National publications have been updated in accordance with EUROAT.</p> <p>2 - Clear identification of pertinent and acknowledged documents stating the implementation of such OAT/GAT interfaces on a regulatory level has been provided.</p> <p>3 - Additionally the evidence of adequate procedures comprising their operational realisation has been provided.</p>
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AOM13.1-ASP01	Apply common principles, rules and procedures for OAT handling and OAT/GAT interface	From: 01/01/2012	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Apply common principles, rules and procedures for the OAT/GAT interface. Define and develop additional or revised procedures to match local and regional organisation ensuring that they do not conflict with those of adjacent States/Functional Airspace Blocks (FAB).		
Supporting material(s):	EUROCONTROL - EUROCONTROL Specification for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 / 02/2019 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace		
ATM Master Plan relationship:	[AAMS-10a]-Initial airspace management system enhanced with commonly applied GAT/OAT handling [PRO-181]-Procedures related to Rule on OAT handling and OAT-IFR GAT interface		
Finalisation criteria:	1 - Clear identification of pertinent and acknowledged documents stating the implementation of such OAT/GAT interfaces on a regulatory level has been provided.		

AOM13.1-ASP02	Train staff as necessary	From: 01/01/2012	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Establish the mechanism to ensure pertinent training for competent personnel during all training phases in order to train Air Traffic Services (ATS) personnel in provision of ATS to OAT-IFR flights. Train ATS staff in new procedures that comprise OAT elements.		
Supporting material(s):	EUROCONTROL - Air Traffic Controller Training at Operational Units - Edition 2.0 / 06/1999 Url : https://trainingzone.eurocontrol.int EUROCONTROL - SPEC-157 - EUROCONTROL Specification for ATCO Common Core Content Initial Training - 2.0 / 04/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-atco-common-core-content-initial-training		
Finalisation criteria:	1 - The mechanism to train competent ATS personnel during all training phases in provision of ATS to OAT-IFR flights has been established. 2 - ATS personnel have been qualified to provide ATS to OAT-IFR flights in accordance with national regulations and has demonstrated equivalence to:- ESARR 5 for non EU member states, or- Commission Regulation (EU) No 805/2011 for EU member states.		

AOM13.1-MIL01	Apply common principles, rules and procedures for OAT handling and OAT/GAT interface	From: 01/01/2012	By: 31/12/2018
Action by:	Military Authorities		
Description & purpose:	Apply common principles, rules and procedures for OAT handling. Define and develop additional or revised procedures to match local and regional organisation, ensuring that they do not conflict with those of adjacent States/FAB.		
Supporting material(s):	EUROCONTROL - EUROCONTROL Specification for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 / 02/2019 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace		
ATM Master Plan relationship:	[AAMS-10a]-Initial airspace management system enhanced with commonly applied GAT/OAT handling [PRO-181]-Procedures related to Rule on OAT handling and OAT-IFR GAT interface		
Finalisation criteria:	1 - Clear identification of pertinent and acknowledged documents stating the implementation of such OAT/GAT interfaces on a regulatory level has been provided. 2 - Additionally the evidence of adequate procedures comprising their operational realisation has been provided.		

AOM13.1-MIL02	Provide feedback on result of conformance analysis between national rules to EUROAT	From: 01/01/2011	By: 31/12/2012
Action by:	Military Authorities		
Description & purpose:	Provide national Point Of Contact (POC) and distribution list for the dissemination of EUROAT specification. Enhance understanding of the change to EUROAT and its impact to OAT flights in new Single European Sky (SES) environment.		
Supporting material(s):	EUROCONTROL - EUROCONTROL Specification for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 / 02/2019 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace		

AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling
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Finalisation criteria:	1 - Civil-Military ATM Coordination Unit (DSS/CMAC) has received national POC and distribution list from the national military authorities.
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AOM13.1-MIL04	Migrate military aeronautical information to EAD	From: 01/01/2010	By: 31/12/2015
Action by:	Military Authorities		
Description & purpose:	<p>Identify Military needs in terms of validated aeronautical data not covered in ICAO AIP. Assess applicability of civil standards (e.g. AIXM) for military aeronautical data. Migrate military aeronautical information to EAD. The implementation to be based on and supported with the following actions by DNM/Network Operations Management:</p> <ul style="list-style-type: none"> - Organise an EAD awareness campaign for the military stakeholders; - Get commitment of military organisations to migrate to EAD; - Develop customised migration plans for individual military organisations following its commitment to migrate to EAD; - Support & monitor the migration of military organisations to EAD. 		
Supporting material(s):	EUROCONTROL - EAD Safety Case - Edition 2.3 / 09/2009 Url : https://www.eurocontrol.int/sites/default/files/2019-05/20090901-adq-ead-safety-case-v2.3.pdf		
ATM Master Plan relationship:	[AIMS-19b]-Aeronautical Information system is interfaced to receive and distribute aeronautical information electronically to military systems.		
Finalisation criteria:	1 - All Military Authorities responsible for AIS Data have signed a Data Provider Agreement with EUROCONTROL. 2 - All Military Authorities responsible for AIS Data have implemented EAD and maintain the three sets of AIP Data (SDO, INO and PAMS).		

PCP		Active					ECAC+	
AOM19.1		ASM Support Tools to Support Advanced FUA (AFUA)						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Deploy Airspace Management (ASM) support systems (LARA or locally developed) and their interoperability with NM systems to manage airspace reservations (ARES) resulting from civil-military co-ordination, more flexibly according to airspace users' needs. The automated ASM support system shall:

- enable the improvement of airspace management processes, including timing dimension by providing mutual visibility on civil and military requirements;
- support a flexible airspace planning taking into account ATS units' airspace management functions and airspace users' requirements, allowing also cross-border and segregated operations with optimized impact;
- support dynamic airspace management;
- address strategic, pre-tactical planning and tactical operations;
- be compatible for the sharing of real-time airspace status requirements and possibly provide data for impact assessment of airspace configurations;
- be interoperable with NM systems using AIXM 5.1 (Aeronautical Information Exchange Model);
- include a verification process for automated data exchange.

This objective is an enabler for its successors AOM19.2, AOM19.3 and AOM19.4 and, in turn, for ATM sub-functionality 3.1 (Airspace Management and Advanced Flexible Use of Airspace) of the PCP Regulation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Armenia, Georgia, Luxembourg, Malta, Moldova, North Macedonia, Sweden		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2011		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

Ol step -	[AOM-0202]-Enhanced Real-time Civil-Military Coordination of Airspace Utilisation								
Enablers -	AAMS-06a	AAMS-08	AAMS-09	AAMS-10a AOM13.1	AAMS-15 FCM05	AIMS-06	AIMS-21 FCM05	AIMS-22	
	PRO-184 AOM19.3								
Ol step -	[AOM-0202-A]-Automated Support for strategic, pre-tactical and tactical Civil-Military Coordination in Airspace Management (ASM).								
Enablers -	AAMS-06b	AAMS-09a	AAMS-11 AOM19.2, AOM19.3	AIMS-06	ER APP ATC 77 AOM19.2	MIL-0502 INF08.1	NIMS-42 AOM19.2, AOM19.3	PRO-011 AOM19.2, AOM19.3	
	PRO-024 AOM19.2, AOM19.3	SWIM-APS- 02a INF08.1	SWIM-APS- 03a INF08.1, INF08. 2	SWIM-INFR- 05a INF08.1, INF08. 2	SWIM-NET- 01a INF08.1, INF08. 2				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

- Regulation (EC) No 2150/2005 of 23 December 2005 on Implementation and Application of the Flexible Use of Airspace
- Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

AOM19.1	ASM Support Tools to Support Advanced FUA (AFUA)
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ICAO GANP ? ASBUs

FRT0-B0/2	Airspace planning and Flexible Use of Airspace (FUA)
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Deployment Programme

3.1.1	ASM Tool to support AFUA
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOM19.1-ASP01	Deploy automated ASM support systems	01/01/2011	01/01/2022
AOM19.1-ASP02	Implement interoperability of local ASM support system with NM system	01/01/2011	01/01/2022
AOM19.1-ASP03	Improve planning and allocation of airspace booking	01/01/2011	01/01/2022
AOM19.1-NM01	Integrate local ASM support systems with NM system	01/01/2011	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved through better co-ordination of civil and military airspace needs at the European Network level and through a shared real-time airspace status display and enhanced, common situational awareness of all players.
Capacity:	Increased through better awareness and utilization of airspace resources within and across airspace boundaries leading to reduction of flight delays.
Operational Efficiency:	Increased through the availability of more optimum routes/trajectories allowing lower fuel burn.
Cost Efficiency:	-
Environment:	Emissions reduced through the use of more optimum routes/trajectories.
Security:	-

Detailed SLoA Descriptions

AOM19.1-ASP01	Deploy automated ASM support systems	From:	By:
		01/01/2011	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Deploy Airspace Management (ASM) support systems (LARA or locally developed ones) to support the local or sub-regional airspace planning and allocation (without AIXM 5.1 interface - covered by ASP02).		

AOM19.1	ASM Support Tools to Support Advanced FUA (AFUA)
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Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - LARA (Local and sub-Regional Airspace Management Support System) Url : https://www.eurocontrol.int/software/local-and-sub-regional-airspace-management-support-system</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
ATM Master Plan relationship:	<p>[AAMS-08]-Airspace management system enhanced to support improved collaborative airspace planning</p> <p>[AAMS-09]-Airspace management system enhanced to support the integrated European airspace planning process</p>
Finalisation criteria:	1 - Local ASM systems supporting the airspace planning and allocation have been deployed (without AIXM 5.1 interface).

AOM19.1-ASP02	Implement interoperability of local ASM support system with NM system	From: 01/01/2011	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Implement interoperability of local ASM support system with NM system comprising the following: <ul style="list-style-type: none"> - Adapt local ASM support systems to make them interoperable with NM system (AIXM 5.1 interface); - Conclude the Operational Access Acceptance Activities required to validate the ASM tool interfacing NM system via B2B service; - Update the existing Agreement with NM in order to cover B2B services. 		
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - NM B2B Airspace Services Reference Manual Url : https://www.eurocontrol.int/service/network-manager-business-business-b2b-web-services</p> <p>EUROCONTROL - LARA (Local and sub-Regional Airspace Management Support System) Url : https://www.eurocontrol.int/software/local-and-sub-regional-airspace-management-support-system</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>		
ATM Master Plan relationship:	[AAMS-06b]-ASM support systems enhanced to exchange static data and airspace usage data with NM systems in AIXM format		
Finalisation criteria:	1 - Local ASM support systems have been adapted to be interoperable with NM systems (AIXM5.1). 2 - Positive Access Acceptance Criteria validation report. 3 - Existing Agreement with NM has been updated in order to cover B2B services. 4 - Start exchanging AUP/UUP data with NM via B2B.		

AOM19.1-ASP03	Improve planning and allocation of airspace booking	From: 01/01/2011	By: 01/01/2022
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AOM19.1	ASM Support Tools to Support Advanced FUA (AFUA)
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Action by:	ANS Providers
Description & purpose:	<p>Improve planning and allocation of reserved/segregated airspace at pre-tactical ASM level 2 by:</p> <ul style="list-style-type: none"> - Planning reserved/segregated airspace utilization in accordance with actual need. - Releasing reserved/segregated non used airspace as soon as activity stops. - Utilizing reserved/segregated airspace that has not been planned in AUP (ad-hoc allocation - Procedure 3 as defined in the ERNIP Part 3 - ASM Handbook) <p>This should be enabled by the measurement of FUA Indicators, described in detail in Section 7 of the ERNIP Part 3 ASM Handbook, using PRISMIL (Pan-European Repository of Information Supporting Military) or any other tool providing the required functionality.</p> <p>The measurement of FUA performance is required by Article 4(1)(m-n) of the FUA Regulation (Regulation (EC) No 2150/2005) and by the SES Performance Scheme (Regulation (EU) No 390/2013).</p>
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - Civil-military ATM Performance Framework - V1.0 Url : http://www.eurocontrol.int/publications/civil-military-atm-performance-framework</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
Finalisation criteria:	1 - Reserved/segregated airspace has been used in accordance with actual need (measurement of FUA indicators as described in ERNIP Part 3 ASM Handbook).

AOM19.1-NM01	Integrate local ASM support systems with NM system	From: 01/01/2011	By: 01/01/2022
Action by:	NM		
Description & purpose:	<p>- Integrate the local automated ASM support systems using AIXM 5.1 B2B services with NM systems.</p> <p>- Update existing Agreement NM-ANSP in order to cover B2B services.</p>		
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - LARA (Local and sub-Regional Airspace Management Support System) Url : https://www.eurocontrol.int/software/local-and-sub-regional-airspace-management-support-system</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>		
ATM Master Plan relationship:	<p>[AAMS-09a]-NM systems enhanced to exchange static data and airspace usage data with ASM support systems in AIXM format</p> <p>[AIMS-22]-Airspace management functions enhanced to provide airspace status information</p>		
Finalisation criteria:	<p>1 - ASM support system testing with NM has been performed</p> <p>2 - Local ASM system integrated with NM system using AIXM 5.1 format</p> <p>3 - Existing Agreement NM-ANSP has been updated in order to cover B2B services</p>		

PCP		Active					ECAC+	
AOM19.2		ASM Management of Real-Time Airspace Data						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Implement enhanced Airspace Management (ASM) by automated exchange services of ASM data during the tactical phase continuously in real time. ASM information (real-time Airspace Reservation (ARES) status) is shared between ASM systems, civil and military ATS units/systems and needs to be communicated to NM in the tactical phase. The data shared with NM is mostly related to the early airspace release pertinent to the possibility that the released airspace could be plannable by IFPS. These data, consisting of pre-notification of activation, notification of activation, de-activation, modification and release of airspace are collected, saved and processed in order to be exchanged between ASM stakeholders and be made available to ATM actors; while some airspace users are not directly involved in ASM process, they will be notified by the Network Manager.

The scope of this objective encompasses:

- Procedural and system upgrades (ASM, ATM, NM and AU systems (Computer Flight Plan Software Providers (CFSP)) for exchange of real time airspace status data;
- Integration and management of ASM real-time data into ANSPs' ATM systems and into AUs' (CFSPs) flight planning systems;
- Full sharing of real-time airspace status updates in order to take early advantage of possible opportunities and/or to achieve real-time awareness of airspace situation;
- Network impact assessment of the changes resulting of the application of the above processes.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Armenia, Georgia, Luxembourg, Malta, Moldova, Morocco, North Macedonia		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2017		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

OI step -	[AOM-0202-A]-Automated Support for strategic, pre-tactical and tactical Civil-Military Coordination in Airspace Management (ASM).								
Enablers -	AAMS-06b AOM19.1, INF08.1	AAMS-09a AOM19.1	AAMS-11	AIMS-06	ER APP ATC 77	MIL-0502 INF08.1	NIMS-42	PRO-011	
	PRO-024	SWIM-APS-02a INF08.1	SWIM-APS-03a INF08.1, INF08.2	SWIM-INFR-05a INF08.1, INF08.2	SWIM-NET-01a INF08.1, INF08.2				
OI step -	[AOM-0206-A]-Flexible and modular ARES in accordance with the VPA design principle								
Enablers -	AAMS-06b AOM19.1, INF08.1	AAMS-06c	AAMS-09a AOM19.1	AOC-ATM-15	ER APP ATC 77	SWIM-APS-03a INF08.1, INF08.2	SWIM-APS-04a INF08.1	SWIM-INFR-05a INF08.1, INF08.2	
	SWIM-NET-01a INF08.1, INF08.2								
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective	WXYZ-003	Not covered in the Implementation Plan			

Applicable legislation

- Regulation (EC) No 2150/2005 of 23 December 2005 on Implementation and Application of the Flexible Use of Airspace
- Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

AOM19.2	ASM Management of Real-Time Airspace Data
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ICAO GANP ? ASBUs

FRTO-B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data
NOPS-B1/5	Full integration of airspace management with air traffic flow management

Deployment Programme

3.1.2	ASM management of real time airspace data
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOM19.2-ASP01	Adapt ATM systems for real-time ASM data exchanges	01/01/2017	01/01/2022
AOM19.2-ASP02	Adapt local ASM support system for real-time ASM data exchanges with NM systems	01/01/2017	01/01/2022
AOM19.2-ASP03	Implement procedures related to real-time (tactical) ASM level III information exchange	01/01/2017	01/01/2022
AOM19.2-USE01	Adapt airspace users systems for real-time ASM data exchanges with NM	01/01/2017	01/01/2022
AOM19.2-NM01	Adapt NM systems for real-time ASM data exchanges	01/01/2017	01/01/2022
AOM19.2-NM02	Implement procedures related to real-time (tactical) ASM level III information exchange	01/01/2017	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved through better co-ordination of civil and military airspace needs at the European Network level. Potential gains through more efficient airspace allocation and better knowledge of traffic environment, common situational awareness, and some enhancement through reduction in controller workload.
Capacity:	Increased through better utilization of airspace resources within and across airspace boundaries leading to reduction of flight delays.
Operational Efficiency:	Increased through the availability of more optimum routes/trajectories allowing lower fuel burn.
Cost Efficiency:	-
Environment:	Emissions reduced through the use of more optimum routes/trajectories.
Security:	-

Detailed SLoA Descriptions

AOM19.2-ASP01	Adapt ATM systems for real-time ASM data exchanges	From:	By:
		01/01/2017	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Adapt ATM systems to exchange airspace reservation (ARES) messages containing real time (tactical) activation status of predefined airspace structures with local ASM support systems and to display airspace status data at the CWP.		

AOM19.2	ASM Management of Real-Time Airspace Data
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Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
ATM Master Plan relationship:	[ER APP ATC 77]-ATC Systems enhanced to exchange real-time (tactical) airspace status data with ASM support system
Finalisation criteria:	1 - ATM systems have been adapted to enable real-time ASM data exchanges with local ASM support systems.

AOM19.2-ASP02	Adapt local ASM support system for real-time ASM data exchanges with NM systems	From: 01/01/2017	By: 01/01/2022
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Action by:	ANS Providers
Description & purpose:	Adapt local ASM support system to provide NM systems real time airspace status updates through the exchange of ASM data. These data consist of pre-notification of activation, notification of activation, de-activation, modification and release of airspace.

Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - NM B2B Airspace Services Reference Manual Url : https://www.eurocontrol.int/service/network-manager-business-business-b2b-web-services</p> <p>EUROCONTROL - LARA (Local and sub-Regional Airspace Management Support System) Url : https://www.eurocontrol.int/software/local-and-sub-regional-airspace-management-support-system</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
ATM Master Plan relationship:	[AAMS-06c]-Local ASM Tools to be updated to support Transmission of VPA-related data from local ASM tool to the NM [AAMS-11]-ASM support systems enhanced to exchange real-time airspace status updates

Finalisation criteria:	1 - ASM support systems have been adapted to enable real-time ASM data exchanges with NM.
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AOM19.2-ASP03	Implement procedures related to real-time (tactical) ASM level III information exchange	From:	By:
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AOM19.2	ASM Management of Real-Time Airspace Data
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		01/01/2017	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Develop and implement the ASM/ATFCM and ATC procedures for ASM real time data exchanges with different actors and systems (NM, Military authorities, AMC, ATC).		
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>		
ATM Master Plan relationship:	<p>[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP</p> <p>[PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange</p>		
Finalisation criteria:	1 - Procedures related to real-time (tactical) ASM level III information exchange implemented.		

AOM19.2-USE01	Adapt airspace users systems for real-time ASM data exchanges with NM	From: 01/01/2017	By: 01/01/2022
Action by:	Airspace Users		
Description & purpose:	Adapt airspace users' systems (Computer Flight Plan Software Providers (CFSP) for real-time ASM data exchanges.		
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>		

AOM19.2	ASM Management of Real-Time Airspace Data
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Finalisation criteria:	1 - Systems have been adapted for real-time ASM data exchanges with NM.
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AOM19.2-NM01	Adapt NM systems for real-time ASM data exchanges	From: 01/01/2017	By: 01/01/2022
Action by:	NM		
Description & purpose:	NM systems should be enhanced to receive and process and display real-time airspace activation, de-activation and modification of ARES using standard format and protocols and include this information in the NOP. NM system should be enhanced to perform the Network impact assessment of the airspace changes resulting of the real-time airspace data exchanges.		
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>		
ATM Master Plan relationship:	[NIMS-42]-NM systems enhanced to receive, process and display real-time tactical (ASM level III) airspace usage information		
Finalisation criteria:	1 - NM systems adapted for real-time ASM data exchanges.		

AOM19.2-NM02	Implement procedures related to real-time (tactical) ASM level III information exchange	From: 01/01/2017	By: 01/01/2022
Action by:	NM		
Description & purpose:	Develop and implement the ASM/ATFCM procedures for ASM real time data exchanges with different actors and systems (NM, Military authorities, CFSPs, ATC, AMC), including a Network impact assessment of the airspace changes resulting of the real-time airspace data exchanges.		

AOM19.2	ASM Management of Real-Time Airspace Data
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Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
ATM Master Plan relationship:	<p>[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP</p> <p>[PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange</p>
Finalisation criteria:	1 - Procedures related to real-time (tactical) ASM level III information exchange implemented.

PCP		Active					ECAC+	
AOM19.3		Full Rolling ASM/ATFCM Process and ASM Information Sharing						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The full rolling ASM/ATFCM process focuses on improving airspace planning. It shall ensure a continuous, seamless and reiterative airspace planning and allocation based on airspace requests at any time period within strategic (level1), pre-tactical (level 2) and tactical (level 3) ASM levels; the process will also support the deployment of airspace configurations (as described in objective AOM19.4). It will result in a rolling process, supporting the enhancement of the daily Network Operations Plan (NOP). This will allow airspace users to better benefit from changes in airspace structures closer to the event.

This rolling process will be supported by the sharing of civil-military airspace data and by continuously updating airspace reservation (ARES) information with demand information among the authorized operational stakeholders and Approved Agencies in order to enhance the coordination of cross-border operations and/or cross-border areas, and to optimise the whole network operations based on the mature and most correct information.

ASM information sharing addresses the required system support improvements able to ensure a seamless and consistent data flow and their management in the frame of the enhanced collaborative decision making (CDM) process. It includes requirements aiming to improve the notification to airspace users based on automated data exchange processes.

ASM procedures and data-sharing shall enable dynamic management of airspace both in a free and fixed route environment.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Armenia, Georgia, Luxembourg, Malta, Moldova, Morocco, North Macedonia		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2014		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

OI step -	[AOM-0202]-Enhanced Real-time Civil-Military Coordination of Airspace Utilisation								
Enablers -	AAMS-06a	AAMS-08 AOM19.1	AAMS-09 AOM19.1	AAMS-10a AOM13.1	AAMS-15 FCM05	AIMS-06	AIMS-21 FCM05	AIMS-22 AOM19.1	
	PRO-184								
OI step -	[AOM-0202-A]-Automated Support for strategic, pre-tactical and tactical Civil-Military Coordination in Airspace Management (ASM).								
Enablers -	AAMS-06b AOM19.1, INF08.1	AAMS-09a AOM19.1	AAMS-11	AIMS-06	ER APP ATC 77 AOM19.2	MIL-0502 INF08.1	NIMS-42	PRO-011	
	PRO-024	SWIM-APS- 02a INF08.1	SWIM-APS- 03a INF08.1, INF08. 2	SWIM-INFR- 05a INF08.1, INF08. 2	SWIM-NET- 01a INF08.1, INF08. 2				
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective	Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan		

Applicable legislation

- Regulation (EC) No 2150/2005 of 23 December 2005 on Implementation and Application of the Flexible Use of Airspace
- Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

ICAO GANP ? ASBUs

ACAS-B1/1	ACAS Improvements
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AOM19.3	Full Rolling ASM/ATFCM Process and ASM Information Sharing
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Deployment Programme

3.1.3	Full rolling ASM/ATFCM process and ASM information sharing
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route	
Network	
Terminal Airspace	

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOM19.3-ASP01	Adapt ASM systems to support a full rolling ASM/ATFCM process	01/01/2014	01/01/2022
AOM19.3-ASP02	Implement procedures and processes for a full rolling ASM/ATFCM process	01/01/2014	01/01/2022
AOM19.3-USE01	Adapt airspace users systems to improve ASM notification process	01/01/2014	01/01/2022
AOM19.3-USE02	Implement procedures in support of an improved ASM notification process	01/01/2014	01/01/2022
AOM19.3-NM01	Adapt NM systems to support a full rolling ASM/ATFCM process	01/01/2014	01/01/2022
AOM19.3-NM02	Implement procedures and processes for a full rolling ASM/ATFCM process	01/01/2014	01/01/2022
AOM19.3-NM03	Improve ASM notification process	01/01/2014	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved through better co-ordination of civil and military airspace needs at the European Network level. Potential gains through more efficient airspace allocation and better knowledge of traffic environment, common situational awareness, and some enhancement through reduction in controller workload.
Capacity:	Increased through better utilization of airspace resources within and across airspace boundaries leading to reduction of flight delays.
Operational Efficiency:	Increased through the availability of more optimum routes/trajectories allowing lower fuel burn.
Cost Efficiency:	-
Environment:	Emissions reduced through the use of more optimum routes/trajectories.
Security:	-

Detailed SLoA Descriptions

AOM19.3-ASP01	Adapt ASM systems to support a full rolling ASM/ATFCM process	From: 01/01/2014	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Implement the following actions supporting a full rolling ASM/ATFM process: - System improvements related to new AUP template; - System changes for a full management of airspace structure via AUP/UUP; - System changes for initial CDM.		

AOM19.3	Full Rolling ASM/ATFCM Process and ASM Information Sharing
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Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - LARA (Local and sub-Regional Airspace Management Support System) Url : https://www.eurocontrol.int/software/local-and-sub-regional-airspace-management-support-system</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
ATM Master Plan relationship:	[AAMS-11]-ASM support systems enhanced to exchange real-time airspace status updates
Finalisation criteria:	1 - ASM systems have been adapted.

AOM19.3-ASP02	Implement procedures and processes for a full rolling ASM/ATFCM process	From: 01/01/2014	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Develop and implement the following processes supporting a full rolling and dynamic ASM/ATFCM process: - Process for a full management of airspace structure via AUP/UUP; - Process for initial CDM.		
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>		
ATM Master Plan relationship:	[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP [PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange		
Finalisation criteria:	1 - Processes have been implemented		

AOM19.3-USE01	Adapt airspace users systems to improve ASM notification process	From: 01/01/2014	By: 01/01/2022
Action by:	Airspace Users		

AOM19.3	Full Rolling ASM/ATFCM Process and ASM Information Sharing
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Description & purpose:	Implement the following actions at airspace users' operations centers to enable an improved ASM notification process: - System changes for full management of AUP/UUP airspace structure via B2B service.
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
Finalisation criteria:	1 - Systems have been adapted to enable an improved ASM notification process.

AOM19.3-USE02	Implement procedures in support of an improved ASM notification process	From:	By:
		01/01/2014	01/01/2022

Action by:	Airspace Users
Description & purpose:	Develop and implement procedures in support of an improved ASM notification process.
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
Finalisation criteria:	1 - Procedures in support of an improved ASM notification process have been implemented.

AOM19.3-NM01	Adapt NM systems to support a full rolling ASM/ATFCM process	From:	By:
		01/01/2014	01/01/2022

Action by:	NM
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AOM19.3	Full Rolling ASM/ATFCM Process and ASM Information Sharing
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Description & purpose:	<p>The following system upgrades supporting a full rolling ASM/ATFCM process to be performed by the Network Manager:</p> <ul style="list-style-type: none"> - System upgrade supporting a full rolling ASM/ATFCM and dynamic ASM/ATFCM process; - System changes supporting rolling AUP; - Full implementation of new AUP template; - Rolling UUP for Procedure 3 (ad-hoc allocation - Procedure 3 as defined in the ERNIP Part 3 - ASM Handbook); - System changes for initial implementation of FUA/EU restriction and FPL Buffer Zone (FBZ): - System changes for initial CDM; - System changes relevant to CDM for FRA (Free Route Airspace) impact assessment on network; - Systems adapted to continuously exchange ASM information; - Improve NM system allowing interoperability with stakeholders systems via B2B.
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
ATM Master Plan relationship:	[NIMS-42]-NM systems enhanced to receive, process and display real-time tactical (ASM level III) airspace usage information
Finalisation criteria:	1 - NM systems have been adapted .

AOM19.3-NM02	Implement procedures and processes for a full rolling ASM/ATFCM process	From: 01/01/2014	By: 01/01/2022
Action by:	NM		
Description & purpose:	<p>The following processes to be developed and implemented by the Network Manager in coordination with the concerned stakeholders:</p> <ul style="list-style-type: none"> - Process supporting a full rolling ASM/ATFCM and dynamic ASM/ATFCM process; - Process for initial implementation of FUA/EU restriction and FPL Buffer Zone (FBZ) in NM system and interoperability with local/sub-regional ASM support systems; - Process for a full management of airspace structure AUP/UUP; - Process for initial CDM; - Process relevant to CDM for FRA impact assessment on network. 		

AOM19.3	Full Rolling ASM/ATFCM Process and ASM Information Sharing
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Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
ATM Master Plan relationship:	<p>[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP</p> <p>[PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange</p> <p>[PRO-184]-ASM Procedures related to Dynamic co-operative management of the airspace</p>
Finalisation criteria:	1 - Processes have been implemented by NM in coordination with concerned stakeholders.

AOM19.3-NM03	Improve ASM notification process	From: 01/01/2014	By: 01/01/2022
Action by:	NM		
Description & purpose:	<p>The following actions supporting an improved ASM notification process to be taken by the Network Manager:</p> <ul style="list-style-type: none"> - Improvements to the European AUP/UUP and updates (EAUP/EUUP) including: <ul style="list-style-type: none"> . Harmonisation of areas notifications; . Harmonise cross border CDRs (Conditional Routes) notifications. - Graphical display of AUP/UUP on NOP Portal. 		
Supporting material(s):	<p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - SPEC-179 - EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II ASM to ASM Systems Interface Requirements - 1.0 / 01/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-airspace-management-asm-support-system-requirements</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>		
Finalisation criteria:	1 - Processes have been implemented by NM.		

SESAAR		Active					ECAC+	
AOM19.4		Management of Pre-defined Airspace Configurations						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This objective encompasses the implementation of an improved ASM solutions process, the management of pre-defined airspace configurations and the process and supporting tools for an improved ASM performance analysis.

The ASM solutions process is aimed at delivering ASM options (e.g. pre-defined airspace scenarios) that can help alleviate capacity problems identified in any particular area of European airspace as well as improve flight efficiency assessing impact on capacity and ensuring synchronised availability of optimized airspace structures based on traffic demand.

Pre-defined airspace configurations are based on coordinated and validated combinations of airspace structures (e.g. conditional routes (CDRs), direct routing (DCTs), airspace reservation (ARES), such as variable profile areas/dynamic mobile areas (VPA/DMA) or other types as single ARES or combined in pre-defined airspace scenarios identified within the ASM solutions process) and ATC dynamic sectorisation, to meet airspace needs in terms of capacity and/or flight efficiency. These pre-defined airspace configurations could be applicable both in free route (FRA) and in Fix route network environments.

Airspace configurations and ATC flexible sectors configuration are already used when the flows and constraints can be predicted well in advance (e.g. weekend routes or seasonal flows of traffic). A more efficient pre-defined airspace configuration management requires supporting functionalities and procedures and well defined collaborative decision making processes at pre-tactical level involving the AMCs, NM, ATFCM, ATC and airspace users. This objective aims at implementing the functionalities, procedures and processes supporting the management of pre-defined airspace configurations.

The ASM performance analysis process to be implemented should assess the flight efficiency gains resulting from the rolling ASM/ATFCM process implementation. The capacity aspects need also to be addressed.

NOTE that there is no OI Step covering the implementation of pre-defined airspace configurations so a Change Request has been raised for the Master Plan Level 2 to address this gap.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States except: Armenia, Azerbaijan, Georgia, Luxembourg, Malta, Moldova, North Macedonia, Sweden. Plus: Israel		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2018		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

- Regulation (EC) No 2150/2005 of 23 December 2005 on Implementation and Application of the Flexible Use of Airspace
- Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

ICAO GANP ? ASBUs

FRTO-B1/4	Dynamic sectorization
NOPS-B1/6	Initial Dynamic Airspace configurations

Deployment Programme

AOM19.4	Management of Pre-defined Airspace Configurations
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3.1.4	Management of dynamic airspace configurations
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOM19.4-ASP01	Adapt ATM systems to support the management of ASM solutions and pre-defined airspace configurations.	01/01/2018	01/01/2022
AOM19.4-ASP02	Implement procedures in support of an improved ASM solution process and pre-defined airspace configurations	01/01/2018	01/01/2022
AOM19.4-NM01	Adapt NM systems to support the management of pre-defined airspace configurations	01/01/2018	01/01/2022
AOM19.4-NM02	Implement procedures in support of an improved ASM solution process and the management of pre-defined airspace configurations	01/01/2018	01/01/2022
AOM19.4-NM03	Implement tools in support of ASM performance analysis	01/01/2018	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	Increased through better utilisation of airspace resources within and across airspace boundaries leading to reduction of flight delays.
Operational Efficiency:	Increased through the availability of more optimum routes/trajectories allowing lower fuel burn.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOM19.4-ASP01	Adapt ATM systems to support the management of ASM solutions and pre-defined airspace configurations.	From: 01/01/2018	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Adapt ATM systems including: - system changes for ASM solutions - system changes for predefined airspace configurations; - sharing of the ASM solutions, pre-defined airspace configuration inputs and outputs via B2B services.		
Supporting material(s):	EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3		

AOM19.4	Management of Pre-defined Airspace Configurations
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ATM Master Plan relationship:	[ER APP ATC 15]-Flight Data Processing: support Dynamic Sectorisation and Dynamic Constraint Management.
Finalisation criteria:	1 - ATM systems have been adapted

AOM19.4-ASP02	Implement procedures in support of an improved ASM solution process and pre-defined airspace configurations	From: 01/01/2018	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Implement procedures including: - An ASM solution process; - Process changes for predefined airspace configurations.		
Supporting material(s):	EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3		
Finalisation criteria:	1 - Procedures have been implemented		

AOM19.4-NM01	Adapt NM systems to support the management of pre-defined airspace configurations	From: 01/01/2018	By: 01/01/2022
Action by:	NM		
Description & purpose:	Adapt NM systems including: - system changes for ASM solutions; - system changes for predefined airspace configurations; - sharing of the ASM solutions, pre-defined airspace configuration inputs and outputs via B2B services.		
Supporting material(s):	EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3		
Finalisation criteria:	1 - NM systems have been adapted		

AOM19.4-NM02	Implement procedures in support of an improved ASM solution process and the management of pre-defined airspace configurations	From: 01/01/2018	By: 01/01/2022
Action by:	NM		
Description & purpose:	Implement procedures including: - An improved ASM solution process; - Process changes for predefined airspace configurations including both in a free and fixed route environment.		
Supporting material(s):	EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3		
Finalisation criteria:	1 - ASM Handbook has been updated 2 - Procedures have been implemented		

AOM19.4-NM03	Implement tools in support of ASM performance analysis	From: 01/01/2018	By: 01/01/2022
Action by:	NM		
Description & purpose:	Implement tools and processes in support of ASM performance analysis in order to assess the flight efficiency gains resulting from the rolling ASM/ATFCM process implementation.		

AOM19.4	Management of Pre-defined Airspace Configurations
Supporting material(s):	<p>EUROCONTROL - SPEC-0112 - EUROCONTROL Specification for the application of the Flexible Use of Airspace (FUA) - 1.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3</p>
Finalisation criteria:	1 - ASM performance analysis is being performed and shared with concerned stakeholders.

PCP		Active					ECAC+	
AOM21.2		Free Route Airspace						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Free Route Airspace (FRA) is a specified airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) waypoints, without reference to the ATS route network, subject to airspace availability. Within this airspace, flights remain subject to air traffic control.

The FRA concept brings significant flight efficiency benefits and a choice of user preferred routes to airspace users. As a step to full trajectory based operations the FRA concept brings increased flight predictability, reduced uncertainty for the Network which in turn can lead to potential capacity increases for ATM which will also benefit the user.

The PCP IR requires the deployment of Free Route Airspace (FRA) within Member States' airspace of the ICAO EUR region at and above FL 310. The implementation is coordinated through the NM European Route Network Improvement Plan (ERNIP) and the Network Operations Plan following the Strategic Objectives and Targets set in the Network Strategic Plan and in the Network Manager Performance Plan. All European ANSPs have included in the ERNIP Part 2 - ARN Version 2014-2019 projects for full or partial implementation of Free Route Airspace selecting their implementation step. Within the PCP the implementation of FRA is closely linked to the deployment of Airspace Management procedures and advanced Flexible use of airspace (A-FUA).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each Military Authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the Military Authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to MIL Authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Azerbaijan, Belgium, Israel, Luxembourg, Netherlands		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2015		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

Ol step -	[AOM-0401]-Multiple Route Options & Airspace Organisation Scenarios								
	Enablers -	None							
Ol step -	[AOM-0402]-Further Improvements to Route Network and Airspace incl. Cross-Border Sectorisation and Further Routing Options								
	Enablers -	None							
Ol step -	[AOM-0501]-Free Routing for Flights both in cruise and vertically evolving within low to medium complexity environments								
	Enablers -	AAMS-06c AOM19.2	AAMS-09a AOM19.1	AAMS-11 AOM19.2, AOM19.3	AAMS-16a	AOC-ATM-10	ER APP ATC 129 ATC12.1	ER APP ATC 75	ER APP ATC 77 AOM19.2
		ER ATC 91 ATC12.1	NIMS-21a FCM06, FCM07	NIMS-29	NIMS-42 AOM19.2, AOM19.3	PRO-085	STD-033	STD-061	STD-062
		STD-063	STD-064	SWIM-APS- 01a INF08.1	SWIM-APS- 02a INF08.1	SWIM-APS- 03a INF08.1, INF08. 2	SWIM-APS- 04a INF08.1		
Ol step -	[AOM-0505]-Free Routing for Flights both in cruise and vertically evolving within high and very high complexity environments in Upper En Route airspace								
	Enablers -	ER APP ATC 129 ATC12.1	ER APP ATC 78	ER ATC 91 ATC12.1	NIMS-37 FCM06				
Ol step -	[CM-0102-A]-Dynamic Sectorisation based on complexity								
	Enablers -	CTE-C05a COM11.1, COM11.2	CTE-C05b COM11.1, COM11.2	ER APP ATC 15					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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AOM21.2	Free Route Airspace
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Applicable legislation

- Regulation (EU) No 677/2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EU) No 691/2010
 - Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

ICAO GANP ? ASBUs

FRT0-B1/1	Free Route Airspace (FRA)
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Deployment Programme

3.2.1	Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)
3.2.4	Implement Free Route Airspace

European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOM21.2-ASP01	Implement procedures and processes in support of the network dimension	01/01/2015	01/01/2022
AOM21.2-ASP02	Implement system improvements	01/01/2015	01/01/2022
AOM21.2-ASP03	Implement dynamic sectorisation	01/01/2015	01/01/2022
AOM21.2-ASP04	Implement procedures and processes in support of the local dimension	01/01/2015	01/01/2022
AOM21.2-ASP05	Implement transversal activities in support to operational deployment of FRA (validation, safety case and training)	01/01/2015	01/01/2022
AOM21.2-USE01	Implement system improvements	01/01/2015	01/01/2022
AOM21.2-USE02	Implement procedures and processes	01/01/2015	01/01/2022
AOM21.2-USE03	Train aircrews and operational staff for FRA operations	01/01/2015	01/01/2022
AOM21.2-NM01	Implement system improvements	01/01/2015	01/01/2022
AOM21.2-NM02	Implement procedures and processes	01/01/2015	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Although the main benefits are expected in the area of environment the FRA implementation has the ambition to at least maintain the current level of safety.
Capacity:	Increased through better airspace utilisation to and reduced controller workload.
Operational Efficiency:	Savings in route distances and fuel efficiency through increased use of preferred flight profiles.
Cost Efficiency:	-
Environment:	Reductions in emissions through use of optimal routes.
Security:	N/A

AOM21.2	Free Route Airspace
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Detailed SLoA Descriptions

AOM21.2-ASP01	Implement procedures and processes in support of the network dimension	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Take the following actions: -Identify the FRA airspace volume (Lateral and Vertical) and applicable time -Identify FRA entry and exit points, arrival transition point and departure transition point, and intermediate points -Adapt Airspace design and ensure FRA horizontal and vertical connectivity -Validate airspace design with NM -Network overview - connectivity consistency of FRA cross-border application -ATFCM FRA procedures -Adapt RAD applicability -Validate RAD with NM		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
ATM Master Plan relationship:	[PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas		
Finalisation criteria:	1 - The local FRA airspace has been identified in coordination with the Network and FAB partners and the RAD has been updated accordingly. 2 - The local ATFCM procedures have been updated in cooperation with the network to take on board the FRA impact.		

AOM21.2-ASP02	Implement system improvements	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Take the following actions: -Upgrades FDP and CWP related to: - ATC clearances beyond AoR Differentiation between different traffic type airspaces; - Calculation of 4D trajectory with Aol - Editing function for 4D trajectories - Provision/integration of FP and real time data related to the FRA traffic to the Military ATS units - COP management for FRA - Enhance Conflict Management and Controller HMI functions to support conflict detection and resolution - Tactical Controller Tool (TCT), using the tactical trajectory and managing the clearances along that trajectory		
Supporting material(s):	Note :Additional System improvement which might be required for FRA are covered by other ESSIP Objectives like ATC 12.1 (MTCD, conflict resolution support info and MONA), ITY-COTR (OLDI), ATC17 (SYSCO) and ATC02.5 (APW) Note: No supporting material defined (subject to stakeholder analysis of the local needs)		
Supporting material(s):	EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd EUROCONTROL - SPEC-142 - EUROCONTROL Specification for Monitoring Aids - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-monitoring-aids-mona EUROCONTROL - GUID-161 - EUROCONTROL Guidelines for Area Proximity Warning - Part I to III - 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-area-proximity-warning		
ATM Master Plan relationship:	[AAMS-16a]-Airspace management functions equipped with tools able to deal with free-routing [ER APP ATC 78]-Update FDP to support 4D trajectory direct segments in free routing airspace beyond local AoR		
Finalisation criteria:	1 - The ANSP system has been updated according to the specifications representing the identified necessary changes		

AOM21.2-ASP03	Implement dynamic sectorisation	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Upgrade FDP and CWP and implement procedures in relation to: - Dynamic sectorisation by an application of pre-defined elementary volumes or dynamically shaped sector boundaries.		
	Note :This SLoA has been split from ASP02 with the purpose of being able to track the implementation of SESAR Solution #66		

AOM21.2	Free Route Airspace
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Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1
ATM Master Plan relationship:	[ER APP ATC 15]-Flight Data Processing: support Dynamic Sectorisation and Dynamic Constraint Management.
Finalisation criteria:	1 - ATM systems upgraded to support dynamic sectorisation 2 - ATFM, ASM and ATC procedures updated in relation to dynamic sectorisation

AOM21.2-ASP04	Implement procedures and processes in support of the local dimension	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Take the following actions: -Adapt the LoA with adjacent ATS units -Publish relevant data for FRA in AIP -Charts for FRA operations -Airspace management procedure for the implementation of free routes operation -ASM Procedures for identifying and promulgating 'Free Route' areas -ATC procedures to cover free route co-ordination and transfer of control, trajectory change in a free route environment, conflict detection -Validate airspace design, RAD and ASM procedures with NM.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
ATM Master Plan relationship:	[PRO-085]-ATC procedures to cover issues such as hand-off, transfer of control, and for defining trajectory changes necessitated by changes in airspace availability, weather constraints and other non-nominal events [PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas		
Finalisation criteria:	1 - The FRA airspace has been described and published in the AIP and the charts. 2 - The Letters of Agreement have been updated if necessary. 3 - The ASM and ATC procedures have been updated to take on board the FRA impact.		

AOM21.2-ASP05	Implement transversal activities in support to operational deployment of FRA (validation, safety case and training)	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Take the following actions: -Validate FRA concept (airspace organisation, ATC/ATFCM and ASM procedures, airspace restrictions) -Train ATCOs on the application of FRA -Develop FRA Safety Argument.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
Finalisation criteria:	1 - FRA concept has been validated, safety argument has been developed and delivered to the Regulator/NSA/Competent Authority, as appropriate, depending on the severity of the identified risks or the introduction of new aviation standards. 2 - ATCO training has been conducted.		

AOM21.2-USE01	Implement system improvements	From: 01/01/2015	By: 01/01/2022
Action by:	Airspace Users		
Description & purpose:	Adapt as necessary the flight Planning system to support free routing. Note :No supporting material identified (subject to stakeholder analysis of the local needs)		
ATM Master Plan relationship:	[AOC-ATM-10]-Modification of AOC/WOC-ATM trajectory management system (or new systems) to allow quality of service requested by NOP for pre-flight trajectory with dynamic routing		
Finalisation criteria:	1 - Flight Planning system has been amended if necessary.		

AOM21.2-USE02	Implement procedures and processes	From: 01/01/2015	By: 01/01/2022
Action by:	Airspace Users		
Description & purpose:	Take the following actions: - Develop and apply operational Procedures for free route - Develop and apply operational Procedures to take into account airspace and traffic constraints when selecting a route.		

AOM21.2	Free Route Airspace		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
ATM Master Plan relationship:			
Finalisation criteria:	1 - Procedures have been updated to take into account Free Route Airspace.		
AOM21.2-USE03	Train aircrews and operational staff for FRA operations	From: 01/01/2015	By: 01/01/2022
Action by:	Airspace Users		
Description & purpose:	Develop and apply training packages for pilots and personnel involved in flight planning, on the basis of procedures developed as described in SLoA AOM21-USE02.		
Finalisation criteria:	1 - Pilots and Flight Planners have been trained to Free Route operations.		
AOM21.2-NM01	Implement system improvements	From: 01/01/2015	By: 01/01/2022
Action by:	NM		
Description & purpose:	-Adaptations (tuning) of NM systems -New AUP/UUP template		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
ATM Master Plan relationship:	[AAMS-16a]-Airspace management functions equipped with tools able to deal with free-routing [NIMS-29]-Network DCB sub-system enhanced for Network Operations Plan (NOP) preparation and dissemination		
Finalisation criteria:	1 - The required adaptations of NM systems (IFPS and Airspace Management tools) to FRA have been deployed		
AOM21.2-NM02	Implement procedures and processes	From: 01/01/2015	By: 01/01/2022
Action by:	NM		
Description & purpose:	Take the following actions in coordination with ANSPs: -Identify the FRA airspace volume (Lateral and Vertical) and applicable time -Identify FRA entry and exit points, arrival transition point and departure transition point, and intermediate points -Adapt Airspace design and ensure FRA horizontal and vertical connectivity -Network overview-connectivity consistency of FRA cross-border application -ATFCM FRA procedures -Adapt RAD applicability -Validate airspace design, RAD and ASM procedures with ANSPs.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1 EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 2 - European ATS Route Network - Version 2019-2024 - June 2019 / 07/2019 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-2 EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3		
ATM Master Plan relationship:	[PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas		
Finalisation criteria:	1 - European Airspace has been updated with the integration of the coordinated FRA definition. 2 - Route Availability Document has been updated accordingly.		

SESA	Active					APT	
AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)						
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

Implement A-SMGCS Surveillance service (former Level 1) which consists of an airport surface surveillance system that provides the Controller with the position and automatic identity of:

- All suitably equipped aircraft on the movement area;
- All suitably equipped vehicles on the manoeuvring area.

A-SMGCS Surveillance data may be used to replace visual observation as required, in accordance with ICAO EUR Doc 7030, chapter 6.5.6 (approved March 2009), and as the basis of controller decision making. Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic on the basis of A-SMGCS Surveillance data.

Apron management units, airlines and other interested parties may also benefit from the provision of A-SMGCS Surveillance data.

A-SMGCS Surveillance is a prerequisite for A-SMGCS Runway Monitoring and Conflict Alerting (RMCA former Level 2) as the first element of A-SMGCS Airport Safety Support service.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability-Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2007		Applicability-Area
Full operational capability		01/01/2021	Applicability-Area

References

European ATM Master Plan

OI step -	[AO-0201]-Ground Controller Situational Awareness in all Weather Conditions					
Enablers -	AERODROME -ATC-04	AERODROME -ATC-28	AERODROME -ATC-36	PRO-201a		
OI step -	[AO-0201-A]-Enhanced Ground Controller Situational Awareness in all Weather Conditions with ADS-B					
Enablers -	A/C-48a	AERODROME -ATC-57	AERODROME -ATC-59			
OI step -	- No OI Link -					
Enablers -	CTE-S02b	CTE-S03b	CTE-S04b			
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

- none -

ICAO GANP ? ASBUs

SURF-B0/2	Comprehensive situational awareness of surface operations
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Deployment Programme

2.2.1	A-SMGCS Level 1 and 2
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European Plan for Aviation Safety

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
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MST.029	Implementation of SESAR Runway safety solutions
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Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP04.1-REG01	Mandate the carriage of required aircraft equipment to enable location and identification of aircraft on the movement area (including military aircraft, as appropriate)	01/01/2007	31/12/2010
AOP04.1-REG02	Mandate the carriage of required vehicle equipment to enable location and identification of vehicles on the manoeuvring area	01/01/2007	31/12/2010
AOP04.1-REG03	Publish A-SMGCS Surveillance procedures (including transponder operating procedures) in national aeronautical information publications	01/01/2007	31/12/2010
AOP04.1-REG04	Approve A-SMGCS Surveillance implementations for operation	DELETED	
AOP04.1-ASP01	Install required surveillance equipment	01/01/2007	01/01/2021
AOP04.1-ASP02	Train aerodrome control staff in the use of A-SMGCS Surveillance in the provision of aerodrome control service	01/01/2007	01/01/2021
AOP04.1-ASP03	Implement approved A-SMGCS operational procedures at airports equipped with A-SMGCS	01/01/2007	01/01/2021
AOP04.1-APO01	Install required surveillance equipment	01/01/2007	01/01/2021
AOP04.1-APO02	Equip Ground Vehicles	01/01/2007	01/01/2021
AOP04.1-APO03	Train ground vehicle drivers	01/01/2007	01/01/2021
AOP04.1-USE01	Update aircrew training manual to include procedures for use of correct Mode-S transponder setting for enabling cooperative A-SMGCS detection on the movement area	FINALISED	
AOP04.1-INT01	Coordinate amendments to the related ICAO documentation to include A-SMGCS Level 1 procedures	FINALISED	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Through improved situational awareness of the controller, especially during periods of reduced visibility and darkness.
Capacity:	Traffic throughput notably increased in low visibility conditions.
Operational Efficiency:	More efficient control of surface traffic.
Cost Efficiency:	-
Environment:	Reduction in fuel burn and emissions.
Security:	-

Detailed SLoA Descriptions

AOP04.1-REG01	Mandate the carriage of required aircraft equipment to enable location and identification of aircraft on the movement area (including military aircraft, as appropriate)	From:	By:
		01/01/2007	31/12/2010
Action by:	State Authorities		
Description & purpose:	Mandate the equipage of aircraft operating into airports equipped with A-SMGCS Surveillance with the necessary systems to provide their position and identity to the A-SMGCS Surveillance system.		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
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Supporting material(s):	<p>ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>EUROCAE - ED-87C - Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) - Levels 1 and 2 - January 2015 01/2015 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCAE - ED-117 - Minimum Operational Performance Specification for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) 11/2003 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=37166</p>
Finalisation criteria:	<p>1 - Mandate to equip the aircraft operating into the airports equipped for A-SMGCS Surveillance with necessary systems to provide position and identity to A-SMGCS Surveillance system has been issued by the regulator. 2 - Airworthiness certificate has been issued by the regulator for aircraft equipped with A-SMGCS Surveillance capabilities. 3 - Transponder operating procedure published in AIP.</p>

AOP04.1-REG02	Mandate the carriage of required vehicle equipment to enable location and identification of vehicles on the manoeuvring area	From: 01/01/2007	By: 31/12/2010
Action by:	State Authorities		
Description & purpose:	Mandate the equipage of vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Surveillance with the necessary systems to provide their position and identity to the A-SMGCS Surveillance system.		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
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Supporting material(s):	<p>ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>EUROCAE - ED-87C - Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) - Levels 1 and 2 - January 2015 01/2015 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCAE - ED-117 - Minimum Operational Performance Specification for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) 11/2003 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>ICAO - Doc 9774 - Manual on Certification of Aerodromes - Edition 1 / 12/2001 Url : https://store.icao.int/</p> <p>ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=37166</p>
Finalisation criteria:	<p>1 - Mandate to equip the vehicles operating on the manoeuvring area of the airports equipped with A-SMGCS Surveillance with necessary systems to provide position and identity to A-SMGCS surveillance system has been issued by the regulator.</p> <p>2 - Operating certificate has been issued by the regulator for the vehicles equipped with A-SMGCS Surveillance capabilities.</p>

AOP04.1-REG03	Publish A-SMGCS Surveillance procedures (including transponder operating procedures) in national aeronautical information publications	From:	By:
		01/01/2007	31/12/2010
Action by:	State Authorities		
Description & purpose:	Incorporate the agreed and validated A-SMGCS Surveillance operating procedures into national aeronautical information publications.		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
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Supporting material(s):	<p>ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>EUROCAE - ED-87C - Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) - Levels 1 and 2 - January 2015 01/2015 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCAE - ED-117 - Minimum Operational Performance Specification for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) 11/2003 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>ICAO - Doc 9774 - Manual on Certification of Aerodromes - Edition 1 / 12/2001 Url : https://store.icao.int/</p> <p>ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=37166</p>
Finalisation criteria:	<p>1 - Agreed and validated procedures have been incorporated into national aeronautical information publication (AIP). 2 - Transponder operating procedure published in AIP.</p>

AOP04.1-ASP01	Install required surveillance equipment	From:	By:
		01/01/2007	01/01/2021
Action by:	ANS Providers		
Description & purpose:	Install all the surveillance equipment and related systems as specified in the specifications for A-SMGCS Surveillance, in order to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area (in co-operation with Airport operators, as appropriate). Such equipment must include both non-cooperative sensors (e.g. SMR) and co-operative sensors (e.g. Mode S Multilateration, ADS-B).		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
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Supporting material(s):	<p>ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>EUROCAE - ED-87C - Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) - Levels 1 and 2 - January 2015 01/2015 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCAE - ED-117 - Minimum Operational Performance Specification for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) 11/2003 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=37166</p>
ATM Master Plan relationship:	<p>[AERODROME-ATC-04]-ANSP Civil ATS Aerodrome service providers (incl. Civil AMS Apron Management Service)</p> <p>[AERODROME-ATC-28]-Surface movement control workstation equipped with initial tools for Aerodrome Control Service</p> <p>[AERODROME-ATC-36]-Airport surveillance data processing and distribution upgraded to store and forward flight plan data</p> <p>[AERODROME-ATC-59]-Enhanced Surveillance data processing on Airport Surface (APT)</p> <p>[CTE-S02b]-Surface Movement Radar</p> <p>[CTE-S03b]-ADS-B station for RAD and APT surveillance</p> <p>[CTE-S04b]-Airport Multilateration (MLAT)</p>
Finalisation criteria:	1 - Surveillance equipment that meets required performance specifications have been installed.

AOP04.1-ASP02	Train aerodrome control staff in the use of A-SMGCS Surveillance in the provision of aerodrome control service	From: 01/01/2007	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Train aerodrome controllers in the use of A-SMGCS Surveillance tools and procedures (including phraseology) in accordance with agreed training requirements.		
Supporting material(s):	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>EUROCONTROL - ATCO Rating Training - Training Plans: Aerodrome Training - Annex B: Detailed Training Plans - Edition 1.0 / 03/2004 Url : https://trainingzone.eurocontrol.int</p>		
Finalisation criteria:	1 - Controllers' training has been completed in accordance with agreed training requirements and programme.		

AOP04.1-ASP03	Implement approved A-SMGCS operational procedures at	From:	By:
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AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
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	airports equipped with A-SMGCS	01/01/2007	01/01/2021
Action by:	ANS Providers		
Description & purpose:	Develop and apply agreed and validated A-SMGCS Surveillance procedures as an integral part of the aerodrome control service.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
ATM Master Plan relationship:	[PRO-201a]-Procedures linked to Improvement of Surveillance on the Manoeuvring Area on and around the Runway		
Finalisation criteria:	1 - Implementation of the procedures at airports equipped with A-SMGCS Surveillance has been completed. 2 - Harmonised application of transponder operating procedures consistent with the equipment in use.		

AOP04.1-APO01	Install required surveillance equipment	From: 01/01/2007	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Install all the surveillance equipment and related systems as specified in the functional specifications for A-SMGCS, in order to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area (in co-operation with ANS provider, as appropriate). Such equipment must include both non-cooperative sensors (e.g. SMR) and co-operative sensors (e.g. Mode S Multilateration, ADS-B).		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=37166 EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php EUROCAE - ED-117 - Minimum Operational Performance Specification for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) 11/2003 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-87C - Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) - Levels 1 and 2 - January 2015 01/2015 Url : https://eshop.eurocae.net/eurocae-documents-and-reports ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx		
ATM Master Plan relationship:	[AERODROME-ATC-04]-ANSP Civil ATS Aerodrome service providers (incl. Civil AMS Apron Management Service) [AERODROME-ATC-28]-Surface movement control workstation equipped with initial tools for Aerodrome Control Service [AERODROME-ATC-36]-Airport surveillance data processing and distribution upgraded to store and forward flight plan data [AERODROME-ATC-59]-Enhanced Surveillance data processing on Airport Surface (APT)		
Finalisation criteria:	1 - Surveillance equipment that meets agreed performance specifications has been installed.		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance (former Level 1)
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AOP04.1-APO02	Equip Ground Vehicles	From: 01/01/2007	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Ensure vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Surveillance are equipped with the necessary systems as specified in the functional specifications for A-SMGCS, to provide their position and identity to the A-SMGCS Surveillance system.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - Vehicle equipment that meets required performance specifications has been installed.		

AOP04.1-APO03	Train ground vehicle drivers	From: 01/01/2007	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Ensure drivers of vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Surveillance are trained in the operation of equipment associated with A-SMGCS Surveillance.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - Vehicle drivers have been trained and authorized.		

SESAR		Active				APT	
AOP04.2		Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)					
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

Runway Monitoring and Conflict Alerting (RMCA) (former Level 2) is the first element of the A-SMGCS 'Airport Safety Support' service. Implementation Objective AOP12 covers the other elements of the Airport Safety Support service which are the Conflicting ATC clearances (CATC) and Conformance Monitoring Alerts for Controllers (CMAC).

Implementation of a Runway Monitoring and Conflict Alerting (RMCA) functionality consists of an airport surface surveillance system (i.e. A-SMGCS Surveillance - former Level 1) complemented with a short term conflicting alerting tool that monitors movements on or near the runway and detects conflicts between an aircraft and another mobile as well as runway incursion by intruders. Appropriate alerts are visualised on the controller's HMI.

The implementation of A-SMGCS Surveillance a pre-requisite for the implementation of Runway Monitoring and Conflict Alerting.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2007		Applicability Area
Full operational capability		01/01/2021	Applicability Area

References

European ATM Master Plan

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

- none -

ICAO GANP ? ASBUs

SURF-B0/3	Initial ATCO alerting service for surface operations
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Deployment Programme

2.2.1	A-SMGCS Level 1 and 2
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European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions
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Operating Environments

- none -

AOP04.2	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)
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Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP04.2-REG01	Approve A-SMGCS RMCA implementations for operation	DELETED	
AOP04.2-ASP01	Install required A-SMGCS RMCA function equipment	01/01/2007	01/01/2021
AOP04.2-ASP02	Train aerodrome control staff in the use of A-SMGCS RMCA in the provision of an aerodrome control service	01/01/2007	01/01/2021
AOP04.2-ASP03	Implement approved A-SMGCS RMCA operational procedures	01/01/2007	01/01/2021
AOP04.2-APO01	Install required A-SMGCS RMCA function equipment	01/01/2007	01/01/2021
AOP04.2-INT01	Coordinate amendments to the related ICAO documentation to include A-SMGCS Level 2 procedures	FINALISED	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Better situational awareness and support to controller in detecting potentially hazardous conflicts on or near the runway or infringements of runway.
Capacity:	-
Operational Efficiency:	More efficient control of surface traffic.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP04.2-ASP01	Install required A-SMGCS RMCA function equipment	From: 01/01/2007	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Install A-SMGCS Runway Monitoring and Conflict Alerting system (former Level 2) in order to enable the detection of conflicts & intrusions in accordance with A-SMGCS RMCA requirements (in co-operation with Airport Operators, as appropriate). Such equipment should be provided in addition to the equipment requirements for A-SMGCS Surveillance service (former Level 1).		

AOP04.2	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)
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Supporting material(s):	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>ETSI - EN 303 213-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 2: Level 2 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.2.1 / 04/2012 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp</p> <p>ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010 Url : http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=37166</p> <p>EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCAE - ED-117 - Minimum Operational Performance Specification for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) 11/2003 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-87C - Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) - Levels 1 and 2 - January 2015 01/2015 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p>
ATM Master Plan relationship:	<p>[AERODROME-ATC-03]-Surface movement control workstation equipped with tools for runway incursion detection and alerting</p> <p>[CTE-S02b]-Surface Movement Radar</p> <p>[CTE-S03b]-ADS-B station for RAD and APT surveillance</p> <p>[CTE-S04b]-Airport Multilateration (MLAT)</p>
Finalisation criteria:	1 - Equipment that meets agreed performance requirements and specifications of A-SMGCS RMCA has been installed.

AOP04.2-ASP02	Train aerodrome control staff in the use of A-SMGCS RMCA in the provision of an aerodrome control service	From: 01/01/2007	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Train aerodrome controllers in the use of A-SMGCS RMCA systems and procedures (including phraseology) in accordance with agreed training requirements.		
Supporting material(s):	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>EUROCONTROL - ATCO Rating Training - Training Plans: Aerodrome Training - Annex B: Detailed Training Plans - Edition 1.0 / 03/2004 Url : https://trainingzone.eurocontrol.int</p>		
Finalisation criteria:	1 - Controllers training in accordance with agreed training requirements and programme has been completed.		
AOP04.2-ASP03	Implement approved A-SMGCS RMCA operational procedures	From: 01/01/2007	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Apply agreed and validated A-SMGCS RMCA procedures as an integral part of the aerodrome control service.		

AOP04.2	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (former Level 2)
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Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services
ATM Master Plan relationship:	[PRO-139]-ATC Procedures (Airport) for standardised response to runway incursion alerts [PRO-201a]-Procedures linked to Improvement of Surveillance on the Manoeuvring Area on and around the Runway
Finalisation criteria:	1 - Local procedures have been developed, implemented, approved/certified and are being used by controllers at airports equipped with A-SMGCS RMCA.

AOP04.2-APO01	Install required A-SMGCS RMCA function equipment	From: 01/01/2007	By: 01/01/2021
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Action by: Airport Operators

Description & purpose: Install A-SMGCS RMCA systems (former Level 2) in order to enable the detection of conflicts & intrusions in accordance with A-SMGCS RMCA requirements (in co-operation with ANSPs, as appropriate). Such equipment should be provided in addition to the equipment requirements for A-SMGCS Surveillance service (former Level 1).

Supporting material(s): EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018
Url : <https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services>

ETSI - EN 303 213-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 2: Level 2 including external interfaces;
Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.2.1 / 04/2012
Url : <http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp>

ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 3: Deployed cooperative sensor including its interfaces;
Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010
Url : <http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp>

ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 4: Deployed non-cooperative sensor including its interfaces;
Sub-part 1: Generic requirements for non-cooperative sensor;
Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010
Url : <http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp>

ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 4: Deployed non-cooperative sensor including its interfaces;
Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor;
Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010
Url : http://webapp.etsi.org/workprogram/Report_WorkItem.asp?WKI_ID=37166

EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004
Url : <http://boutique.eurocae.net/catalog/index.php>

EUROCAE - ED-117 - Minimum Operational Performance Specification for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) 11/2003
Url : <https://eshop.eurocae.net/eurocae-documents-and-reports>

EUROCAE - ED-87C - Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) - Levels 1 and 2 - January 2015 01/2015
Url : <https://eshop.eurocae.net/eurocae-documents-and-reports>

ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004
Url : <http://www.icao.int/publications/Pages/catalogue.aspx>

ATM Master Plan relationship: [\[CTE-S04b\]-Airport Multilateration \(MLAT\)](#)

Finalisation criteria: 1 - Equipment that meets agreed performance requirements and specifications of A-SMGCS RMCA has been installed.

SESAAR	Active						APT
AOP05	Airport Collaborative Decision Making (A-CDM)						
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

Implement Airport CDM (A-CDM) to enhance the operational efficiency of airports and improve their integration into the Air Traffic Management Network (ATMN) while maintaining or improving the safety levels. These objectives are achievable by increasing the information sharing between the local ANSP, airport operator, aircraft operators, ground handlers, the NM and other airport service providers; and improving the cooperation between these partners to enhance the predictability of events and optimise the utilisation of resources therefore increase the efficiency of the overall system. .

The Airport CDM concept is built on the following elements:

- The foundations for Airport CDM are Information Sharing and the Milestone Approach. They consist in collaborative information sharing and monitoring of the progress of a flight from the initial planning to the take off. Those two elements allow the airport partners to achieve a common situational awareness and predict the forthcoming events for each flight.
- Variable Taxi Time Calculation, Collaborative Pre-Departure Sequencing (i.e. initial DMAN) and CDM in Adverse Conditions allow the airport partners to further improve the local management of airport operations, whatever the situation at the airport.
- Once A-CDM has been implemented locally, the link with the ATMN can be strengthened through the exchange of flight update messages between the CDM airport and the NM. This last building block of the A-CDM concept facilitates the flow and capacity management, helps reduce uncertainty and increases efficiency at the network level.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2004		Applicability Area
Full operational capability		01/01/2021	Applicability Area

References

European ATM Master Plan

Ol step -	[AO-0501]-Improved Operations in Adverse Conditions through Airport Collaborative Decision Making						
Enablers -	PRO-204a	PRO-204b	PRO-204c	PRO-204d			
Ol step -	[AO-0601]-Improved Turn-Round Process through Collaborative Decision Making						
Enablers -	AIRPORT-31	CDM-01	PRO-213a	PRO-213b			
Ol step -	[AO-0602]-Collaborative Pre-departure Sequencing						
Enablers -	CDM-01	PRO-214a	PRO-214b				
Ol step -	[AO-0603]-Improved De-icing Operation through Collaborative Decision Making						
Enablers -	AIRPORT-31	CDM-01	PRO-073	PRO-075 ENV02			
Ol step -	[TS-0201]-Basic Departure Management (Pre-departure Management)						
Enablers -	AERODROME -ATC-08						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

AOP05	Airport Collaborative Decision Making (A-CDM)
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ICAO GANP ? ASBUs

ACDM-B0/2	Integration with ATM Network functio
NOPS-B0/4	Initial Airport/ATFM slots and A-CDM Network Interface
RSEQ-B0/2	Departure Management

Deployment Programme

2.1.1	Initial DMAN
2.1.3	Basic A-CDM

European Plan for Aviation Safety

- none -	
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Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP05-ASP01	Define and agree performance objectives and KPIs at local level, specific to ANSP in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-ASP02	Define and implement local Air Navigation Service (ANS) procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-ASP03	Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines	01/01/2004	01/01/2021
AOP05-ASP04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-ASP05	Define and implement variable taxi-time and predeparture sequencing procedure (i. e. initial DMAN) according to airport CDM Manual guidelines	01/06/2006	01/01/2021
AOP05-ASP06	Define and implement procedures for CDM in adverse conditions, including the de-icing according to airport CDM Manual guidelines	01/01/2012	01/01/2021
AOP05-APO01	Define and agree performance objectives and KPIs at local level specific to airport operations in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-APO02	Define and implement local airport operations procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-APO03	Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines (baseline CDM)	01/01/2004	01/01/2021
AOP05-APO04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-APO05	Define and implement the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and the airport in accordance with A-CDM Manual guidelines	01/03/2005	01/01/2021
AOP05-APO06	Define and implement procedures for CDM in adverse conditions including the de-icing according to airport CDM Manual guidelines	01/06/2006	01/01/2021
AOP05-USE01	Define and agree performance objectives and KPIs at local level, specific to aircraft operators, in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-USE02	Define and implement local aircraft operators procedures for information sharing through LoAs and/or MoU in accordance with A-CDM manual guidelines	01/01/2004	01/01/2021

AOP05	Airport Collaborative Decision Making (A-CDM)		
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AOP05-USE03	Define and implement local procedures for turnaround processes in accordance with A-CDM manual guidelines	01/01/2004	01/01/2021
AOP05-USE04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-USE05	Define and implement procedures for CDM in adverse conditions including the de-icing according to A-CDM Manual guidelines	01/01/2012	01/01/2021
AOP05-NM01	Update NM systems and define procedures to support the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and airports in accordance with A-CDM Manual guidelines	FINALISED	

Description of finalised and deleted SLOAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	Improved through optimal use of facilities and services, better use of airport and ATFM slots.
Operational Efficiency:	Improved system efficiency and predictability. Significant decrease in fuel burn through better timed operations.
Cost Efficiency:	Increased airport revenue through additional flights and passengers.
Environment:	Reduced noise and emissions due to limiting engine ground running time due to better timed operations.
Security:	N/A

Detailed SLOA Descriptions

AOP05-ASP01	Define and agree performance objectives and KPIs at local level, specific to ANSP in accordance with A-CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Agree and define specific performance objectives and KPIs through a local A-CDM committee, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf		
Finalisation criteria:	1 - List of performance objectives and KPIs has been agreed.		

AOP05-ASP02	Define and implement local Air Navigation Service (ANS) procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Agree, define and implement local procedures for information sharing and information management systems based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		

AOP05	Airport Collaborative Decision Making (A-CDM)
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Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>
ATM Master Plan relationship:	[AIRPORT-31]-Airport CDM (levels 1, 2 & 3)
Finalisation criteria:	1 - Agreed LoA or MoU between the Airport CDM Partners has been signed.

AOP05-ASP03	Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Define and implement local procedures for turnaround processes (milestone approach) based on A-CDM Implementation Manual and through LoAs.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
ATM Master Plan relationship:	[PRO-213a]-CDM information sharing Airport Procedures for turn-around		
Finalisation criteria:	1 - Agreed LoA or MoU between the A-CDM Partners has been signed.		

AOP05-ASP04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Measure performance (KPIs) according to agreed success criteria, and quantify the benefits at local airport after implementation and through a local A-CDM committee.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
Finalisation criteria:	1 - Results/benefits at airport have been published.		

AOP05	Airport Collaborative Decision Making (A-CDM)		
AOP05-ASP05	Define and implement variable taxi-time and predeparture sequencing procedure (i.e. initial DMAN) according to airport CDM Manual guidelines	From: 01/06/2006	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Agree, define and implement local procedures for pre-departure sequencing taking into account preferences based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
	Note : The pre-departure sequencing procedures based on the A-CDM Implementation Manual cover the requirements of Family 2.1.1-Initial DMAN as described in the Deployment Programme 2016.		
Supporting material(s):	ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems [PRO-214a]-Airport CDM Procedures for pre-departure sequencing		
Finalisation criteria:	1 - Procedure has been published in the AIP.		
AOP05-ASP06	Define and implement procedures for CDM in adverse conditions, including the de-icing according to airport CDM Manual guidelines	From: 01/01/2012	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Agree, define and implement local CDM procedures to manage adverse conditions based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[PRO-073]-Airport Procedures to maximise throughput of de-icing stands [PRO-204b]-Collaborative Procedures (ATC) for improving Airport Operations in Adverse Conditions		
Finalisation criteria:	1 - LoA or MoU between the Airport CDM Partners has been agreed. 2 - CDM procedures for the management of adverse conditions, including de-icing, have been established.		
AOP05-APO01	Define and agree performance objectives and KPIs at local level specific to airport operations in accordance with A-CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Agree and define specific performance objectives and KPIs through a local A-CDM committee, in co-operation with other stakeholders involved.		

AOP05	Airport Collaborative Decision Making (A-CDM)
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Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>
Finalisation criteria:	1 - List of performance objectives and KPIs has been agreed.

AOP05-APO02	Define and implement local airport operations procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Agree, define and implement local procedures for information sharing and information management systems based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
ATM Master Plan relationship:	[AIRPORT-31]-Airport CDM (levels 1, 2 & 3)		
Finalisation criteria:	1 - LoA or MoU between the A-CDM Partners has been agreed. 2 - Information sharing has been implemented.		

AOP05-APO03	Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines (baseline CDM)	From: 01/01/2004	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Define and implement local procedures for turnaround processes (milestone approach) based on A-CDM Implementation Manual and through LoAs.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
ATM Master Plan relationship:	[PRO-213a]-CDM information sharing Airport Procedures for turn-around		
Finalisation criteria:	1 - LoA or MoU between the A-CDM Partners has been agreed.		

AOP05	Airport Collaborative Decision Making (A-CDM)
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AOP05-APO04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Measure performance (KPIs) according to agreed success criteria, and quantify the benefits at local airport after implementation and through a local A-CDM committee.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01_01_01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
Finalisation criteria:	1 - Results/benefits at airport have been published.		

AOP05-APO05	Define and implement the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and the airport in accordance with A-CDM Manual guidelines	From: 01/03/2005	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Agree, define and implement local procedures for exchange of messages (FUMs and DPIs) between NM and the airport based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01_01_01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
ATM Master Plan relationship:	[PRO-214a]-Airport CDM Procedures for pre-departure sequencing		
Finalisation criteria:	1 - LoA or MoU between the A-CDM Partners and the NM has been agreed. 2 - Exchange of messages has been implemented.		

AOP05-APO06	Define and implement procedures for CDM in adverse conditions including the de-icing according to airport CDM Manual guidelines	From: 01/06/2006	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Agree, define and implement local CDM procedures to manage adverse conditions based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		

AOP05	Airport Collaborative Decision Making (A-CDM)
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Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010</p> <p>Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01_01_01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>
ATM Master Plan relationship:	<p>[PRO-073]-Airport Procedures to maximise throughput of de-icing stands</p> <p>[PRO-204a]-Collaborative Procedures (Airport) for improving Airport Operations in Adverse Conditions</p>
Finalisation criteria:	<p>1 - LoA or MoU between the A-CDM partners has been agreed.</p> <p>2 - CDM procedures for the management of adverse conditions, including de-icing, have been established.</p>

AOP05-USE01	Define and agree performance objectives and KPIs at local level, specific to aircraft operators, in accordance with A-CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	Airspace Users		
Description & purpose:	Agree and define specific performance objectives and KPIs at local level, in co-operation with airport and ANSP.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010</p> <p>Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01_01_01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
Finalisation criteria:	1 - List of performance objectives and KPIs have been agreed with ANSP and AO.		

AOP05-USE02	Define and implement local aircraft operators procedures for information sharing through LoAs and/or MoU in accordance with A-CDM manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	Airspace Users		
Description & purpose:	Agree, define and implement local procedures for information sharing and information management systems based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010</p> <p>Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01_01_01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
ATM Master Plan relationship:	[AIRPORT-31]-Airport CDM (levels 1, 2 & 3)		
Finalisation criteria:	1 - LoA or MoU between the A-CDM partners has been agreed.		

AOP05	Airport Collaborative Decision Making (A-CDM)
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AOP05-USE03	Define and implement local procedures for turnaround processes in accordance with A-CDM manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	Airspace Users		
Description & purpose:	Define and implement local procedures for turnaround processes (milestone approach) based on A-CDM Implementation Manual and through LoAs.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
ATM Master Plan relationship:	[PRO-213b]-CDM information sharing Airline Procedures for turn-around		
Finalisation criteria:	1 - LoA or MoU between the A-CDM partners has been agreed.		

AOP05-USE04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	From: 01/01/2004	By: 01/01/2021
Action by:	Airspace Users		
Description & purpose:	Measure performance (KPIs) according to agreed success criteria and quantify the benefits at local airport after implementation and through a local A-CDM committee.		
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>		
Finalisation criteria:	1 - Results/benefits at airport have been published.		

AOP05-USE05	Define and implement procedures for CDM in adverse conditions including the de-icing according to A-CDM Manual guidelines	From: 01/01/2012	By: 01/01/2021
Action by:	Airspace Users		
Description & purpose:	Agree, define and implement local CDM procedures to manage adverse conditions based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		

AOP05	Airport Collaborative Decision Making (A-CDM)
Supporting material(s):	<p>ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010</p> <p>Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf</p> <p>EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member</p> <p>EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/</p> <p>EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008</p> <p>Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF</p>
ATM Master Plan relationship:	<p>[PRO-204c]-Collaborative Procedures (Airlines) for improving Airport Operations in Adverse Conditions</p>
Finalisation criteria:	<p>1 - LoA or MoU between the A-CDM partners has been agreed. 2 - CDM procedures for the management of adverse conditions, including de-icing, have been established.</p>

PCP		Active				APT	
AOP10		Time-Based Separation					
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

Time-based separation (TBS) consists in the separation of aircraft in sequence on the approach to a runway using time intervals instead of distances. It may be applied during final approach by allowing equivalent distance information to be displayed to the controller taking account of prevailing wind conditions. Radar separation minima and Wake Turbulence Separation parameters shall be integrated to provide guidance to the air traffic controller to enable time-based spacing of aircraft during final approach that considers the effect of headwind.

A TBS system that provides in real-time the separation to apply between two aircraft needs to be fed by:

- the aircraft sequence to anticipate aircraft specific speed management and to define the time separation required for a given wake category pair, and;

- the wind profile, approximately 10 minutes before landing, to define the separation on final approach.

These require respectively the development of an easily usable sequencing tool and a now casting technology based upon merging wind profile measurement and heuristic techniques.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (As in PCP Regulation for S-AF2.3)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2015		Applicability Area
Full operational capability		01/01/2024	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0303]-Time Based Separation for Final Approach - full concept						
Enablers -	AERODROME -ATC-17	APP ATC 156	REG-0514	STD-065			
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective	WXYZ-003	Objective covering the enabler	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

ICAO GANP ? ASBUs

WAKE-B2/7	Time based wake separation minima for arrival based on leader/follower static pair-wise
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Deployment Programme

2.3.1	Time Based Separation (TBS)
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European Plan for Aviation Safety

- none -

Operating Environments

AOP10	Time-Based Separation
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Airport Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP10-REG01	Publish TBS operations procedures in national aeronautical information publications	01/01/2015	01/01/2024
AOP10-ASP01	Ensure AMAN system is compatible with TBS support tool	01/01/2015	01/01/2024
AOP10-ASP02	Modify CWP to integrate TBS Support tool with safety nets	01/01/2015	01/01/2024
AOP10-ASP03	Local MET info with actual glide-slope wind conditions to be provided into TBS Support tool	01/01/2015	01/01/2024
AOP10-ASP04	TBS Support tool to provide automatic monitoring and alerting of non-conformant behaviours, infringements, wrong aircraft	01/01/2015	01/01/2024
AOP10-ASP05	Implement procedures for TBS operations	01/01/2015	01/01/2024
AOP10-ASP06	Train controllers (Tower and Approach) on TBS operations	01/01/2015	31/12/2023
AOP10-USE01	Train flight crews on TBS operations	01/01/2015	01/01/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	More consistent separation delivery on final approach.
Capacity:	Improved aircraft landing rates leading to increased airport throughput. Reduction of holding times and stack entry to touchdown times leading to reduced delays.
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	Reduced emissions due to reduced holding times and stack entry to touchdown times.
Security:	-

Detailed SLoA Descriptions

AOP10-REG01	Publish TBS operations procedures in national aeronautical information publications	From: 01/01/2015	By: 01/01/2024
Action by:	National Supervisory Authorities (NSAs)		
Description & purpose:	Publish TBS operations procedures in national aeronautical information publications		
Supporting material(s):	EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - 1.0 / 02/2018 Url : www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - TBS operations procedures are published in national aeronautical information publications.		

AOP10-ASP01	Ensure AMAN system is compatible with TBS support tool	From: 01/01/2015	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	Ensure that the flight data processing and AMAN systems are compatible with the TBS support tool for the visualisation of the final approach separation or spacing, and are able to switch between time and distance based wake turbulence radar separation rules. Switching from TBS to Distance Based Separation (DBS) is necessary to cover contingency and other locally-driven requirements. The TBS support tool and associated CWP shall also calculate headwind independent time based separation to be used by the Arrival manager between arriving aircraft and display it on controller displays to support reduced, time-based separation for aircraft on final approach.		

AOP10	Time-Based Separation
Supporting material(s):	EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - 1.0 / 02/2018 Url : www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation
ATM Master Plan relationship:	[AERODROME-ATC-17]-Airport ATC tool to Support Time-Based Separation in Final Approach [APP ATC 156]-ATC System to Support Time-Based Separation in Final Approach
Finalisation criteria:	1 - FDPS and AMAN system are compatible with the TBS support tool 2 - CWP is modified to display headwind independent time based separation 3 - TBS support tool is able to calculate headwind independent time based separation

AOP10-ASP02	Modify CWP to integrate TBS Support tool with safety nets	From: 01/01/2015	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	Modify the controller working position (CWP) to integrate the new TBS support tool with safety nets to support the air traffic controller, in order to calculate TBS distance respecting minimum radar separation using actual glide-slope wind conditions.		
Supporting material(s):	EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - 1.0 / 02/2018 Url : www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - CWP is modified to integrate the new TBS support tool with safety nets.		

AOP10-ASP03	Local MET info with actual glide-slope wind conditions to be provided into TBS Support tool	From: 01/01/2015	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	To feed local meteorological (MET) information providing actual glide slope wind conditions to the TBS support tool.		
Supporting material(s):	EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - 1.0 / 02/2018 Url : www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - Local meteorological information providing actual glide slope wind conditions is fed into the TBS support tool		

AOP10-ASP04	TBS Support tool to provide automatic monitoring and alerting of non-conformant behaviours, infringements, wrong aircraft	From: 01/01/2015	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	To ensure that the TBS support tool provides automatic monitoring and alerting on non-conformant final approach airspeed behaviour, automatic monitoring and alerting of separation infringement, automatic monitoring and alerting for the wrong aircraft being turned on to a separation indicator.		
Supporting material(s):	EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - 1.0 / 02/2018 Url : www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - TBS support tool provides automatic monitoring and alerting		

AOP10-ASP05	Implement procedures for TBS operations	From: 01/01/2015	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	Implement procedures and practices to be used by the final approach controller for TBS operations.		
Supporting material(s):	EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - 1.0 / 02/2018 Url : www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - Procedures for TBS operations are implemented operationally		

AOP10	Time-Based Separation
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AOP10-ASP06	Train controllers (Tower and Approach) on TBS operations	From: 01/01/2015	By: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Train Tower and Approach controllers on TBS operations. The final approach controller will be required to adopt procedures and practices to ensure that the variations in the distance spacing changes and time spacing changes on final approach are consistently managed.		
Supporting material(s):	EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - 1.0 / 02/2018 Url : www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - Final approach controllers are trained for TBS procedures and practices.		

AOP10-USE01	Train flight crews on TBS operations	From: 01/01/2015	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	Train flight crews on TBS operations The flight deck will be required to adopt procedures and practices to ensure that the variations in the distance spacing changes and time spacing changes on final approach are consistently managed.		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - Flight crews are trained to TBS operations		

PCP		Active					APT	
AOP11		Initial Airport Operations Plan						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The Airport element that reflects the operational status of the Airport and therefore facilitates Demand and Capacity Balancing is the Airport Operations Plan (AOP). The Airport Operations Plan connects the relevant stakeholders, notably the Airspace Users' Flight Operations Centre (FOC). It contains data and information relating to the different status of planning phases and is in the format of a rolling plan, which naturally evolves over time.

The Airport Operations Plan is a single, common and collaboratively agreed rolling plan available to all airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which stakeholder decisions relating to process optimization can be made.

Roles and responsibilities are extensively detailed in Deliverable D07 - OFA 05.01.01 Operational Service and Environment Definition - Edition: 00.03.00.

Note: The data sharing between the Airport Operations Plan and the Network Operations Plan is addressed by objective FCM05.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (PCP airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Applicability Area 2 (Non-PCP Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial Operational Capability	01/01/2015		Applicability Area 1 (PCP airports) + Applicability Area 2 (Non-PCP Airports)
Full Operational Capability		01/01/2021	Applicability Area 1 (PCP airports) + Applicability Area 2 (Non-PCP Airports)

References

European ATM Master Plan

OI step -	[AO-0801-A]-Collaborative Airport Planning Interface								
Enablers -	AIRPORT-03	AIRPORT-31 AOP05	AIRPORT-38 FCM05	AOC-ATM-13	HUM-007	PRO-028 FCM05	SWIM-APS-03a INF08.1, INF08.2	SWIM-APS-04a INF08.1	
	SWIM-INFR-05a INF08.1, INF08.2	SWIM-NET-01a INF08.1, INF08.2							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

- none -

ICAO GANP ? ASBUs

NOPS-B1/3	Enhanced integration of Airport operations planning with network operations planning
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Deployment Programme

2.1.4	Initial Airport Operations Plan (AOP)
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AOP11	Initial Airport Operations Plan
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European Plan for Aviation Safety

- none -

Operating Environments

Airport
Network

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP11-ASP01	Provide the required information to the AOP	01/01/2015	01/01/2021
AOP11-APO01	Set up and manage the Airport Operational Plan	01/01/2015	01/01/2021
AOP11-APO02	Provide the required information to the AOP	01/01/2015	01/01/2021
AOP11-APO03	Train all relevant personnel	01/01/2015	01/01/2021
AOP11-USE01	Provide the required information to the AOP	01/01/2015	01/01/2021

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	Improved through optimal use of facilities and services, better use of airport and ATFM slots.
Operational Efficiency:	Improved system efficiency and predictability. Significant decrease in fuel burn through better timed operations. Lower airspace user operating cost due to improved punctuality.
Cost Efficiency:	-
Environment:	Reduced noise and emissions due to limiting engine ground running time due to better timed operations.
Security:	-

Detailed SLoA Descriptions

AOP11-ASP01	Provide the required information to the AOP	From:	By:
		01/01/2015	01/01/2021
Action by:	ANS Providers		
Description & purpose:	Provide and maintain AOP elements (core and supporting) which are under the responsibility of the ANSP, based on the local agreements. This information may include available Airspace Capacity, other Constraining factors (e.g. adjacent airports, military training areas, etc.)		
Finalisation criteria:	1 - The AOP information under its responsibility is provided and maintained, ensuring the appropriate quality		

AOP11-APO01	Set up and manage the Airport Operational Plan	From:	By:
		01/01/2015	01/01/2021
Action by:	Airport Operators		
Description & purpose:	Set up an AOP containing the following categories of information: <ul style="list-style-type: none"> - Traffic demand - Airport capabilities - Airport operational context The information available in the AOP should be separated in two AOP content blocks to distinguish between information fields to be implemented at every airport (core information) and the set of information that can be included depending on local agreements (supporting information). The information requested in the AOP will be provided accorded to various sources. However, at each airport it must be established through local agreement which actor is the best positioned to provide each AOP content field. Those information sources can be the different airport stakeholders.		

AOP11	Initial Airport Operations Plan
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Supporting material(s):	SJU - SESAR Solution 21: Data Pack for AOP-NOP seamless integration Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-operations-plan-aop-and-its-seamless SJU - SESAR JU ID D07 - OFA 05.01.01 Operational Service and Environment Definition - 00.03.00
ATM Master Plan relationship:	[AIRPORT-03]-Airports Operation Plan (AOP) tool
Finalisation criteria:	1 - Core information elements have been implemented 2 - Local agreements have been established for the provision of AOP information 3 - The supporting information has been agreed by the concerned stakeholders 4 - All the stakeholders relevant to the AOP have been identified

AOP11-APO02	Provide the required information to the AOP	From: 01/01/2015	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Provide and maintain and AOP elements (core and supporting) which are under the responsibility of the Airport Operator, based on the local agreements. This information includes (but is not limited to): <ul style="list-style-type: none"> - Possible airport configurations - Unforeseen / Temporary aerodrome constraints - Restrictions regarding aerodrome resources. - Information sharing between airport partners - Airport usage and any restriction rule. - Operational capacity of airport resources. - Airport resources availability and allocation plan. This SLoA also covers other stakeholders active in the airport environment (e.g. Ground Handling Agents) which may feed the AOP according with the local agreements.		
Supporting material(s):	SJU - SESAR Solution 21: Data Pack for AOP-NOP seamless integration Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-operations-plan-aop-and-its-seamless SJU - SESAR JU ID D07 - OFA 05.01.01 Operational Service and Environment Definition - 00.03.00		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management.		
Finalisation criteria:	1 - According with the locally allocated roles and responsibilities, the AOP information under its responsibility is provided and maintained, ensuring the appropriate quality		

AOP11-APO03	Train all relevant personnel	From: 01/01/2015	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	All relevant personnel having roles and responsibilities with regard the AOP have to be trained in order to adequately fulfil their respective roles as agreed locally.		
Supporting material(s):	SJU - SESAR Solution 21: Data Pack for AOP-NOP seamless integration Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-operations-plan-aop-and-its-seamless SJU - SESAR JU ID D07 - OFA 05.01.01 Operational Service and Environment Definition - 00.03.00		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management.		
Finalisation criteria:	1 - The personnel has been trained		

AOP11-USE01	Provide the required information to the AOP	From: 01/01/2015	By: 01/01/2021
Action by:	Airspace Users		
Description & purpose:	The airspace users shall update the AOP with information within its sphere of responsibility, notably with regard the information relating to the planning of their Business Trajectories and about the inbound and outbound flights connected by a turn-round process.		
Supporting material(s):	SJU - SESAR Solution 21: Data Pack for AOP-NOP seamless integration Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-operations-plan-aop-and-its-seamless SJU - SESAR JU ID D07 - OFA 05.01.01 Operational Service and Environment Definition - 00.03.00		
ATM Master Plan relationship:	[AOC-ATM-13]-Participating of the FOC/ WOC in the airport triggered CDM process		
Finalisation criteria:	1 - The AOP information under its responsibility is provided and maintained, ensuring the appropriate quality		

PCP		Active					APT	
AOP12		Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC)						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Detection and alerting of conflicting ATC clearances (CATC) to mobiles (aircraft and vehicles) and non-conformance to procedures and clearances (CMAC) for traffic on the movement area. These functionalities will improve runway and airfield safety by providing early detection of hazardous situations that may potentially put the vehicles and aircraft at risk of collision.

CMAC and CATC shall be performed by the ATC system based on 'A-SMGCS Surveillance' (former A-SMGCS Level 1), the clearances, given to mobiles by the controller and known constraints such as the assigned runway, holding point, the route of the mobile and the aircraft type.

The controller shall input all clearances given to aircraft or vehicles into the ATC system using an Electronic Clearance Input (ECI) means such as the Electronic Flight Strip (EFS).

Different types of CATC shall be identified (for example Line-Up vs. Take-Off). Some may only be based on the controller input; others may in addition use other data such as 'A-SMGCS Surveillance' data.

CMAC shall alert controllers when aircraft and vehicles deviate from ATC instructions, procedures. The detection of Conflicting ATC Clearances shall aim to provide an early prediction of situations that if not corrected would end up in hazardous situations that would be detected in turn by the Runway Monitoring and Conflict Alerting (RMCA) if in operation.

RMCA (former A-SMGCS Level 2), CATC and CMAC are the three functionalities of the 'A-SMGCS Airport Safety Support' service.

RMCA (covered by Implementation Objective AOP04.2) is seen as a pre-requisite for the deployment of the complete A-SMGCS 'Airport Safety Support' Service.

Note: Safety nets have been defined for and through regulation/specifications for other environments and RWY environment partly. If the term 'Airport safety net' is not consistent with those definitions, it will however be used in this objective for consistency with PCP terminology. Actually, this objective is affecting the safety nets and controller support tools envelopes. RMCA is a RWY safety net and provides alerts on hazardous situations on the RWY regardless of whether the a/c have been cleared or not by ATC, which fits perfectly on the safety nets umbrella.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (PCP Airports) (As in PCP Regulation for S-AF2.5)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2015		Applicability Area (PCP Airports)
Full operational capability		01/01/2021	Applicability Area (PCP Airports)

References

European ATM Master Plan

OI step -	[AO-0104-A]-Airport Safety Nets for Controllers at A-SMGCS Airports						
Enablers -	AERODROME -ATC-06	AERODROME -ATC-07	AERODROME -ATC-12 AOP13	AERODROME -ATC-50 AOP13, AOP16, ATC19			
OI step -	- No OI Link -						
Enablers -	AERODROME -ATC-36						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

AOP12	Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC)
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Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

ICAO GANP ? ASBUs

SURF-B1/3	Enhanced ATCO alerting service for surface operations
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Deployment Programme

2.1.2	Electronic Flight Strips (EFS)
2.5.1	Airport Safety Nets associated with A-SMGCS Level 2

European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions
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Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP12-ASP01	Install required 'Airport Safety Nets'	01/01/2015	01/01/2021
AOP12-ASP02	Train aerodrome control staff on the functionality of 'Airport Safety Nets'	01/01/2015	01/01/2021
AOP12-ASP03	Implement digital systems such as electronic flight strips (EFS)	01/01/2015	01/01/2021
AOP12-APO01	Train all relevant staff on the functionality of 'Airport Safety Nets'	01/01/2015	01/01/2021
AOP12-USE01	Train Pilots on the functionality of 'Airport Safety Nets'	01/01/2015	01/01/2021

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved runway and airfield safety by providing early detection of hazardous situations that may potentially put the vehicles and aircraft at risk of collision. Improved situational awareness of all actors.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP12-ASP01	Install required 'Airport Safety Nets'	From:	By:
		01/01/2015	01/01/2021
Action by:	ANS Providers		
Description & purpose:	Deploy appropriate systems, constituents and associated procedures allowing the detection of conflicting ATC clearances to mobiles and detection of non-conformance to procedures or clearances for traffic on runways, taxiways and in the apron/stand/gate area. This deployment is considered as an enhancement of the 'A-SMGCS Airport Safety Support' service (former A-SMGCS level 2 - Implementation Objective AOP04.2).		

AOP12	Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC)		
Supporting material(s):	SJU - SESAR Solution 02: Data Pack for airport safety nets for controllers Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-safety-nets-controllers-conformance EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
ATM Master Plan relationship:	[AERODROME-ATC-06]-A-SMGCS incorporating the function that detects Conflicting ATC Clearances (CATC) for runway operations [AERODROME-ATC-07]-A-SMGCS incorporating the function that provides Conformance Monitoring Alerts for Controllers (CMAC) on the movement area		
Finalisation criteria:	1 - 'Airport Safety Nets' functionality has been deployed.		
AOP12-ASP02	Train aerodrome control staff on the functionality of 'Airport Safety Nets'	From: 01/01/2015	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Train aerodrome controllers on the 'Airport Safety Nets' systems and procedures (including phraseology) in accordance with agreed training requirements.		
Supporting material(s):	SJU - SESAR Solution 02: Data Pack for airport safety nets for controllers Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-safety-nets-controllers-conformance EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - Controllers training in accordance with agreed training requirements and programme has been completed.		
AOP12-ASP03	Implement digital systems such as electronic flight strips (EFS)	From: 01/01/2015	By: 01/01/2021
Action by:	ANS Providers		
Description & purpose:	Implement an electronic clearance input (ECI) means such as the electronic flight strip (EFS), allowing the air traffic controller to input all clearances given to aircraft or vehicles into the ATC system. This means, such as EFS, shall have the appropriate interfaces allowing the integration of the instructions given by the air traffic controller with other data such as flight plan, surveillance, routing, published routes and procedures.		
Supporting material(s):	EUROCONTROL - ITWP human-machine interface (HMI) description - V4.0 / 01/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/itwp-hmi-description-v4-20012017.pdf		
ATM Master Plan relationship:	[AERODROME-ATC-36]-Airport surveillance data processing and distribution upgraded to store and forward flight plan data		
Finalisation criteria:	1 - Electronic clearance input means such as EFS has been implemented, documented and in operational use.		
AOP12-APO01	Train all relevant staff on the functionality of 'Airport Safety Nets'	From: 01/01/2015	By: 01/01/2021
Action by:	Airport Operators		
Description & purpose:	Train all relevant staff (e.g. vehicle drivers) on the 'Airport Safety Nets' systems and procedures (including phraseology) in accordance with agreed training requirements.		
Supporting material(s):	SJU - SESAR Solution 02: Data Pack for airport safety nets for controllers Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-safety-nets-controllers-conformance EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - Staff training in accordance with agreed training requirements and programme has been completed.		
AOP12-USE01	Train Pilots on the functionality of 'Airport Safety Nets'	From: 01/01/2015	By: 01/01/2021
Action by:	Airspace Users		
Description & purpose:	Train pilots on the 'Airport Safety Nets' systems and procedures (including phraseology) in accordance with agreed training requirements.		
Supporting material(s):	SJU - SESAR Solution 02: Data Pack for airport safety nets for controllers Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-safety-nets-controllers-conformance		

AOP12	Improve Runway and Airfield Safety with Conflicting ATC Clearances (CATC) Detection and Conformance Monitoring Alerts for Controllers (CMAC)
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Finalisation criteria:	1 - Pilots training in accordance with agreed training requirements and programme has been completed.
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PCP		Active					APT	
AOP13		Automated Assistance to Controller for Surface Movement Planning and Routing						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The A-SMGCS Routing service provides the generation of taxi routes, with the corresponding estimated taxi time for planning considerations. Taxi routes may be modified by the controller before being assigned to aircraft and vehicles. These routes shall be available in the flight data processing system. Taxi times are continuously updated as the aircraft is operating on the airport surface.

The A-SMGCS Routing shall calculate the most operationally relevant route which permits the aircraft to go from stand to runway, from runway to stand or any other surface movement.

The controller working position shall allow the controller to manage surface route modification and creation if deemed necessary.

The flight data processing system shall be able to receive planned and cleared routes assigned to aircraft and vehicles and manage the status of the route for all concerned aircraft and vehicles.

Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic.

The A-SMGCS Routing Service should provide to external systems the estimated taxi-out time (EXOT) for aircraft as long as they are before pushback, if benefit provided compared to already existing A-CDM. External systems such as A-CDM might benefit from more accurate taxi times in order to enhance the pre-departure sequencing by providing accurate target take-off times (TTOT).

Note: For this objective, there is no requirement for the use of datalink for providing clearances to the pilot or vehicle driver (e.g. D-Taxi).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (PCP Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2016		Applicability Area (PCP Airports)
Full operational capability		01/01/2024	Applicability Area (PCP Airports)

References

European ATM Master Plan

Ol step -	[AO-0205]-Automated Assistance to Controller for Surface Movement Planning and Routing						
Enablers -	AERODROME -ATC-12	AERODROME -ATC-13	AERODROME -ATC-50	REG-0201 AOP16	REG-0513		
Ol step -	[TS-0202]-Pre-Departure Sequencing supported by Route Planning						
Enablers -	AERODROME -ATC-18	AERODROME -ATC-50	AIRPORT-36	REG-0513	STD-059		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

- none -

ICAO GANP ? ASBUs

SURF-B1/4	Routing service to support ATCO surface operations management
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AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing
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Deployment Programme

2.4.1	A-SMGCS Routing and Planning Functions
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European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions
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Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP13-REG01	Coordination and final official approval of procedures by the local regulator is required	01/01/2016	01/01/2024
AOP13-ASP01	Upgrade ATS systems to support automated assistance to air traffic controllers for surface movement planning and routing	01/01/2016	01/01/2024
AOP13-ASP02	Ensure the planning and routing function is used to optimise pre-departure sequencing	01/01/2021	01/01/2024
AOP13-ASP03	Implement operational procedures implementing automated assistance to air traffic controllers for surface movement planning and routing	01/01/2016	01/01/2024
AOP13-ASP04	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of automated assistance to air traffic controllers for surface movement planning and routing	01/01/2016	01/01/2024
AOP13-ASP05	Train all operational personnel concerned in the use of automated assistance for surface movement planning and routing	01/01/2016	01/01/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved through increased controllers' situational awareness for all ground movements.
Capacity:	Increased availability of taxiway resources and reduced total taxi time by ground movements. Improved traffic flow on the aerodrome's manoeuvring area by providing accurate taxi times to A-CDM platform for predeparture sequencing.
Operational Efficiency:	Reduced fuel consumption due to reduced taxi time and reduced number of stops while taxiing.
Cost Efficiency:	-
Environment:	Reduced environmental impact by reducing fuel consumption and then CO2 emissions.
Security:	-

Detailed SLoA Descriptions

AOP13-REG01	Coordination and final official approval of procedures by the local regulator is required	From: 01/01/2016	By: 01/01/2024
Action by:	Regulatory Authorities		
Description & purpose:	Coordinate and discuss the use of new routing & planning functions between all different stakeholders and finally receive the official approval by the local regulator. Note that in some airports, management of ground movement is performed by non ATCO airport personnel.		
Supporting material(s):	SJU - SESAR Solution 22: Data pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing		
Finalisation criteria:	1 - All routing and planning functionalities are approved by the regulator for daily operations.		
AOP13-ASP01	Upgrade ATS systems to support automated assistance to air traffic controllers for surface movement planning and routing	From: 01/01/2016	By: 01/01/2024

AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing
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Action by:	ANS Providers
Description & purpose:	<p>Upgrade ATS systems to support the capability of receiving planned and cleared surface routes assigned to aircraft and vehicles and managing the status of the routes for all concerned aircraft and vehicles.</p> <p>The A-SMGCS routing and planning function shall calculate the most operationally relevant route which permits the aircraft to go from stand to runway, from runway to stand or any other surface movement. A accurate taxi time is provided to the A-CDM platform for predeparture sequencing depending on local needs.</p> <p>The controller working position shall allow the air traffic controller to visualise surface routes, modify/create surface routes, modify any information that participate to the calculation of a route e.g. aircraft holding point for departure, arrival stand.</p> <p>The flight data processing system shall be able to receive planned and cleared routes assigned to aircraft and vehicles and manage the status of the route for all concerned aircraft and vehicles.</p>
Supporting material(s):	<p>EUROCONTROL - ITWP human-machine interface (HMI) description - V4.0 / 01/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/itwp-hmi-description-v4-20012017.pdf</p> <p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>SJU - SESAR Solution 22: Data pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</p>
ATM Master Plan relationship:	<p>[AERODROME-ATC-12]-Provision of automatically generated taxi routes for aircraft and vehicles</p> <p>[AERODROME-ATC-13]-Surface movement information processing system enhanced with storage and dissemination of surface routes</p> <p>[AERODROME-ATC-44a]-Departure sequence updated taking into account surface management information</p> <p>[AERODROME-ATC-50]- Advanced Airport Tower Controller Working Position (A-CWP)</p>
Finalisation criteria:	1 - Systems have been upgraded.

AOP13-ASP02	Ensure the planning and routing function is used to optimise pre-departure sequencing	From: 01/01/2021	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	The A-SMGCS Routing Service should provide to external systems the estimated taxi-out time (EXOT) for aircraft as long as they are before pushback, if benefit provided compared to already existing A-CDM. External systems such as A-CDM might benefit from more accurate taxi times in order to enhance the pre-departure sequencing by providing accurate target take-off times (TTOT).		
Supporting material(s):	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>SJU - SESAR Solution 53: Data Pack for Pre-Departure Sequencing Supported by Route Planning Url : https://www.sesarju.eu/sesar-solutions/pre-departure-sequencing-supported-route-planning</p>		
ATM Master Plan relationship:	[AERODROME-ATC-18]-Interfacing between DMAN and Routing module		
Finalisation criteria:	1 - Interaction of DMAN and planning and routing function is implemented.		

AOP13-ASP03	Implement operational procedures implementing automated assistance to air traffic controllers for surface movement planning and routing	From: 01/01/2016	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	Define and implement local procedures for surface movement planning and routing. Note that in some airports, management of ground movement is performed by non ATCO airport personnel.		
Supporting material(s):	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p> <p>SJU - SESAR Solution 22: Data pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</p>		
Finalisation criteria:	1 - Local procedures have been developed, implemented, approved/certified and are being used by controllers at airports equipped with planning and routing functions.		

AOP13-ASP04	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of automated assistance to air traffic controllers for surface movement planning and routing	From: 01/01/2016	By: 01/01/2024
Action by:	ANS Providers		

AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing
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Description & purpose:	<p>Develop safety assessment of the changes, notably upgrades of ATS systems to support automated assistance to air traffic controllers for surface movement planning and routing. The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. <p>This safety assessment shall be based on fully validated/recognised method.</p>
Supporting material(s):	<p>SJU - SESAR Solution 22: Data pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</p>
Finalisation criteria:	<p>1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the ANSP to the NSA.</p>

AOP13-ASP05	Train all operational personnel concerned in the use of automated assistance for surface movement planning and routing	From: 01/01/2016	By: 01/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>Train aerodrome controllers in the use of planning and routing systems and procedures (including phraseology) in accordance with agreed training requirements. Note that in some airports, management of ground movement is performed by non ATCO airport personnel.</p>		
Supporting material(s):	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 22: Data pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</p>		
Finalisation criteria:	<p>1 - Controllers training in accordance with agreed training requirements and programme has been completed.</p>		

SESAR		Active					LOC/APT	
AOP14		Remote Tower Services						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The remote tower concept enables air traffic control services (ATS) and aerodrome flight information services (AFIS) to be provided at aerodromes where such services are either currently unavailable, or where it is difficult or too expensive to implement and staff a conventional manned facility.

This Objective proposes to remotely provide ATC services and AFIS for one aerodrome handling low to medium traffic volumes or two low-density aerodromes (simultaneous by one operator), typically with traffic schedules comprising single movements, rarely exceeding two simultaneous movements per aerodrome. The basic configuration, which does not include augmentation features, is considered suitable for ATC and AFIS provision at low density airfields. However, the level and flexibility of service provision can be enhanced through the use of augmentation technology, such as an ATC surveillance display, surveillance and visual tracking, infra-red cameras etc.

This Objective also covers the possibility to apply the remote tower concept as a contingency solution in facility known as Remote Contingency Tower (RCT). This solution can be used when the local tower is not available and services need to be provided from a back-up location. The target environment for the majority of RCTs will be medium density aerodromes that are economically important.

NOTE 1: Being a Local objective, to be applied at individual States or ATC Unit level, to achieve their performance targets the objective does not have a mandatory implementation deadline. As indicative guidance, the FOC of the OI Steps on which all the three SESAR Solutions (#12; #13, #52; #71) are based are 31/12/2024 for SDM-0201 and 15/11/2023 for SDM-0205.

NOTE 2: This objective is linked to SESAR Solutions #12, #13, #71, and #52.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Low to medium complexity aerodromes, subject to local needs)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

OI step -	[SDM-0201]-Remotely Provided Air Traffic Service for Single Aerodrome						
Enablers -	AERODROME -ATC-52	AERODROME -ATC-53	CTE-S02d	REG-0509			
OI step -	[SDM-0204]-Remotely Provided Air Traffic Service for Contingency Situations at Small to Medium Aerodromes (with a Single Main Runway)						
Enablers -	AERODROME -ATC-51						
OI step -	[SDM-0205]-Remotely Provided Air Traffic Services for Two Low-density Aerodromes						
Enablers -	AERODROME -ATC-54	CTE-S02d	REG-0525				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

Virtualisation of Service Provision

AOP14	Remote Tower Services
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ICAO GANP – ASBUs

RATS-B1/1	Remotely Operated Aerodrome Air Traffic Services
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Deployment Programme

- none -	
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European Plan for Aviation Safety

RMT.0624	Remote aerodrome ATS
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Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP14-REG01	Supervise compliance with regulatory provisions		
AOP14-ASP01	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of remote tower		
AOP14-ASP02	Define and implement system improvements allowing for the implementation of remote tower		
AOP14-ASP03	Define and implement procedures and processes in support of network and local dimension imposed by the implementation of remote tower		
AOP14-ASP04	Train all operational and technical personnel concerned		
AOP14-ASP05	Implement remotely provided air traffic service for contingency situations		
AOP14-APO01	Define and implement local airport procedures and processes for the implementation of remote tower concept		
AOP14-APO02	Train all applicable personnel		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	Improve the uniformity of service provision at low to medium density and remote aerodromes and increase the availability of the service (for example allowing ATS to be provided at an aerodrome which previously was unable to financially support a service).
Cost Efficiency:	Cost reduction for ATS by optimisation of ATCOs. Remote ATS facilities will be cheaper to maintain, able to operate for longer periods and enable lower staffing costs. It will also significantly reduce the requirement to maintain tower buildings and infrastructure. Cost benefits of RCT due to customer retention and reduced economic loss during contingency events.
Environment:	-
Security:	-

AOP14	Remote Tower Services		
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Detailed SLoA Descriptions

AOP14-REG01	Supervise compliance with regulatory provisions	From:	By:
		-	-
Action by:	Regulatory Authorities		
Description & purpose:	Supervise compliance with regulatory provisions for implementation of remote tower concept. The tasks to be done cover among others: <ul style="list-style-type: none"> - Ensure that all aerodromes where remote tower concept will be implemented are certified in accordance with applicable regulations. - Ensure the safety oversight of change related to the implementation of remote tower concept. - Ensure that all concerned operational and technical personnel received appropriate ratings/endorsements for their job functions in relation to the implementation of remote tower concept. 		
Supporting material(s):	SJU - SESAR Solution 71: Data Pack for ATC and AFIS service in a single low density aerodrome from a remote CWP - Single Airport Remote Tower Url : https://www.sesarju.eu/sesar-solutions/atc-and-afis-service-single-low-density-aerodrome-remote-cwp SJU - SESAR Solution 52: Data Pack for Remote Tower for two low density aerodromes Url : https://www.sesarju.eu/sesar-solutions/remote-tower-two-low-density-aerodromes EASA - ED Decision 2015/014/R - ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r EASA - Guidance Material on the implementation of the remote tower concept for single mode of operation - Issue 1 Url : http://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202015-014-R.pdf EASA - ED Decision 2015/015/R - ED Decision 2015/015/R - Requirements on Air Traffic Controller licensing regarding remote tower operations and Annexes Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015015r SJU - SESAR Solution 12: Data Pack for Single Remote Tower operations for medium traffic volumes Url : https://www.sesarju.eu/sesar-solutions/single-remote-tower-operations-medium-traffic-volumes		
ATM Master Plan relationship:	[REG-0509]-Regulatory Provisions for the harmonised deployment of Remote Towers Operations (for a single aerodrome) [REG-0525]-Regulatory provisions for the harmonised deployment of Remote Towers Operations (for two aerodromes)		
Finalisation criteria:	1 - The regulatory authorities have evidence of the status of compliance with regulatory provisions for aerodromes where remote tower concept is implemented.		
AOP14-ASP01	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of remote tower	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the change to functional system imposed by the introduction of the remote tower concept (including Remote Contingency Tower, where applicable). The tasks to be done are as follows: <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method. 		
Supporting material(s):	SJU - SESAR Solution 71: Data Pack for ATC and AFIS service in a single low density aerodrome from a remote CWP - Single Airport Remote Tower Url : https://www.sesarju.eu/sesar-solutions/atc-and-afis-service-single-low-density-aerodrome-remote-cwp EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN SJU - SESAR Solution 52: Data Pack for Remote Tower for two low density aerodromes Url : https://www.sesarju.eu/sesar-solutions/remote-tower-two-low-density-aerodromes EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EASA - ED Decision 2015/014/R - ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r EASA - Guidance Material on the implementation of the remote tower concept for single mode of operation - Issue 1 Url : http://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202015-014-R.pdf SJU - SESAR Solution 12: Data Pack for Single Remote Tower operations for medium traffic volumes Url : https://www.sesarju.eu/sesar-solutions/single-remote-tower-operations-medium-traffic-volumes		
Finalisation criteria:	1 - The safety argument has been delivered to the NSA, for all changes generated by the implementation of remote tower concept.		

AOP14	Remote Tower Services
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AOP14-ASP02	Define and implement system improvements allowing for the implementation of remote tower	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	<p>A number of system improvements should be implemented in order to display to ATCO/AFISO in the Remote Tower Centre an "out of the window like" (OTW) image of the airport and its vicinity and to increase ATCO/AFISO situational awareness. In addition, all the tools and facilities available to a tower controller will also need to be remotely controlled, including, inter alia, ground-ground and ground-air communications, traffic light controls and aerodrome lighting controls. A mix of basic and advanced technical features should be considered including:</p> <ul style="list-style-type: none"> - Basic features: <ul style="list-style-type: none"> * Visual (panorama) presentation (OTW); and * Binocular functionality camera(s). - Advanced features: <ul style="list-style-type: none"> * Air situation display / ATC surveillance (radar, ADS-B, Multilateration); * Aerodrome background sound, captured with a microphone and played back in the RTC. - Advanced visual features (AVF) that enhance vision and operator situational awareness, including during low visibility conditions: <ul style="list-style-type: none"> * Automatic visual tracking of moving objects; * ATC surveillance tracking; * Overlay information such as meteorological conditions, markings and denominations of RWY/TWY, objects of interest on the airfield and its vicinity, compass directions, etc; * Infra-red (IR) camera(s). 		
Supporting material(s):	<p>SJU - SESAR Solution 71: Data Pack for ATC and AFIS service in a single low density aerodrome from a remote CWP - Single Airport Remote Tower Url : https://www.sesarju.eu/cesar-solutions/atc-and-afis-service-single-low-density-aerodrome-remote-cwp</p> <p>SJU - SESAR Solution 52: Data Pack for Remote Tower for two low density aerodromes Url : https://www.sesarju.eu/cesar-solutions/remote-tower-two-low-density-aerodromes</p> <p>EASA - ED Decision 2015/014/R - ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r</p> <p>EASA - Guidance Material on the implementation of the remote tower concept for single mode of operation - Issue 1 Url : http://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202015-014-R.pdf</p> <p>SJU - SESAR Solution 12: Data Pack for Single Remote Tower operations for medium traffic volumes Url : https://www.sesarju.eu/cesar-solutions/single-remote-tower-operations-medium-traffic-volumes</p>		
ATM Master Plan relationship:	<p>[AERODROME-ATC-52]-Provide Remote Tower Controller position with visual reproduction of both remot ed aerodrome views and other sensor data.</p> <p>[AERODROME-ATC-53]-Remote Tower controller position enhanced with additional sources for low visibility conditions</p> <p>[AERODROME-ATC-54]-Provide a Remote CWP that enables one ATCO to control 2 remote towers (low-density) simultaneously</p> <p>[CTE-S02d]-Video Based Surveillance</p>		
Finalisation criteria:	1 - The ANSP system has been upgraded according to the specifications for the remote tower concept.		

AOP14-ASP03	Define and implement procedures and processes in support of network and local dimension imposed by the implementation of remote tower	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	<p>Ensure that all procedures and processes applicable for the remote tower concept are updated to the chosen operating scenario for remote tower aerodrome. These procedures should take into account if the concept is being implemented for a single or for two aerodromes, the traffic volumes as well as the acceptable number of simultaneous movements as derived from the safety assessment.</p>		
Supporting material(s):	<p>SJU - SESAR Solution 71: Data Pack for ATC and AFIS service in a single low density aerodrome from a remote CWP - Single Airport Remote Tower Url : https://www.sesarju.eu/cesar-solutions/atc-and-afis-service-single-low-density-aerodrome-remote-cwp</p> <p>SJU - SESAR Solution 52: Data Pack for Remote Tower for two low density aerodromes Url : https://www.sesarju.eu/cesar-solutions/remote-tower-two-low-density-aerodromes</p> <p>EASA - ED Decision 2015/014/R - ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r</p> <p>EASA - Guidance Material on the implementation of the remote tower concept for single mode of operation - Issue 1 Url : http://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202015-014-R.pdf</p> <p>SJU - SESAR Solution 12: Data Pack for Single Remote Tower operations for medium traffic volumes Url : https://www.sesarju.eu/cesar-solutions/single-remote-tower-operations-medium-traffic-volumes</p>		
Finalisation criteria:	1 - The ATC/AFIS procedures have been updated to take on board the remote tower requirements.		

AOP14	Remote Tower Services		
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AOP14-ASP04	Train all operational and technical personnel concerned	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Ensure that all operational and technical personnel concerned are adequately trained and holds appropriate ratings/endorsements for their job functions in relation to the implementation of remote tower (including for Remote Contingency Tower, where applicable). These procedures should take into account if the concept is being implemented for a single or for two aerodromes.		
Supporting material(s):	<p>SJU - SESAR Solution 71: Data Pack for ATC and AFIS service in a single low density aerodrome from a remote CWP - Single Airport Remote Tower Url : https://www.sesarju.eu/sesar-solutions/atc-and-afis-service-single-low-density-aerodrome-remote-cwp</p> <p>SJU - SESAR Solution 52: Data Pack for Remote Tower for two low density aerodromes Url : https://www.sesarju.eu/sesar-solutions/remote-tower-two-low-density-aerodromes</p> <p>EASA - ED Decision 2015/014/R - ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r</p> <p>EASA - Guidance Material on the implementation of the remote tower concept for single mode of operation - Issue 1 Url : http://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202015-014-R.pdf</p> <p>EASA - ED Decision 2015/015/R - ED Decision 2015/015/R - Requirements on Air Traffic Controller licensing regarding remote tower operations and Annexes Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015015r</p> <p>SJU - SESAR Solution 12: Data Pack for Single Remote Tower operations for medium traffic volumes Url : https://www.sesarju.eu/sesar-solutions/single-remote-tower-operations-medium-traffic-volumes</p>		
Finalisation criteria:	1 - Training plans covering remote tower requirements have been developed and implemented.		

AOP14-ASP05	Implement remotely provided air traffic service for contingency situations	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Implement the remote tower concept as for contingency situations when the local tower is not available and services are to be provided from the back-up location. This specific solution should cover the following steps: - Definition and implementation of system improvements allowing for the implementation of remote tower for contingency situations, - Definition and implementation of procedures and processes in support of network and local dimension imposed by the implementation of remote tower for contingency situations.		
Supporting material(s):	<p>SJU - SESAR Solution 13: Data Pack for Remotely provided air traffic service for contingency situations at aerodromes Url : https://www.sesarju.eu/sesar-solutions/remotely-provided-air-traffic-service-contingency-situations-aerodromes</p>		
ATM Master Plan relationship:	[AERODROME-ATC-51]-Remote Tower Centre (RTC) position that in contingency situation hosts ATCO that will no longer be located at the local Tower.		
Finalisation criteria:	1 - Remote Contingency Tower (RCT) in place and available for operational use.		

AOP14-APO01	Define and implement local airport procedures and processes for the implementation of remote tower concept	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	Ensure that all procedures and processes applicable for the remote tower concept are updated to the chosen operating scenario for remote tower aerodrome.		
Supporting material(s):	<p>SJU - SESAR Solution 71: Data Pack for ATC and AFIS service in a single low density aerodrome from a remote CWP - Single Airport Remote Tower Url : https://www.sesarju.eu/sesar-solutions/atc-and-afis-service-single-low-density-aerodrome-remote-cwp</p> <p>SJU - SESAR Solution 13: Data Pack for Remotely provided air traffic service for contingency situations at aerodromes Url : https://www.sesarju.eu/sesar-solutions/remotely-provided-air-traffic-service-contingency-situations-aerodromes</p> <p>SJU - SESAR Solution 52: Data Pack for Remote Tower for two low density aerodromes Url : https://www.sesarju.eu/sesar-solutions/remote-tower-two-low-density-aerodromes</p> <p>EASA - ED Decision 2015/014/R - ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r</p> <p>EASA - Guidance Material on the implementation of the remote tower concept for single mode of operation - Issue 1 Url : http://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202015-014-R.pdf</p> <p>SJU - SESAR Solution 12: Data Pack for Single Remote Tower operations for medium traffic volumes Url : https://www.sesarju.eu/sesar-solutions/single-remote-tower-operations-medium-traffic-volumes</p>		
Finalisation criteria:	1 - The local airport procedures have been updated to take on board the remote tower requirements.		

AOP14		Remote Tower Services	
AOP14-APO02	Train all applicable personnel	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	Ensure that all relevant personnel are adequately trained for their job functions in relation to the implementation of remote tower.		
Supporting material(s):	<p>SJU - SESAR Solution 71: Data Pack for ATC and AFIS service in a single low density aerodrome from a remote CWP - Single Airport Remote Tower Url : https://www.sesarju.eu/sesar-solutions/atc-and-afis-service-single-low-density-aerodrome-remote-cwp</p> <p>SJU - SESAR Solution 13: Data Pack for Remotely provided air traffic service for contingency situations at aerodromes Url : https://www.sesarju.eu/sesar-solutions/remotely-provided-air-traffic-service-contingency-situations-aerodromes</p> <p>SJU - SESAR Solution 52: Data Pack for Remote Tower for two low density aerodromes Url : https://www.sesarju.eu/sesar-solutions/remote-tower-two-low-density-aerodromes</p> <p>EASA - ED Decision 2015/014/R - ED Decision 2015/014/R adopting Guidance Material on the implementation of the remote tower concept for single mode of operation Url : http://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r</p> <p>EASA - Guidance Material on the implementation of the remote tower concept for single mode of operation - Issue 1 Url : http://www.easa.europa.eu/system/files/dfu/Annex%20to%20ED%20Decision%202015-014-R.pdf</p> <p>SJU - SESAR Solution 12: Data Pack for Single Remote Tower operations for medium traffic volumes Url : https://www.sesarju.eu/sesar-solutions/single-remote-tower-operations-medium-traffic-volumes</p>		
Finalisation criteria:	1 - Training plans covering remote tower requirements have been developed and all relevant personnel has been trained.		

SESAAR	Active						LOC/APT	
AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers							
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome. The system consists of the following improvements for the vehicle drivers:

1. Provision of an Airport Moving Map in the vehicle, together with the display of the surrounding traffic, to enhance the driver's situation awareness: The Airport Moving Map function indicates the position of the vehicle on the airfield and the Ground Traffic Display function displays other traffic operating on the movement area of the airport. The other traffic to be displayed includes both aircraft and vehicles.
2. Provision of alerts to vehicle drivers to warn them of situations that if not corrected could end up in hazardous situations. Two types of alerts are considered:

- a) Traffic alerts to warn the vehicle driver of a potential or actual conflict with an aircraft. Traffic alerts are not triggered with another vehicle but only with an aircraft.
- b) Area infringement alerts to warn the vehicle driver when the vehicle is in a closed or restricted area while the vehicle is operating on the manoeuvring area.

The alerts are provided to the vehicle drivers in the form of an aural and/or visual alert with two levels of alert severity depending on the severity of situations:

- Caution alert for the less critical situations; and
- Warning alert for the most critical situations.

Two implementations have been considered for the generation of alerts:

1. Alerts may be generated by an on-board system; or
2. Alerts may be generated by a centralised server (connected to the A-SMGCS) with an uplink to the vehicle.

In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.

Increased situational awareness is essential for operations at airports especially in adverse weather conditions or other similar operating situations. Situational Awareness is important for vehicle drivers as they need to operate within the manoeuvring area regardless of weather conditions.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability area (Subject to local needs)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

OI step -	[AO-0105]-Airport Safety Net for Vehicle Drivers							
Enablers -	AERODROME -ATC-21	AIRPORT-45	AIRPORT-46					
OI step -	[AO-0204]-Airport Vehicle Driver's Traffic Situational Awareness							
Enablers -	AIRPORT-30	AIRPORT-47						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

ICAO GANP – ASBUs

SURF-B2/2	Comprehensive vehicle driver situational awareness on the airport surface
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AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers
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Deployment Programme

2.5.2	Vehicle and aircraft systems contributing to Airport Safety Nets
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European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions
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Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP15-REG01	Promulgate the procedures for use of Enhanced Situational Awareness and Airport Safety Nets for vehicle drivers	01/04/2019	
AOP15-APO01	Install "Onboard Ground Vehicle System" to process and display the own position and surrounding traffic		
AOP15-APO02	Install SNET function in "Onboard Ground Vehicle System", to provide alerts to vehicle drivers		
AOP15-APO03	Develop the procedures for use of "Onboard Ground Vehicle System" and SNET		
AOP15-APO04	Develop safety assessment of the changes imposed by "Onboard Ground Vehicle System" and SNET		
AOP15-APO05	Train all relevant staff in the use of "Onboard Ground Vehicle System" and SNET		
AOP15-INT01	Develop standard for interface between A-SMGCS and On Board Ground Vehicle System		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	This improved situational awareness combined with an alerting/warning system in case potential hazardous situations are detected, will not only improve safety for the vehicles operating in the manoeuvring area but also provide a safety enhancement for the aircraft operations, both on taxiways and runways, at the airport..
Capacity:	Not identified.
Operational Efficiency:	Not identified.
Cost Efficiency:	Not identified.
Environment:	Not identified.
Security:	Not identified.

Detailed SLoA Descriptions

AOP15-REG01	Promulgate the procedures for use of Enhanced Situational Awareness and Airport Safety Nets for vehicle drivers	From: 01/04/2019	By: -
Action by:	Regulatory Authorities		
Description & purpose:	Establish and promulgate the procedures for use Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers at an aerodrome.		
Supporting material(s):	SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - The procedures for use Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers, have been promulgated.		

AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers		
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AOP15-APO01	Install "Onboard Ground Vehicle System" to process and display the own position and surrounding traffic	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	Install the system for Surface Traffic Situational Awareness to process and display in an "On-board Vehicle System" the own position and surrounding traffic. The processing and display in an "On-board Vehicle System" of the own position and surrounding traffic may be provided by the central server making use A-SMGCS system or autonomously by Onboard Ground Vehicle system. The system should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome. In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.		
Supporting material(s):	SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
ATM Master Plan relationship:	[AIRPORT-30]-Use of airport wireless communication infrastructure for mobile data' [AIRPORT-47]-Surface Traffic Situational Awareness to process and display in an 'On-board Vehicle System' the own position and surrounding traffic.		
Finalisation criteria:	1 - "On-board Vehicle System" displaying the own position and surrounding traffic has been installed and functioning at the vehicles operating on the manoeuvring area.		

AOP15-APO02	Install SNET function in "Onboard Ground Vehicle System", to provide alerts to vehicle drivers	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	Install the function for SNET alerts generation and display to the vehicle drivers in Onboard Ground Vehicle System. SNET alerts may be generated and displayed by the central server making use A-ASMGCs system or autonomously by Onboard Ground Vehicle system. The system should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome.		
Supporting material(s):	SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
ATM Master Plan relationship:	[AIRPORT-30]-Use of airport wireless communication infrastructure for mobile data' [AIRPORT-45]-On-board vehicle system to provide safety net alerts to vehicle drivers [AIRPORT-46]-On-board vehicle safety net alerts generation [AIRPORT-47]-Surface Traffic Situational Awareness to process and display in an 'On-board Vehicle System' the own position and surrounding traffic.		
Finalisation criteria:	1 - "On-board Vehicle System" generating SNET alerts to the drivers has been installed and functioning at the vehicles operating on the manoeuvring area.		

AOP15-APO03	Develop the procedures for use of "Onboard Ground Vehicle System" and SNET	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	Develop the procedures for the vehicle drivers which specify roles, tasks and responsibilities for use of Enhanced Situational Awareness system and SNET alerts at an aerodrome.		
Supporting material(s):	SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - Operations Manual applicable to the vehicle drivers has been updated to contain the procedures concerned.		

AOP15-APO04	Develop safety assessment of the changes imposed by "Onboard Ground Vehicle System" and SNET	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	Develop safety assessment of the changes, notably installation of "On-board Vehicle System" displaying the own position, surrounding traffic and SNET alerts to the vehicle drivers. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method. In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.		
Supporting material(s):	SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the Airport Operator to the NSA.		

AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers		
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AOP15-APO05	Train all relevant staff in the use of "Onboard Ground Vehicle System" and SNET	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	Train airport vehicle drivers operating at the manoeuvring area, in the responsibilities and actions that should be taken in relation to use of "On-board Vehicle System" displaying the own position, surrounding traffic and SNET alerts to the driver.		
Supporting material(s):	SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - Vehicle drivers training in accordance with agreed training requirements and programme has been completed.		

AOP15-INT01	Develop standard for interface between A-SMGCS and On Board Ground Vehicle System	From: -	By: -
Action by:			
Description & purpose:	Develop and publish the standard for interface between A-SMGCS and On Board Vehicle System.		
	Note : This is action for European Standardisation Organisations		
Supporting material(s):	SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - The standard for interface between A-SMGCS and On Board Vehicle System, have been published.		

SESAAR	Active						LOC/APT	
AOP16	Guidance assistance through airfield ground lighting							
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Guidance assistance through airfield ground lighting (AGL) is intended for controllers, flight crews and vehicle drivers. It corresponds to the A-SMGCS Guidance function foreseen in ICAO's A-SMGCS Manual (Doc. 9830). It links aerodrome lighting infrastructure with the taxi route management system (Routing & Planning), thus providing an unambiguous route for the taxiing aircraft/vehicle to follow.

To achieve this, taxiway centre line lights are automatically and progressively activated (switched on to green), either in segments of several lights or individually, along the route cleared by the controller. If this cleared route includes a limit and if a physical stop bar exists at this point, this stop bar is also automatically activated (switched on to red) when the mobile nears it. The solution strongly relies on the surface movement surveillance system to provide accurate aircraft position data.

Taxi clearances given to aircraft and vehicles are input in the system by the controllers and, the flight crew or vehicle driver is instructed to follow the greens up to a given clearance limit.

The automation might also include the management of priorities at intersections, based on pre-defined criteria (e.g. aerodrome rules, speed or target times). However, controllers are able to override the guidance decisions, which shows activated lights on the HMI.

Implementation of the objective AOP13 (Automated Assistance to Controller for Surface Movement Planning and Routing) is a pre-requisite for this objective.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

OI step -	[AO-0222-A]-Enhanced Guidance Assistance to mobiles based on the automated switching of Taxiway lights and Stop bars according to the 'Airfield Ground Lighting' operational service						
Enablers -	AERODROME -ATC-50	AERODROME -ATC-61	REG-0201				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

ICAO GANP – ASBUs

SURF-B1/1	Advanced features using visual aids to support traffic management during ground operations
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Deployment Programme

2.4.1	A-SMGCS Routing and Planning Functions
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European Plan for Aviation Safety

MST.029

Implementation of SESAR Runway safety solutions

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP16-ASP01	Upgrade CWP/HMI to display and manage lights and routes		
AOP16-ASP02	Develop and implement procedures for taxi guidance by AGL (controllers and pilots/drivers)		
AOP16-ASP03	Develop safety assessment of the changes imposed by taxi guidance by AGL		
AOP16-ASP04	Train all relevant staff in the taxi guidance by AGL		
AOP16-ASP05	Upgrade A-SMGCS to send taxi instructions as commands to the AGL system		
AOP16-APO01	Upgrade AGL system to enable the selective switching of the lamps		
AOP16-APO02	Upgrade A-SMGCS to send taxi instructions as commands to the AGL system		
AOP16-APO03	Develop and implement procedures for use of taxi guidance by AGL (Vehicle Driver)		
AOP16-APO04	Train all relevant staff in the taxi guidance by AGL		
AOP16-USE01	Develop and implement procedures for use of taxi guidance by AGL (Flight Crew)		
AOP16-USE02	Train all relevant staff in the taxi guidance by AGL (Flight Crew)		
AOP16-INT01	Develop the procedures and phraseology for taxi guidance by AGL		
AOP16-INT02	Integrate taxi guidance by AGL in MASPS for the A-SMGCS		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increase of situational awareness from pilots perspectives. Reduction of unplanned / unwanted taxi route deviations. Significantly lower runway incursion risk
Capacity:	Reduction of controller workload (radio communication / instructions) will have a positive impact on the capacity of the airport's ground movement system in particular at the aerodromes with multiple complex taxiways system and large manoeuvring area
Operational Efficiency:	Significant reduction in taxi time in both good and low visibility conditions. The reduction is strongly dependent of local conditions and will therefore differ per airport. The variability of taxi times (for the same combination of used parking position and runway) might be reduced
Cost Efficiency:	Identified by local business cases
Environment:	Fewer speed changes as also reduce the number of stops along routes between runway and parking position (and vice versa). This reduces the fuel burn for taxiing both in good and low visibility conditions, although the benefits have been shown to be larger during low visibility
Security:	Not identified

Detailed SLoA Descriptions

AOP16-ASP01	Upgrade CWP/HMI to display and manage lights and routes	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	The controller working position should be upgraded to allow the display of activated lights on the radar display and the management of the lights and routes via HMI functionality (e.g. route updates and input of clearances).		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		

AOP16	Guidance assistance through airfield ground lighting		
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ATM Master Plan relationship:	[AERODROME-ATC-50]- Advanced Airport Tower Controller Working Position (A-CWP) [AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC		
Finalisation criteria:	1 - The radar display shows activated AGL lights 2 - AGL lights and taxi routes managed via CWP/HMI		

AOP16-ASP02	Develop and implement procedures for taxi guidance by AGL (controllers and pilots/drivers)	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by the controllers in relation to taxi guidance by AGL and pilots/drivers actions should be developed.		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
ATM Master Plan relationship:	[AERODROME-ATC-66]-Tower A-CWP interfaced to the Runway Status Lights management tool		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by the controllers in relation to taxi guidance by AGL have been published in the Operations Manual applicable to the controllers		

AOP16-ASP03	Develop safety assessment of the changes imposed by taxi guidance by AGL	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of airport and ATS systems to support taxi guidance by AGL. The tasks to be done are as follows: <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the Airport Operator to the NSA.		

AOP16-ASP04	Train all relevant staff in the taxi guidance by AGL	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Train TWR controllers in the responsibilities and actions (including phraseology) that should be taken in relation to the taxi guidance by AGL and ATC clearances issued to vehicle drivers and flight crew.		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - TWR controllers training in accordance with agreed training requirements and programme has been completed.		

AOP16-ASP05	Upgrade A-SMGCS to send taxi instructions as commands to the AGL system	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	A-SMGCS processing should be upgraded to translate taxi routes issued by ATC to individual aircraft and vehicles into commands to the AGL system (taxiway centreline lights and stop bars), to monitor the spacing between mobiles and to determine priorities between mobiles at intersections.		

AOP16	Guidance assistance through airfield ground lighting		
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	<p>Note :In the context of LSSIP reporting, this SLoA is mutually exclusive with SLoA APO02, depending on the ownership and management of A-SMGCS system at a given location.</p>		
Supporting material(s):	<p>SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p>		
ATM Master Plan relationship:	<p>[AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC</p>		
Finalisation criteria:	<p>1 - A-SMGCS sends commands to the AGL system (taxiway centreline lights and stop bars) based on taxi routes issued by ATC to individual aircraft and vehicles; 2 - A-SMGCS monitors the spacing between mobiles and to determine priorities between mobiles at intersections.</p>		

AOP16-APO01	Upgrade AGL system to enable the selective switching of the lamps	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	The Airfield Ground Lighting (AGL) system should be upgraded to enable selective switching of the lamps in segments or, preferably, individually.		
ATM Master Plan relationship:	<p>[AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC</p>		
Finalisation criteria:	1 - Selective switching of the lamps enabled and functioning within AGL system.		

AOP16-APO02	Upgrade A-SMGCS to send taxi instructions as commands to the AGL system	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	A-SMGCS processing should be upgraded to translate taxi routes issued by ATC to individual aircraft and vehicles into commands to the AGL system (taxiway centreline lights and stop bars), to monitor the spacing between mobiles and to determine priorities between mobiles at intersections.		
	<p>Note :In the context of LSSIP reporting, this SLoA is mutually exclusive with SLoA ASP05, depending on the ownership and management of A-SMGCS system at a given location.</p>		
Supporting material(s):	<p>SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p>		
ATM Master Plan relationship:	<p>[AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC</p>		
Finalisation criteria:	<p>1 - A-SMGCS sends commands to the AGL system (taxiway centreline lights and stop bars) based on taxi routes issued by ATC to individual aircraft and vehicles; 2 - A-SMGCS monitors the spacing between mobiles and to determine priorities between mobiles at intersections.</p>		

AOP16-APO03	Develop and implement procedures for use of taxi guidance by AGL (Vehicle Driver)	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to taxi guidance by AGL and ATC clearances should be developed.		
Supporting material(s):	<p>SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</p>		
ATM Master Plan relationship:	<p>[PRO-246]-Procedures for standardised response to Runway Status Lights</p>		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to taxi guidance by AGL have been published in the Operations Manual applicable to the drivers.		

AOP16-APO04	Train all relevant staff in the taxi guidance by AGL	From: -	By: -
Action by:			
Description & purpose:	Train vehicle drivers in the responsibilities and actions (including phraseology) that should be taken in relation to the taxi guidance by AGL and ATC clearances.		

AOP16	Guidance assistance through airfield ground lighting		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - The vehicle drivers training in accordance with agreed training requirements and programme has been completed.		
AOP16-USE01	Develop and implement procedures for use of taxi guidance by AGL (Flight Crew)	From: -	By: -
Action by:	Airspace Users		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by the flight crew in relation to taxi guidance by AGL should be developed.		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by flight crew in relation to taxi guidance by AGL have been published in the Operations Manual applicable to the flight crew.		
AOP16-USE02	Train all relevant staff in the taxi guidance by AGL (Flight Crew)	From: -	By: -
Action by:	Airspace Users		
Description & purpose:	Train flight crew in the responsibilities and actions (including phraseology) that should be taken in relation to taxi guidance by AGL and ATC clearances.		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - 1.0 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - Flight crew training in accordance with agreed training requirements and programme has been completed		
AOP16-INT01	Develop the procedures and phraseology for taxi guidance by AGL	From: -	By: -
Action by:	ICAO		
Description & purpose:	Establish standard procedures specifying responsibilities and actions that should be taken by flight crews, vehicle drivers and aerodrome ATC in relation to taxi guidance by AGL. Publish the procedures in ICAO PANS-ATM.		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment.		
ATM Master Plan relationship:	[REG-HNA-15]-Regulatory Provisions for Surface Guidance (ground signs)		
Finalisation criteria:	1 - The amendment to ICAO PANS-ATM containing the procedures has been published		
AOP16-INT02	Integrate taxi guidance by AGL in MASPS for the A-SMGCS	From: -	By: -
Action by:	EUROCAE		
Description & purpose:	EUROCAE WG-41 (A-SMGCS), to update the Minimum Aviation System Performance Specification (MASPS) for the A-SMGCS to integrate, inter alia, requirements for taxi guidance by AGL.		
Supporting material(s):	SJU - SESAR Solution 47: Data pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[REG-0201]-Means of Compliance for A-SMGCS Routing and Planning		
Finalisation criteria:	1 - Amendment to ED-87E containing the requirements of taxi guidance by AGL has been published.		

SESAAR	Active						LOC/APT	
AOP17	Provision/integration of departure planning information to NMOC							
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The Network integration of departure estimates from medium and small sized airports via the exchange of Departure Planning Information (DPI), specifically ATC-DPI and CNL-DPI messages is needed to enhance the network benefit and improve the flow management process. This functionality aims to improve integration of departure estimates from medium or small-size airports when serving a complex airspace with dense traffic through improved availability of aircraft pre-departure information to the ATM Network, through the provision of accurate pre-departure information to the NM.

The objective also supports further integration of airports into the Network by addressing the reception from the NM of estimated landing times.

This objective should be considered as not applicable for the airports that already deployed A-CDM or planned to deploy A-CDM in near future.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

Ol step -	[DCB-0304]-Improved Integration of Regional Airports into the Network							
Enablers -	AERODROME -ATC-20	NIMS-03						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

ATM Interconnected Network

ICAO GANP – ASBUs

NOPS-B0/4	Initial Airport/ATFM slots and A-CDM Network Interface
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Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport Network

AOP17	Provision/integration of departure planning information to NMOC
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Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP17-ASP01	Upgrade the local ATC system so as to provide departure planning information		
AOP17-ASP02	Upgrade the local system to support reception of estimated landing time from NM		
AOP17-ASP03	Develop the procedures for information exchanges with the NM		
AOP17-ASP04	Train all relevant staff in the information exchanges with NM		
AOP17-ASP05	Develop local safety case		
AOP17-ASP06	Provide DPI message to NM		
AOP17-NM01	Integrate Departure Planning Information (DPI) in NM systems		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	There will be an overall minor improvement in the safety of operations through the provision of timely and accurate information that is widely shared amongst all partners in the ATM business.
Capacity:	Improved availability of more accurate departure data will improve the performance of network management, thereby enabling the improvement of capacity through better confidence in NMOC traffic load predictions.
Operational Efficiency:	The improved data will increase predictability within the NMOC systems for demand on a sector, leading to: • Better decision making concerning when to open or close a sector; • Fewer unnecessary regulations leading to a reduction of ATFM delays; • Fewer overloads as sudden increases in demand will be rare.
Cost Efficiency:	No
Environment:	No
Security:	No

Detailed SLoA Descriptions

AOP17-ASP01	Upgrade the local ATC system so as to provide departure planning information	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	TWR tools and systems (e.g. Advanced Tower tools, Electronic flight strip) are upgraded as necessary so with the capability of providing departure planning information (ATC-DPI and CNL-DPI messages) to NM.		
Supporting material(s):	SJU - SESAR Solution 61: Data pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/cesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide EUROCONTROL - DPI Implementation Guide - 2.2 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - Installation completed, TWR system capable of generating DPI.		

AOP17	Provision/integration of departure planning information to NMOC
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AOP17-ASP02	Upgrade the local system to support reception of estimated landing time from NM	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	The upgrade of TWR systems should allow the reception/ presentation of estimated landing time (ELDT) from NM. ELDT may be received via AFTN using the FUM messages or via dedicated NM B2B web services.		
Supporting material(s):	SJU - SESAR Solution 61: Data pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide EUROCONTROL - DPI Implementation Guide - 2.2 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - Installation completed, TWR system receives estimated landing time from NM.		

AOP17-ASP03	Develop the procedures for information exchanges with the NM	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by TWR in relation to information exchanges with NM (departure planning information and/or estimated landing time) should be developed.		
Supporting material(s):	SJU - SESAR Solution 61: Data pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide EUROCONTROL - DPI Implementation Guide - 2.2 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by TWR in relation information exchanges with NM have been published in the Operations Manual.		

AOP17-ASP04	Train all relevant staff in the information exchanges with NM	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Train TWR controllers in the responsibilities and actions that should be taken in relation to information exchanges with NM.		
Supporting material(s):	SJU - SESAR Solution 61: Data pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide EUROCONTROL - DPI Implementation Guide - 2.2 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - The training in accordance with agreed training requirements and programme has been completed		

AOP17	Provision/integration of departure planning information to NMOC		
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AOP17-ASP05	Develop local safety case	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Develop safety case for the information exchanges with NM according to applicable legislation.		
Supporting material(s):	SJU - SESAR Solution 61: Data pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide EUROCONTROL - DPI Implementation Guide - 2.2 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide		
Finalisation criteria:	1 - Safety case developed and submitted to NSA.		

AOP17-ASP06	Provide DPI message to NM	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Exchange ATC-DPI and CNL-DPI with NM		
Supporting material(s):	SJU - SESAR Solution 61: Data pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide EUROCONTROL - DPI Implementation Guide - 2.2 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide		
ATM Master Plan relationship:	[NIMS-03]-Reception of DPI messages		
Finalisation criteria:	1 - ATC-DPI and CNL-DPI from concerned airport are integrated with NM systems		

AOP17-NM01	Integrate Departure Planning Information (DPI) in NM systems	From: -	By: -
Action by:	NM		
Description & purpose:	Integrate the received DPI messages with NM systems.		
Supporting material(s):	SJU - SESAR Solution 61: Data pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide EUROCONTROL - DPI Implementation Guide - 2.2 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp		
ATM Master Plan relationship:	[NIMS-03]-Reception of DPI messages [NIMS-06]-Network information management system equipped with post-analysis tools for airport traffic		
Finalisation criteria:	1 - DPI messages from concerned airport integrated with the NM systems		

SESAAR		Active					LOC/APT	
AOP18		Runway Status Lights (RWSL)						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Runway Status Lights (RWSL) system is an automatic independent system based on aerodrome surveillance data that can be used on airports to increase safety by preventing runway incursions. The RWSL will provide an independent system that uses A-SMGCS surveillance data to dynamically switch on and off additional and dedicated airfield lights on RWY and on the runway entry TWY. It will directly inform the flight crews / vehicle drivers about the instantaneous runway usage. Runway status lights switched “on” is an indication that the runway is unsafe for entering (for line-up or crossing) or for taking-off.

The new airfield lights, can be composed of:

- Runway Entrance Lights (REL): sets of red lights illuminating runway entrances when it is not safe to enter or cross the runway;
- Take-off Hold Lights (THL): sets of red lights illuminating along the axis of a runway in front of a departing aircraft when it is unsafe to take-off from that runway due to an obstacle (vehicle or aircraft) already occupying or entering the runway ahead;
- Runway Intersection Lights (RIL): sets of red lights illuminating along the axis of a runway near the intersection with another runway (crossing runways only) when it is not safe to go through the intersection. Note that no validation could be performed on the operational requirements related to crossing runways (RIL) within associated SESAAR R&D project.

The system is meant to be compatible with airport operations and independent of ATC clearances, even if TWR will have access to the status of the REL and THL, with no change in their operating methods, except in case of flight crew request or failure of the system.

The purpose of the RWSL system is to act as a safety net for flight crew and vehicle drivers, thus reducing the number of runway incursions without interfering with normal runway operations.

It is recommended to implement RWSL at medium to highly utilized airports with complex runway and taxiway lay-out.

NOTE: In ICAO Annex 14, Volume I, RWSL is designated under the term “Autonomous Runway Incursion Warning System (ARIWS).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of “MIL” SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

OI step -	[AO-0209]-Enhanced Runway Usage Awareness						
Enablers -	AERODROME -ATC-66	AERODROME -ATC-87	AIRPORT-49	PRO-246			
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

Applicable legislation

ICAO Annex 14 (Aerodromes), Volume I

Essential Operational Changes

Airport and TMA performance

ICAO GANP – ASBUs

SURF-B2/2	Comprehensive vehicle driver situational awareness on the airport surface
SURF-B2/3	Conflict alerting for pilots for runway operations

AOP18	Runway Status Lights (RWSL)
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Deployment Programme

- none -	
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European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions
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Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
AOP18-REG01	Promulgate the procedures for use of RWSL		
AOP18-ASP01	Install RWSL management tool		
AOP18-ASP02	Upgrade TWR CWP to interface with RWSL management tool		
AOP18-ASP03	Develop and implement procedures for the use of RWSL		
AOP18-ASP04	Develop safety assessment of the changes imposed by RWSL		
AOP18-ASP05	Train all relevant staff in the use of RWSL		
AOP18-APO01	Upgrade Airfield Ground Lighting system to provide the Runway Status Lights		
AOP18-APO02	Install RWSL management tool		
AOP18-APO03	Develop and implement procedures for the use of RWSL		
AOP18-APO04	Develop safety assessment of the changes imposed by RWSL		
AOP18-APO05	Train all relevant staff in the use of RWSL		
AOP18-USE01	Develop the procedures for use of RWSL		
AOP18-USE02	Train all relevant staff in the use of RWSL		
AOP18-INT01	Develop the standards for operational use of RWSL		
AOP18-INT02	Develop the standards for RWSL design and approval		
AOP18-INT03	Develop standard interfaces and information exchanges of RWSL Management Tool		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Less severe and less frequent runway incursions due to an increase of runway usage awareness through accurate and timely indication of runway occupancy.
Capacity:	No
Operational Efficiency:	Yes
Cost Efficiency:	No
Environment:	No
Security:	No

Detailed SLoA Descriptions

AOP18-REG01	Promulgate the procedures for use of RWSL	From:	By:
		-	-
Action by:	Regulatory Authorities		
Description & purpose:	Establish and promulgate the procedures for use of RWSL applicable to flight crews, vehicle drivers and aerodrome TWR.		

AOP18	Runway Status Lights (RWSL)		
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Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights ICAO - Annex 11 - Air Traffic Services Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures for use of RWSL applicable to flight crews, vehicle drivers and aerodrome TWR have been promulgated		

AOP18-ASP01	Install RWSL management tool	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	This action is applicable to ANSP only, where ANS Provider is in charge of (responsible for) airfield ground lighting system at the aerodrome. Otherwise the action is on Airport Operator. An RWSL management processor (tool) will be needed to implement the RWSL safety logic, using the A-SMGCS surveillance data as input to switch on and off the Runway Status Lights accordingly.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights EASA - EASA deliverable of SLoA INT02. EUROCAE - EUROCAE deliverable of SLoA INT03 ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
ATM Master Plan relationship:	[AERODROME-ATC-87]-RWSL management tool fed with airport surveillance data to determine runway usage and to control the airfield Runway Status Lights		
Finalisation criteria:	1 - The RWSL management tool has been installed		

AOP18-ASP02	Upgrade TWR CWP to interface with RWSL management tool	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Although the RWSL are provided as a safety net to pilots and vehicle drivers, status information and service control will be needed in TWR. For that purpose, the Tower CWP needs to be interfaced to the RWSL management tool to display the appropriate status information and provide the appropriate control functions. An enhanced A-SMGCS Core Surveillance function might be required to ensure that the Runway Status Lights are switched on/off at the right time, without downgrading the runway capacity.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights EASA - EASA deliverable of SLoA INT02. EUROCAE - EUROCAE deliverable of SLoA INT03 ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
ATM Master Plan relationship:	[AERODROME-ATC-66]-Tower A-CWP interfaced to the Runway Status Lights management tool		
Finalisation criteria:	1 - The TWR systems have been upgraded		

AOP18-ASP03	Develop and implement procedures for the use of RWSL	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by TWR in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances issued to vehicle drivers and flight crews, should be developed and implemented.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL.		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by TWR in relation to RWSL have been published in the Operations Manual applicable to the TWR controllers 2 - RWSL is in operational use		

AOP18	Runway Status Lights (RWSL)		
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AOP18-ASP04	Develop safety assessment of the changes imposed by RWSL	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of airport and ATS systems to support RWSL. The tasks to be done are as follows: <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the ANS Provider to the NSA.		

AOP18-ASP05	Train all relevant staff in the use of RWSL	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Train TWR controllers in the responsibilities and actions (including phraseology) that should be taken in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances issued to vehicle drivers and flight crew.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL.		
Finalisation criteria:	1 - TWR controllers training in accordance with agreed training requirements and programme has been completed.		

AOP18-APO01	Upgrade Airfield Ground Lighting system to provide the Runway Status Lights	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	The Airfield Ground Lighting system should be upgraded to provide the Runway Status Lights, i.e. the Take-off Hold Lights (THL) and Runway Entrance Lights (REL).		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights EASA - EASA deliverable of SLoA INT02. ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
ATM Master Plan relationship:	[AIRPORT-49]-Airfield Ground Lighting system upgraded to provide the Runway Status Lights		
Finalisation criteria:	1 - Runway Status Lights installed within Airfield Ground Lighting system		

AOP18-APO02	Install RWSL management tool	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	An RWSL management processor (tool) will be needed to implement the RWSL safety logic, using the A-SMGCS surveillance data as input to switch on and off the Runway Status Lights accordingly.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights EASA - EASA deliverable of SLoA INT02. EUROCAE - EUROCAE deliverable of SLoA INT03 ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
ATM Master Plan relationship:	[AERODROME-ATC-87]-RWSL management tool fed with airport surveillance data to determine runway usage and to control the airfield Runway Status Lights		
Finalisation criteria:	1 - Controllers training in accordance with agreed training requirements and programme has been completed.		

AOP18-APO03	Develop and implement procedures for the use of RWSL	From: -	By: -
Action by:	Airport Operators		

AOP18	Runway Status Lights (RWSL)
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Description & purpose:	The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances should be developed and implemented.
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/cesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to RWSL have been published in the Operations Manual applicable to the drivers. 2 - RWSL is in operational use

AOP18-APO04	Develop safety assessment of the changes imposed by RWSL	From:	By:
		-	-
Action by:	Airport Operators		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of airport and ATS systems to support RWSL. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/cesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the Airport Operator to the NSA.		

AOP18-APO05	Train all relevant staff in the use of RWSL	From:	By:
		-	-
Action by:	Airport Operators		
Description & purpose:	Train airport vehicle drivers in the responsibilities and actions (including phraseology) that should be taken in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/cesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
Finalisation criteria:	1 - Vehicle drivers training in accordance with agreed training requirements and programme has been completed		

AOP18-USE01	Develop the procedures for use of RWSL	From:	By:
		-	-
Action by:	Airspace Users		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by the flight crew in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances, should be developed.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/cesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL.		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by flight crew in relation to RWSL have been published in the Operations Manual applicable to the flight crew		

AOP18-USE02	Train all relevant staff in the use of RWSL	From:	By:
		-	-
Action by:	Airspace Users		
Description & purpose:	Train flight crew in the responsibilities and actions (including phraseology) that should be taken in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances.		

AOP18	Runway Status Lights (RWSL)		
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Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL.		
Finalisation criteria:	1 - Flight crew training in accordance with agreed training requirements and programme has been completed.		

AOP18-INT01	Develop the standards for operational use of RWSL	From:	By:
		-	-
Action by:	ICAO		
Description & purpose:	Establish standard procedures specifying responsibilities and actions that should be taken by flight crews, vehicle drivers and aerodrome ATC in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances. Publish the procedures in ICAO PANS-ATM.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights [REG-HNA-20]-Regulatory provisions for RWSL		
Finalisation criteria:	1 - The amendment to ICAO PANS-ATM containing the procedures has been published		

AOP18-INT02	Develop the standards for RWSL design and approval	From:	By:
		-	-
Action by:	EASA		
Description & purpose:	Amend regulatory material by aligning ADR.OPS and CS-ADR-DSN with ICAO Annex 14 Amdt. 13A. Include under ADR.OPS. the operational requirements of ARIWS, as described in ICAO Annex 14; Include in the Certification Specifications for aerodrome design the technical specifications of RWSL;		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
ATM Master Plan relationship:	[REG-HNA-20]-Regulatory provisions for RWSL		
Finalisation criteria:	1 - Amendment to ADR.OPS containing the operational requirements of ARIWS has been published 2 - Amendment to CS-ADR-DSN containing the technical specifications of RWSL has been published		

AOP18-INT03	Develop standard interfaces and information exchanges of RWSL Management Tool	From:	By:
		-	-
Action by:	EUROCAE		
Description & purpose:	The standard defining interfaces and information exchanges of Runway Status Light Management Tool should be developed.		
Supporting material(s):	SJU - RWSL - SESAR Solution 01: Data pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/		
ATM Master Plan relationship:	[STD-016]-Harmonising standard defining interfaces and information exchanges of Runway Status Light Management Tool		
Finalisation criteria:	1 - EUROCAE standard on the interfaces and information exchanges of RWSL Management Tool has been published		

SESAAR		Active					ECAC+	
ATC02.8		Ground-Based Safety Nets						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This objective covers the implementation of Level 2 of the following ground-based safety nets: Area Proximity Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitor (APM).

- Area Proximity Warning (APW) uses surveillance data and flight path prediction to warn the controller when an aircraft is, or is predicted to be, flying into a volume of notified airspace, such as controlled airspace, danger areas, prohibited areas and restricted areas. APW has been identified as a pre-requisite for the implementation of Free Route Airspace (FRA) in Regulation (EU) No 716/2014 (the PCP Regulation).

- Minimum Safe Altitude Warning (MSAW) is intended to warn the air traffic controller (ATCO) about the increased risk of controlled flight into terrain by generating, in a timely manner, an alert of aircraft proximity to terrain or obstacles.

- An approach path monitor (APM) is intended to warn the ATCO about increased risk of controlled flight into terrain accidents by generating, in a timely manner, an alert of aircraft proximity to terrain or obstacles during final approach.

Before starting first operations, air traffic controllers must receive training, aimed at creating an appropriate level of trust in the concerned safety net. The time-criticality of alerts and the need for immediate attention or action must be well understood, but also the situations in which safety nets are less effective.

The number of nuisance and false alerts must be reduced to a minimum. Air traffic controllers should be encouraged to report unexpected and unwanted safety nets behaviour and feedback should always be provided.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Netherlands		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2009		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0801]-Ground Based Safety Nets (TMA, En-Route)						
Enablers -	CTE-S01	CTE-S01a	ER APP ATC 133	PRO-059	PRO-219		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project (only for APW implementation)
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Essential Operational Changes

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ICAO GANP ? ASBUs

SNET-B0/1	Short Term Conflict Alert (STCA)
SNET-B0/2	Minimum Safe Altitude Warning (MSAW)
SNET-B0/3	Area Proximity Warning (APW)
SNET-B0/4	Approach Path Monitoring (APM)

Deployment Programme

ATC02.8	Ground-Based Safety Nets
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3.2.1	Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route	
Terminal Airspace	

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC02.8-ASP01	Implement the APW function	01/01/2009	01/01/2022
ATC02.8-ASP02	Align ATCO training with the use of APW ground-based safety tools	01/01/2009	01/01/2022
ATC02.8-ASP03	Implement the MSAW function	01/01/2009	01/01/2022
ATC02.8-ASP04	Align ATCO training with the use of MSAW ground-based safety tools	01/01/2009	01/01/2022
ATC02.8-ASP05	Implement the APM function	01/01/2009	01/01/2022
ATC02.8-ASP06	Align ATCO training with the use of APM ground-based safety tools	01/01/2009	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Major safety improvement through the systematic presentation of: <ul style="list-style-type: none"> - imminent and actual unauthorized penetrations into airspace volumes to controllers ahead of their occurrence, as provided by APW; - possible infringements of minimum safe altitude to controllers ahead of their occurrence, as provided by MSAW; - deviations from the glide path to controllers, as provided by APM.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC02.8-ASP01	Implement the APW function	From: 01/01/2009	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Put into service ground-based safety tool systems and associated procedures supporting the APW function. The implementation of APW is recommended for both en-route and terminal airspace. Note that APW has been identified as a pre-requisite for the implementation of Free Route Airspace (FRA) in Regulation (EU) No 716/2014 (the PCP Regulation).		
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-125 - EUROCONTROL Guidance Material for Area Proximity Warning - Edition 1.0 / 05/2009 Url : https://www.eurocontrol.int/sites/default/files/publication/files/20090519-apw-guid-v1.0.pdf		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 133]-Upgrade Ground Safety Nets to provide Area Penetration Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring to Controller Workstations. [PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts		

ATC02.8	Ground-Based Safety Nets
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Finalisation criteria:	1 - Ground systems have been upgraded to support the APW function. 2 - APW function in operational use.
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ATC02.8-ASP02	Align ATCO training with the use of APW ground-based safety tools	From:	By:
		01/01/2009	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Train operational staff in the use of APW. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-125 - EUROCONTROL Guidance Material for Area Proximity Warning - Edition 1.0 / 05/2009 Url : https://www.eurocontrol.int/sites/default/files/publication/files/20090519-apw-guid-v1.0.pdf		
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of APW functions. 2 - The concerned personnel have been trained.		

ATC02.8-ASP03	Implement the MSAW function	From:	By:
		01/01/2009	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Put into service ground-based safety tool systems and associated procedures supporting the MSAW function.		
Supporting material(s):	EUROCONTROL - GUID-160 - EUROCONTROL Guidelines for Minimum Safe Altitude Warning - Part I to III - 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum-safe-altitude-warning EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 133]-Upgrade Ground Safety Nets to provide Area Penetration Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring to Controller Workstations. [PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts [PRO-219]-ATC Procedures to give priority to SNET alarm		
Finalisation criteria:	1 - Ground systems have been upgraded to support the MSAW function. 2 - MSAW function in operational use.		

ATC02.8-ASP04	Align ATCO training with the use of MSAW ground-based safety tools	From:	By:
		01/01/2009	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Train operational staff in the use of APW. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Supporting material(s):	EUROCONTROL - GUID-160 - EUROCONTROL Guidelines for Minimum Safe Altitude Warning - Part I to III - 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum-safe-altitude-warning EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf		
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts [PRO-219]-ATC Procedures to give priority to SNET alarm		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of MSAW functions. 2 - The concerned personnel have been trained.		

ATC02.8-ASP05	Implement the APM function	From:	By:
		01/01/2009	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Put into service ground-based safety tool systems and associated procedures supporting the APM function.		

ATC02.8	Ground-Based Safety Nets
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Supporting material(s):	EUROCONTROL - GUID-162 - EUROCONTROL Guidelines for Approach Path Monitor - Part I to III - 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-approach-path-monitor EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 133]-Upgrade Ground Safety Nets to provide Area Penetration Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring to Controller Workstations. [PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts
Finalisation criteria:	1 - Ground systems have been upgraded to support the APM function. 2 - APM function in operational use.

ATC02.8-ASP06	Align ATCO training with the use of APM ground-based safety tools	From:	By:
		01/01/2009	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Train operational staff in the use of APM. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Supporting material(s):	EUROCONTROL - GUID-162 - EUROCONTROL Guidelines for Approach Path Monitor - Part I to III - 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-approach-path-monitor EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf		
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of APM functions. 2 - The concerned personnel have been trained.		

SESAR		Active					ECAC+	
ATC02.9		Short Term Conflict Alert (STCA) for TMAs						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

STCA (Short Term Conflict Alert) is a ground system designed and deployed to act as safety net against the risk of having collisions between aircraft during airborne phases of flight. STCA can be used in both en-route and TMA surveillance environments.

The difficulty of STCA development lies in the need to avoid having a high nuisance alert rate, while still making sure that real conflicts always trigger an appropriate and timely warning. Specific tuning is necessary for STCA to be effective in the TMA, in order to account for lower separation minima, as well as increased frequency of turns, climbs and descents.

It is therefore recognised that STCA may not be operationally usable in some dense TMA operations, because the nuisance alert rate generated by a linear STCA algorithm is evaluated to be too high.

The aim of this Objective twofold:

- To address the implementation of STCA functionality in TMAs
- For the TMA where, due to their complexity, the linear STCA algorithms are not fit for purpose, to address the improvement of the STCA functionality. This could be achieved by using multi-hypothesis algorithms, or other technical solutions ensuring earlier warning and lower nuisance alert rates related to steady and manoeuvring aircraft, in comparison to linear STCA algorithms.

NOTE 1: the scope of this Objective is limited to the deployment of the STCA functionality in TMAs. The (former) objective ATC02.2 which was addressing both en-route and TMA environments had its scope reduced to en-route allowing to consider it as achieved.

NOTE 2: SLoA ATC2.9-ASP02 does not have an associated FOC date and should be considered for specific local needs (refer to the description of SLoA below).

NOTE 3: : In certain more complex environments specific tuning is necessary for STCA to be effective especially in the terminal airspace in order to account for lower separation minima, as well as increased frequency of turns, climbs and descents. In these situations, the STCA may need to be improved with e.g. the use of multi-hypothesis algorithms, aiming to reduce the number of false and nuisance alerts compared to existing technologies, while maintaining the detection of genuine alerts (SLoA STCA02.9-ASP02). The improved STCA algorithms lead to more precise warnings and fewer false and nuisance alerts when compared against existing STCA technology.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Note: TMAs, according to local business needs)	All ECAC+ States except: Bosnia and Herzegovina, Cyprus, Maastricht UAC		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2018		Applicability Area
Full operational capability		31/12/2020	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0801]-Ground Based Safety Nets (TMA, En-Route)						
Enablers -	CTE-S01	CTE-S01a	ER APP ATC 133 ATC02.8	PRO-059	PRO-219		
OI step -	[CM-0811]-Enhanced STCA for TMA specific operations						
Enablers -	APP ATC 136						
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

Applicable legislation

ATC02.9	Short Term Conflict Alert (STCA) for TMAs
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-none-

Essential Operational Changes

Trajectory Based Operations

ICAO GANP – ASBUs

SNET-B1/2	Enhanced STCA in complex TMAs
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Deployment Programme

- none -

European Plan for Aviation Safety

MST.030	Implementation of SESAR solutions aiming to reduce the risk of mid-air collision en-route and TMA
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Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC02.9-ASP01	Implement the STCA function in TMA	01/01/2018	31/12/2020
ATC02.9-ASP02	Improve the STCA functionality		
ATC02.9-ASP03	Develop and implement ATC procedures related to the use of STCA in TMA	01/01/2018	31/12/2020
ATC02.9-ASP04	Align ATCO training with the use of STCA in TMA	01/01/2018	31/12/2020
ATC02.9-ASP05	Develop a local safety assessment	01/01/2018	31/12/2020

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Identification of conflicts between flights in TMAs. STCA based multi-hypothesis algorithm will provide an improved STCA (improved rate of genuine alert while maintaining the rate of nuisance alerts at an operationally acceptable level), thereby enhancing safety in TMAs. For TMAs with high trajectory uncertainty where operation of a single-hypothesis STCA would currently unacceptable due to its low performance, the introduction of multi-hypothesis algorithms will make it possible to implement STCA.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC02.9-ASP01	Implement the STCA function in TMA	From: 01/01/2018	By: 31/12/2020
Action by:	ANS Providers		
Description & purpose:	Put into service the STCA functionality to provide automated alerting of conflicts to approach controller workstations whilst avoiding false alerts (adapted for the specific TMA operating modes, flight characteristics and separation).		
	Note :NOTE: The identification of the TMAs for which this SLoA is applicable is a local decision of the national stakeholders.		

ATC02.9		Short Term Conflict Alert (STCA) for TMAs	
Supporting material(s):	EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf		
ATM Master Plan relationship:	[APP ATC 136]-Adapt STCA for Operation in TMA [CTE-S01a]-SSR Mode A/C/S		
Finalisation criteria:	1 - Ground systems have been installed or upgraded to support the STCA function customised for use in TMA. 2 - STCA function is ready for operational use in specific TMAs.		
ATC02.9-ASP02	Improve the STCA functionality	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Put into service or improve the STCA functionality with the use of e.g. multi-hypothesis algorithms or other technical solutions, where required. Note : Note 1: The improved STCA for TMA operation shall be considered to be deployed by the High Complexity ATS units that provide the services within TMA boundaries where the linear STCA algorithm addressed by SLoA ATC02.9-ASP01 is deemed not sufficient. Note 2: The objective FOC does not apply to this SLoA. ASP02 is optional SLoA, it should be considered for specific local needs. Note 3: The status of this SLoA should not impact the objective status at the state level, and potential LSSIP DB warning should be ignored by CP in this context.		
Supporting material(s):	EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf SJU - SESAR Solution 60: Data Pack for enhanced STCA for TMA Url : https://www.sesarju.eu/sesar-solutions/enhanced-short-term-conflict-alert-stca-terminal-manoevring-area-tma-specific		
ATM Master Plan relationship:			
Finalisation criteria:	1 - Ground systems have been installed or upgraded to support the enhanced STCA function. 2 - Improved STCA function is ready for operational use in specific TMAs.		
ATC02.9-ASP03	Develop and implement ATC procedures related to the use of STCA in TMA	From:	By:
		01/01/2018	31/12/2020
Action by:	ANS Providers		
Description & purpose:	The local procedures should address the operational use of the STCA functionality in the TMAs.		
Supporting material(s):	EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf SJU - SESAR Solution 60: Data Pack for enhanced STCA for TMA Url : https://www.sesarju.eu/sesar-solutions/enhanced-short-term-conflict-alert-stca-terminal-manoevring-area-tma-specific		
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts [PRO-219]-ATC Procedures to give priority to SNET alarm		
Finalisation criteria:	1 - Procedures are in operational use.		
ATC02.9-ASP04	Align ATCO training with the use of STCA in TMA	From:	By:
		01/01/2018	31/12/2020
Action by:	ANS Providers		
Description & purpose:	All relevant personnel (e.g. air traffic controllers) have to be trained in the operational use of the STCA functionality in the TMA.		
Supporting material(s):	EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf SJU - SESAR Solution 60: Data Pack for enhanced STCA for TMA Url : https://www.sesarju.eu/sesar-solutions/enhanced-short-term-conflict-alert-stca-terminal-manoevring-area-tma-specific		
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts [PRO-219]-ATC Procedures to give priority to SNET alarm		

ATC02.9	Short Term Conflict Alert (STCA) for TMAs		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of STCA functions in TMA. 2 - The concerned personnel have been trained.		
ATC02.9-ASP05	Develop a local safety assessment	From: 01/01/2018	By: 31/12/2020
Action by:	ANS Providers		
Description & purpose:	When proceeding with the local implementation, changes in the ATM functional system derived from the deployment of STCA in TMAs are subject to the elaboration of a safety argument considering local specific risks and mitigation measures to those risks. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf SJU - SESAR Solution 60: Data Pack for enhanced STCA for TMA Url : https://www.sesarju.eu/sesar-solutions/enhanced-short-term-conflict-alert-stca-terminal-manoeuving-area-tma-specific		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the Regulator/NSA/Competent Authority, as necessary.		

SESAAR		Active					APT	
ATC07.1		AMAN Tools and Procedures						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Implement basic arrival manager (AMAN) tools to improve sequencing and metering of arrival aircraft in selected TMAs and airports.

The AMAN tools interact with several systems, including the host flight data processing system (FDPS) and surveillance data processing system (SDPS) resulting in a 'planned' time for any individual flight.

Since the AMAN has certain conditions it needs to satisfy (such as the required landing rate, or spacing, on the runway), when 2 or more aircraft are predicted at or around the same time on the runway it plans a sequence, generating new 'required' times that need to be applied to the flight(s), in order to create/maintain the sequence.

AMAN also outputs the required time for the ATCO in the form of 'Time To Lose (TTL)/Time To Gain (TTG)' information. The controller is then responsible for finding and applying an appropriate method (vectoring, path stretching, speed changes or holding) for the aircraft to meet its time or position in the sequence.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (PCP airports) (TMAs serving the listed airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Applicability Area 2 (Non-PCP airports) (TMAs serving the listed airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2007		Applicability Area 1 (PCP airports) + Applicability Area 2 (Non-PCP airports)
Full operational capability		01/01/2020	Applicability Area 1 (PCP airports) + Applicability Area 2 (Non-PCP airports)

References

European ATM Master Plan

OI step -	[TS-0102]-Basic Arrival Management Supporting TMA Improvements (incl. CDA, P-RNAV)						
Enablers -	ER APP ATC 128	PRO-049	PRO-050				
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

Applicable legislation

-none-

Essential Operational Changes

- none -

ICAO GANP ? ASBUs

RSEQ-B0/1	Arrival Management
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Deployment Programme

1.1.1	Basic AMAN
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European Plan for Aviation Safety

- none -

ATC07.1	AMAN Tools and Procedures
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Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC07.1-ASP01	Implement initial basic arrival management tools	01/01/2007	01/01/2020
ATC07.1-ASP02	Implement initial basic AMAN procedures	01/01/2007	01/01/2020
ATC07.1-ASP03	Adapt TMA organisation to accommodate use of basic AMAN	01/01/2007	01/01/2020
ATC07.1-ASP04	Adapt ground ATC systems to support basic AMAN functions	01/01/2007	01/01/2020

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintain or improved.
Capacity:	Improved airport/TMA capacity and reduced delays.
Operational Efficiency:	Optimised arrival sequencing produces a positive effect on fuel burn.
Cost Efficiency:	-
Environment:	Reduced holding and low level vectoring has a positive environmental effect in terms of noise and CO2 emissions.
Security:	-

Detailed SLoA Descriptions

ATC07.1-ASP01	Implement initial basic arrival management tools	From: 01/01/2007	By: 01/01/2020
Action by:	ANS Providers		
Description & purpose:	Implement initial basic arrival management tools		
Supporting material(s):	EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999 EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010		
Finalisation criteria:	1 - Function has been implemented, documented and is in operational use.		

ATC07.1-ASP02	Implement initial basic AMAN procedures	From: 01/01/2007	By: 01/01/2020
Action by:	ANS Providers		
Description & purpose:	Define, validate and implement ATC procedures for operational use of basic AMAN tools.		
Supporting material(s):	EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999 EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010		
ATM Master Plan relationship:	[PRO-049]-ATC Procedures to make use of AMAN tool including assigning responsibility for issuing times [PRO-050]-ATC Procedures to increase the use of CDA during busier time periods using AMAN information		
Finalisation criteria:	1 - Procedures have been implemented, documented and are in operational use.		

ATC07.1-ASP03	Adapt TMA organisation to accommodate use of basic AMAN	From: 01/01/2007	By: 01/01/2020
Action by:	ANS Providers		
Description & purpose:	Adapt TMA organisation, where necessary, to accommodate the use of basic AMAN.		

ATC07.1	AMAN Tools and Procedures
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Supporting material(s):	EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999 EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010
Finalisation criteria:	1 - TMA organisation is already compliant to basic AMAN use, or has been adapted accordingly.

ATC07.1-ASP04	Adapt ground ATC systems to support basic AMAN functions	From:	By:
		01/01/2007	01/01/2020
Action by:	ANS Providers		
Description & purpose:	Prepare and adapt ground ATC systems to support and implement basic AMAN functions.		
Supporting material(s):	EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999 EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010		
ATM Master Plan relationship:	[ER APP ATC 128]-Introduce Basic AMAN		
Finalisation criteria:	1 - ATC systems are already compliant to basic AMAN use, or have been adapted accordingly.		

SESAR		Active					ECAC+	
ATC12.1		Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The implementation of free route airspace (FRA) needs to be supported by conflict detection tools (CDT), resolution support information and conformance monitoring.

The conflict detection tools (CDT) include the trajectory based medium conflict detection tool (MTCD) or/and tactical controller tool (TCT).

The decision on whether to implement either one or both tools (MTCD and TCT) is left to the individual ANSP organisation as it depends on local conditions and systems in use.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area		All ECAC+ States except: Luxembourg		
Timescales:		From:	By:	Applicable to:
Initial operational capability		01/01/2015		Applicability Area
Full operational capability			01/01/2022	Applicability Area

References

European ATM Master Plan

Ol step -	[CM-0202]-Automated Assistance to ATC Planning for Preventing Conflicts in En-Route Airspace								
Enablers -	ER APP ATC 129	PRO-046b							
Ol step -	[CM-0203]-Automated Flight Conformance Monitoring								
Enablers -	CTE-S01a	CTE-S03	CTE-S03a ATC21	CTE-S04	CTE-S04a ATC21	CTE-S04b AOP04.1, AOP04.2	ER APP ATC 130	PRO-046b	
Ol step -	[CM-0205]-Advanced support for Conflict Detection and Resolution by Tactical Controller in En Route								
Enablers -	ER ATC 157	PRO-046b							
Ol step -	[CM-0207-A]-Advanced Automated Ground Based Flight Conformance Monitoring in En-Route								
Enablers -	CTE-S01a	CTE-S03b AOP04.1, AOP04.2, ATC21	ER ATC 91						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

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ICAO GANP ? ASBUs

FRTO-B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring
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Deployment Programme

3.2.1	Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)
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European Plan for Aviation Safety

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring
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- none -

Operating Environments

En-Route

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC12.1-ASP01	Implement MTCD and associated procedures	01/01/2015	01/01/2022
ATC12.1-ASP02	Implement resolution support function and associated procedures	01/01/2015	01/01/2022
ATC12.1-ASP03	Implement TCT and associated procedures	01/01/2015	01/01/2022
ATC12.1-ASP04	Implement MONA functions	01/01/2015	01/01/2022
ATC12.1-ASP05	Perform ATCO training for the use of CDT (MTCD and or TCT), resolution support and MONA related functions	01/01/2015	01/01/2022
ATC12.1-ASP06	Develop safety assessment for the changes	01/01/2015	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Early and systematic conflict detection and conformance monitoring enabled by ground based automated tools will reduce the need for tactical interventions, conformance monitoring reduces the risk of the impact of controllers and pilots errors. Possibility to maintain high level of safety with an increase in capacity due to a reduction of controller workload per aircraft.
Capacity:	Reduction of tactical controller workload, and better sector team productivity, compared to the conventional systems without automated support will open potential for capacity up to 15% in comparison to a baseline case without a detection tool (MTCD and/or TCT).
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC12.1-ASP01	Implement MTCD and associated procedures	From:	By:
		01/01/2015	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Deploy the MTCD related to : <ul style="list-style-type: none"> * Detection conflicts and risks - between aircraft; - between aircraft and reserved airspace or area (such as Holding stack area), upon activation or de-activation - Including posting detection to the sector responsible for acting on it, as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the MTCD deployment.		
Supporting material(s):	EUROCONTROL - SPEC 143 - EUROCONTROL Specification for Trajectory Prediction - 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-trajectory-prediction EUROCONTROL - FASTI - Operational Performance Requirements Analysis for the Conflict Detection Tool - Final Draft - 2 / 12/2012 EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd		

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring
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ATM Master Plan relationship:	[ER APP ATC 129]-Upgrade FDP and provide Controller Tools to provide assistance to ATC Planning for Preventing Conflicts in En-Route Airspace [ER ATC 157]-Enhanced ATC System Support to the Tactical Controller for Conflict Detection and Resolution in En-Route [PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution
Finalisation criteria:	1 - MTCD has been implemented, documented and is in operational use.

ATC12.1-ASP02	Implement resolution support function and associated procedures	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Deploy the resolution support function which includes conflict probe and passive conflict resolution assistant (e.g. presentation of context traffic) in support of MTCD, as appropriate and in accordance with the ANSP's concept of operation and identified needs. Adapt the operational procedures and working methods for the resolution support function deployment.		
Supporting material(s):	EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd		
ATM Master Plan relationship:	[ER ATC 157]-Enhanced ATC System Support to the Tactical Controller for Conflict Detection and Resolution in En-Route [PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution		
Finalisation criteria:	1 - Resolution support function in support of MTCD has been implemented, documented and is in operational use.		

ATC12.1-ASP03	Implement TCT and associated procedures	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Deploy the Tactical Controller Tool (TCT) to: - Detection conflicts between state vector trajectories(extended STCA); - Detection conflicts between state vector trajectories and tactical trajectories; - Detection conflicts between tactical trajectories; as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the TCT deployment.		
Supporting material(s):	EUROCONTROL - TCT RTS Final report - 0.3 / 04/2009 Url : http://www.eurocontrol.int/sites/default/files/article/content/documents/nm/fasti-tct-rts-2009.pdf		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S		
Finalisation criteria:	1 - TCT functions have been implemented documented and is in operational use.		

ATC12.1-ASP04	Implement MONA functions	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Deploy MONA functions : - Lateral deviation - Longitudinal deviation - Vertical deviation - CFL deviation - Aircraft Derived Data (ADD) deviations as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the MONA deployment		
Supporting material(s):	EUROCONTROL - SPEC 143 - EUROCONTROL Specification for Trajectory Prediction - 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-trajectory-prediction EUROCONTROL - SPEC-142 - EUROCONTROL Specification for Monitoring Aids - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-monitoring-aids-mona		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 130]-Upgrade FDP and provide Controller Tools to provide Controller with warnings if aircraft deviate from a clearance or plan [ER ATC 91]-ATC System Support for Advanced Conformance Monitoring in En-route Airspace [ER ATC 94]-ATC tools in support of RNP (e.g. RNP1, A-RNP) for En-Route [PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution		

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring
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Finalisation criteria:	1 - Conformance Monitoring function has been implemented, documented and is in operational use.
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ATC12.1-ASP05	Perform ATCO training for the use of CDT (MTCD and or TCT), resolution support and MONA related functions	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Perform ATCO training in line with EUROCONTROL Specifications and guidelines.		
Supporting material(s):	EUROCONTROL - FASTI - FASTI Specific Human Factors Guidelines for MTCD, MONA and SYSCO 06/2007 EUROCONTROL - FASTI - Completing the FASTI Safety Case: Guidance for Service Providers - 1.0 / 01/2009 EUROCONTROL - Good Practice Guidelines for First ATC Support Tools Implementation (FASTI) with a Focus on Human Factors and Managing the Transition - Edition 1.0 / 06/2007 EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd		
Finalisation criteria:	1 - ATCOs have been trained for the use of CDT (MTCD and/or TCT), resolution support information and MONA.		

ATC12.1-ASP06	Develop safety assessment for the changes	From: 01/01/2015	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes, notably ATC systems and procedures that will implement Conflict Detection Tools, resolution support function and conformance monitoring. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on a fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EUROCONTROL - FASTI - Completing the FASTI Safety Case: Guidance for Service Providers - 1.0 / 01/2009 EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - The safety assessment report including safety arguments for the changes has been delivered to the NSA and a notification of acceptance was received.		

SESA	Active						Multi-N
ATC15.1	Information Exchange with En-route in Support of AMAN						
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

Implement, in en-route operations in selected ACCs, information exchange mechanisms, tools and procedures in support of basic AMAN operations in adjacent ACCs and/or subjacent TMAs (including, where relevant, support for AMAN operations involving airports located in adjacent ATSUs).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All EU SES States except: Bulgaria, Cyprus, Greece, Latvia, Lithuania, Luxembourg, Malta, Slovenia. Plus: Bosnia and Herzegovina, Israel, Morocco, Turkey		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2012		Applicability Area
Full operational capability		31/12/2019	Applicability Area

References

European ATM Master Plan

OI step -	[TS-0305]-Arrival Management Extended to En-Route Airspace						
Enablers -	ER APP ATC 111	HUM-TS-0305	PRO-052				
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

Applicable legislation

-none-

Essential Operational Changes

ICAO GANP ? ASBUs

- none -

Deployment Programme

1.1.2	AMAN Upgrade to include Extended Horizon function
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European Plan for Aviation Safety

- none -

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

ATC15.1	Information Exchange with En-route in Support of AMAN
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SloA ref.	Title	From	By
ATC15.1-ASP01	Develop safety assessment for the changes	01/01/2012	31/12/2019
ATC15.1-ASP02	Adapt the ATC systems that will implement arrival management functionality in En-Route sectors in support of AMAN operations in adjacent/subjacent TMAs	01/01/2012	31/12/2019
ATC15.1-ASP03	Implement ATC procedures in En-Route airspace/sectors that will implement AMAN information and functionality	01/01/2012	31/12/2019
ATC15.1-ASP04	Train operational and technical staff and update Training Plans	01/01/2012	31/12/2019
ATC15.1-ASP05	Revise and publish Aeronautical Information documents	DELETED	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained or improved.
Capacity:	Improved airport/TMA capacity.
Operational Efficiency:	Reduction in holding and in low-level vectoring, by applying delay management at an early stage of flight, reduces delay and has a positive effect on fuel burn.
Cost Efficiency:	-
Environment:	Reduction in holding and in low-level vectoring, by applying delay management at an early stage of flight, has a positive environmental effect in terms of noise and CO2 emissions.
Security:	N/A

Detailed SLoA Descriptions

ATC15.1-ASP01	Develop safety assessment for the changes	From: 01/01/2012	By: 31/12/2019
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes, notably ATC systems and procedures that will implement arrival management functionality in En-Route sectors and associated procedures. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - The safety assessment report including safety arguments for the changes has been delivered to the NSA and a notification of acceptance was received.		

ATC15.1-ASP02	Adapt the ATC systems that will implement arrival management functionality in En-Route sectors in support of AMAN operations in adjacent/subjacent TMAs	From: 01/01/2012	By: 31/12/2019
Action by:	ANS Providers		
Description & purpose:	Implement, in selected ATC systems, the necessary functionality and information exchanges to support the use of AMAN information in En-Route sectors requiring data exchange generated from AMAN systems and operations in adjacent/subjacent TMAs.		
Supporting material(s):	EUROCONTROL - AMAN Information Extension to En Route Sectors - Concept of Operations - Edition 1.0 / 06/2009 EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999		
ATM Master Plan relationship:	[ER APP ATC 111]-Enhance AMAN to provide arrival sequence time information into En-Route decision making.		

ATC15.1	Information Exchange with En-route in Support of AMAN
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Finalisation criteria:	<p>1 - ATC systems are either:</p> <ul style="list-style-type: none"> - Already compliant to AMAN use in En-Route; or - have functionality implemented to support the necessary exchange of information needed to support AMAN operations in En-Route airspace that is interfacing with AMANs in adjacent/subjacent areas. <p>2 - ANSPs have described the level of system support and functionality with direct reference to the relevant complexity level as defined in the -AMAN Information Extension to En-Route Sectors- Concept - documentation.</p>
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ATC15.1-ASP03	Implement ATC procedures in En-Route airspace/sectors that will implement AMAN information and functionality	From: 01/01/2012	By: 31/12/2019
Action by:	ANS Providers		
Description & purpose:	Define, validate and implement the necessary ATC procedures in selected En-Route airspace/sectors, to support the use of AMAN information in En-Route sectors that are interfacing with AMAN systems operating in adjacent/subjacent TMAs.		
Supporting material(s):	EUROCONTROL - AMAN Information Extension to En Route Sectors - Concept of Operations - Edition 1.0 / 06/2009 EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999		
ATM Master Plan relationship:	[PRO-052]-ATC Procedures for extending sequencing for TMA into the en-route sectors		
Finalisation criteria:	<p>1 - Procedures have been implemented, documented and are in operational use.</p> <p>2 - ANSPs have defined, validated and implemented procedures directly related to the relevant complexity level chosen (ref. SLoA ATC15-ASP02), as defined in the AMAN Information Extension to En-Route Sectors Concept documentation.</p>		

ATC15.1-ASP04	Train operational and technical staff and update Training Plans	From: 01/01/2012	By: 31/12/2019
Action by:	ANS Providers		
Description & purpose:	<p>Train operational staff in the use of ATC procedures in En-Route airspace/sectors that will implement AMAN information and functionality in support of AMAN in adjacent/subjacent TMAs.</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans. 		
Finalisation criteria:	<p>1 - The training plans have been updated and a training package has been developed by the ANSP.</p> <p>2 - All concerned personnel have been trained.</p>		

PCP		Active					ECAC+	
ATC15.2		Arrival Management Extended to En-route Airspace						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Arrival management extended to en-route Airspace extends the AMAN horizon from the 100-120 nautical miles to at least 180-200 nautical miles from the arrival airport. Traffic sequencing may be conducted in the en-route and early descent phases. Air traffic control (ATC) services in the TMAs implementing AMAN operations shall coordinate with air traffic services (ATS) units responsible for adjacent en-route sectors. The existing techniques to manage the AMAN constraints, in particular 'Time to Lose or Gain' and 'Speed Advice' may be used to implement this functionality.

Input data to AMAN need to be provided by the most accurate trajectory prediction information available (including EFD, CPR, etc.).

It should be noted that "AMAN upgrade to include extended horizon function" includes the following aspects:

- A sector receiving arrival messages must display information for the controller in order to facilitate that instructions are given to aircraft.
- A sector operating a "Basic AMAN" should be able to generate arrival messages to adjacent sectors providing instructions to aircraft outside its own sector.
- ATM systems must be upgraded in order to be able to generate, communicate, receive and display AMA messages (ref. SLoA ATC15-ASP02) or other extended AMAN data exchanges via B2B services.
- Bilateral agreements must be established between the sectors involved that can be in different ATC units and also in different countries, including the Network Manager for the notification purposes.
- Integration of departing traffic from airfields within the extended horizon destined to arrive at the AMAN airfield.
- NM system upgrades for extended AMAN.
- Development of the working procedures including coordination with NM.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (ACCs within the extended AMAN horizon, including those adjacent to TMAs serving/associated to PCP airports; TMAs associated to PCP airports.)	All EU SES States except: Cyprus, Finland, Latvia, Lithuania, Luxembourg, Malta		
Applicability Area 2 (Based on local/regional needs)	Albania, Bosnia and Herzegovina, Georgia, Israel, Turkey		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2015		Applicability Area 1
Full operational capability		01/01/2024	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[TS-0305-A]-Arrival Management Extended to En-Route Airspace - single TMA						
Enablers -	APP ATC 111	ER ATC 163	PRO-245	REG-0516			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

Fully Dynamic and Optimised Airspace

ICAO GANP – ASBUs

NOPS-B1/8	Extended Arrival Management supported by the ATM Network function
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ATC15.2	Arrival Management Extended to En-route Airspace
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RSEQ-B1/1	Extended arrival metering
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Deployment Programme

1.1.2	AMAN Upgrade to include Extended Horizon function
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC15.2-ASP01	Upgrade ATC systems to support extended AMAN	01/01/2015	31/12/2023
ATC15.2-ASP02	Implement ATC procedures to support extended AMAN	01/01/2015	31/12/2023
ATC15.2-ASP03	Develop, and deliver as necessary, a safety assessment	01/01/2015	31/12/2023
ATC15.2-ASP04	Establish Bilateral agreements	01/01/2015	31/12/2023
ATC15.2-ASP05	Ensure that all operational personnel concerned is adequately trained	01/01/2015	31/12/2023
ATC15.2-NM01	Upgrade NM systems to support extended AMAN	01/01/2015	31/12/2023
ATC15.2-NM02	Establish Bilateral agreements	01/01/2015	31/12/2023
ATC15.2-NM03	Implement ATFCM procedures for management of extended AMAN info	01/01/2015	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained.
Capacity:	Optimal use of TMA capacity.
Operational Efficiency:	Improved arrival flow.
Cost Efficiency:	-
Environment:	Delays are resorbed by reducing speed in early phases of arrivals leading to reduction of holding and vectoring which has a positive environmental impact in terms of fuel savings.
Security:	-

Detailed SLoA Descriptions

ATC15.2-ASP01	Upgrade ATC systems to support extended AMAN	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Upgrade ATC system to support extended AMAN in En-route sectors (including data exchange, data processing and information display at the ATCO working positions in support the handling of AMAN constrains). ATM systems must be upgraded in order to be able to generate, communicate, receive and display AMA OLDI messages or other extended AMAN data exchanges via B2B services.		
Supporting material(s):	SJU - SESAR Solution 05: Data Pack for Extended Arrival Management (AMAN) horizon Url : https://www.sesarju.eu/sesar-solutions/extended-arrival-management-aman-horizon		
ATM Master Plan relationship:	[APP ATC 111]-Enhance AMAN to extend arrival management to en-route airspace - single TMA [ER ATC 163]-Support to En-route delay absorption for cross-border implementation of arrival sequence		
Finalisation criteria:	1 - The upgraded systems are in service.		

ATC15.2	Arrival Management Extended to En-route Airspace
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ATC15.2-ASP02	Implement ATC procedures to support extended AMAN	From: Applicability Area 1: 01/01/2015	By: Applicability Area 1: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Define and implement the needed ATC procedures to support the extended AMAN functionality.		
Supporting material(s):	SJU - SESAR Solution 05: Data Pack for Extended Arrival Management (AMAN) horizon Url : https://www.sesarju.eu/sesar-solutions/extended-arrival-management-aman-horizon		
ATM Master Plan relationship:	[PRO-245]-ATC Procedures for use of cross border extended Arrival Management		
Finalisation criteria:	1 - Procedures have been developed, implemented, and are in operational use.		

ATC15.2-ASP03	Develop, and deliver as necessary, a safety assessment	From: Applicability Area 1: 01/01/2015	By: Applicability Area 1: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes related to implementation of extended arrival management functionality in En-Route sectors and associated procedures. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the NSA as necessary.		

ATC15.2-ASP04	Establish Bilateral agreements	From: Applicability Area 1: 01/01/2015	By: Applicability Area 1: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Establish Bilateral agreements between the ATS units involved for extended operational procedures and data exchanges, as well as between the concerned ATS unit and NM.		
Supporting material(s):	SJU - SESAR Solution 05: Data Pack for Extended Arrival Management (AMAN) horizon Url : https://www.sesarju.eu/sesar-solutions/extended-arrival-management-aman-horizon		
ATM Master Plan relationship:	[PRO-245]-ATC Procedures for use of cross border extended Arrival Management		
Finalisation criteria:	1 - Agreed LoA or MoU between neighbouring ATC units has been signed.		

ATC15.2-ASP05	Ensure that all operational personnel concerned is adequately trained	From: Applicability Area 1: 01/01/2015	By: Applicability Area 1: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Train operational staff in the use of ATC procedures in En-Route airspace/sectors that will implement extended AMAN information. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Finalisation criteria:	1 - A training package has been developed by the ANSP and all concerned staff have been trained.		

ATC15.2-NM01	Upgrade NM systems to support extended AMAN	From: Applicability Area 1: 01/01/2015	By: Applicability Area 1: 31/12/2023
Action by:	NM		

ATC15.2	Arrival Management Extended to En-route Airspace
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Description & purpose:	Upgrade the NM systems for: - reception and presentation of extended AMAN data; - processing extended AMAN data in NM systems (new estimates used for updating traffic demand data during the execution phase, further updates for trajectory update); - a provision of Network information(EFD improvements regarding accuracy and timely distribution of data); - development of Network Impact Assessment Tool to include extended AMAN requirements.
Finalisation criteria:	1 - The upgraded system is in service.

ATC15.2-NM02	Establish Bilateral agreements	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 31/12/2023
Action by:	NM		
Description & purpose:	Define the data exchanges and operational procedures between NM and concerned ATS units.		
Finalisation criteria:	1 - Bilateral agreements are concluded.		

ATC15.2-NM03	Implement ATFCM procedures for management of extended AMAN info	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 31/12/2023
Action by:	NM		
Description & purpose:	Define and implement the required ATFCM procedures to support the extended AMAN functionality.		
Finalisation criteria:	1 - ATFCM Procedures have been developed, implemented, and are in operational use.		

SESAR		Active					ECAC+	
ATC17		Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The operational context of electronic dialogue as automated assistance to controller during coordination and transfer addresses the facilities and processes between ATC components serving ATC units for the purpose of achieving:

1. The electronic dialogue in co-ordination prior to the transfer of flights from one ATC unit to the next.

In the scope of this objective the implementers should use the following OLDI messages in order to perform an electronic dialogue :

- Referred Activate Proposal Message (RAP);
- Referred Revision Proposal Message (RRV)
- Co-ordination Message (CDN)
- Acceptance Message (ACP)
- Reject Co-ordination Message (RJC)
- Stand-by Message (SBY)

2. The transfer of communication from one ATC unit to the next ATC unit of such flights.

In the scope of this objective the implementers should use the following OLDI messages in order to perform an electronic dialogue:

- Change of Frequency Message (COF)
- Manual Assumption of Communications Message (MAS)
- Transfer Initiation Message (TIM)
- Supplementary Data Message (SDM)
- Hand-Over Proposal Message (HOP)
- Request on Frequency Message (ROF)

3. The coordination processes that support the exchange of OLDI messages related to the Basic procedure, specifically Preliminary Activation Message (PAC) and, if applicable, SSR Code Assignment Message (COD).

The system permits controllers to conduct screen to screen coordination between adjacent ATSU's / sectors reducing workload associated with coordination, integration and identification tasks. The system supports coordination dialogue between controllers and transfer of flights between ATSU's, and facilitates early resolution of conflicts through inter ATSU/sector coordination.

NOTE: This objective complements the (mandatory) requirements of basic notification, coordination and transfer functionalities which were covered in Implementation objective ITY-COTR (achieved in 2015) and regulated by Regulation (EC) No 1032/2006.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Slovak Republic, Ukraine		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2013		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0201]-Automated Assistance to Controller for Seamless Coordination, Transfer and Dialogue						
Enablers -	PRO-048						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EC) No 1032/2006 laying down requirements for the exchange of flight data for the purpose of notification, coordination and transfer of flights between air traffic control units.

Essential Operational Changes

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ATC17	Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer
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ICAO GANP ? ASBUs

- none -	
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Deployment Programme

3.2.1	Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC17-REG01	Conduct safety oversight of the changes	DELETED	
ATC17-ASP01	Develop safety assessment for the changes	01/01/2013	01/01/2022
ATC17-ASP02	Upgrade and put into service ATC system to support the Basic procedure (specifically PAC and COD)	01/01/2013	01/01/2022
ATC17-ASP03	Upgrade and put into service ATC system to support electronic dialogue procedure in Transfer of communication process	01/01/2013	01/01/2022
ATC17-ASP04	Upgrade and put into service ATC system to support electronic dialogue procedure in Coordination process	01/01/2013	01/01/2022
ATC17-ASP05	Train ATC staff for applying electronic dialogue procedure	01/01/2013	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Reduction of human error due to automation of controller tasks during coordination and transfer.
Capacity:	Reduction of controller workload compared to conventional processes without automated support.
Operational Efficiency:	More efficient planning and operational decision making.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC17-ASP01	Develop safety assessment for the changes	From:	By:
		01/01/2013	01/01/2022
Action by:	ANS Providers		

ATC17	Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer
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Description & purpose:	<p>Develop safety assessment of the changes, notably upgrades of the system to support Electronic Dialogue during Coordination and Transfer. The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. <p>This safety assessment shall be based on fully validated/recognised method.</p>
Supporting material(s):	<p>EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi</p> <p>EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm</p>
Finalisation criteria:	1 - The Safety argument for all changes, generated by the upgrade of the system to support Electronic Dialogue during Coordination and Transfer has been delivered by the ANSP to the NSA.

ATC17-ASP02	Upgrade and put into service ATC system to support the Basic procedure (specifically PAC and COD)	From: 01/01/2013	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	When bilaterally agreed between ANSPs, upgrade and put into service ATC system to support the Basic procedure, specifically Preliminary Activation Message (PAC) and, if applicable, SSR Code Assignment Message (COD).		
Supporting material(s):	<p>EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi</p> <p>EUROCONTROL - System Supported Coordination (SYSCO) Implementation Guidelines - Edition 2.0 / 03/2011</p>		
Finalisation criteria:	<p>1 - Ground systems have been upgraded with the functions to support Basic procedure, as identified by the individual administration from the following list:</p> <ul style="list-style-type: none"> - PAC, COD. <p>2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA).</p> <p>3 - The functions to support Basic procedure, as identified by the individual administration from the following list:</p> <ul style="list-style-type: none"> - PAC, COD; <p>have been documented and are in operational use with all partners in the applicability area.</p>		

ATC17-ASP03	Upgrade and put into service ATC system to support electronic dialogue procedure in Transfer of communication process	From: 01/01/2013	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	When bilaterally agreed between ANSPs, upgrade and put into service ATC system to support electronic dialogue procedure in Transfer of communication process using OLDI.		
Supporting material(s):	<p>EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi</p> <p>EUROCONTROL - System Supported Coordination (SYSCO) Implementation Guidelines - Edition 2.0 / 03/2011</p>		
Finalisation criteria:	<p>1 - Ground systems have been upgraded with the functions to support electronic dialogue procedure in Transfer of communication process using OLDI messages, as identified by the individual administration from the following list:</p> <ul style="list-style-type: none"> - ROF, COF, TIM, HOP, MAS and SDM. <p>2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA).</p> <p>3 - The functions to support the transfer and communication process as identified by the individual administration from the following list:</p> <ul style="list-style-type: none"> - ROF, COF, TIM, HOP, MAS and SDM. <p>have been documented and are in operational use.</p>		

ATC17-ASP04	Upgrade and put into service ATC system to support electronic dialogue procedure in Coordination process	From: 01/01/2013	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	When bilaterally agreed between ANSPs, upgrade and put into service ATC system to support electronic dialogue procedure in Coordination process using OLDI.		

ATC17	Electronic Dialogue as Automated Assistance to Controller during Coordination and Transfer
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Supporting material(s):	<p>EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi</p> <p>EUROCONTROL - System Supported Coordination (SYSCO) Implementation Guidelines - Edition 2.0 / 03/2011</p>
ATM Master Plan relationship:	[PRO-048]-ATC Procedures to implement screen to screen coordination for transfer of control conditions
Finalisation criteria:	<p>1 - Ground systems have been upgraded with the functions to support electronic dialogue procedure in Coordination process using OLDI messages, as identified by the individual administration from the following list: - RAP, RRV, CDN, ACP, RJC and SBY.</p> <p>2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA).</p> <p>3 - The functions to support the coordination process as identified by the individual administration from the following list: - RAP, RRV, CDN, ACP, RJC and SBY; have been documented and are in operational use with all partners in the applicability area.</p>

ATC17-ASP05	Train ATC staff for applying electronic dialogue procedure	From: 01/01/2013	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	<p>Train operational staff in the use of electronic dialogue procedure. The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans. 		
Supporting material(s):	<p>EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi</p> <p>EUROCONTROL - System Supported Coordination (SYSCO) Implementation Guidelines - Edition 2.0 / 03/2011</p>		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed by the ANSP for the use of electronic dialogue procedure		

SESAR		Active					LOC	
ATC18		Multi-Sector Planning En-route - 1P2T						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The multi-sector planner (MSP) defines a new organisation of controller team(s) and new operating procedures to enable the planning controller to provide support to several tactical controllers operating in different adjacent en-route sectors.

This Implementation Objective proposes a structure whereby, in en-route sectors, a single planner controller (P) is planning and organising the traffic flows for two tactical controllers (T), each of whom is controlling a different sector (1P-2T configuration). There is no need for exit/entry coordination with the airspace volume of multi-sector planner however, the coordination capability with adjacent planner/multi-planner should remain. In order to guarantee that the workload of the multi-sector planner remains comfortable, even when the executive controllers face traffic levels which are not especially low, some enhancements to the planning tools are needed, improving the efficiency of the planning and decision-making processes.

This concept is intended for operation with suitably configured flight data processing components, flexible allocation of ATC roles and volumes and multi-sector planning.

NOTE 1: A further phase of concept development will extend the concept for MSP during SESAR 2020 to (1P-nT) (SESAR Solution PJ10.1.a) and a further evolution of the MSP concept will develop a novel way of working without the necessity for boundary co-ordinations ('Collaborative Control', SESAR Solution PJ10.1.cj).

NOTE 2: Being a local objective, to be applied at individual States or ATC unit level to achieve their performance targets, the objective does not have a mandatory implementation deadline. As guidance, the FOC of the OI Step on which the SESAR Solution is based is 31/12/2024.

NOTE 3: This objective is linked to SESAR Solution #63.

FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SloAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SloAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (All ECAC States, based on local needs)	All EU States except: Belgium, Bulgaria, Croatia, Denmark, Estonia, France, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovak Republic, Spain. Plus: Albania, Azerbaijan, Israel, Maastricht UAC, Moldova, North Macedonia, Norway, Switzerland		
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

OI step -	[CM-0301]-Sector Team Operations Adapted to New Responsibilities in En-Route. 1Planning to 2Tactical Controllers team structure						
Enablers -	ER ATC 95	HUM-004					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

Fully Dynamic and Optimised Airspace

ICAO GANP – ASBUs

FRTO-B1/6	Multi-Sector Planning
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ATC18	Multi-Sector Planning En-route - 1P2T
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Deployment Programme

- none -	
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route	
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Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC18-ASP01	ATM system support to permit a single planner role associated to two adjacent tactical roles		
ATC18-ASP02	Develop multi-sector planning procedures and working methods for en-route sectors		
ATC18-ASP03	Train air traffic controllers to multi sector planning		
ATC18-ASP04	Develop, and deliver as necessary, a safety assessment		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	The workload reduction might be translated in marginal capacity gains.
Operational Efficiency:	Slight increase in the number of direct routes facilitate by the fact that adjacent sectors share the same planner controller.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC18-ASP01	ATM system support to permit a single planner role associated to two adjacent tactical roles	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	<p>The en-route ATM system functions are enhanced to allow a planner role to be associated to two adjacent sector tactical roles. The planner role shall be given the data access and eligibility to modify relevant traffic attributes for the airspace volume allocated to him so that the planner can identify the s potential conflicts or risk of conflicts and de-conflict/smooth the traffic flows in order to avoid the tactical interventions. Traffic flow between the two tactical sector controllers is also smoothed and workload associated with tactical tasks is maintained at a manageable level for the two tactical controllers.</p> <p>The actually necessary capabilities depend on the individual level of complexity.</p>		
Supporting material(s):	SJU - SESAR Solution 63: Data Pack for multi-sector planning Url : https://www.sesarju.eu/sesar-solutions/multi-sector-planning		
ATM Master Plan relationship:	[ER ATC 95]-ATC System Support to Permit a Single Planner Role Associated to Two Adjacent Tactical Roles		
Finalisation criteria:	1 - Systems are adapted to support single multi-planner role associated to two adjacent tactical roles.		
ATC18-ASP02	Develop multi-sector planning procedures and working methods for en-route sectors	From:	By:
		-	-
Action by:	ANS Providers		

ATC18	Multi-Sector Planning En-route - 1P2T
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Description & purpose:	With the introduction of a new staffing configuration (e.g. changing from existing 1 tactical (executive) and 1 planning controller to 2 tactical (executive) and 1 planning controller in en-route sectors), the allocation of tasks (including new tasks) changes. Therefore, procedures and working methods have to be developed to cater for enhanced multi-planner needs triggered by the change of coordination.
Supporting material(s):	SJU - SESAR Solution 63: Data Pack for multi-sector planning Url : https://www.sesarju.eu/sesar-solutions/multi-sector-planning
ATM Master Plan relationship:	[HUM-004]-New staffing configuration / Extended ATC Planner in en-route
Finalisation criteria:	1 - Multi-sector planner concept is in operational use.

ATC18-ASP03	Train air traffic controllers to multi sector planning	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Train operational staff in the use of multi sector planning. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine ATCO population to be trained; - Apply the training plans.		
Supporting material(s):	SJU - SESAR Solution 63: Data Pack for multi-sector planning Url : https://www.sesarju.eu/sesar-solutions/multi-sector-planning		
ATM Master Plan relationship:	[HUM-004]-New staffing configuration / Extended ATC Planner in en-route		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of multi sector planning. 2 - The concerned personnel have been trained.		

ATC18-ASP04	Develop, and deliver as necessary, a safety assessment	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes, notably ATC systems and procedures that will implement multi-sector planning. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on a fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the NSA, as necessary.		

SESAAR		Active				LOC	
ATC19		Enhanced AMAN-DMAN integration					
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

Integrated Arrival and Departure management aims at increasing predictability and resilience at an airport by improved co-ordination between ACC/APP and TWR controllers. Arrival and Departure flows to the respective runway are integrated by setting up fixed arrival departure sequencing pattern for defined periods. The successive pattern shall be agreed between ATSUs with the support of a tool considering arrival and departure demand for the RWY(s) concerned. Departure flow to the runway is managed by pre-departure sequencing (integrating route planning) while arrival flow to the runway is managed by arrival metering. Procedures for adjusting the Arrival and Departure sequence shall remain unchanged compared to the previous operating method of just using AMAN and DMAN work independently .

The integration of the two systems is achieved as follows:

- AMAN and DMAN systems shall be coupled and shall provide with an integrated and shared view on the planned arrival and departure flow (and sequence pattern) to the relevant TWR and APP COWPs.
- Coupled AMAN/DMAN shall operate in a master/slave configuration; the AMAN setting-up gaps (Arrival Free Intervals) to be filled by the DMAN.

This integration shall rely on a stable and optimised pre-departure sequence supported by an enhanced DMAN as described in PCP sub AF 2.1 and 2.2.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local needs)	All EU SES States except: Bulgaria, Cyprus, Estonia, Hungary, Latvia, Maastricht UAC, Malta, Portugal, Romania, Slovak Republic, Spain. Plus: Albania, Moldova, Serbia, Turkey, Ukraine		
Timescales:	From:	By:	Applicable to:
Date is not applicable to STKs. Subject to local needs.	31/05/2019		Applicability Area
Date is not applicable to STKs. Subject to local needs.		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[TS-0308]-Flow based Integration of Arrival and Departure Management						
Enablers -	AERODROME -ATC-09a	AERODROME -ATC-50	APP ATC 161				
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

Applicable legislation

-none-

Essential Operational Changes

ICAO GANP ? ASBUs

RSEQ-B2/1	Integration of arrival and departure management
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Deployment Programme

- none -

European Plan for Aviation Safety

ATC19	Enhanced AMAN-DMAN integration
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- none -	
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Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC19-ASP01	Couple AMAN and DMAN systems		
ATC19-ASP02	Integrate surface movement processing system with DMAN		
ATC19-ASP03	Upgrade CWP to incorporate the information from integrated AMAN/DMAN		
ATC19-ASP04	Develop safety assessment of the changes		
ATC19-ASP05	Train the controllers in the use of integrated Arrival and Departure Management		
ATC19-INT01	Promulgate AMCs to ensure a harmonised application of the functional system, including roles and responsibilities		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	No
Capacity:	No
Operational Efficiency:	Contribution to Predictability; increase in resilience.
Cost Efficiency:	No
Environment:	The coupling of AMAN with DMAN has been shown to save departure fuel and improve local air quality due to a reduction in the taxi-out time during peak traffic (up to 7% savings in taxi-out fuel)
Security:	No

Detailed SLoA Descriptions

SLoA ref.	Title	From:	By:
ATC19-ASP01	Couple AMAN and DMAN systems	-	-
Action by:	ANS Providers		
Description & purpose:	<p>Arrival Management (AMAN) and Departure Management (DMAN) systems shall be coupled in a master/slave configuration and shall support co-ordination between ACC/APP and TWR controllers. The AMAN acting as the master is setting-up gaps (Arrival Free Intervals) which shall be filled by the DMAN allocating departures in the AFIs.</p> <p>Changes must be synchronised between the ANSP units (TWR, APP and ACC) providing services to the airport / runway.</p> <p>Integration between ANSP and Airport systems may be required at each deployment location depending on the ownership arrangement.</p>		
Supporting material(s):	SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management Url : https://www.sesarju.eu/sesar-solutions/flow-based-integration-arrival-and-departure-management		
ATM Master Plan relationship:	[APP ATC 161]-Enhance AMAN to support Flow based Integration of Arrival and Departure Management		
Finalisation criteria:	1 - AMAN and DMAN have been coupled in a master/slave configuration. 2 - The AMAN gaps (AFIs) are filled by DMAN.		

SLoA ref.	Title	From:	By:
ATC19-ASP02	Integrate surface movement processing system with DMAN	-	-
Action by:	ANS Providers		

ATC19	Enhanced AMAN-DMAN integration		
Description & purpose:	<p>The integration of AMAN and DMAN shall rely on a stable and optimized pre-departure sequence. The aircraft operator provides DMAN with an accurate Target off Block Times (TOBT) via its AOCC or via airport's CDM interface. This provides accurate Target Start-Up Approval Times (TSATs), reliable enough to allow the Controller to adhere to the pre-departure sequence.</p> <p>The integration will enable flow-based improvement of operational management of the traffic among AMAN, DMAN and surface management services, at airports with RWYs used for both arriving and departing flights.</p>		
Supporting material(s):	SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management Url : https://www.sesarju.eu/sesar-solutions/flow-based-integration-arrival-and-departure-management		
ATM Master Plan relationship:	[AERODROME-ATC-09a]-Flow based Improvement of operational orchestration among arrival / departure management and surface management services		
Finalisation criteria:	1 - The system for surface movement processing has been integrated with DMAN		
ATC19-ASP03	Upgrade CWP to incorporate the information from integrated AMAN/DMAN	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Upgrade CWP to enable display and management of the data coming from integrated AMAN/DMAN.		
Supporting material(s):	SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management Url : https://www.sesarju.eu/sesar-solutions/flow-based-integration-arrival-and-departure-management		
ATM Master Plan relationship:	[AERODROME-ATC-50]- Advanced Airport Tower Controller Working Position (A-CWP)		
Finalisation criteria:	1 - The system has been upgraded.		
ATC19-ASP04	Develop safety assessment of the changes	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	<p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. <p>This safety assessment shall be based on fully validated/recognised method.</p>		
Supporting material(s):	SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management Url : https://www.sesarju.eu/sesar-solutions/flow-based-integration-arrival-and-departure-management		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered to the NSA.		
ATC19-ASP05	Train the controllers in the use of integrated Arrival and Departure Management	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Train the controllers in the responsibilities and actions that should be taken in relation to use of integrated AMAN-DMAN supporting APP and TWR operations (" Flow based Integration of Arrival and Departure Management")		
Supporting material(s):	SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management Url : https://www.sesarju.eu/sesar-solutions/flow-based-integration-arrival-and-departure-management		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed 2 - The concerned personnel has been trained		
ATC19-INT01	Promulgate AMCs to ensure a harmonised application of the functional system, including roles and responsibilities	From: -	By: -
Action by:	EASA		
Description & purpose:	Establish and promulgate AMCs to ensure a harmonised application of the functional system, including roles and responsibilities		
Finalisation criteria:	1 - The procedures for use of Enhanced AMAN-DMAN integration have been promulgated		

SESAR		Active					LOC	
ATC20		Enhanced STCA with down-linked parameters via Mode S EHS						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

STCA (Short Term Conflict Alert) is a ground system designed and deployed as last Safety Net against the risk of collisions between aircraft due to separation loss. Enhanced STCA can be used both in En-Route and TMA radar environments to improve prediction of potential conflicts and reduce false alert rate. The difficulty of STCA development lies with the need to avoid a high false alert rate versus the need of ensure that all risk of collision always triggers a timely warning.

This objective addresses the enhancement of the STCA safety net with selected flight level (SFL) information down-linked from the suitably equipped aircraft via the Mode-S EHS protocol. Enhancing the STCA with the information downlinked from the aircraft will improve the warning times, decrease the rate of nuisance alerts and maintain or improve the rate of genuine alerts.

NOTE: The implementation of this functionality requires the appropriate equipment on board. The airborne carriage and operation of Mode S EHS capable transponders is addressed by objective ITY-SPI (ITY-SPI-USE06 and ITY-SPI-MIL02) based on the provision of Regulation (EU) No 2020587/386.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (ACCs and collocated ACCs/APPs. Stand-alone APP Units providing services to more than 100K IFR movements per year. Subject to local need.)	All EU SES States except: Bulgaria, Estonia, Latvia, Malta. Plus: Albania, Israel, Moldova, Montenegro, North Macedonia, Serbia, Turkey		
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

OI step -	[CM-0807-A]-Enhanced Short Term Conflict Alert using Mode S EHS data						
Enablers -	ER APP ATC 14						
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-0 03	Not covered in the Implementation Plan	

Applicable legislation

Regulation (EU) No 2020/587 amending Regulation (EU) No 1207/2011 (SPI)

Essential Operational Changes

Trajectory Based Operations

ICAO GANP – ASBUs

SNET-B1/1 Enhanced STCA with aircraft parameters

Deployment Programme

- none -

European Plan for Aviation Safety

MST.030 Implementation of SESAR solutions aiming to reduce the risk of mid-air collision en-route and TMA

Operating Environments

ATC20	Enhanced STCA with down-linked parameters via Mode S EHS
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En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC20-REG01	Mandate the airborne carriage and operation of suitable equipment (Mode S EHS transponders)		
ATC20-ASP01	Deploy enhanced STCA function with the use of Selected Flight Level downlinked parameter		
ATC20-ASP02	Develop and implement ATC procedures related to the availability for display and use of SFL in the STCA functionality		
ATC20-ASP03	Align ATCO training to address the availability and use of the SFL downlinked parameter		
ATC20-ASP04	Develop a local safety assessment		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	A comparative analysis of STCA enhanced with the SFL DAP against conventional STCA showed that the use of the SFL DAP improves warning times, decreases the rate of nuisance alerts and maintains or increases the rate of genuine alerts.
Capacity:	No
Operational Efficiency:	No
Cost Efficiency:	No
Environment:	No
Security:	No

Detailed SLoA Descriptions

ATC20-REG01	Mandate the airborne carriage and operation of suitable equipment (Mode S EHS transponders)	From:	By:
		-	-
Action by:	Regulatory Authorities		
Description & purpose:	Mandate the equipage of fixed winged aircraft, with a maximum certified take-off mass exceeding 5700 kg or having a maximum cruising true airspeed capability greater than 250 knots, operating as IFR/GAT with appropriate equipment allowing the downlink of the Selected Flight Level information, via the Mode S EHS protocol.		
	Note :Note: for the EU States, the carriage requirement is addressed by the SPI Regulation (No 2017/386 amending Regulation (EU) No 1207/2011), therefore this SLoA is not relevant and should be considered as not applicable. The non-EU States may have to issue local mandates for the carriage and operation of EHS transponders.		
Supporting material(s):	EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 2 / 04/2019 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-2 EUROCAE - ED-73E - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 05/2011 Url : https://eshop.eurocae.net/eurocae-documents-and-reports ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/		
Finalisation criteria:	1 - Mandate to equip the relevant aircraft with appropriate equipment has been issued by the regulator. 2 - Airworthiness certificate has been issued by the regulator for aircraft appropriately equipped (capability to downlink the SFL via Mode S EHS). 3 - Transponder operating procedure published in AIP		

ATC20-ASP01	Deploy enhanced STCA function with the use of Selected Flight Level downlinked parameter	From:	By:
		-	-
Action by:	ANS Providers		

ATC20	Enhanced STCA with down-linked parameters via Mode S EHS
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Description & purpose:	Put into service or enhance STCA functionality acquire and to make use of the SFL parameter downlinked from the aircraft via Mode S EHS. The required system changes may impact: <ul style="list-style-type: none"> • The surveillance chain • The STCA conflict detection algorithm • The Controller Working Position (CWP)/Human Machine Interface (HMI)
Supporting material(s):	SJU - SESAR Solution 69: Data pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/cesar-solutions/enhanced-stca-down-linked-parameters EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca
ATM Master Plan relationship:	[ER APP ATC 14]-Enhance Short Term Conflict Alert (STCA) to use Downlinked Aircraft Parameters
Finalisation criteria:	1 - The ground system has the following capabilities: <ul style="list-style-type: none"> • The SFL is considered against the CFL as part of the STCA conflict detection algorithm • The display of STCA alerts

ATC20-ASP02	Develop and implement ATC procedures related to the availability for display and use of SFL in the STCA functionality	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	The local ATC procedures should address the display and use of the SFL downlinked parameter		
Supporting material(s):	SJU - SESAR Solution 69: Data pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/cesar-solutions/enhanced-stca-down-linked-parameters EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca		
Finalisation criteria:	1 - Procedures are in operational use		

ATC20-ASP03	Align ATCO training to address the availability and use of the SFL downlinked parameter	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	All relevant personnel (e.g. air traffic controllers) have to be trained so as to take into account the availability of the SFL information. The training should take into account also the mixed mode operations, as not all aircraft will be able to downlink the SFL parameter.		
Supporting material(s):	SJU - SESAR Solution 69: Data pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/cesar-solutions/enhanced-stca-down-linked-parameters EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed 2 - The concerned personnel has been trained		

ATC20-ASP04	Develop a local safety assessment	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	When proceeding with the local implementation, changes in the ATM functional system derived from the enhancement of STCA with the use of SFL information are subject to the elaboration of a safety argument considering local specific risks and mitigation measures to those risks, in particular the mixed mode operations (aircraft not providing the SFL information). The tasks to be done are as follows: <ul style="list-style-type: none"> • Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; • Develop safety assessment; • Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	SJU - SESAR Solution 69: Data pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/cesar-solutions/enhanced-stca-down-linked-parameters EUROCONTROL - GUID-159 - EUROCONTROL Guidelines for Short Term Conflict Alert - Part I to III - 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-short-term-conflict-alert-stca EUROCONTROL - SPEC-0108 - EUROCONTROL Specification for Short Term Conflict Alert - 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the Regulator/NSA/Competent Authority, as necessary.		

SESAAR		Initial					LOC	
ATC21		Composite surveillance (ADS-B/WAM)						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This implementation objective is addressing a surveillance system that exploits the similarities between the two surveillance techniques (ADS-B and WAM) and combines them into a single system. The term composite is used to signify that various system components and data items are shared whilst ensuring that the required degree of channel autonomy/independence is retained. ADS-B information received by WAM system is evaluated and if matching with WAM information extracted by others methods, then it's used in the WAM output. Information is then periodically re-evaluated.

The exploitation of synergies between the two surveillance techniques into a "composite surveillance system" supports a number of benefits and performance enhancements, compared with the use of 2 separated systems, WAM and ADS-B. These include:

- cost savings, achieved through the co-mounting of system components into a single unit and the associated savings in terms of site costs, communications and efficient utilization of certain common components
- Use of ADS-B message information to support passive acquisition of an aircraft, reducing the 1030/1090 MHz footprint of a WAM surveillance system, especially a reduction in the number of 1030 MHz interrogations.
- cost effective security mitigation techniques, based on the use of additional 'raw' RF and timing data (not available in other components of a surveillance infrastructure), which can be used to derive additional indicators, such as Ground based 'confidence/credibility' measure enabling e.g. the early identification of anomalous avionic behaviour, or spoofed 'ADS-B transmissions'.
- Means for performance monitoring and alerting of faults in the system, by supplementing the WAM channels BITE with the comparison between the ADS-B position and WAM channel data as a way to detect failure conditions.
- Improvement of the performance of the ADS-B channel, e.g. by enabling the allowance of temporary reductions in ADS-B quality indicator values, by resolving ADS-B data-to-track association issues related to non-unique 24-bit addresses, by reducing the effects on the resulting along-track horizontal position error.

NOTE: The aircraft systems are assumed compliant with the EU Regulation 1207/2011 (Surveillance Performance and Interoperability Implementing Rule - SPI IR) as amended..

NOTE: This objective should be seen as a possible mean of compliance with the applicable Regulations. It is without prejudice to the choice of the ANSPs to deploy the most appropriate surveillance solution taking into account the local conditions.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local needs)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2020		

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	CTE-S03a	CTE-S03b	CTE-S04a	CTE-S05	CTE-S06		
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

ATC21	Composite surveillance (ADS-B/WAM)
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Applicable legislation

Regulation (EU) No 2020/587 amending Regulation (EU) No 1207/2011 (SPI)

Essential Operational Changes

CNS Infrastructure and Services

ICAO GANP – ASBUs

ASUR-B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)
ASUR-B0/2	Multilateration cooperative surveillance systems (MLAT)

Deployment Programme

- none -

European Plan for Aviation Safety

RMT.0519	Maintaining CS-ACNS
RMT.0679	Revision of surveillance performance and interoperability (SPI)

Operating Environments

Airport
En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ATC21-REG01	Mandate the airborne carriage and operation of suitable equipment (ADS-B transponders)		
ATC21-ASP01	Deploy composite surveillance ADS-B/WAM systems		
ATC21-ASP02	Develop a local safety assessment		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	No
Capacity:	No
Operational Efficiency:	No
Cost Efficiency:	System provides two surveillance layers sharing HW components, with the associated cost reduction.
Environment:	No
Security:	Increases security of ADS-B surveillance layer by verification of received information.

Detailed SLoA Descriptions

ATC21-REG01	Mandate the airborne carriage and operation of suitable equipment (ADS-B transponders)	From: -	By: -
Action by:	Regulatory Authorities		
Description & purpose:	Mandate the equipage of aircraft, with a maximum certified take-off mass exceeding 5700 kg or having a maximum cruising true airspeed capability greater than 250 knots, operating as IFR/GAT with appropriate ADS-B equipment		
	<p>Note: for the EU+ States, the carriage requirement is addressed by the SPI Regulation (EU) No 1207/2011 as amended by Regulation 2020/587, therefore this SLoA is not relevant and should be considered as not applicable. However, this SLoA may be applicable in case the States wishes to extend the carriage requirements beyond the scope of the SPI IR. The non-EU States may have to issue local mandates for the carriage and operation of ADS-B transponders.</p>		

ATC21	Composite surveillance (ADS-B/WAM)		
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Supporting material(s):	<p>EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 2 / 04/2019 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-2</p> <p>ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/</p>		
Finalisation criteria:	<p>1 - Mandate to equip the relevant aircraft with appropriate equipment has been issued by the regulator. 2 - Airworthiness certificate has been issued by the regulator for aircraft appropriately equipped.</p>		

ATC21-ASP01	Deploy composite surveillance ADS-B/WAM systems	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	<p>Composite Surveillance system is a distributed network of time synchronized ground-based 1090 MHz receivers passing data to a Centralised Processor System (CPS). The CPS processes and consolidates the data received and outputs surveillance data for integration within subsequent surveillance data processing systems of the ANSPs ATM infrastructure or for integration within a local display suite.</p> <p>Composite ADS-B and WAM surveillance systems typically consist of the following main ground components:</p> <ul style="list-style-type: none"> • Ground Station Components – deployed in a distributed nature. (A suite of 1090 MHz receivers plus, optionally, 1030 MHz transmitter(s)) • Central Processor System - configurable to include those components required to support optional functionality e.g. active 1030 MHz interrogations, output to a legacy display etc. Some association functions can be performed inside the Central Processor System in the Composite surveillance sensor. This functionality will be executed in the CPS and will be performed with position calculation and association of information objectives. Pre-ASTERIX association is performed in the CPS. The tracking function inside the surveillance sensor different than the one used in the tracker. • MSDF Tracker: Element to perform post ASTERIX tracking. This component is not included in the Composite WAM – ADS-B sensor. • Control and Monitoring System: The CMS elements of the system perform the specified control and monitoring system functions of the system. • Network connections: Communication links between the distributed component parts of the Composite Surveillance System and its CPS. 		
Supporting material(s):	<p>SJU - Solution 114 Composite surveillance (ADS-B/WAM) Data Pack Url : https://www.sesarju.eu/sesar-solutions/composite-surveillance-ads-b-wam</p> <p>EUROCAE - ED-142A - EUROCAE Technical Specification for Wide Area Multilateration (WAM) systems (ED142A) EUROCAE - ED-129B - EUROCAE Technical Specifications for ADS-B Ground system (ED-129B)</p>		
ATM Master Plan relationship:	<p>[CTE-S03a]-ADS-B station for NRA surveillance [CTE-S03b]-ADS-B station for RAD and APT surveillance [CTE-S04a]-Wide Area Multilateration (WAM) [CTE-S05]-Gradual rationalisation of conventional surveillance infrastructure (ADS-B/WAM vs SSR and MSPSR vs PSR) [CTE-S06]-Composite Surveillance</p>		
Finalisation criteria:	<p>1 - The Ground system has been upgraded in terms of composite WAM-ADS-B functionality, including sensors, SDPD and ASTERIX interfaces.</p>		

ATC21-ASP02	Develop a local safety assessment	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	<p>When proceeding with the local implementation of this Objective changes in the ATM functional system derived from the deployment of composite surveillance ADS-B/WAM are subject to the elaboration of a safety argument considering local specific risks and mitigation measures to those risks.</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> • Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; • Develop safety assessment; • Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. <p>This safety assessment shall be based on fully validated/recognised method.</p>		
Supporting material(s):	<p>EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology</p> <p>SJU - Solution 114 Composite surveillance (ADS-B/WAM) Data Pack Url : https://www.sesarju.eu/sesar-solutions/composite-surveillance-ads-b-wam</p> <p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 10/2011 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p>		
Finalisation criteria:	<p>1 - The safety assessment report for the changes has been developed and delivered to the Regulator/NSA/Competent Authority, as necessary.</p>		

SESAR		Active					ECAC+	
COM10		Migrate from AFTN to AMHS						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The purpose of this objective is to enable EATM Network-wide support of a specific profile of the Extended level of service of the ATSMHS (ATS Message Handling Service), as defined by ICAO. An initial transition step supporting migration from the AFTN to the Basic ATSMHS level of service is foreseen.

AFTN, complemented in Europe by the CIDIN, has provided an effective store-and-forward messaging service for the conveyance of text messages, using character-oriented procedures, for many years. However AFTN / CIDIN technology is now becoming obsolescent, and is not sufficiently flexible to support future messaging requirements. It is intended that existing AFTN and CIDIN users and systems will transition to more modern technology, using the ATSMHS application, defined by ICAO to replace the AFTN telegraphic style of working with a store-and-forward message handling system based on international standards and providing enhanced functionality.

This implementation objective makes use of the EUROCONTROL Specification 0136, Edition number 2.0 "EUROCONTROL specification on the Air Traffic Services Message Handling System (AMHS)" recognised as Community Specification in the Official Journal of the European Union (ref. OJ C 323, 31.12.2009, p. 24), to help the ground ATS Messaging systems of the EATM Network to meet the essential requirements for interoperability mandated by Commission Regulation (EC) No 552/2004. In application of Article 4 of Commission Regulation (EC) No 552/2004, compliance with the essential requirements for interoperability shall be presumed for AMHS systems, together with the associated procedures, that meet the AMHS Community Specification.

For global AMHS address management ICAO has strongly recommended the use of the ATS Messaging Management Centre (AMC) implemented by EUROCONTROL under the aegis of the ICAO EUR Office (Paris) to every ICAO Contracting State worldwide, as soon as there is an AMHS project or implementation in that State.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/12/2011		Applicability Area
Full operational capability		31/12/2018	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	CTE-C06c						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-0 03	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

CNS Infrastructure and Services

ICAO GANP – ASBUs

COMI-B0/7	ATS Message Handling System (AMHS)
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Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
COM10-ASP01	Implement AMHS capability (Basic ATSMHS) and gateway facilities to AFTN	01/01/2002	31/12/2011
COM10-ASP02	Implement regional boundary gateways	01/01/2002	31/12/2011
COM10-ASP03	Enhance AMHS capability (Extended ATSMHS)	01/01/2012	31/12/2018
COM10-ASP04	Ensure the conformity of AMHS systems and associated procedures	01/01/2002	31/12/2018
COM10-ASP05	Organise personnel awareness and training	01/01/2002	31/12/2018
COM10-ASP06	Participate in AMC activities for ATS Messaging Management	01/01/2007	31/12/2018
COM10-IND01	Ensure the conformity of AMHS systems	01/01/2002	31/12/2018
COM10-AGY01	Provide AMC (ATS Messaging Management Centre) Service	01/01/2007	31/12/2018
COM10-AGY02	Implement AMHS capability (Basic ATSMHS) and gateway facilities to AFTN	FINALISED	
COM10-AGY03	Enhance AMHS capability (Extended ATSMHS)	01/01/2012	31/12/2018
COM10-AGY04	Develop further relevant elements of the Extended ATSMHS in AMHS Community Specification	01/01/2010	31/12/2018
COM10-AGY05	Implement AMHS-Community Specification compliance testing methodology and tools	01/01/2010	31/12/2018
COM10-AGY06	Support personnel training	01/01/2002	31/12/2018

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Benefits resulting from the application of a harmonised set of safety requirements.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Use of COTS messaging systems will de-facto reduce the cost of messaging services and support any kind of message format including the exchange of new binary data leading to lower ANS provision costs.
Environment:	-
Security:	AMHS security services may help to protect against safety hazards such as accidental or deliberate message corruption and can provide protection against undetected misdelivery.

COM10	Migrate from AFTN to AMHS
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Detailed SLoA Descriptions

COM10-ASP01	Implement AMHS capability (Basic ATSMHS) and gateway facilities to AFTN	From: 01/01/2002	By: 31/12/2011
Action by:	ANS Providers		
Description & purpose:	Upgrade existing COM centres to provide AMHS capability and/or AFTN gateway facilities		
Supporting material(s):	ICAO - Doc 9880-Part II - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part II - Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS) - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs ICAO - EUR-Doc 020 - EUR AMHS Manual - Edition 9 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=74 ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Edition 10 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=114		
ATM Master Plan relationship:	ICTE-C06c]-AMHS		
Finalisation criteria:	1 - AMHS capability has been implemented, documented and in operational service.		

COM10-ASP02	Implement regional boundary gateways	From: 01/01/2002	By: 31/12/2011
Action by:	ANS Providers		
Description & purpose:	Provide interfaces between the EUR AMHS and non-European AFTN as well as interfaces to AMHS networks outside the EUR Region. This action is applicable to ANSPs in ICAO EUR Region Boundary States.		
Supporting material(s):	ICAO - Doc 9880-Part II - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part II - Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS) - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs ICAO - EUR-Doc 020 - EUR AMHS Manual - Edition 9 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=74 ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Edition 10 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=114		
Finalisation criteria:	1 - Seamless cross-boundary operation of the ground ATS Messaging part of the AFS.		

COM10-ASP03	Enhance AMHS capability (Extended ATSMHS)	From: 01/01/2012	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Upgrade the AMHS capability in existing COM centres to provide the Extended ATSMHS in accordance with the profile specified in the AMHS Community Specification.		
Supporting material(s):	ICAO - Doc 9880-Part II - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part II - Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS) - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs ICAO - EUR-Doc 020 - EUR AMHS Manual - Edition 9 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=74		
Finalisation criteria:	1 - Extended ATSMHS capability has been implemented, documented and in operational service.		

COM10	Migrate from AFTN to AMHS		
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COM10-ASP04	Ensure the conformity of AMHS systems and associated procedures	From: 01/01/2002	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Ensure that the AMHS systems and associated procedures comply with the AMHS Community Specification		
Supporting material(s):	ICAO - Doc 9880-Part IV - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part IV - Directory Services, Security and Systems Management - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - EC declaration of verification has been provided.		

COM10-ASP05	Organise personnel awareness and training	From: 01/01/2002	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Develop and maintain operations manuals and train personnel accordingly to ensure that: - All COM Centre personnel are adequately trained to AMHS technology; - An AMHS "expertise cell" is available in every COM Centre implementing AMHS; - All ANSP personnel involved in ATS Messaging Management (AMC activities) is adequately trained.		
Supporting material(s):	EUROCONTROL - IANS-COM-AMHS - IANS-COM-AMHS Course Url : https://trainingzone.eurocontrol.int EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs ICAO - EUR-Doc 020 - EUR AMHS Manual - Edition 9 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=74 ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Edition 10 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=114		
Finalisation criteria:	1 - All COM Centre personnel have been adequately trained to AMHS technology. 2 - An AMHS "expertise cell" has been established in every COM Centre implementing AMHS. 3 - All ANSP personnel involved in ATS Messaging Management (AMC activities) has been adequately trained.		

COM10-ASP06	Participate in AMC activities for ATS Messaging Management	From: 01/01/2007	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Use the services of the ATS Messaging Management Centre (AMC) for AMHS off-line management		
Supporting material(s):	ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Edition 10 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=114		
Finalisation criteria:	1 - AMC Procedures for Cooperating COM Centres (CCC) operators have been implemented as defined in the ATS Messaging Management Manual.		

COM10-IND01	Ensure the conformity of AMHS systems	From: 01/01/2002	By: 31/12/2018
Action by:	Industry		
Description & purpose:	AMHS system manufacturers to ensure that the available AMHS systems comply with the AMHS Community Specification.		
Supporting material(s):	ICAO - Doc 9880-Part IV - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part IV - Directory Services, Security and Systems Management - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - Test reports have been completed in accordance with AMHS Community Specification and testing methodology and tools ensured by the EUROCONTROL Agency. 2 - An EC declaration of conformity has been provided.		

COM10	Migrate from AFTN to AMHS		
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COM10-AGY01	Provide AMC (ATS Messaging Management Centre) Service	From: 01/01/2007	By: 31/12/2018
Action by:	EUROCONTROL Agency		
Description & purpose:	Provide AMHS off-line network management service defined in the ATS Messaging Management Manual (ICAO EUR Doc 021)		
Supporting material(s):	ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Edition 10 / 04/2014 Url : http://www.paris.icao.int/documents_open/files.php?subcategory_id=114		
Finalisation criteria:	1 - Positive indication in AMC user's satisfaction surveys		

COM10-AGY03	Enhance AMHS capability (Extended ATSMHS)	From: 01/01/2012	By: 31/12/2018
Action by:	EUROCONTROL Agency		
Description & purpose:	Upgrade the AMHS capability in existing CFMU COM centres to provide the Extended ATSMHS in accordance with the profile specified in the AMHS Community Specification		
Supporting material(s):	ICAO - Doc 9880-Part II - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part II - Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS) - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - Extended ATSMHS capability has been implemented and put in operational service.		

COM10-AGY04	Develop further relevant elements of the Extended ATSMHS in AMHS Community Specification	From: 01/01/2010	By: 31/12/2018
Action by:	EUROCONTROL Agency		
Description & purpose:	Developed additional requirements regarding functionality of the relevant elements of the Extended ATSMHS and complete AMHS Community specification accordingly. This refers to a set of testing requirements, conformance, interoperability and pre-operational tests covering the Extended ATSMHS.		
Supporting material(s):	EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - AMHS Community Specification has been updated with the relevant elements of the Extended ATSMHS.		

COM10-AGY05	Implement AMHS-Community Specification compliance testing methodology and tools	From: 01/01/2010	By: 31/12/2018
Action by:	EUROCONTROL Agency		
Description & purpose:	Take measures to ensure availability of test tools with adequate functionality with regard to AMHS Community Specification (particularly regarding Extended ATSMHS) Develop and implement testing methodology enabling Industry manufacturers and ANS Providers to execute AMHS Community Specification conformance tests		
Supporting material(s):	EUROCONTROL - SPEC-136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - 2.0 / 09/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - Test tool has been made available.		

COM10-AGY06	Support personnel training	From: 01/01/2002	By: 31/12/2018
Action by:	EUROCONTROL Agency		
Description & purpose:	Support AMHS training of personnel in ANS Providers, including operational procedures		
Finalisation criteria:	1 - Most people working in AFTN/CIDIN environment have been trained on AMHS before 2011.		

SESAAR		Active					ECAC+	
COM11.1		Voice over Internet Protocol (VoIP) in En-Route						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This Implementation Objective aims at an efficient use of voice over Internet Protocol (VoIP) by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

The initiative covers inter centre (encompassing all type of ATM Units) voice communication and the links with the ground radio stations. COM11.1 is applicable to 'En-Route' and 'Network' Operating Environments. Inter-centre voice communications are currently mainly performed via analogue and digital circuits.

This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary. At present and in order to follow the evolution of the communication technologies, ATM-VoIP is the global standard (ICAO DOC 9896 ed2, based on EUROCAE ED137-B) for ground telephony and ground segment of the Air-Ground voice. ATM-VoIP industrial standard (EUROCAE ED-137) is maintained and evolved over time to ensure that voice communication requirements are met. Transition towards VoIP is bringing interoperability.

Cross-border aspects need to be addressed appropriately within the network perspective. VoIP in ATM constitutes an essential part of Network Strategy Plan SO 8 - Sub-project 2 - VoIP implementation.

This sub-project aims at an efficient use of Voice over Internet Protocol by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

NOTE: COM11.1 is a successor of the former objective COM11. Its applicability date is related to the DP Family 3.1.4 in the context of supporting FRA, however the objective COM11.1 (and old COM11) goes beyond DP Family 3.1.4 (FRA) and plans harmonised VoIP implementation in the whole En-Route environment (without FL310 limitation). This to be able to collect yearly progress reports from all implementations (DP related and None-DP related).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2013		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	CTE-C05a	CTE-C05b					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

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ICAO GANP ? ASBUs

COMI-B2/1	Air-Ground ATN/IPS
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Deployment Programme

COM11.1	Voice over Internet Protocol (VoIP) in En-Route
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3.1.4	Management of dynamic airspace configurations
3.2.1	Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings (DCTs) and Free Routing Airspace (FRA)

European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Network

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
COM11.1-ASP01	Develop safety assessment for the changes	01/01/2012	01/01/2022
COM11.1-ASP03	Upgrade and put into service Voice Communication Systems to support VoIP inter-centre telephony	01/01/2013	01/01/2022
COM11.1-ASP04	Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations	01/01/2013	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained or improved by providing enhanced signalisation functions. Improved by providing a more resilient infrastructure.
Capacity:	Maintained or improved by providing enhanced signalisation functions.
Operational Efficiency:	-
Cost Efficiency:	Reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long term savings.
Environment:	-
Security:	-

Detailed SLoA Descriptions

COM11.1-ASP01	Develop safety assessment for the changes	From: 01/01/2012	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	<p>Develop safety assessment of the changes, notably upgrades of voice communication systems to support VoIP both for inter-centre telephony and AG radio communication. The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. <p>This safety assessment shall be based on fully validated/recognised method.</p>		
Supporting material(s):	<p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017</p> <p>Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p> <p>EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001</p> <p>Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm</p>		

COM11.1	Voice over Internet Protocol (VoIP) in En-Route
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Finalisation criteria:	1 - The Safety argument for all changes, generated by the deployment of VoIP, has been delivered by the ANSP to the NSA.
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COM11.1-ASP03	Upgrade and put into service Voice Communication Systems to support VoIP inter-centre telephony	From:	By:
		01/01/2013	01/01/2022

Action by:	ANS Providers
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Description & purpose:	<p>Upgrade and put into service voice communication systems which support ED-137 compliant VoIP inter-centre telephony which will enable the deployment of system enablers listed in -References- section. The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Define requirements which fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance; - Update VoIP addressing and connectivity information in the EUROCONTROL AGVN web-database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. <p>The upgraded voice communication systems and their HMI shall enable the operators to perform the inter-centre communication using VoIP telephony at all types of ATS units.</p> <p>Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency.</p>
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Note : Completion of the finalisation criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web-database.

Supporting material(s):	<p>EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 3 - VCS Telephone ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/2B - Interoperability Standards for VoIP ATM Components - Volume 2 Telephone 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single</p> <p>EUROCONTROL - VoIP in ATM Cross-Reference Matrix - Edition 2.0 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents</p> <p>EUROCONTROL - SIP v ATS-QSIG Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - VOTER Test Tool - version 3.0.5 - 2016</p> <p>EUROCONTROL - SIP v ATS-R2 Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 6 - Performance - ed 2.9 / 12/2014</p> <p>ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/</p> <p>EUROCAE - ED-137/5B - Interoperability Standards for VoIP ATM Components - Volume 5 Supervision 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/4B - Interoperability Standards for VoIP ATM Components - Volume 4 Recording 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 5 - Interoperability - ed 2.9 / 12/2014</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 4 - Recorder ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCAE - ED-137/3B - Interoperability Standards for VoIP ATM Components - Volume 3 European Legacy Telephone Interworking 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p>
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ATM Master Plan relationship:	[CTE-C05a]-VoIP for ground telephony
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Finalisation criteria:	<p>1 - Voice communications equipment has been upgraded.</p> <p>2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA).</p> <p>3 - Upgraded voice communication equipment has been put into operational service.</p>
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COM11.1	Voice over Internet Protocol (VoIP) in En-Route
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COM11.1-ASP04	Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations	From: 01/01/2013	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	<p>Upgrade and put into service voice communication systems which support ED137 compliant VoIP links to the ground radio stations which will enable the deployment of system enablers listed in -References- section. The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Define requirements which fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS and GRS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance including AG ground segment voice application; - Updating VoIP addressing and connectivity information in the EUROCONTROL AGVN web-database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. <p>The upgraded voice communication systems shall enable the operators to perform A/G radio communication using VoIP links between VCS and ground radio stations.</p> <p>Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency.</p>		
	<p>Note :Completion of the finalisation criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web-database.</p>		
Supporting material(s):	<p>EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 3 - VCS Telephone ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single</p> <p>EUROCONTROL - VoIP in ATM Cross-Reference Matrix - Edition 2.0 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents</p> <p>EUROCONTROL - SIP v ATS-QSIG Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - VOTER Test Tool - version 3.0.5 - 2016</p> <p>EUROCONTROL - SIP v ATS-R2 Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 6 - Performance - ed 2.9 / 12/2014</p> <p>ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/</p> <p>EUROCAE - ED-137/1B - Interoperability Standards for VoIP ATM Components - Volume 1 Radio Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/5B - Interoperability Standards for VoIP ATM Components - Volume 5 Supervision 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/4B - Interoperability Standards for VoIP ATM Components - Volume 4 Recording 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 5 - Interoperability - ed 2.9 / 12/2014</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 2 - VCS Radio ED137B compliance - ed 2.9</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 4 - Recorder ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCAE - ED-137/1C - Interoperability Standards for VoIP ATM Components - Volume 1: Radio Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - VOTER 4.0.x baseline specification - VOL 1 - GRS Radio ED-137/1C - ed 3.3</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 1 - GRS Radio ED137B compliance - ed 2.9</p>		
ATM Master Plan relationship:	[CTE-C05b]-Digital Voice / VoIP for ground segment of Air-Ground voice		
Finalisation criteria:	<ol style="list-style-type: none"> 1 - Voice communications equipment upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded voice communication equipment put into operational service. 		

SESAR		Active					ECAC+	
COM11.2		Voice over Internet Protocol (VoIP) in Airport/Terminal						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This Implementation Objective aims at an efficient use of voice over Internet Protocol (VoIP) by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

The initiative covers inter centre (encompassing all type of ATM Units) voice communication and the links with the ground radio stations. COM11.2 is applicable to 'Airport' and 'Terminal' Operating Environments. Centre-tower voice communications are currently mainly performed via analogue and digital circuits.

This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary. At present and in order to follow the evolution of the communication technologies, ATM-VoIP is the global standard (ICAO DOC 9896 ed2, based on EUROCAE ED137-B) for ground telephony and ground segment of the Air-Ground voice. ATM-VoIP industrial standard (EUROCAE ED-137) is maintained and evolved over time to ensure that voice communication requirements are met.

Transition towards VoIP is bringing interoperability. Cross-border aspects need to be addressed appropriately within the network perspective. VoIP in ATM constitutes an essential part of Network Strategy Plan SO 8 - Sub-project 2 - VoIP implementation.

This sub-project aims at an efficient use of Voice over Internet Protocol by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (All ECAC+ States)	All ECAC+ States except: Armenia, Maastricht UAC, Malta, North Macedonia		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2013		Applicability Area
Full operational capability		31/12/2023	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	CTE-C05a	CTE-C05b					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

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ICAO GANP ? ASBUs

COMI-B2/1	Air-Ground ATN/IPS
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Deployment Programme

- none -

European Plan for Aviation Safety

COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal
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- none -

Operating Environments

Airport Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
COM11.2-ASP01	Develop safety assessment for the changes	01/01/2013	31/12/2023
COM11.2-ASP03	Upgrade and put into service Voice Communication Systems to support VoIP centre-tower telephony	01/01/2013	31/12/2023
COM11.2-ASP04	Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations	01/01/2013	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained or improved by providing enhanced signalisation functions. Improved by providing a more resilient infrastructure.
Capacity:	Maintained or improved by providing enhanced signalisation functions.
Operational Efficiency:	-
Cost Efficiency:	Reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long term savings.
Environment:	-
Security:	-

Detailed SLoA Descriptions

COM11.2-ASP01	Develop safety assessment for the changes	From: 01/01/2013	By: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of voice communication systems to support VoIP both for inter-centre telephony and AG radio communication. The tasks to be done are as follows: <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - The Safety argument for all changes, generated by the deployment of VoIP, has been delivered by the ANSP to the NSA.		
COM11.2-ASP03	Upgrade and put into service Voice Communication Systems to support VoIP centre-tower telephony	From: 01/01/2013	By: 31/12/2023

COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal
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Action by:	ANS Providers
Description & purpose:	<p>Upgrade and put into service voice communication systems which support ED-137 compliant VoIP centre-tower telephony which will enable the deployment of system enablers listed in -References- section.</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Define requirements which fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance; - Update VoIP addressing and connectivity information in the EUROCONTROL AGVN web-database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. <p>The upgraded voice communication systems and their HMI shall enable the operators to perform the centre-tower communication using VoIP telephony at all types of ATS units.</p> <p>Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency.</p>
	Note : <u>Completion of the finalisation criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web-database.</u>
Supporting material(s):	<p>EUROCAE - ED-137/3B - Interoperability Standards for VoIP ATM Components - Volume 3 European Legacy Telephone Interworking 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/2B - Interoperability Standards for VoIP ATM Components - Volume 2 Telephone 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/4B - Interoperability Standards for VoIP ATM Components - Volume 4 Recording 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/5B - Interoperability Standards for VoIP ATM Components - Volume 5 Supervision 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline Url : http://boutique.eurocae.net/catalog/index.php</p> <p>ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 4 - Recorder ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCONTROL - VoIP in ATM Cross-Reference Matrix - Edition 2.0 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents</p> <p>EUROCONTROL - SIP v ATS-QSIG Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - VOTER Test Tool - version 3.0.5 - 2016</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 3 - VCS Telephone ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 5 - Interoperability - ed 2.9 / 12/2014</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 6 - Performance - ed 2.9 / 12/2014</p> <p>EUROCONTROL - SIP v ATS-R2 Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single</p>
ATM Master Plan relationship:	[CTE-C05a]-VoIP for ground telephony
Finalisation criteria:	<ol style="list-style-type: none"> 1 - Voice communications equipment has been upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded voice communication equipment has been put into operational service.

COM11.2-ASP04	Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations	From:	By:
		01/01/2013	31/12/2023
Action by:	ANS Providers		

COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal
Description & purpose:	<p>Upgrade and put into service voice communication systems which support ED137 compliant VoIP links to the ground radio stations which will enable the deployment of system enablers listed in -References- section.</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Define requirements which fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS and GRS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance including AG ground segment voice application; - Updating VoIP addressing and connectivity information in the EUROCONTROL AGVN web-database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. <p>The upgraded voice communication systems shall enable the operators to perform A/G radio communication using VoIP links between VCS and ground radio stations.</p> <p>Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency.</p>
	<p>Note :Completion of the finalisation criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web-database.</p>
Supporting material(s):	<p>EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline Url : http://boutique.eurocae.net/catalog/index.php</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 3 - VCS Telephone ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single</p> <p>EUROCONTROL - VoIP in ATM Cross-Reference Matrix - Edition 2.0 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents</p> <p>EUROCONTROL - SIP v ATS-QSIG Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - VOTER Test Tool - version 3.0.5 - 2016</p> <p>EUROCONTROL - SIP v ATS-R2 Gateway Interworking Test Specification - Edition 2 / 12/2013</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 6 - Performance - ed 2.9 / 12/2014</p> <p>ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/</p> <p>EUROCAE - ED-137/1B - Interoperability Standards for VoIP ATM Components - Volume 1 Radio Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/5B - Interoperability Standards for VoIP ATM Components - Volume 5 Supervision 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-137/4B - Interoperability Standards for VoIP ATM Components - Volume 4 Recording 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 5 - Interoperability - ed 2.9 / 12/2014</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 2 - VCS Radio ED137B compliance - ed 2.9</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 4 - Recorder ED137B compliance - ed 2.9 / 12/2014</p> <p>EUROCAE - ED-137/1C - Interoperability Standards for VoIP ATM Components - Volume 1: Radio Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCONTROL - VOTER 4.0.x baseline specification - VOL 1 - GRS Radio ED-137/1C - ed 3.3</p> <p>EUROCONTROL - VOTER 3 0 3 baseline specification - Vol 1 - GRS Radio ED137B compliance - ed 2.9</p>
ATM Master Plan relationship:	<p>[CTE-C05b]-Digital Voice / VoIP for ground segment of Air-Ground voice</p>
Finalisation criteria:	<ol style="list-style-type: none"> 1 - Voice communications equipment upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded voice communication equipment put into operational service.

SESAR		Active					ECAC+	
COM12		New Pan-European Network Service (NewPENS)						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

PENS (Pan-European Network Service) is an international ground/ground communications infrastructure jointly implemented by EUROCONTROL and European ANSPs in order to meet existing and future ATM communication requirements. NewPENS builds on PENS and aims at providing a new framework, with an adapted governance, to reap the benefits of having a single IP backbone for all ATM services in the ICAO EUR/NAT region.

NewPENS will support SESAR deployment and, in particular, the implementation of the PCP Regulation (Regulation (EU) No 716/2014) which in Para. 5.5 of its Annex states that "to support the blue SWIM Technical Infrastructure (TI) Profile, very high and high capacity centres shall be connected to Pan-European Network Services (PENS)". The Blue SWIM TI profile includes the exchange of flight object (FO) information and therefore, civil and military ANSPs planning to implement FO information will have to become NewPENS users.

The aim of NewPENS is to support information exchanges for all ATM services, not only for ANSPs and the Network Manager, but also supporting interactions with military, airport and aircraft operator. It is up to these stakeholders, depending on their requirements, to join NewPENS or use public Internet Protocol network

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military Authorities.

Applicability Area(s) & Timescale(s)

App. Area 1 (ANSPs signatories of the NewPENS Common Procurement Agreement: AL (Albcontrol), AT (Austrocontrol), BA (BHANSA), BE (BELGOCONTROL), BG (BULATSA), CH (Skyguide), CY (DCA), CZ (ANS CZ), DE (DFS), DK (Naviair), EE (EANS), ES (ENAIRES), FI (Finavia), FR (DSNA), HR (Crocontrol), HU (Hungarocontrol), IE (IAA), IT (ENAV), LU (ANS Luxembourg), LV (LGS), MK (M-NAV), MT (MATS), MUAC, NL (LVNL, RNLA), NO (AVINOR), PL (PANS), PT (NAV Portugal), RO (ROMATSA), RS (SMATSA), SE (LFV), SK(LPS SR), UA (UKASTE), UK(NATS))	All EU SES States except: Greece, Lithuania, Slovenia. Plus: Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, Ukraine
App. Area 2 (Stakeholders from the ECAC States not listed in Applicability Area 1.)	Armenia, Azerbaijan, Georgia, Greece, Israel, Lithuania, Moldova, Slovenia, Turkey

Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2018		App. Area 1 + App. Area 2
Full operational capability (33 ANSPs)		01/01/2025	App. Area 1
Full operational capability (Other stakeholders)		01/01/2025	App. Area 2

References

European ATM Master Plan

OI step -	-No OI Link -
Enablers -	CTE-C06b

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002	Covered by SLoA(s) in another objective	WXYZ-003	Not covered in the Implementation Plan
		zzz		Objective covering the enabler		

Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

COM12	New Pan-European Network Service (NewPENS)
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- none -

ICAO GANP ? ASBUs

COMI-B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)
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Deployment Programme

5.1.2	NewPENS: New Pan-European Network Service
5.2.1	Stakeholders Internet Protocol Compliance

European Plan for Aviation Safety

- none -

Operating Environments

Airport
 En-Route
 Network
 Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
COM12-ASP01	Provide NewPENS connectivity infrastructure	01/01/2018	01/01/2025 01/01/2025
COM12-ASP02	Migrate to NewPENS	01/01/2018	01/01/2025 01/01/2025
COM12-APO01	Migrate to NewPENS, if deemed beneficial	01/01/2018	01/01/2025
COM12-USE01	Migrate to NewPENS, if deemed beneficial	01/01/2018	01/01/2025
COM12-NM01	Adapt NM systems to allow stakeholders have access to existing datacentres via NewPENS	01/01/2018	31/12/2020 01/01/2025
COM12-NM02	Migrate to NewPENS	01/01/2018	31/12/2020 01/01/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Significant cost savings for the international communications of all connected stakeholders compared to: - Keeping the inter-stakeholder connections separate from the network. - Continuing to run all international communications on bilateral international links.
Environment:	-
Security:	NewPENS will further enhance security protection, detection and remediation capabilities with respect to PENS. It shall be compliant with the Security levels requested by the applications it will support. Security will be handled on multiple levels: technical, processes and people.

Detailed SLoA Descriptions

COM12-ASP01	Provide NewPENS connectivity infrastructure	From:	By:
		01/01/2018	01/01/2025

COM12	New Pan-European Network Service (NewPENS)
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Action by:	ANS Providers
Description & purpose:	Adapt communications systems and infrastructure to enable connectivity between NewPENS and the ANSP's network according to technical requirements established by the NewPENS governance arrangements. NOTE: This SLoA applies both to ANSPs who provide COM services using their own infrastructure and to those who subcontract the service to other COM service providers; these will have to ensure the appropriate contractual and technical arrangements are made to provide connectivity to NewPENS.
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2
Finalisation criteria:	1 - Connectivity with NewPENS is enabled

COM12-ASP02	Migrate to NewPENS	From:	By:
		01/01/2018	01/01/2025
Action by:	ANS Providers		
Description & purpose:	Migrate the selected services and applications to NewPENS. This shall include, when and where applicable, the exchange of Flight Object information as described in Section 5 of the Annex to Regulation (EU) No 716/2014.		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS		

COM12-APO01	Migrate to NewPENS, if deemed beneficial	From:	By:
		01/01/2018	01/01/2025
Action by:	Airport Operators		
Description & purpose:	According to local needs and requirements, migrate to NewPENS for communications with ANSPs and NM (e.g. CDM, messages).		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS		

COM12-USE01	Migrate to NewPENS, if deemed beneficial	From:	By:
		01/01/2018	01/01/2025
Action by:	Airspace Users		
Description & purpose:	According to local needs and requirements, migrate to NewPENS for communications with ANSPs and NM (e.g. CDM, messages).		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS		

COM12-NM01	Adapt NM systems to allow stakeholders have access to existing datacentres via NewPENS	From:	By:
		01/01/2018	App. Area 1: 31/12/2020 App. Area 2: 01/01/2025
Action by:	NM		
Description & purpose:	Adapt NM systems to allow stakeholders have access to existing datacentres (e.g. EAD) via NewPENS.		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NM systems have been adapted.		

COM12-NM02	Migrate to NewPENS	From:	By:
		01/01/2018	App. Area 1: 31/12/2020 App. Area 2: 01/01/2025
Action by:	NM		
Description & purpose:	Migrate the selected services and applications to NewPENS. This shall include the exchange of Flight Object information as described in Section 5 of the Annex to Regulation (EU) No 716/2014.		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		

COM12	New Pan-European Network Service (NewPENS)
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Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS
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SESAR	Active						APT	
ENV01	Continuous Descent Operations (CDO)							
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

A continuous descent operation (CDO) (1) is an aircraft operating technique, enabled by airspace design, procedure design and ATC clearances in which arriving aircraft descend without interruption, to the greatest possible extent, by employing minimum thrust in order to optimise the descent profile in terms of fuel burn. The optimum vertical profile takes the form of a continuously descending path.

Operating at optimum flight levels is a key driver to improving fuel efficiency and minimise carbon emissions as a large proportion of fuel burn occurs during the climb phase.

Many major airports now employ PBN procedures which can enable both CDO and continuous climb operations (CCO) and, in a large number of cases, judicious airspace and procedure design has resulted in significant reductions in environmental impacts. This is particularly the case where the airspace design has supported CCO and CDO.

CDO does not adversely affect safety and capacity and will produce environmental and operational benefits including reductions to fuel burn, gaseous emissions and noise impact.

It is important that monitoring and measuring of CDO execution is defined across ECAC using harmonised definitions to avoid misleading interpretations of performance measurement. It is equally important that CDO execution is measured across ECAC, as far as practicable, using a harmonised methodology and parameters. Whilst reporting can be undertaken at the local level according to local legislation and requirements, when CDO execution is reported on an international basis, this measurement should always be based upon a harmonised method, parameters and metric. The proposed methodology (4) identified by the European TF on CCO/CDO is detailed at <http://www.eurocontrol.int/articles/continuous-climb-and-descent-operations>.

Notes:

- (1) Since the publication of ICAO Doc 9931, the term Continuous Descent Operations (CDO) has generally replaced the term CDA (Continuous Descent Approach).
- (2) In principle, it is not required to implement CDO on a 24/7 basis, but it should be facilitated to the extent possible, according to local conditions.
- (3) As a reference guidance the expected date for deployment of Block 0 modules in the ICAO GANP, to which this objective is linked through ASBU B0-CDO is 2013-2019, and for Block 1, linked through B1-CDO, is from 2019-2025.
- (4) At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/07/2007		Applicability Area
Full operational capability		31/12/2023	Applicability Area

References

European ATM Master Plan

OI step -	[AOM-0701]-Continuous Descent Approach (CDA)						
Enablers -	None						
OI step -	[AOM-0702-A]-Continuous Descent Operations (CDO)						
Enablers -	PRO-029						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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ENV01	Continuous Descent Operations (CDO)
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Applicable legislation

Regulation (EU) 598/2014 of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC (as from 16/06/2016).
 EC Directive 2002/49/EC, dated 25.06.2002 relating to the assessment and management of environmental noise.
 EC Directive 2008/50/EC, dated 21.05.2008 on ambient air quality and cleaner air for Europe.

Essential Operational Changes

Airport and TMA performance

ICAO GANP – ASBUs

APTA-B0/4	CDO (Basic)
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Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ENV01-ASP01	Implement rules and procedures for the application of CDO techniques	01/07/2007	31/12/2023
ENV01-ASP02	Design and implement CDO procedures enabled by PBN	01/01/2018	31/12/2023
ENV01-ASP03	Train controllers in the application of CDO techniques whenever practicable	01/07/2007	31/12/2023
ENV01-ASP04	Monitor and measure the execution of CDO	23/03/2018	31/12/2023
ENV01-APO01	Monitor and measure the execution of CDO	01/01/2018	31/12/2023
ENV01-USE01	Include CDO techniques in the aircrew training manual and support its implementation wherever possible	01/07/2007	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	CDOs contribute to reducing airlines operating costs including a reduction in fuel consumption by the flying of optimised profiles (no vertical containment required). If the CDO is flown as part of a PBN procedure, the predictability of the vertical profile will be enhanced for ATC. CDOs are also a proxy for Vertical Flight Efficiency (VFE) and should be monitored according to harmonised definitions and parameters in order to measure efficiency.
Cost Efficiency:	-
Environment:	Reduction of fuel burn (and consequently, atmospheric emissions) has been estimated to be 51kg per flight for those flying CDO over those flying non-CDO. In addition, studies have indicated that due to lower drag and thrust facilitated by CDO, over certain portions of the arrival profile, noise can be reduced by up to 5dB.
Security:	-

ENV01	Continuous Descent Operations (CDO)
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Detailed SLoA Descriptions

ENV01-ASP01	Implement rules and procedures for the application of CDO techniques	From: 01/07/2007	By: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Coordinate activities and implement rules and ATC procedures for the application of CDO techniques in the TMA, whenever practicable. Coordination should be, in all circumstances, undertaken with adjacent ATS units, the NM, aircraft operators and airport operators. Provide the tactical and operational situational awareness support to allow aircrew to apply CDO.		
Supporting material(s):	ICAO - Doc 9426 - Air Traffic Services Planning Manual - Edition 1 / 12/1992 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European Joint Industry CDA Action Plan Url : https://www.eurocontrol.int/publication/european-joint-industry-cda-action-plan ICAO - Doc 4444 - Air Traffic Management - Edition 15 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/ ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://store.icao.int/		
Finalisation criteria:	1 - CDO procedures have been published in the local/State AIP 2 - CDOs are made available to airspace users, whenever practicable		

ENV01-ASP02	Design and implement CDO procedures enabled by PBN	From: 01/01/2018	By: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Deploy performance-based airspace and arrival procedures that allow the aircraft to fly a continuous descent approach taking into account airspace and traffic complexity This enhances vertical flight path precision during descent, arrival, and enables aircraft to fly an arrival procedure not reliant on ground-based equipment for vertical guidance.		
Supporting material(s):	ICAO - Doc 9426 - Air Traffic Services Planning Manual - Edition 1 / 12/1992 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations ICAO - Doc 4444 - Air Traffic Management - Edition 15 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/ ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-029]-ATC Procedures to build a sequence and coordinate with other AoR in order to facilitate CCO/CDO		
Finalisation criteria:	1 - CDO procedures enabled by PBN have been published in the local/State AIP 2 - CDOs enabled by PBN are made available to airspace users, whenever practicable		

ENV01-ASP03	Train controllers in the application of CDO techniques whenever practicable	From: 01/07/2007	By: 31/12/2023
Action by:	ANS Providers		
Description & purpose:	Train controllers in the application of CDO techniques and the benefits that the facilitation of such techniques can provide to airspace users in terms of airspace efficiency together with fuel, emissions and cost savings.		
Supporting material(s):	EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - European Joint Industry CDA Action Plan Url : https://www.eurocontrol.int/publication/european-joint-industry-cda-action-plan ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://store.icao.int/		
Finalisation criteria:	1 - Approach controllers have been suitably trained in the application CDO techniques		

ENV01-ASP04	Monitor and measure the execution of CDO	From: 23/03/2018	By: 31/12/2023
Action by:	ANS Providers		

ENV01	Continuous Descent Operations (CDO)		
Description & purpose:	<p>In cooperation with airports, monitor and measure CDO execution, where possible based upon a harmonised methodology and metrics.</p> <p>The methodology should be used also to identify the cause of any restrictions to CDO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed to facilitate CDOs, in order to enhance vertical flight efficiency.</p> <p>Provide any feedback to airports, aircraft operators and the NM on the level of CDO execution together with any other trends observed by the CDO performance monitoring.</p>		
	<p>Note :(4) At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.</p>		
Supporting material(s):	<p>EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0</p>		
Finalisation criteria:	<p>1 - In cooperation with the airport operator, the monitoring and measurement of CDO execution is performed and available. 2 - Arrangements are in place to provide feedback of CDO performance to the airport operator, the NM and the local community where practicable.</p>		

ENV01-APO01	Monitor and measure the execution of CDO	From: 01/01/2018	By: 31/12/2023
Action by:	Airport Operators		
Description & purpose:	<p>In cooperation with the ANSP, monitor and measure CDO execution, where possible based upon a harmonised methodology.</p> <p>The methodology should be used also to identify the cause of any restrictions to CDO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed by the ANSP to facilitate CDOs, in order to enhance vertical flight efficiency.</p> <p>Provide any feedback to the ANSP, aircraft operators and the NM on the level of CDO execution together with any other trends observed by the CDO performance monitoring.</p>		
	<p>Note :At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.</p>		
Supporting material(s):	<p>EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0</p>		
Finalisation criteria:	<p>1 - In cooperation with the ANSP, the monitoring and measurement of CDO execution is performed and available. 2 - Arrangements are in place to provide feedback of CDO performance to the ANSP, the NM and the local community where practicable.</p>		

ENV01-USE01	Include CDO techniques in the aircrew training manual and support its implementation wherever possible	From: 01/07/2007	By: 31/12/2023
Action by:	Airspace Users		
Description & purpose:	Provide suitable training, ensure awareness and encourage application of CDO techniques.		
Supporting material(s):	<p>EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European Joint Industry CDA Action Plan Url : https://www.eurocontrol.int/publication/european-joint-industry-cda-action-plan ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://store.icao.int/</p>		
Finalisation criteria:	1 - CDO techniques have been integrated in the aircrew training manual.		

SESA ENV02	Active						LOC/APT	
Airport Collaborative Environmental Management								
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Formal working partnership arrangements between ANSP, Airport and Aircraft Operators will be established at individual airports to address and assess the environmental challenges at and around the vicinity of the airport that are a significant constraining factor to efficient and sustainable operations. Topics can include but are not limited to:

- the minimisation of noise and atmospheric emissions in particular CO₂ and NO_x (including fuel burn);
- introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure compliance with airport related legislation and environmental certification requirements and
- the management of aircraft and airfield de-icing resulting from combined aircraft operations at the terminal airspace and ground.

These formal working arrangements will enable a greater understanding and awareness of interdependencies and facilitate jointly agreed solutions for environmental improvements that can benefit joint operations and local community engagement.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: A CEM Online tool is available at the link below with the purpose of providing a common platform to assist key operational stakeholders at airports in setting up a CEM Working Arrangement and to demonstrate compliance with the CEM Specification's Requirements:

<http://www.eurocontrol.int/collaborative-environmental-management-cem>

Applicability Area(s) & Timescale(s)

Applicability Area			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2018		

References

European ATM Master Plan

OI step -	[AO-0703]-Aircraft Environmental Impact Management and Mitigation at and around Airports								
Enablers -	A/C-53	ENV-05	ENV-06	PRO-190	PRO-AC-53	PRO-ENV-12a	PRO-ENV-12b	PRO-ENV-13a	PRO-ENV-13b
OI step -	[AO-0705]-Reduced Water Pollution								
Enablers -	AIRPORT-34	ENV-06	PRO-075						
OI step -	[AO-0706]-(Local) Monitoring of Environmental Performance								
Enablers -	AIRPORT-34	ENV-06	ENV-07						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) 598/2014 of the European Parliament and of the Council of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC.
EC Directive 2002/49/EC, dated 25.06.2002 relating to the assessment and management of environmental noise.
EC Directive 2008/50/EC, dated 21.05.2008 on ambient air quality and cleaner air for Europe.

Essential Operational Changes

Airport and TMA performance

ICAO GANP – ASBUs

- none -

Deployment Programme

- none -	
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European Plan for Aviation Safety

- none -	
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Operating Environments

Airport	
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Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ENV02-ASP01	Participate actively in formal working partnership arrangements with the Airport and Aircraft Operators to manage and control environmental impacts of air traffic procedures in and around the airport.		
ENV02-ASP02	Train controllers in the environmental impacts of aircraft operations		
ENV02-APO01	Initiate and participate actively in the formal working partnership arrangements with the ANSP and Aircraft Operators to minimise the environmental impact of air traffic procedures		
ENV02-APO02	Ensure appropriate and relevant performance information availability at Airports		
ENV02-APO03	Ensure appropriate Airport policy and procedures and, if required, relevant infrastructures needed to manage and mitigate pollution due to de-icing activities		
ENV02-APO04	Train airport operational staff in the environmental impacts of aircraft operations		
ENV02-USE01	Participate actively in the formal working partnership arrangements with the ANSP and Airport to manage and control the environmental impact of aircraft operations.		
ENV02-AGY01	Provide assistance and guidelines to assist airports in setting up formal partnership arrangements between ATSP, Airport and Aircraft Operators for achieving control of environmental impact mitigation	FINALISED	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	Reduction of noise, fuel burn and CO. Contributing to cost savings for airlines and CO2 reductions for airports.
Cost Efficiency:	-
Environment:	Reduction of fuel use, noise, emissions and de-icing water pollution resulting from a structured collaborative approach that jointly identifies effective operational solutions for implementation.
Security:	-

Detailed SLoA Descriptions

ENV02-ASP01	Participate actively in formal working partnership arrangements with the Airport and Aircraft Operators to manage and control environmental impacts of air traffic procedures in and around the airport.	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Enter into formal CEM working arrangements. At the same time provide proactive practical support to minimise environmental impact and secure or safeguard ATM capacity in supporting compliance to the relevant legislation. Participation in CEM should be endorsed and supported by senior management. The purpose of CEM is to facilitate collaboration between the key operational stakeholders at airports to address the environmental impacts caused by their combined air traffic operations. The CEM working arrangements can provide timely and accurate operational or environmental information that is relevant to locally identified and jointly agreed issues. These can include aircraft noise, introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, de-icing, fuel use and atmospheric emissions or any other ATM related environmental imperative that is locally important.		
	<i>Note :Awareness and understanding of interdependencies. Jointly agreed environmental objectives, solutions and delivery plan, new procedures and trials, provision of data.</i>		

ENV02	Airport Collaborative Environmental Management
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Supporting material(s):	<p>ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 3 / 03/2009 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ</p> <p>ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://store.icao.int/</p> <p>EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425</p> <p>ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/</p> <p>ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem</p> <p>EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online</p>
ATM Master Plan relationship:	<p>[ENV-05]-Guidance for community relations at airports</p> <p>[ENV-06]-Central environmental guidance web-portal</p> <p>[PRO-190]-ATC Procedures for Managing Environmental Noise Capacity</p> <p>[PRO-ENV-12b]-Exploiting new ATM and aircraft capabilities to optimise the aircraft noise footprint at airports (Airports)</p> <p>[PRO-ENV-13b]-Airport Procedures for exploiting new ATM and aircraft capabilities with a view to optimising atmospheric emissions from aircraft operations</p>
Finalisation criteria:	1 - A Local Memorandum of Understanding (MoU) or Memorandum of Cooperation (MoC) along with a Terms of Reference (TOR) document detailing the working arrangement or document of similar authority covering the implementation of CEM officially signed by the key operational stakeholders

ENV02-ASP02	Train controllers in the environmental impacts of aircraft operations	From:	By:
		-	-
Action by:	ANS Providers		
Description & purpose:	Provide a regular training course in accordance with demand. This should include potentially aircraft noise, aircraft and airfield de-icing, aircraft fuel use and atmospheric emissions or any other ATM related environment imperative locally planned.		
Supporting material(s):	<p>ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 3 / 03/2009 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://store.icao.int/</p> <p>EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425</p> <p>ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/</p> <p>ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://store.icao.int/</p> <p>ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem</p> <p>EUROCONTROL - European Joint Industry CDA Action Plan Url : https://www.eurocontrol.int/publication/european-joint-industry-cda-action-plan</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p> <p>EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online</p>		

ENV02	Airport Collaborative Environmental Management
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Finalisation criteria:	1 - Continuous or refresher controller awareness training on the environmental impacts of aircraft operations has been implemented.
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ENV02-APO01	Initiate and participate actively in the formal working partnership arrangements with the ANSP and Aircraft Operators to minimise the environmental impact of air traffic procedures	From: -	By: -
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Action by:	Airport Operators
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Description & purpose:	Initiate and promulgate formal CEM partnership working arrangements with key operational stakeholders in order to facilitate understanding and awareness of interdependencies and enable collaborative solutions at airports to address the environmental impacts caused by combined air traffic operations. At the same time provide proactive practical mutual support to each other to minimise environmental impacts and secure or safeguard ATM capacity whilst facilitating compliance to relevant legislation. This can include aircraft noise, introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, de-icing, fuel use and atmospheric emissions or any other ATM related environment impact that is identified locally as important and planned to be covered by CEM. CEM working arrangements should be endorsed and supported by senior management.
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	Note :Awareness and understanding of interdependencies. Jointly agreed environmental objectives, solutions and delivery plan, new procedures and trials, provision of data.
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Supporting material(s):	<p>ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 3 / 03/2009 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ</p> <p>ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://store.icao.int/</p> <p>EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425</p> <p>ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/</p> <p>ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem</p> <p>EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online</p>
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ATM Master Plan relationship:	[PRO-ENV-12b]-Exploiting new ATM and aircraft capabilities to optimise the aircraft noise footprint at airports (Airports)
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Finalisation criteria:	1 - A Local Memorandum of Understanding (MoU) or Memorandum of Cooperation (MoC) along with a Terms of Reference (TOR) document detailing the working arrangement or document of similar authority covering the implementation of CEM officially signed by the key operational stakeholders
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ENV02-APO02	Ensure appropriate and relevant performance information availability at Airports	From: -	By: -
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Action by:	Airport Operators
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Description & purpose:	In accordance with locally agreed CEM priorities, ensure the availability of timely, accurate and relevant environmental information. This may entail investment in appropriate environmental monitoring or modelling systems at Airports in order to record and monitor locally significant environmental impacts that could include noise, introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, emissions, air quality, etc. This data availability is essential in support of the continuous performance improvement process. In particular, it should be possible to determine the amount of airport related versus external pollution.
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ENV02	Airport Collaborative Environmental Management
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Supporting material(s):	<p>ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 3 / 03/2009 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ</p> <p>ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://store.icao.int/</p> <p>EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425</p> <p>ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/</p> <p>ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem</p> <p>EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online</p>
ATM Master Plan relationship:	<p>[AIRPORT-34]-Airport equipped with (real time) environmental monitoring systems</p> <p>[ENV-05]-Guidance for community relations at airports</p> <p>[ENV-06]-Central environmental guidance web-portal</p> <p>[ENV-07]-(Local) monitoring of environmental performance</p>
Finalisation criteria:	1 - Environmental monitoring or information systems have been implemented and deliver the relevant performance data on time.

ENV02-APO03	Ensure appropriate Airport policy and procedures and, if required, relevant infrastructures needed to manage and mitigate pollution due to de-icing activities	From:	By:
		-	-

Action by: Airport Operators

Description & purpose: Develop policy, procedures and technical applications in collaboration with airlines and ANSPs to manage and control the pollution of ground and surface water coming from de-icing activities. When required, ensure the implementation of relevant mitigation infrastructure for collection, disposal and possible treatment of fluids.

Supporting material(s):	<p>ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 3 / 03/2009 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ</p> <p>ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://store.icao.int/</p> <p>ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/</p> <p>ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem</p> <p>EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online</p>
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ATM Master Plan relationship: [\[PRO-075\]-Airport infrastructure and procedures governing de-icing to isolate surface water systems, collect and dispose of run-off, use the least harmful chemical, reduce the quantities required, reduce delays and increase recovered volumes of fluid](#)

Finalisation criteria: 1 - Information and procedures on de-icing pollution mitigation has been agreed and is published locally and accessible.
 2 - Relevant infrastructure has been implemented, when and where required.

ENV02-APO04	Train airport operational staff in the environmental impacts of aircraft operations	From:	By:
		-	-

Action by: Airport Operators

ENV02	Airport Collaborative Environmental Management
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Description & purpose:	Provide a regular training course. Identify and ensure that all relevant operational staff is covered. The course should include where relevant aircraft noise, aircraft and airfield de-icing, aircraft fuel use and atmospheric emissions or any other locally identified environmental impact.
Supporting material(s):	<p>ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 3 / 03/2009 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ</p> <p>ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://store.icao.int/</p> <p>EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425</p> <p>ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/</p> <p>ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem</p> <p>EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online</p>
Finalisation criteria:	1 - Airport Operational staff awareness training on the environmental impacts of aircraft operations has been implemented and completed.

ENV02-USE01	Participate actively in the formal working partnership arrangements with the ANSP and Airport to manage and control the environmental impact of aircraft operations.	From:	By:
		-	-

Action by: **Airspace Users**

Description & purpose: Enter into formal CEM working arrangements. At the same time provide proactive practical mutual support to minimise environmental impact and secure or safeguard ATM capacity in supporting compliance to the relevant legislation. Provide timely and accurate operational or environmental information that is relevant to locally identified and jointly agreed CEM priorities. Participation in CEM should be endorsed and supported by senior management. The purpose of CEM is to facilitate understanding and awareness of interdependencies and find collaborative solutions amongst the key operational stakeholders at airports to address the environmental impacts caused by their combined air traffic operations. The environmental impact may include aircraft noise, fuel use and atmospheric emissions, introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, de-icing or any other ATM related environmental impact that is locally important.

Note : [Awareness and understanding of interdependencies. Jointly agreed environmental objectives, solutions and delivery plan, new procedures and trials, provision of data.](#)

Supporting material(s):	<p>ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 3 / 03/2009 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ</p> <p>ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://store.icao.int/</p> <p>EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425</p> <p>ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/</p> <p>ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx</p> <p>EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem</p> <p>EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online</p>
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ENV02	Airport Collaborative Environmental Management
ATM Master Plan relationship:	[ENV-05]-Guidance for community relations at airports [PRO-AC-53]-Cockpit Procedure for Noise Abatement Departure Procedure [PRO-ENV-12a]-Exploiting new ATM and aircraft capabilities to optimise the aircraft noise footprint at airports (Airlines) [PRO-ENV-13a]-Airline Procedures for exploiting new ATM and aircraft capabilities with a view to optimising atmospheric emissions from aircraft operations
Finalisation criteria:	1 - A Local Memorandum of Understanding (MoU) or Memorandum of Cooperation (MoC) along with a Terms of Reference (TOR) document detailing the working arrangement or document of similar authority covering the implementation of CEM officially signed by the key operational stakeholders

SESA	Active						LOC/APT
ENV03	Continuous Climb Operations (CCO)						
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

A continuous climb operation (CCO) (1) is an aircraft operating technique, enabled by airspace design, procedure design and ATC clearances in which departing aircraft climb without interruption, to the greatest possible extent, by employing optimum climb engine thrust at climb speeds until reaching the cruise flight level. The optimum vertical profile takes the form of a continuously climbing path.

Operating at optimum flight levels is a key driver to improving fuel efficiency and minimise carbon emissions as a large proportion of fuel burn occurs during the climb phase.

Many major airports now employ PBN procedures which can enable both CCO and continuous descent operations (CDO) and, in a large number of cases, judicious airspace and procedure design has resulted in significant reductions in environmental impacts. This is particularly the case where the airspace design has supported CCO and CDO.

CCO does not adversely affect safety and capacity and will produce environmental and operational benefits including reductions to fuel burn, gaseous emissions and noise impact.

It is important that monitoring and measuring of CCO execution is defined across ECAC using harmonised definitions to avoid misleading interpretations of performance measurement. It is equally important that CCO execution is measured across ECAC, as far as practicable, using a harmonised methodology and parameters. Whilst reporting can be undertaken at the local level according to local legislation and requirements, when CCO execution is reported on an international basis, this measurement should always be based upon a harmonised method, parameters and metric. The proposed methodology (4) identified by the European TF on CCO/CDO is detailed at <http://www.eurocontrol.int/articles/continuous-climb-and-descent-operations>.

NOTES:

- (1) Since the publication of ICAO Doc 9993, the term Continuous Climb Operation (CCO) has generally replaced the term CCD (Continuous Climb Departure).
- (2) In principle, it is not required to implement CCO on a 24/7 basis, but it should be facilitated to the extent possible, according to local conditions.
- (3) Being a Local objective to be applied at individual airports according to their local needs, this objective does not have a mandatory implementation deadline. As reference guidance the expected date for deployment of Block 0 modules in the ICAO GANP, to which this objective is linked through ASBU B0-CCO, is 2013-2019.
- (4) At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability area (Aerodromes subject to local needs and complexity)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	01/01/2013		

References

European ATM Master Plan

OI step -	[AOM-0703]-Continuous Climb Departure						
Enablers -	PRO-ENV-15						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

- Regulation (EU) 598/2014 of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC (as from 16/06/2016).
- EC Directive 2002/49/EC, dated 25.06.2002 relating to the assessment and management of environmental noise.
- EC Directive 2008/50/EC, dated 21.05.2008 on ambient air quality and cleaner air for Europe.

Essential Operational Changes

Airport and TMA performance

ICAO GANP – ASBUs

APTA-B0/5 CCO (Basic)

Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ENV03-ASP01	Implement rules and procedures for the application of CCO techniques		
ENV03-ASP02	Train controllers in the application of CCO techniques		
ENV03-ASP03	Monitor and measure the execution of CCO		
ENV03-APO01	Monitor and measure the execution of CCO		
ENV03-USE01	Include CCO techniques in the aircrew training manual wherever possible		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	CCOs contribute to reducing airlines operating costs including a reduction in fuel consumption by the flying of optimised profiles (no vertical containment required). If the CCO is flown as part of a PBN procedure, the predictability of the vertical profile will be enhanced for ATC. CCOs are also a proxy for Vertical Flight Efficiency (VFE) and should be monitored according to harmonised definitions and parameters in order to measure efficiency.
Cost Efficiency:	-
Environment:	Reduction of fuel burn (and consequently, atmospheric emissions) has been estimated to be 17kg per flight for those flying CCO over those flying non-CCO. In addition, studies have indicated that due to lower drag and thrust facilitated by CCO, over certain portions of the arrival profile, noise may be reduced. Studies are currently ongoing to gauge such noise reductions.
Security:	-

ENV03	Continuous Climb Operations (CCO)
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Detailed SLoA Descriptions

ENV03-ASP01	Implement rules and procedures for the application of CCO techniques	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Coordinate activities and implement rules and ATC procedures for the application of CCO techniques in the TMA, whenever practicable. Coordination should be, in all circumstances, undertaken with adjacent ATS units, the NM, aircraft operators and airport operators. Provide the tactical and operational situational awareness support to allow aircrew to apply CCO.		
Supporting material(s):	ICAO - Doc 9426 - Air Traffic Services Planning Manual - Edition 1 / 12/1992 Url : http://www.icao.int/publications/Pages/catalogue.aspx ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://store.icao.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations ICAO - Doc 4444 - Air Traffic Management - Edition 15 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/		
ATM Master Plan relationship:	[PRO-ENV-15]-ATC Procedures and LoA with adjacent ATS units to ensure that airspace is designed to permit the aircraft continuous climb in order to avoid the unnecessary noise and excessive fuel emissions from non-optimal departure profiles		
Finalisation criteria:	1 - CCO procedures have been published in the local/State AIP. 2 - CCOs are made available to airspace users, whenever practicable.		

ENV03-ASP02	Train controllers in the application of CCO techniques	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Train controllers in the application of CCO techniques and the benefits that the facilitation of such techniques can provide to airspace users in terms of airspace efficiency together with fuel, emissions and cost savings.		
Supporting material(s):	ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://store.icao.int/ EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations		
Finalisation criteria:	1 - Approach controllers have been suitably trained in the application of CCO techniques		

ENV03-ASP03	Monitor and measure the execution of CCO	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	In cooperation with airports, monitor and measure CCO execution, where possible based upon a harmonised methodology and metrics. The methodology should be used also to identify the cause of any restrictions to CCO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed to facilitate CCOs, in order to enhance vertical flight efficiency. Provide any feedback to airports, aircraft operators and the NM on the level of CCO execution together with any other trends observed by the CCO performance monitoring. Note :At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.		
Supporting material(s):	EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0		
Finalisation criteria:	1 - In cooperation with the airport operator, the monitoring and measurement of CCO execution is performed and available. 2 - Arrangements are in place to provide feedback of CCO performance to the airport operator, the NM and the local community where practicable		

ENV03	Continuous Climb Operations (CCO)
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ENV03-APO01	Monitor and measure the execution of CCO	From: -	By: -
Action by:	Airport Operators		
Description & purpose:	<p>In cooperation with the ANSP, monitor and measure CCO execution, where possible based upon a harmonised methodology. The methodology should be used also to identify the cause of any restrictions to CCO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed, by the ANSP, to facilitate CCOs, in order to enhance vertical flight efficiency. Provide any feedback to the ANSP, aircraft operators and the NM on the level of CCO execution together with any other trends observed by the CCO performance monitoring.</p> <p>Note :At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.</p>		
Supporting material(s):	<p>EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0</p>		
Finalisation criteria:	<p>1 - In cooperation with the ANSP, the monitoring and measurement of CCO execution is performed and available. 2 - Arrangements are in place to provide feedback of CCO performance to the ANSP, the NM and the local community where practicable</p>		

ENV03-USE01	Include CCO techniques in the aircrew training manual wherever possible	From: -	By: -
Action by:	Airspace Users		
Description & purpose:	Provide suitable training, ensure awareness of and encourage application of CCO techniques.		
Supporting material(s):	<p>ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://store.icao.int/ EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations</p>		
Finalisation criteria:	1 - CCO techniques have been integrated in the aircrew training manual.		

SESAAR	Active						ECAC+
FCM03	Collaborative Flight Planning						
REG	ASP	MIL	APO	USE	INT	IND	NM

Subject matter and scope

Improve collaboration between the NM, ANSPs, airports and airspace users in flight plan (FP) filing, in particular to assist airspace users in filing their FPs and in re-routings according to the airspace availability and ATFM situation.

The ATC flight plan (AFP) messages sent to the NM serve purpose of:

- Enabling NM to provide ATC Units with more accurate FP information, improving their traffic situation awareness and reducing the workload caused by last minute updates or missing FPs.
- Updating the ETFMS with FP information in order to reflect as accurately as possible the current and future flight trajectories, providing accurate sector load calculations.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2000		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

OI step -	[IS-0102]-Improved Management of Flight Plan After Departure						
Enablers -	NIMS-02	NIMS-20 FCM06	PRO-005				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

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ICAO GANP ? ASBUs

NOPS-B0/2	Collaborative Network Flight Updates
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Deployment Programme

4.2.3	Interface ATM systems to NM systems
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European Plan for Aviation Safety

- none -

Operating Environments

Airport
En-Route
Network
Terminal Airspace

FCM03	Collaborative Flight Planning
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Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
FCM03-ASP01	Provide flight plan message processing in ICAO format	FINALISED	
FCM03-ASP02	Automatically process FPLs derived from RPLs	FINALISED	
FCM03-ASP03	Provide flight plan message processing in ADEXP format	01/12/1997	01/01/2022
FCM03-ASP04	Processing of APL and ACH messages	FINALISED	
FCM03-ASP05	Automatically provide AFP for missing flight plans	01/03/1998	01/01/2022
FCM03-ASP06	Automatically provide AFP message for change of route	01/03/2003	01/01/2022
FCM03-ASP07	Automatically provide AFP message for a diversion	01/03/2008	01/01/2022
FCM03-ASP08	Automatically provide AFP message for a change of flight rules or flight type	01/03/2003	01/01/2022
FCM03-ASP09	Automatically provide AFP message for a change of requested cruising level	DELETED	
FCM03-ASP10	Provide AFP messages in ADEXP format	DELETED	
FCM03-ASP11	Use IFPLID in all messages to ETFMS	DELETED	
FCM03-ASP12	Use IFPLID in exchange of route-charge data	DELETED	
FCM03-ASP13	Automatically provide AFP message for change of aircraft type	01/03/2003	01/01/2022
FCM03-ASP14	Automatically provide AFP message for change of aircraft equipment	01/03/2008	01/01/2022
FCM03-NM01	Integration of Automatic AFP in NM systems	01/01/2010	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Prevention of overloads.
Capacity:	Better use of the available network capacity hence reducing delays.
Operational Efficiency:	A better traffic prediction will enhance traffic smoothing allowing less 'unnecessary' actions to be taken. Earlier awareness of the updated traffic situation will permit the flow management positions to consider and implement remedial actions to reduce the impact of the measures taken to accommodate the traffic. From the perspective of the airspace users, better traffic prediction will provide improved ability to maintain accurate estimated off-block times (EOBTs) for the return and subsequent legs for a flight/aircraft.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM03-ASP03	Provide flight plan message processing in ADEXP format	From: 01/12/1997	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	<p>Receive and automatically process IFPS output of all defined flight plan messages for input into local ATC systems in ADEXP format in line with ICAO State Letter (AN 13/2.1-08/50) - 25 June 2008.</p> <p>Impact of Flight Plan 2012 changes:</p> <p>The basic flight plan form and the field composition within the FPL message remains unchanged, but the content of some fields will change.</p> <ul style="list-style-type: none"> - changes to indications in Items 10 and 18 (including the use of digits) describing the precise NAV/COM/SUR capabilities of the flight - the ability to file a FPL up to 5 days (120 hours) before the flight, using the Date of Flight (DOF) in Item 18 - addition of new Item 18 indicators and changes to the contents of several existing indicators. - a change to the description of a significant point which may now be described by range and bearing <p>The field composition within associated messages (CHG, DEP, CNL, ARR, RQP) will change to include the EOBT and Item 18 DOF/ thus ensuring association to the correct FPL.</p>		
	<p>Note :All national ATC systems that receive flight plan data from IFPS receive and process the data in ADEXP format. The SLoA can be considered as not applicable if the amount of IFR/GAT traffic does not justify automation.</p>		
Specific applicability:	ECAC States, IFR/GAT only.		

FCM03	Collaborative Flight Planning		
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Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp		
Finalisation criteria:	1 - ATC system is able to receive and process flight plan data from IFPS in ADEXP format.		

FCM03-ASP05	Automatically provide AFP for missing flight plans	From: 01/03/1998	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message. Provide the AFP in case an IFR-GAT flight exists but no IFPL has been received from IFPS. The related AFP message can be sent in either ICAO or ADEXP format.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/sites/default/files/2020-06/eurocontrol-ifps-users-manual-24-0_0.pdf		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Reception of AFP messages by NM has been ensured.		

FCM03-ASP06	Automatically provide AFP message for change of route	From: 01/03/2003	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message; provide the AFP for a change of route where the exit coordination point from the Air Traffic Services Unit (ATSU) has changed and the next downstream ATSU is new when compared to the last flight plan data. The related AFP message must be provided in ADEXP format only		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/sites/default/files/2020-06/eurocontrol-ifps-users-manual-24-0_0.pdf		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for route changes by the ANSP has been implemented.		

FCM03-ASP07	Automatically provide AFP message for a diversion	From: 01/03/2008	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message; provide the AFP in case of a diversion. The related AFP message must be provided in ADEXP format only.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/sites/default/files/2020-06/eurocontrol-ifps-users-manual-24-0_0.pdf		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for diversions by the ANSP has been implemented.		

FCM03-ASP08	Automatically provide AFP message for a change of flight rules or flight type	From: 01/03/2003	By: 01/01/2022
Action by:	ANS Providers		

FCM03	Collaborative Flight Planning
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Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message; provide the AFP in case of a change of flight rules from VFR to IFR, or IFR to VFR, or a change of flight type from OAT to GAT, or GAT to OAT.
Specific applicability:	ECAC States, IFR/GAT only.
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/sites/default/files/2020-06/eurocontrol-ifps-users-manual-24-0_0.pdf
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates
Finalisation criteria:	1 - Transmission of AFP messages for changes of flight rules and flight types by the ANSP has been implemented.

FCM03-ASP13	Automatically provide AFP message for change of aircraft type	From:	By:
		01/03/2003	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Automatically provide IFPS with updated Flight Plan information on airborne flights by means of AFP message. Provide the AFP in case of a change of aircraft type.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/sites/default/files/2020-06/eurocontrol-ifps-users-manual-24-0_0.pdf		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for changes of aircraft type by ANSP has been implemented.		

FCM03-ASP14	Automatically provide AFP message for change of aircraft equipment	From:	By:
		01/03/2008	01/01/2022
Action by:	ANS Providers		
Description & purpose:	Automatically provide IFPS with updated Flight Plan information on airborne flights by means of AFP message. Provide the AFP in case of a change of aircraft equipment. The related AFP message must be provided in ADEXP format only.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/sites/default/files/2020-06/eurocontrol-ifps-users-manual-24-0_0.pdf		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for changes of aircraft equipment by ANSP has been implemented.		

FCM03-NM01	Integration of Automatic AFP in NM systems	From:	By:
		01/01/2010	01/01/2022
Action by:	NM		
Description & purpose:	The automatic AFP messages should not be transmitted to IFPS without prior coordination and test validation by NM. NM should ensure the correctness of AFP messages by testing and validate them. If the testing is correct, the received AFP messages from a specific ASTC unit will be integrated in NM systems.		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Integration of AFP messages in NM systems		

PCP		Active					ECAC+	
FCM04.2		Short Term ATFCM Measures (STAM) - Phase 2						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Short term ATFCM measures (STAM), as defined in the STAM Concept of Operations but also in the Pilot Common Project Regulation and in the Deployment Programme is consisting of an approach to smooth sector workloads by reducing traffic peaks through short-term application of minor ground delays, appropriate flight level capping, timing and modalities of ATC re-sectorisation, exiguous re-routings to a limited number of flights and 'what-if' function in order to identify the applicability and gains of potential ATFCM measure. These measures are capable of reducing the traffic complexity for ATC with minimum curtailing for the airspace users. STAM is based on high-quality data for prediction and accurate traffic analysis and will be an important contribution to enhanced demand capacity balancing (DCB) concept.

ANSPs can optimize capacity throughput by adopting and improving the tactical capacity management procedures (with the use of STAM). The tactical capacity management procedures can be supported by a Network Tools (system based STAM with the hot-spot detections in the network view, the "what-if" function and capabilities of promulgation and implementation of STAM measures, including CDM) or by local tools. These tools shall be applicable in the tactical ATFCM timeframe (e.g. up to 2 hours before flights enter a sector).

Tactical capacity management shall implement STAM using cooperative decision-making to manage flows before flights enter a sector.

The deployment shall mainly focus on:

- Enhanced monitoring techniques (including hotspot management and complexity indicators)
- Coordination systems (including B2B with local tools)
- What-if function (local measures, flight based, flow based and multiple measure alternative)
- Network impact assessment

NOTE: the STAM CONOPS mentioned in this document includes both STAM Phase 1 and Phase 2.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	All EU SES States except: Malta		
Applicability Area 2	Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, Turkey, Ukraine		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/11/2017		Applicability Area 1
Full operational capability		01/01/2022	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[DCB-0308]-Advanced Short Term ATFCM								
Enablers -	NIMS-13b	NIMS-27	PRO-022	PRO-247	SWIM-APS-03a INF08.1, INF08.2	SWIM-APS-04a INF08.1	SWIM-INFR-05a INF08.1, INF08.2	SWIM-NET-01a INF08.1, INF08.2	
OI step -	- No OI Link -								
Enablers -	ER APP ATC 17								

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

FCM04.2	Short Term ATFCM Measures (STAM) - Phase 2
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ICAO GANP ? ASBUs

NOPS-B1/1	Short Term ATFM measures
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Deployment Programme

4.1.2	STAM Phase 2
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route Network

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
FCM04.2-ASP01	Develop STAM procedures and upgrade the local systems	01/11/2017	01/01/2022
FCM04.2-ASP02	Use of STAM phase 2	01/11/2017	01/01/2022
FCM04.2-ASP03	Train the personnel	01/11/2017	01/01/2022
FCM04.2-USE01	Airspace Users to deploy the appropriate tools and associated procedures	01/11/2017	01/01/2022
FCM04.2-NM01	Update the NM systems and develop the associated procedures	01/11/2017	01/01/2022
FCM04.2-NM02	Train the personnel	01/11/2017	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Small enhancement through the resolution of some conflicts through STAM measures.
Capacity:	Effective capacity is globally optimised thanks to replacement of some ATFCM regulations with the STAM measures, hotspot reduction and its more efficient management.
Operational Efficiency:	Improved through the proposition of the most appropriate measures according with the type of flight.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM04.2-ASP01	Develop STAM procedures and upgrade the local systems	From:	By:
		Applicability Area 1: 01/11/2017	Applicability Area 1: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Develop the associated procedures so as to ensure that the ATFCM planning at local level allows the STAM coordination process (system based), involving all actors and Procure/ Upgrade the local STAM systems, if required and justified with specific operational needs, and develop the B2B interfaces with NM STAM(INAP function).		
	<p>Note :It is expected that in the majority of cases, the NM STAM application will be sufficient for the implementation of STAM P2 and no other system updates will be needed. However in the case of specific, complex environments, development or upgrade of local ATM systems may be needed as indicated above. This SLOA is applicable only for these cases while ANSPs that will solely use NM STAMs, this SLOA should be considered as not applicable.</p>		

FCM04.2	Short Term ATFCM Measures (STAM) - Phase 2
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Supporting material(s):	EUROCONTROL - NM STAM CONOPS EUROCONTROL - NM STAM coordination procedures (Common set of ATFCM-STAM procedures including roles & responsibilities allowing for effective STAM measure execution) SJU - SESAR Solution 17: Data Pack for advanced Short ATFCM Measures (STAM) Url : https://www.sesarju.eu/sesar-solutions/advanced-short-term-atfcm-measures-stams
ATM Master Plan relationship:	[ER APP ATC 17]-Enhance Traffic and Flow Management sub-systems to support dynamic flow management in co-ordination with local, regional, and European levels. [PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..
Finalisation criteria:	1 - The local procedures for STAM phase 2 have been developed 2 - NM STAM tool has been used.

FCM04.2-ASP02	Use of STAM phase 2	From:	By:
		Applicability Area 1: 01/11/2017	Applicability Area 1: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Use of STAM Phase 2 application and services provided by NM and develop the associated local procedures. In addition to STAM p1 system features, STAM p2 includes additional features as the enhanced monitoring techniques, what-if functionality for local measures and system based coordination. The use and the effectiveness of the STAM P2 measures are to be monitored (off-line) by the NM.		
	Note :This SLOA is applicable for ANSP that opted to use NM STAM p2, while the ANSPs that want to develop their own tools and integrate with NM STAM should refer to ASP-01.		
Supporting material(s):	EUROCONTROL - NM STAM CONOPS EUROCONTROL - NM STAM coordination procedures (Common set of ATFCM-STAM procedures including roles & responsibilities allowing for effective STAM measure execution) SJU - SESAR Solution 17: Data Pack for advanced Short ATFCM Measures (STAM) Url : https://www.sesarju.eu/sesar-solutions/advanced-short-term-atfcm-measures-stams		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM) [PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..		
Finalisation criteria:	1 - Local STAM procedures based on NM STAM tools have been developed 2 - NM STAM tool has been used.		

FCM04.2-ASP03	Train the personnel	From:	By:
		Applicability Area 1: 01/11/2017	Applicability Area 1: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Ensure that all operational personnel concerned is adequately trained for their job functions in relation to the implementation of STAM Phase 2		
Supporting material(s):	SJU - SESAR Solution 17: Data Pack for advanced Short ATFCM Measures (STAM) Url : https://www.sesarju.eu/sesar-solutions/advanced-short-term-atfcm-measures-stams		
Finalisation criteria:	1 - Training plans covering STAM P2 have been developed and implemented		

FCM04.2-USE01	Airspace Users to deploy the appropriate tools and associated procedures	From:	By:
		Applicability Area 1: 01/11/2017	Applicability Area 1: 01/01/2022
Action by:	Airspace Users		
Description & purpose:	Airspace Users, in particular Flight Planning Services, to deploy the appropriate tools (STAM application and services provided by NM) and associated procedures so as to be capable to support Enhanced Short Term ATFCM Measures. The procedures mentioned above shall include the communication of the STAM measures to the crews, as appropriate.		
Supporting material(s):	EUROCONTROL - NM STAM CONOPS EUROCONTROL - NM STAM coordination procedures (Common set of ATFCM-STAM procedures including roles & responsibilities allowing for effective STAM measure execution) SJU - SESAR Solution 17: Data Pack for advanced Short ATFCM Measures (STAM) Url : https://www.sesarju.eu/sesar-solutions/advanced-short-term-atfcm-measures-stams		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM) [PRO-022]-FCM procedures for collaborating on SBT changes with Airspace Users		

FCM04.2	Short Term ATFCM Measures (STAM) - Phase 2
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Finalisation criteria:	1 - Tool supporting STAM Phase 2 is available 2 - Procedures are in place
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FCM04.2-NM01	Update the NM systems and develop the associated procedures	From:	By:
		Applicability Area 1: 01/11/2017	Applicability Area 1: 01/01/2022
Action by:	NM		
Description & purpose:	Update the NM systems and develop the associated procedures so as to ensure that the ATFCM planning at network level supports hot-spot detection, what-if function, STAM CDM, execution of STAM, network assessment and continuous monitoring of network activity.		
Supporting material(s):	EUROCONTROL - NM STAM CONOPS EUROCONTROL - NM STAM coordination procedures (Common set of ATFCM-STAM procedures including roles & responsibilities allowing for effective STAM measure execution) SJU - SESAR Solution 17: Data Pack for advanced Short ATFCM Measures (STAM) Url : https://www.sesarju.eu/sesar-solutions/advanced-short-term-atfcm-measures-stams		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM) [NIMS-27]-Network DCB sub-system enhanced with improved accuracy of processing real-time data [PRO-022]-FCM procedures for collaborating on SBT changes with Airspace Users [PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..		
Finalisation criteria:	1 - Tools supporting STAM Phase 2 are available.		

FCM04.2-NM02	Train the personnel	From:	By:
		Applicability Area 1: 01/11/2017	Applicability Area 1: 01/01/2022
Action by:	NM		
Description & purpose:	Ensure that all operational personnel concerned is adequately trained for their job functions in relation to the implementation of STAM Phase 2.		
Supporting material(s):	EUROCONTROL - NM STAM CONOPS SJU - SESAR Solution 17: Data Pack for advanced Short ATFCM Measures (STAM) Url : https://www.sesarju.eu/sesar-solutions/advanced-short-term-atfcm-measures-stams		
Finalisation criteria:	1 - Training plans covering STAM P2 have been developed and implemented.		

PCP		Active					ECAC+	
FCM05		Interactive Rolling NOP						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The first steps of the interactive rolling NOP were already implemented through the deployment of the NOP portal (through n-CONNECT platform and B2B services). Further information and data have been deployed to support the interactive approach to the NOP (e.g. ADR, DDR2,...) and the access to the NOP data will be more and more available through B2B services. Most of the enablers required are expected to be gradually deployed over this period.

The scope of this Implementation Objective consists in the implementation of a platform that uses the state-of-the-art technologies for creation of a virtual operations room for the physically distributed European ATM network operations, in support of the collaborative NOP. This platform will support the network collaborative rolling processes from strategic to real-time operations, including capabilities for online performance monitoring integrated and feeding back into the collaborative network planning. Also, the platform provides access to post-operational data for offline analysis and performance reporting.

Information and dialogue tools shall be accessed via an ATM Information Portal. Access to information is done in a secure way, tailored according the stakeholders needs and subject to access control rules, so that only those who have an operational need to access particular information are able to do so.

In addition, this Implementation Objective also covers the NM system upgrades related to AOP-NOP B2B interface for data exchanges with selected airports.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: The deleted SLoAs ASP01 and ASP02 appear since the 2016 Edition in objective AOM19.1. The deleted SLoA NM11 is addressed by the objective INF08.1

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Armenia, Luxembourg, Moldova, Morocco, North Macedonia		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/09/2013		Applicability Area
Full operational capability		01/01/2022	Applicability Area

References

European ATM Master Plan

OI step -	[DCB-0102]-Interactive Rolling NOP							
Enablers -	AAMS-06a	AIMS-21	PRO-035					
OI step -	[DCB-0103-A]-Initial collaborative NOP							
Enablers -	AIRPORT-38	METEO-06b INF08.1	MIL-0502 INF08.1	NIMS-13b FCM04.2	NIMS-14b	NIMS-25	PRO-028	REG-0518
	SWIM-APS-01a INF08.1	SWIM-APS-02a INF08.1	SWIM-APS-03a INF08.1, INF08.2	SWIM-APS-04a INF08.1	SWIM-INFR-05a INF08.1, INF08.2	SWIM-NET-01a INF08.1, INF08.2		
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective	Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

ICAO GANP ? ASBUs

NOPS-B1/2	Enhanced Network Operations Planning
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FCM05	Interactive Rolling NOP
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Deployment Programme

4.2.2	Interactive Rolling NOP
4.2.4	AOP/NOP information sharing

European Plan for Aviation Safety

- none -	
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Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
FCM05-REG01	Review, as appropriate, the safety argument of the changes to the ASM system, supporting the implementation of interactive Rolling NOP by the NM	DELETED	
FCM05-ASP01	Upgrade the automated ASM support system with the capability of AIXM 5.1 B2B data exchange with NM	DELETED	
FCM05-ASP02	Perform an integration of the automated ASM support systems with the Network	DELETED	
FCM05-ASP03	Produce a safety assessment on the upgrade of automated ASM support systems to the AIXM 5.1 capability	DELETED	
FCM05-ASP04	Develop and implement ATFCM procedures for interaction with the NOP	01/09/2016	01/01/2022
FCM05-ASP05	Train the relevant personnel for interaction with the NOP	01/09/2016	01/01/2022
FCM05-APO01	Provide the required data to the Network Manager for DDR	FINALISED	
FCM05-APO02	Perform the integration of the AOP with the NOP	01/01/2015	01/01/2022
FCM05-USE01	Provide the required data to the Network Manager for DDR	FINALISED	
FCM05-NM01	ADR to provide, common and consolidated view of European airspace data containing both static and dynamic digital data	FINALISED	
FCM05-NM02	Upgrade NM system for external user access to the airspace data repository (making restrictions available in AIXM 5.1 format via B2B)	FINALISED	
FCM05-NM03	Equip Airspace management system with tools for collection of airspace data (Interoperability with ASM tools in AIXM 5.1)	FINALISED	
FCM05-NM04	Perform an integration of ASM support systems with the Network	FINALISED	
FCM05-NM05	Upgrade NM systems to allow the access of interested users to the Demand Data Repository	FINALISED	
FCM05-NM06	Implement FCM Procedures for on-line access/update to the NOP and notification of updates	FINALISED	
FCM05-NM07	Upgrade NM systems to allow FMP to remote access simulation via the NOP Portal (create of simulations and assessment of the results) and in a second step to edit scenario measures (regulation, config, capacities,...) prior to running simulations	FINALISED	
FCM05-NM08	Flight Plan filing capability directly via the NOP portal	FINALISED	
FCM05-NM09	Develop AOP/NOP interfaces	FINALISED	
FCM05-NM10	Integrate the AOPs into the Network Operation Plan	01/01/2016 01/01/2022	
FCM05-NM11	Develop Network Manager B2B services	DELETED	
FCM05-NM12	Enhance the NM technical platform and services	01/09/2016	01/01/2022
FCM05-NM13	Implement ATFCM procedures	01/09/2016	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

FCM05	Interactive Rolling NOP
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Expected Performance Benefits

Safety:	Enhanced by improved sharing of the network situation.
Capacity:	Small benefits through improved use of the airport and airspace capacity resulting from a better knowledge of the airspace availability and of the traffic demand.
Operational Efficiency:	-
Cost Efficiency:	Enhanced through use of cost efficient tools to access network information instead of expensive local tools or procedures.
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM05-ASP04	Develop and implement ATFCM procedures for interaction with the NOP	From: 01/09/2016	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	The SLoA addresses the definition, validation and deployment of the new/changed operational procedures pertinent to the interaction with the NOP.		
Supporting material(s):	EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf SJU - SESAR Solution 20: Data Pack for initial collaborative Network Operations Plan (NOP) Url : https://www.sesarju.eu/sesar-solutions/initial-collaborative-network-operations-plan-nop		
ATM Master Plan relationship:	[PRO-035]-FCM Procedures for on-line access/update to the NOP and notification of updates		
Finalisation criteria:	1 - The procedures are in use		

FCM05-ASP05	Train the relevant personnel for interaction with the NOP	From: 01/09/2016	By: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Ensure that all operational personnel concerned is adequately trained for their job functions in relation to the interaction with the rolling NOP.		
Supporting material(s):	EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf SJU - SESAR Solution 20: Data Pack for initial collaborative Network Operations Plan (NOP) Url : https://www.sesarju.eu/sesar-solutions/initial-collaborative-network-operations-plan-nop		
Finalisation criteria:	1 - Training plans covering interaction with the NOP have been developed and implemented		

FCM05-APO02	Perform the integration of the AOP with the NOP	From: 01/01/2015	By: 01/01/2022
Action by:	Airport Operators		
Description & purpose:	Linking AOP with NOP (Airport Business Trajectory and User Preferred Trajectory) will contribute in optimising both Network and Airport management. This will be achieved by timely and simultaneously updating AOP and NOP, providing Network and Airport Managers with a commonly updated, consistent and accurate Plan. The AOP is therefore the tool which provides/integrates the airport information into the Network (NOP). This is done by sharing information with NOP or by requesting information from the NOP. The AO will have to ensure that AOP core information is provided to the NOP and that change in information in the AOP with anticipated impact on the network is made available to the NOP according with the appropriate agreed quality of service.		
Supporting material(s):	SJU - SESAR Solution 21: Data Pack for AOP-NOP seamless integration Url : http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/airport-operations-plan-aop-and-its-seamless SJU - OFA 05.01.01 - Airport Operations Centre Definition - Operational Service and Environment Definition Part 1 - 00.03.00 / 12/2014		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [PRO-028]-Procedures to support AOP-NOP collaborative process		

FCM05	Interactive Rolling NOP		
Finalisation criteria:	1 - The relevant AOP information is made available to the NOP 2 - The relevant NOP information is integrated into the AOP		
FCM05-NM10	Integrate the AOPs into the Network Operation Plan	From: 01/01/2016 01/01/2022	By: -
Action by:	NM		
Description & purpose:	Linking AOP with NOP will contribute in optimising both Network and Airport management. This will be achieved by timely and simultaneously updating NOP with AOPs data, providing NOP and AOPs with a commonly updated, consistent and accurate data. The AOP is therefore the tool which provides the airport information into the Network (NOP). This is done by sharing information between the NOP and the AOP. The NM will have to ensure that relevant information for airport operations, which may be contained in the AOPs, are shared with the relevant part of the NOP.		
Supporting material(s):	SJU - OFA 05.01.01 - Airport Operations Centre Definition - Operational Service and Environment Definition Part 1 - 00.03.00 / 12/2014 SJU - SESAR Solution 20: Data Pack for initial collaborative Network Operations Plan (NOP) Url : https://www.sesarju.eu/sesar-solutions/initial-collaborative-network-operations-plan-nop		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - Integration of relevant AOP data for a specific airport into NOP 2 - The relevant NOP information is made available to the AOP		
FCM05-NM12	Enhance the NM technical platform and services	From: 01/09/2016	By: 01/01/2022
Action by:			
Description & purpose:	The enhancement of NM's technical platform and services will address the following: - Extension of NM interfaces with new functional capabilities - Migration of the variety of interfaces it currently provides (CHMI variants, the NOP Portal) into a single, redesigned HMI for all users, fit for purpose and flexible enough to meet the needs of the different user roles (both internal and external). - system upgrades for enhanced planning process (integration of planning tool, tools to support collaborative dynamic planning, simulation tools) - enhancements of post-analysis tools and process - support the needs in terms of user interfaces for other NM projects		
Supporting material(s):	SJU - SESAR Solution 20: Data Pack for initial collaborative Network Operations Plan (NOP) Url : https://www.sesarju.eu/sesar-solutions/initial-collaborative-network-operations-plan-nop		
Finalisation criteria:	1 - NM technical platform and services have been upgraded		
FCM05-NM13	Implement ATFCM procedures	From: 01/09/2016	By: 01/01/2022
Action by:	NM		
Description & purpose:	The SLoA addresses the definition, validation and deployment of the new/changed operational procedures pertinent to the NM system changes, including FCM procedures for redesigned NM HMI as well as procedures related to post OPS analysis process.		
Supporting material(s):	EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf SJU - SESAR Solution 20: Data Pack for initial collaborative Network Operations Plan (NOP) Url : https://www.sesarju.eu/sesar-solutions/initial-collaborative-network-operations-plan-nop		
ATM Master Plan relationship:	[PRO-035]-FCM Procedures for on-line access/update to the NOP and notification of updates		
Finalisation criteria:	1 - The procedures are in use		

PCP		Active					ECAC+	
FCM06		Traffic Complexity Assessment						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The traffic load management tool addressed by SESAR OI step CM-0101 (Automatic support for traffic load density management) is the predecessor of traffic complexity tools. The traffic complexity tools continuously monitor sector demand and evaluate traffic complexity (by applying predefined complexity metrics) according to a predetermined qualitative scale. The predicted complexity coupled with traffic demand enables ATFCM to take timely action to adjust capacity, or request the traffic profile changes in coordination with ATC and airspace users.

The rigid application of ATFCM regulations based on standard capacity thresholds as the pre-dominant tactical capacity measure needs to be replaced by a close working relationship between ANSPs and Network Manager, which would monitor both the real demand, the effective capacity of sectors having taken into account the complexity of expected traffic situation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	All EU SES States except: Luxembourg, Malta		
Applicability Area 2	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Israel, Moldova, Montenegro, North Macedonia, Serbia, Turkey, Ukraine		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2015		Applicability Area 1
Full operational capability		01/01/2022	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[CM-0101]-Automated Support for Traffic Load (Density) Management								
Enablers -	ER APP ATC 124								
OI step -	[CM-0103-A]-Automated Support for Traffic Complexity Assessment								
Enablers -	ER APP ATC 93	NIMS-37	PRO-220a	PRO-220b	SWIM-APS-03a INF08.1, INF08.2	SWIM-APS-04a INF08.1	SWIM-INFR-05a INF08.1, INF08.2	SWIM-NET-01a INF08.1, INF08.2	
OI step -	- No OI Link -								
Enablers -	NIMS-20								
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan			

Applicable legislation

Regulation (EU) No 677/2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EU) No 691/2010
Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

ICAO GANP ? ASBUs

NOPS-B1/4	Dynamic Traffic Complexity Management
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Deployment Programme

4.4.2	Traffic Complexity Tools
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FCM06	Traffic Complexity Assessment
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European Plan for Aviation Safety

- none -	
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Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
FCM06-ASP01	Implement Local Traffic Load Management tool	01/01/2015	01/01/2022
FCM06-ASP02	Receive, process and integrate ETFMS Flight Data (EFD)	01/01/2015	01/01/2022
FCM06-ASP03	Implement Local Traffic Complexity tools and procedures	01/01/2018	01/01/2022
FCM06-NM01	Provide EFD to the local traffic complexity tools	01/01/2015	01/01/2022
FCM06-NM02	Improved trajectory in NM systems	01/01/2015	01/01/2022
FCM06-NM03	Network Traffic Complexity Assessment	01/01/2015	01/01/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	The better ATCO workload predictability via deployment of the traffic complexity assessment tool will lead to safety gains. Enhancement also through reduction in controller workload.
Capacity:	Increased through the better resource utilisation to enhance productivity and reduce controller workload.
Operational Efficiency:	Increased through use of more optimal routes leading to fuel saving and lower CO2 emissions.
Cost Efficiency:	-
Environment:	Reductions in emissions through use of more optimal routes.
Security:	-

Detailed SLoA Descriptions

FCM06-ASP01	Implement Local Traffic Load Management tool	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	The automated tools shall support the continuous monitoring of the traffic loads per network node (sector, waypoint, route, route-segment) according to declared capacities and provide support to the local resource management.		
ATM Master Plan relationship:	[ER APP ATC 124]-Basic Resource Management and Planning Tools.		
Finalisation criteria:	1 - Tools supporting local traffic load management are implemented and available for operational use		

FCM06-ASP02	Receive, process and integrate ETFMS Flight Data (EFD)	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	The local FDPS to receive, process and integrate EFD provided by NM in the local traffic complexity assessment tool. This activity is needed in order to supplement the local traffic count with the flight plan data from ETFMS.		

FCM06	Traffic Complexity Assessment
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Supporting material(s):	SJU - SESAR Solution 19: Data Pack for automated support for traffic complexity detection and resolution Url : https://www.sesarju.eu/sesar-solutions/automated-support-traffic-complexity-detection-and-resolution EUROCONTROL - Flight Progress Messages (FPM) document - 2.501 / 03/2019 Url : https://www.eurocontrol.int/publication/flight-progress-messages-fpm-document [NIMS-20]-Provision, reception and processing of ATFCM flight progress messages
ATM Master Plan relationship:	
Finalisation criteria:	1 - Reception, processing and integration of EFD message has been implemented.

FCM06-ASP03	Implement Local Traffic Complexity tools and procedures	From:	By:
		Applicability Area 1: 01/01/2018	Applicability Area 1: 01/01/2022
Action by:	ANS Providers		
Description & purpose:	Local traffic Complexity assessment tools shall receive process and integrate EFD provided by NM.		
Supporting material(s):	SJU - SESAR Solution 19: Data Pack for automated support for traffic complexity detection and resolution Url : https://www.sesarju.eu/sesar-solutions/automated-support-traffic-complexity-detection-and-resolution		
ATM Master Plan relationship:	[ER APP ATC 93]-Enhance Resource Management and Planning Tools to use Traffic Complexity Assessment. [PRO-220a]-ATC Procedures related to Detection and Resolution of Complexity, Density and Traffic Flow Problems [PRO-220b]-FCM procedures to describe how detection and resolution of complexity, density or traffic flow issues are managed.		
Finalisation criteria:	1 - The local traffic complexity tools and procedures are implemented documented and in operational use.		

FCM06-NM01	Provide EFD to the local traffic complexity tools	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 01/01/2022
Action by:	NM		
Description & purpose:	Provide the EFD data to the local FDPSs.		
Supporting material(s):	SJU - SESAR Solution 19: Data Pack for automated support for traffic complexity detection and resolution Url : https://www.sesarju.eu/sesar-solutions/automated-support-traffic-complexity-detection-and-resolution EUROCONTROL - Flight Progress Messages (FPM) document - 2.501 / 03/2019 Url : https://www.eurocontrol.int/publication/flight-progress-messages-fpm-document [NIMS-20]-Provision, reception and processing of ATFCM flight progress messages		
ATM Master Plan relationship:			
Finalisation criteria:	1 - Provision of EFD to ANSPs.		

FCM06-NM02	Improved trajectory in NM systems	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 01/01/2022
Action by:	NM		
Description & purpose:	The NM systems adaptation activities (specifications, development and deployment) deal with improving the quality of the planned trajectory, thus enhancing flight planning and complexity assessment. They address the following functions: - Operational deployment of EFPL - Processing of ATC information - Processing of OAT FPL information - Support to mixed mode operations		
Supporting material(s):	SJU - SESAR Solution 19: Data Pack for automated support for traffic complexity detection and resolution Url : https://www.sesarju.eu/sesar-solutions/automated-support-traffic-complexity-detection-and-resolution		
ATM Master Plan relationship:	[NIMS-21a]-Initial Flight Planning management enhanced to support 4D for Step 1 [NIMS-35]-Flight Planning management sub-system enhanced to process improved OAT flight plans		
Finalisation criteria:	1 - NM scenario management tools and procedures are implemented, documented and in operational use		

FCM06-NM03	Network Traffic Complexity Assessment	From:	By:
		Applicability Area 1: 01/01/2015	Applicability Area 1: 01/01/2022
Action by:	NM		

FCM06	Traffic Complexity Assessment
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Description & purpose:	Implementation of scenario management tools in support of traffic complexity management in the pre-tactical phase. This tool is built on the planned trajectory information and allows to simulate options optimising the use of available capacity. It is intended to support NM operations by identifying the possible mitigation strategies to be applied at network or local level, in coordination with FMPs and airspace users. In addition there is a need to develop a procedure related to implementation of traffic count methodologies that do not impact trajectory calculation.
Supporting material(s):	SJU - SESAR Solution 19: Data Pack for automated support for traffic complexity detection and resolution Url : https://www.sesarju.eu/sesar-solutions/automated-support-traffic-complexity-detection-and-resolution
ATM Master Plan relationship:	[NIMS-37]-Basic Complexity assessment tools [PRO-220b]-FCM procedures to describe how detection and resolution of complexity, density or traffic flow issues are managed.
Finalisation criteria:	1 - NM scenario management tools and procedures are implemented, documented and in operational use

SESAR		Active					ECAC+	
FCM09		Enhanced ATFM Slot Swapping						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

In today operations, air traffic flow management (ATFM) slot swapping allows airspace users (AUs) to request to the Network Manager (NM) a rearrangement of their own flights subject to a regulation in order to better suit their needs. However the current process has some limitations and the AUs requests for rearrangement of their flights to NM cannot be always accommodated.

The enhanced ATFM slot swapping improves the slot swapping currently used by airspace users, by allowing the function to be extended within the same group of airlines/operators (i.e. an alliance), by re-prioritising their flights during the pre-tactical part of operations.

The enhanced slot swapping increases flexibility for airspace users; within the same group of airlines (alliance) and provides a wider range of possibilities, by facilitating the identification of possible swaps for a regulated flight and by reducing the rate of rejection of swap request by refining current processes.

The Network Management function will supervise the swapping or changing of flight priority requests.

NOTE 1: The airport operators are not directly involved in the implementation of the objective. However, there are indirect links through the provision of slot change information to them, via A-CDM process.

NOTE 2: This objective is related to the OI Step AUO-0101-A, but it does not cover the full scope of the OI. It is only addressing a first phase, related to the extension of slot swapping within the same alliance of airlines. The full deployment of the OI is not currently planned.

NOTE 3: The ATFM slot swapping is a feature to be implemented only by the NM and by the airspace users with no intervention from the ANSPs. Therefore the implementation is not associated to a geographical applicability area.

Applicability Area(s) & Timescale(s)

Applicability Area	From:	By:	Applicable to:
Initial operational capability	01/01/2016		
Full operational capability		31/12/2021	

References

European ATM Master Plan

OI step -	[AUO-0101-A]-Enhanced ATFM Slot Swapping						
Enablers -	NIMS-39a	NIMS-39b					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

ATM Interconnected Network

ICAO GANP – ASBUs

NOPS-B1/7	Enhanced ATFM slot swapping
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Deployment Programme

- none -

FCM09	Enhanced ATFM Slot Swapping
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European Plan for Aviation Safety

- none -

Operating Environments

Network

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
FCM09-USE01	Upgrade the Flight Operations Centre (FOC) interface	01/01/2016	31/12/2021
FCM09-USE02	Train the personnel	01/01/2016	31/12/2021
FCM09-NM01	Upgrade the NM systems and develop the associated procedures	01/01/2016	31/12/2017

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	Maximisation of throughput during period of constrained capacity.
Operational Efficiency:	Airspace users can choose which of their flights to prioritise for operational reasons. Airlines save costs with each slot swap that is executed.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM09-USE01	Upgrade the Flight Operations Centre (FOC) interface	From: 01/01/2016	By: 31/12/2021
Action by:	Airspace Users		
Description & purpose:	Update as necessary the Flight Operations Centre (FOC) systems and interface within the NM systems so as to allow the use of the ATFM Slot swapping functionality. Operators who wish to receive NM's slot service via B2B might need to adapt their own Flight Operations Centre interface.		
Supporting material(s):	SJU - SESAR Solution 56: Data Pack for Enhanced ATFM Slot Swapping Url : http://www.sesarju.eu/sesar-solutions/optimised-atm-network-services/enhanced-air-traffic-flow-management-atfm-slot		
ATM Master Plan relationship:	[NIMS-39b]-Enhancement of FOC HMI		
Finalisation criteria:	1 - The Flight Operations Centre has the capability to perform ATFM Slot Swapping.		
FCM09-USE02	Train the personnel	From: 01/01/2016	By: 31/12/2021
Action by:			
Description & purpose:	Ensure that all operational personnel concerned with FOC is adequately trained for their job functions in relation to the implementation of ATFM Slot swapping so as to ensure maximum benefits are realised.		
Supporting material(s):	SJU - SESAR Solution 56: Data Pack for Enhanced ATFM Slot Swapping Url : http://www.sesarju.eu/sesar-solutions/optimised-atm-network-services/enhanced-air-traffic-flow-management-atfm-slot		
Finalisation criteria:	1 - Training plans covering ATFM Slot swapping have been developed and implemented.		
FCM09-NM01	Upgrade the NM systems and develop the associated procedures	From: 01/01/2016	By: 31/12/2017
Action by:			
Description & purpose:	Update the NM systems, and develop associated procedures as necessary allowing ATFM Slot swapping as described above, in the 'Subject matter and scope' section.		

FCM09	Enhanced ATFM Slot Swapping
Supporting material(s):	SJU - SESAR Solution 56: Data Pack for Enhanced ATFM Slot Swapping Url : http://www.sesarju.eu/sesar-solutions/optimised-atm-network-services/enhanced-air-traffic-flow-management-atfm-slot
Finalisation criteria:	1 - The NM systems upgraded with the ATFM Slow Swapping (within the same airline group).

SESAR		Active					ECAC+	
INF07		Electronic Terrain and Obstacle Data (eTOD)						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This objective has been introduced in order to aid the States in establishing a robust framework that will ensure the timely provision of electronic terrain and obstacle data (TOD)

ICAO Annex 15, Aeronautical Information Services, and ICAO Doc. 10066 PANS-AIM requires the States to provide TOD for their own territory and to announce it in the national AIPs. TOD is sub-divided into four areas:

- Area 1 - the entire territory of a State
- Area 2 - the terminal control area
- Area 3 - aerodromes/heliport area
- Area 4 - CAT II or CAT III operation area

States need to assess the existing national regulations and policies, including the safeguarding of aerodromes and obstacle permission processes, in order to evaluate their suitability in relation to the electronic terrain and obstacle data requirements of ICAO Annex 15 and PANS-AIM and to allocate responsibilities.

In addition, States will need to create capabilities for the origination, collection, exchange, management and distribution of the digital terrain and obstacle information in the form of digital datasets. This implies the establishment of efficient and reliable processes (e.g. data acquisition, cross-border provision, data validation and verification, data maintenance, data storage, data transmission, and oversight, etc.) ensuring the provision of up-to-date data which meets the operational requirements in support of an enhanced overall situational awareness and separation assurance and at the same time complies with the requirements of EU Regulation 73/2010 on the quality of aeronautical data and aeronautical information for the Single European Sky.

The operational capability dates given for this objective are not meant to replace, amend or modify in any way the deadline for implementation of the ICAO Annex 15/and PANS-AIM requirements for electronic terrain and obstacle data (TOD). The aim of this objective is to ensure that all States of the ECAC area provide the required TOD as soon as possible in line with the ICAO Annex 15/and PANS-AIM.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: EASA Opinion 02/2018 has been published on 08/3/2018 and the amended Regulation 2017/373 (Part-AIS) is envisaged to be published in the OJEU in the second half of 2019, replacing EU Regulation 73/2010.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Maastricht UAC		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/11/2014		Applicability Area
Full operational capability		01/01/2019	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	AIMS-16						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

EU Regulation 73/2010 - Requirements on the quality of aeronautical data and aeronautical information for the Single European Sky
EU Regulation 139/2014 - Requirements and administrative procedures related to aerodromes

Essential Operational Changes

INF07	Electronic Terrain and Obstacle Data (eTOD)
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ICAO GANP ? ASBUs

DAIM-B1/3	Provision of digital terrain data sets
DAIM-B1/4	Provision of digital obstacle data sets

Deployment Programme

1.2.2	Geographic database for procedure design
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European Plan for Aviation Safety

RMT.0703	Runway Safety
RMT.0722	Provision of aeronautical data by the aerodrome operator

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
INF07-REG01	Establish National TOD policy	01/11/2014	01/01/2019
INF07-REG02	Establish TOD regulatory framework	01/05/2015	01/01/2019
INF07-REG03	Establish oversight of TOD implementation	01/06/2015	01/01/2019
INF07-REG04	Verify the regulatory compliance of TOD implementation	01/12/2017	01/01/2019
INF07-ASP01	Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy	01/11/2014	01/01/2019
INF07-ASP02	Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework	01/05/2015	01/01/2019
INF07-APO01	Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy	01/11/2014	01/01/2019
INF07-APO02	Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework	01/05/2015	01/01/2019

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	The availability of quality-assured electronic terrain and obstacle data from the State's authoritative sources will significantly improve situational awareness with respect to terrain or obstacle hazards, separation assurance and the visualization of approaches in challenging terrain environments, and thereby contribute to increased safety levels and performance in airborne and ground-based systems (e.g. EGPWS, MSAW, APM, SVS, A-SMGCS and Instrument Procedure Design).
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF07-REG01	Establish National TOD policy	From:	By:
		01/11/2014	01/01/2019
Action by:	State Authorities		

INF07	Electronic Terrain and Obstacle Data (eTOD)
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Description & purpose:	<p>In close coordination with ANSPs, airport operators and other organisations or bodies relevant in the TOD processes to establishing commonly agreed national TOD policy and implementation programmes, setting up the necessary steps to enable the provision of electronic terrain and obstacle data. The national TOD policy, being a binding document for TOD stakeholders, should include, as a minimum:</p> <ul style="list-style-type: none"> - TOD affected stakeholders within the State, their roles and responsibilities (cost recovery models, where appropriate) for TOD origination, collection, verification, validation, management and provision; - TOD to be made available, including the survey requirements based on the data quality requirements, methods for verification and validation and delivery formats; - list of aerodromes where Area 2, 3 and 4 TOD would be provided; - the milestones and tasks of the TOD stakeholders and implementation timeline; - the list of rules/regulations constituting the TOD regulatory framework that would require to be developed or updated; - where appropriate, principles for exchange and harmonisation of the common TOD with neighbouring States.
Supporting material(s):	<p>ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/</p> <p>ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/</p> <p>EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/system/files/dfu/2014-012-R-Annex%20to%20ED%20Decision%202014-012-R.pdf</p> <p>ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/</p> <p>ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/</p> <p>ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/</p> <p>EUROCONTROL - GUID-0158 - Terrain and Obstacle Data Manual (TOD) - Edition 2.1 / 11/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual</p> <p>ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/</p> <p>EUROCONTROL - National TOD Policy template</p> <p>EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes</p> <p>EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010 Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en</p>
Finalisation criteria:	1 - In coordination with relevant TOD stakeholders, national TOD policy and implementation programme is established

INF07-REG02	Establish TOD regulatory framework	From: 01/05/2015	By: 01/01/2019
Action by:	State Authorities		
Description & purpose:	<p>- Establish the TOD regulatory framework based on National TOD Policy (REG01) through the development or updating of the national rules and regulations affecting the provision of TOD (e.g. suitability of the existing national safeguarding policy for obstacle development in all four areas in relation to electronic obstacle data requirements or origination responsibilities and processes).</p> <p>- Where appropriate, changes to State legislation should be initiated to ensure timely implementation.</p>		

INF07	Electronic Terrain and Obstacle Data (eTOD)
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Supporting material(s):	<p>ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/</p> <p>ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/</p> <p>EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/system/files/dfu/2014-012-R-Annex%20to%20ED%20Decision%202014-012-R.pdf</p> <p>ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/</p> <p>ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/</p> <p>ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/</p> <p>EUROCONTROL - GUID-0158 - Terrain and Obstacle Data Manual (TOD) - Edition 2.1 / 11/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual</p> <p>ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/</p> <p>EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes</p> <p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p> <p>EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010 Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en</p>
Finalisation criteria:	<p>1 - The TOD regulatory framework based on National TOD Policy (REG01) is established</p> <p>2 - Change process to state legislation is initiated as required</p>

INF07-REG03	Establish oversight of TOD implementation	From: 01/06/2015	By: 01/01/2019
Action by:	State Authorities		
Description & purpose:	The regulatory oversight of TOD implementation for data origination, collection, verification and validation, management and provision based on the national TOD policy and regulatory framework.		
Supporting material(s):	<p>ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/</p> <p>ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/</p> <p>ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/</p> <p>EUROCONTROL - GUID-0158 - Terrain and Obstacle Data Manual (TOD) - Edition 2.1 / 11/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual</p> <p>ICAO - Doc 9734 - Safety Oversight Manual - Edition 2 Url : https://store.icao.int/</p> <p>ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/</p> <p>EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010 Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en</p>		
Finalisation criteria:	<p>1 - State TOD oversight plan, including all TOD affected stakeholders, in accordance with the national TOD policy and regulatory framework is established</p> <p>2 - Procedures are established for the national supervision of the ongoing TOD operation.</p>		

INF07-REG04	Verify the regulatory compliance of TOD implementation	From: 01/12/2017	By: 01/01/2019
Action by:	State Authorities		

INF07	Electronic Terrain and Obstacle Data (eTOD)
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Description & purpose:	The verification of compliance with the regulatory TOD requirements through oversight and acceptance of TOD implementation for data origination, collection, verification and validation, management and provision based on the international TOD requirements and the national TOD regulatory framework.
Supporting material(s):	<p>ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/</p> <p>ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/</p> <p>ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/</p> <p>ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/</p> <p>EUROCONTROL - GUID-0158 - Terrain and Obstacle Data Manual (TOD) - Edition 2.1 / 11/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual</p> <p>ICAO - Doc 9734 - Safety Oversight Manual - Edition 2 Url : https://store.icao.int/</p> <p>ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/</p> <p>EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010 Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en</p>
Finalisation criteria:	1 - Implementation of TOD is verified through oversight and acceptance and corrective action where required

INF07-ASP01	Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy	From: 01/11/2014	By: 01/01/2019
Action by:	ANS Providers		
Description & purpose:	<p>In close coordination with the State authorities and related TOD stakeholders, analyse the current environment and develop a plan/roadmap demonstrating the feasibility of achieving the necessary steps to enable the collection (where applicable), management and provision of electronic terrain and obstacle data in accordance with the national TOD policy. The implementation planning should cover the following topics, as applicable:</p> <ul style="list-style-type: none"> - System change; - Change management; - Process development; - Migration of processes and data; - Data validation and verification; - Financial and human resources; - Performance monitoring; - Risk management; - Compliance management; - Training 		
Supporting material(s):	<p>ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/</p> <p>ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/</p> <p>ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/</p> <p>EUROCONTROL - GUID-0158 - Terrain and Obstacle Data Manual (TOD) - Edition 2.1 / 11/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual</p> <p>ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/</p> <p>EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010 Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en</p>		
Finalisation criteria:	1 - The availability of a plan/roadmap by the ANSP demonstrating the feasibility of implementation of TOD as defined by the national TOD policy in line with the national TOD implementation programme		

INF07-ASP02	Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework	From: 01/05/2015	By: 01/01/2019
Action by:	ANS Providers		

INF07	Electronic Terrain and Obstacle Data (eTOD)
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Description & purpose:	Adjust the AIM system (i.e. people, equipment and procedures) to ensure the collection (where applicable), management and provision of TOD in accordance with the national TOD policy and regulatory framework.
Supporting material(s):	ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/
ATM Master Plan relationship:	[AIMS-16]-Electronic Terrain and Obstacle Data (TOD)
Finalisation criteria:	1 - The requirements defined in the national TOD policy and regulatory framework for ANSP are fulfilled in accordance with the national TOD implementation programme

INF07-APO01	Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy	From: 01/11/2014	By: 01/01/2019
Action by:	Airport Operators		
Description & purpose:	In close coordination with the State authorities and related TOD stakeholders, analyse the current environment and develop a plan/roadmap demonstrating the feasibility of achieving the necessary steps to enable the collection, management and provision of electronic terrain and obstacle data in accordance with the national TOD policy.		
Supporting material(s):	ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/ ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/ EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/system/files/dfu/2014-012-R-Annex%20to%20ED%20Decision%202014-012-R.pdf ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ EUROCONTROL - GUID-0158 - Terrain and Obstacle Data Manual (TOD) - Edition 2.1 / 11/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010 Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en		
Finalisation criteria:	1 - The availability of a plan/roadmap by the airport operator demonstrating the feasibility of implementation of TOD as defined by the national TOD policy in line with the national TOD implementation programme		

INF07-APO02	Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework	From: 01/05/2015	By: 01/01/2019
Action by:	Airport Operators		
Description & purpose:	Adjust the related airport operation system (i.e. people, equipment and procedures) to ensure the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework.		

INF07	Electronic Terrain and Obstacle Data (eTOD)
Supporting material(s):	<p>ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/</p> <p>ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/</p> <p>EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/system/files/dfu/2014-012-R-Annex%20to%20ED%20Decision%202014-012-R.pdf</p> <p>ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/</p> <p>ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/</p> <p>ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/</p> <p>EUROCONTROL - GUID-0158 - Terrain and Obstacle Data Manual (TOD) - Edition 2.1 / 11/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual</p> <p>ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/</p> <p>EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes</p> <p>EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010 Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en</p>
ATM Master Plan relationship:	[AIMS-16]-Electronic Terrain and Obstacle Data (TOD)
Finalisation criteria:	1 - The requirements defined in the national TOD policy and regulatory framework for airport operators are fulfilled in accordance with the national TOD implementation programme

PCP		Active					ECAC+	
INF08.1		Information Exchanges using the SWIM Yellow TI Profile						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services.

Initial system wide information management (iSWIM) is the first element towards SWIM and supports the information exchange based on services that are in conformance with the applicable foundational SWIM specifications. These information services will be delivered over internet protocol (IP)-based networks supported by Common Infrastructure Components (i.e. SWIM Registry and Public Key Infrastructure (PKI)). The applicable foundational SWIM specifications are:

- EUROCONTROL Specification for SWIM Service Description
- EUROCONTROL Specification for SWIM Information Definition
- EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

This implementation objective is limited to the provision or consumption of information services allowing the information exchanges identified in the Annex of the PCP Regulation No 716/2014, and adhering to the foundational SWIM specification (Information services description, Information definition, Technical infrastructure - Yellow Profile). The information exchanges are in the areas of:

- Aeronautical information exchange;
- Meteorological information exchange;
- Cooperative network information exchange;
- Flight information exchange

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (As specified in PCP Appendix, Para 5.2)	All EU SES States		
Applicability Area 2	Albania, Armenia, Bosnia and Herzegovina, Georgia, Israel, Moldova, Montenegro, North Macedonia, Serbia, Turkey, Ukraine		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2018		Applicability Area 1
Full operational capability		01/01/2025	Applicability Area 1

References

European ATM Master Plan

Ol step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
Enablers -	AAMS-06b	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519	
	STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a	INF08.2
	SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a	
Ol step -	[MET-0101]-Enhanced MET observations, nowcasts and forecasts provided by ATM-MET systems for planning and near term services								
Enablers -	METEO-03	METEO-04b	METEO-05b	METEO-06b	METEO-08b				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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Essential Operational Changes

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INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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ICAO GANP ? ASBUs

AMET-B2/4	Meteorological information service in SWIM
DAIM-B2/1	Dissemination of aeronautical information in a SWIM environment
SWIM-B3/1	Air/Ground SWIM for safety critical information

Deployment Programme

5.1.3	Common SWIM Infrastructure Components
5.1.4	Common SWIM PKI and Cybersecurity
5.2.1	Stakeholders Internet Protocol Compliance
5.2.2	Stakeholders SWIM Infrastructure Components
5.2.3	Stakeholders SWIM PKI and Cybersecurity
5.3.1	Upgrade/Implement Aeronautical Information Exchange System/Service
5.4.1	Upgrade/Implement Meteorological Information Exchange System/Service
5.5.1	Upgrade/Implement Cooperative Network Information Exchange System/Service
5.6.1	Upgrade/Implement Flight Information Exchange System/Service supported by Yellow Profile

European Plan for Aviation Safety

- none -	
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Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF08.1-ASP01	Implement Aeronautical information exchanges	01/01/2018	01/01/2025
INF08.1-ASP02	Implement Meteorological Information exchanges	01/01/2018	01/01/2025
INF08.1-ASP03	Implement Cooperative Network information exchanges	01/01/2018	01/01/2025
INF08.1-ASP04	Implement Flight Information exchanges	01/01/2018	01/01/2025
INF08.1-MIL01	Implement Aeronautical information exchanges	01/01/2018	01/01/2025
INF08.1-MIL02	Implement Meteorological Information exchanges	01/01/2018	01/01/2025
INF08.1-MIL03	Implement Cooperative Network information exchanges	01/01/2018	01/01/2025
INF08.1-MIL04	Implement Flight Information exchanges	01/01/2018	01/01/2025
INF08.1-APO01	Implement Aeronautical information exchanges	01/01/2018	01/01/2025
INF08.1-APO02	Implement Meteorological Information exchanges	01/01/2018	01/01/2025
INF08.1-APO03	Implement Cooperative Network information exchanges	01/01/2018	01/01/2025
INF08.1-APO04	Implement Flight Information exchanges	01/01/2018	01/01/2025
INF08.1-USE01	Implement Aeronautical information exchanges	01/01/2018	01/01/2025
INF08.1-USE02	Implement Meteorological Information exchanges	01/01/2018	01/01/2025
INF08.1-USE03	Implement Cooperative Network information exchanges	01/01/2018	01/01/2025
INF08.1-USE04	Implement Flight Information exchanges	01/01/2018	01/01/2025
INF08.1-NM01	Implement Aeronautical information exchanges	01/01/2018	01/01/2025
INF08.1-NM02	Implement Meteorological Information exchanges	01/01/2018	01/01/2025
INF08.1-NM03	Implement Cooperative Network information exchanges	01/01/2018	01/01/2025
INF08.1-NM04	Implement Flight Information exchanges	01/01/2018	01/01/2025

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF08.1-ASP01	Implement Aeronautical information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	ANS Providers		
Description & purpose:	The service providers shall exchange aeronautical information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.3. of Commission Regulation (EU) 716/2014. The ANS providers might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[SWIM-APS-01a]-Provision of G/G Aeronautical Information services [SWIM-APS-02a]-Consumption of Aeronautical Information services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - Aeronautical information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.		
INF08.1-ASP02	Implement Meteorological Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	ANS Providers		
Description & purpose:	The ANS service providers (including MET providers) shall exchange meteorological information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.4. of Commission Regulation (EU) 716/2014. The ANS providers might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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ATM Master Plan relationship:	[METEO-03]-Provision and monitoring of real-time airport weather information (PCP) [METEO-04b]-Generate and provide MET information services relevant for Airport and final approach related operations (PCP) [METEO-05b]-Generate and provide MET information relevant for TMA and En-route related operations (PCP) [METEO-06b]-Generate and provide MET information relevant for Network related operations (PCP) [METEO-08b]-All-weather remote sensing of high resolution 3D aerodrome wind field [SWIM-APS-06a]-Provision of Airport Ground Sensor Meteorological Information Services [SWIM-APS-07a]-Stakeholder systems consumption of G/G Meteorological Information services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions
Finalisation criteria:	1 - The exchange of meteorological information is performed in conformance with the EUROCONTROL SWIM specifications.

INF08.1-ASP03	Implement Cooperative Network information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	ANS Providers		
Description & purpose:	The service providers shall exchange cooperative network information relevant to the air traffic flow and capacity management via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.5 of Commission Regulation (EU) 716/2014. The ANS providers might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[AAMS-06b]-ASM support systems enhanced to exchange static data and airspace usage data with NM systems in AIXM format [SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - The exchange of information relevant to air traffic flow and capacity management is performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-ASP04	Implement Flight Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	ANS Providers		
Description & purpose:	The service providers shall exchange flight information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.6 of Commission Regulation (EU) 716/2014. The ANS providers might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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ATM Master Plan relationship:	[ER APP ATC 160]-ATC to ATC Flight Data Exchange Using The Flight Object [SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions
Finalisation criteria:	1 - Flight information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.

INF08.1-MIL01	Implement Aeronautical information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Military Authorities		
Description & purpose:	Military authorities shall exchange aeronautical information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.3. of Commission Regulation (EU) 716/2014. The military authorities might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[MIL-0502]-Upgrade of military ground systems to allow bi-directional exchanges with non-military IP networks [SWIM-APS-01a]-Provision of G/G Aeronautical Information services [SWIM-APS-02a]-Consumption of Aeronautical Information services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - Aeronautical information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-MIL02	Implement Meteorological Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Military Authorities		
Description & purpose:	Military authorities shall exchange of meteorological information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.4. of Commission Regulation (EU) 716/2014. The military authorities might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[MIL-0502]-Upgrade of military ground systems to allow bi-directional exchanges with non-military IP networks [SWIM-APS-07a]-Stakeholder systems consumption of G/G Meteorological Information services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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Finalisation criteria:	1 - The exchange of meteorological information is performed in conformance with the EUROCONTROL SWIM specifications.
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INF08.1-MIL03	Implement Cooperative Network information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Military Authorities		
Description & purpose:	Military authorities shall exchange cooperative network information relevant to the air traffic flow and capacity management via services compliant with the EUROCONTROL SWIM Specifications, as fully described in Annex 5.1.5 of Commission Regulation (EU) 716/2014. The military authorities might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[MIL-0502]-Upgrade of military ground systems to allow bi-directional exchanges with non-military IP networks [SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - The exchange of information relevant to air traffic flow and capacity management is performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-MIL04	Implement Flight Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Military Authorities		
Description & purpose:	Military authorities shall exchange flight information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.6 of Commission Regulation (EU) 716/2014. The military authorities might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[MIL-0502]-Upgrade of military ground systems to allow bi-directional exchanges with non-military IP networks [SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - The exchange of flight information is performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-APO01	Implement Aeronautical information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Airport Operators		

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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Description & purpose:	Airport operators shall exchange aeronautical information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.3. of Commission Regulation (EU) 716/2014. The airport operators might need to upgrade their infrastructure/systems in line with the services implemented.
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim
ATM Master Plan relationship:	[SWIM-APS-01a]-Provision of G/G Aeronautical Information services [SWIM-APS-02a]-Consumption of Aeronautical Information services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions
Finalisation criteria:	1 - Aeronautical information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.

INF08.1-APO02	Implement Meteorological Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Airport Operators		
Description & purpose:	Airport operators shall exchange meteorological information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.4. of Commission Regulation (EU) 716/2014. The airport operators might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[METEO-03]-Provision and monitoring of real-time airport weather information (PCP) [METEO-04b]-Generate and provide MET information services relevant for Airport and final approach related operations (PCP) [METEO-05b]-Generate and provide MET information relevant for TMA and En-route related operations (PCP) [METEO-06b]-Generate and provide MET information relevant for Network related operations (PCP) [METEO-08b]-All-weather remote sensing of high resolution 3D aerodrome wind field [SWIM-APS-06a]-Provision of Airport Ground Sensor Meteorological Information Services [SWIM-APS-07a]-Stakeholder systems consumption of G/G Meteorological Information services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - The exchange of meteorological information is performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-APO03	Implement Cooperative Network information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Airport Operators		
Description & purpose:	Airport operators shall exchange cooperative network information relevant to the air traffic flow and capacity management via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.5 of Commission Regulation (EU) 716/2014. The airport operators might need to upgrade their infrastructure/systems in line with the services implemented.		

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim
ATM Master Plan relationship:	[SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions
Finalisation criteria:	1 - The exchange of information relevant to air traffic flow and capacity management is performed in conformance with the EUROCONTROL SWIM specifications.

INF08.1-APO04	Implement Flight Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Airport Operators		
Description & purpose:	The airport operators shall exchange flight information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.6 of Commission Regulation (EU) 716/2014. The airport operators might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - The exchange of flight information is performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-USE01	Implement Aeronautical information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	Airspace Users		
Description & purpose:	Airspace users shall exchange aeronautical information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.3. of Commission Regulation (EU) 716/2014. The airspace users might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[SWIM-APS-02a]-Consumption of Aeronautical Information services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - Aeronautical information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-USE02	Implement Meteorological Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
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INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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Action by:	Airspace Users
Description & purpose:	Airspace users shall exchange of meteorological information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.4. of Commission Regulation (EU) 716/2014. The airspace users might need to upgrade their infrastructure/systems in line with the services implemented.
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim
ATM Master Plan relationship:	[SWIM-APS-07a]-Stakeholder systems consumption of G/G Meteorological Information services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions
Finalisation criteria:	1 - The exchange of meteorological information is performed in conformance with the EUROCONTROL SWIM specifications.

INF08.1-USE03	Implement Cooperative Network information exchanges	From:	By:
		Applicability Area 1: 01/01/2018	Applicability Area 1: 01/01/2025
Action by:	Airspace Users		
Description & purpose:	Airspace users shall exchange cooperative network information relevant to the air traffic flow and capacity management via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.5 of Commission Regulation (EU) 716/2014. The airspace users might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - The exchange of information relevant to air traffic flow and capacity management is performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-USE04	Implement Flight Information exchanges	From:	By:
		Applicability Area 1: 01/01/2018	Applicability Area 1: 01/01/2025
Action by:	Airspace Users		
Description & purpose:	Airspace users shall exchange flight information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.6 of Commission Regulation (EU) 716/2014. The airspace users might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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Finalisation criteria:	1 - The exchange of flight information is performed in conformance with the EUROCONTROL SWIM specifications.
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INF08.1-NM01	Implement Aeronautical information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	NM		
Description & purpose:	The Network Manager shall exchange aeronautical via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.3. of Commission Regulation (EU) 716/2014. The NM might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[SWIM-APS-01a]-Provision of G/G Aeronautical Information services [SWIM-APS-02a]-Consumption of Aeronautical Information services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - Aeronautical information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-NM02	Implement Meteorological Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	NM		
Description & purpose:	The Network Manager shall exchange meteorological information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.4. of Commission Regulation (EU) 716/2014. The NM might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[METEO-06b]-Generate and provide MET information relevant for Network related operations (PCP) [SWIM-APS-07a]-Stakeholder systems consumption of G/G Meteorological Information services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - The exchange of meteorological information is performed in conformance with the EUROCONTROL SWIM specifications.		

INF08.1-NM03	Implement Cooperative Network information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	NM		
Description & purpose:	The Network Manager shall exchange cooperative network information relevant to the air traffic flow and capacity management via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.5 of Commission Regulation (EU) 716/2014. The NM might need to upgrade their infrastructure/systems in line with the services implemented.		

INF08.1	Information Exchanges using the SWIM Yellow TI Profile
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Supporting material(s):	<p>EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim</p> <p>EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim</p> <p>EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim</p>
ATM Master Plan relationship:	<p>[SWIM-APS-03a]-Provision of G/G ATFCM Information Services [SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions</p>
Finalisation criteria:	1 - The exchange of information relevant to air traffic flow and capacity management is performed in conformance with the EUROCONTROL SWIM specifications.

INF08.1-NM04	Implement Flight Information exchanges	From: Applicability Area 1: 01/01/2018	By: Applicability Area 1: 01/01/2025
Action by:	NM		
Description & purpose:	The Network Manager shall exchange flight information via services compliant with the EUROCONTROL SWIM Specifications, as described in Annex 5.1.6 of Commission Regulation (EU) 716/2014. The NM might need to upgrade their infrastructure/systems in line with the services implemented.		
Supporting material(s):	<p>EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim</p> <p>EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim</p> <p>EUROCONTROL - SPEC-170 - EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim</p>		
ATM Master Plan relationship:	<p>[SWIM-APS-03a]-Provision of G/G ATFCM Information Services [SWIM-APS-04a]-Consumption of G/G ATFCM Information Services [SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions</p>		
Finalisation criteria:	1 - The exchange of flight information is performed in conformance with the EUROCONTROL SWIM specifications.		

PCP		Initial					EU+	
INF08.2		Information Exchanges using the SWIM Blue TI Profile						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

System wide information management (SWIM) concerns the development of services for information exchange. SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services. Initial system wide information management (iSWIM) supports information exchanges that are built on standards and delivered through an internet protocol (IP)-based network by SWIM enabled systems. It consists of:

- Common infrastructure components;
- SWIM technical infrastructure and profiles;
- Aeronautical information exchange;
- Meteorological information exchange;
- Cooperative network information exchange;
- Flight information exchange.

The scope of this objective is addressing the exchange of flight information related to the flight object using the blue SWIM Technical Infrastructure Profile, as defined in the Annex 5.1.6 of the PCP Regulation No 716/2014.

The objective assumes the availability of SWIM Governance (as addressed by Family 5.1.3 of Deployment Programme 2016) and is without prejudice to the evolution and establishment of this Governance as addressed in the Action Plan currently under development. This evolution may imply changes to the objective in the subsequent editions of the Plan.

NOTE: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All EU+ States		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/06/2018		Applicability Area
Full operational capability		01/01/2027	Applicability Area

References

European ATM Master Plan

Ol step -	[CM-0201-A]-Automated Assistance to Controller for Seamless Coordination, Transfer and Dialogue through improved trajectory data sharing								
Enablers -	ER APP ATC 160	SWIM-APS-05a	SWIM-INFR-01a	SWIM-NET-01a					
Ol step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
Enablers -	AAMS-06b AOM19.1, INF08.1	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502 INF08.1	REG-0013	REG-0014	REG-0519	
	STD-007	STD-008	STD-033	SWIM-APS-01a INF08.1	SWIM-APS-02a INF08.1	SWIM-APS-03a	SWIM-APS-04a INF08.1	SWIM-APS-05a	
	SWIM-APS-06a INF08.1	SWIM-APS-07a INF08.1	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a	
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective	Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan		

Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project
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INF08.2	Information Exchanges using the SWIM Blue TI Profile
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Essential Operational Changes

ICAO GANP ? ASBUs

SWIM-B3/1	Air/Ground SWIM for safety critical information
TBO-B3/1	Network based on-demand synchronization of trajectory based operations

Deployment Programme

5.1.3	Common SWIM Infrastructure Components
5.1.4	Common SWIM PKI and Cybersecurity
5.2.1	Stakeholders Internet Protocol Compliance
5.2.2	Stakeholders SWIM Infrastructure Components
5.2.3	Stakeholders SWIM PKI and Cybersecurity
5.6.2	Upgrade/Implement Flight Information Exchange System/Service supported by Blue Profile

European Plan for Aviation Safety

- none -	
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Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
INF08.2-ASP01	Implement the appropriate infrastructure components in accordance with the SWIM TI Blue Profile	01/06/2018	01/01/2027
INF08.2-ASP02	Implement Flight information exchanges	01/06/2018	01/01/2027
INF08.2-NM01	Implement the appropriate infrastructure components in accordance with the SWIM TI Blue Profile	01/06/2018	01/01/2027
INF08.2-NM02	Implement Flight information exchanges	01/06/2018	01/01/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF08.2-ASP01	Implement the appropriate infrastructure components in accordance with the SWIM TI Blue Profile	From:	By:
		01/06/2018	01/01/2027

INF08.2	Information Exchanges using the SWIM Blue TI Profile
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Action by:	ANS Providers
Description & purpose:	Implement the SWIM TI Blue Profile local component in a way that: <ul style="list-style-type: none"> - Deals with the necessary Internet Protocol compliance; - Is consistent with the provision and/or consumption as appropriate of the related flight information exchange services; - Complies with security requirements established for the purpose of the implementation of such services.
ATM Master Plan relationship:	[SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions
Finalisation criteria:	1 - Systems have been adapted so as the local infrastructure component: - Is compliant with the required Internet Protocol standard; - Allows the provision and consumption of SWIM Blue Profile flight information exchange services, - Responds to the security requirements set up for the provision of the SWIM Blue Profile exchange services.

INF08.2-ASP02	Implement Flight information exchanges	From: 01/06/2018	By: 01/01/2027
Action by:	ANS Providers		
Description & purpose:	The service providers shall implement services which support the exchange of flight information related to the Flight Object using the Blue SWIM TI profile. These services shall allow various operations and as well the sharing of the Flight Object, as fully described in Annex 5.1.6 of Commission Regulation (EU) 716/2014.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		
ATM Master Plan relationship:	[ER APP ATC 160]-ATC to ATC Flight Data Exchange Using The Flight Object [SWIM-APS-05a]-Provision and Consumption of Flight Object Sharing services		
Finalisation criteria:	1 - Services are provided in order to allow the manipulation of the Flight Object information as required by the Regulation (EU) 716/2014.		

INF08.2-NM01	Implement the appropriate infrastructure components in accordance with the SWIM TI Blue Profile	From: 01/06/2018	By: 01/01/2027
Action by:	NM		
Description & purpose:	Implement the SWIM TI Blue Profile local component in a way that: <ul style="list-style-type: none"> - Deals with the necessary Internet Protocol compliance; - Is consistent with the provision and/or consumption as appropriate of the related flight information exchange services; - Complies with security requirements established for the purpose of the implementation of such services. 		
ATM Master Plan relationship:	[SWIM-INFR-01a]-High Criticality SWIM Services infrastructure Support and Connectivity. [SWIM-INFR-05a]-General SWIM Services infrastructure Support and Connectivity. [SWIM-NET-01a]-SWIM Network Point of Presence [SWIM-SUPT-01a]-SWIM Supporting Registry Provisions [SWIM-SUPT-03a]-SWIM Supporting Security Provisions [SWIM-SUPT-05a]-SWIM Supporting IP Network Bridging Provisions		
Finalisation criteria:	1 - Systems have been adapted so as the local infrastructure component: - Is compliant with the required Internet Protocol standard; - Allows the provision and consumption of SWIM Blue Profile flight information exchange services, - Responds to the security requirements set up for the provision of the SWIM Blue Profile exchange services.		

INF08.2-NM02	Implement Flight information exchanges	From: 01/06/2018	By: 01/01/2027
Action by:	NM		
Description & purpose:	The Network Manager shall implement services which support the exchange of flight information related to the Flight Object using the Blue SWIM TI profile. These services shall allow various operations and as well the sharing of the Flight Object, as fully described in Annex 5.1.6 of Commission Regulation (EU) 716/2014.		
Supporting material(s):	EUROCONTROL - SPEC-168 - EUROCONTROL Specification for SWIM Service Description - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim EUROCONTROL - SPEC-169 - EUROCONTROL Specification for SWIM Information Definition - 1.0 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-system-wide-information-management-swim		

INF08.2	Information Exchanges using the SWIM Blue TI Profile
ATM Master Plan relationship:	[ER APP ATC 160]-ATC to ATC Flight Data Exchange Using The Flight Object [SWIM-APS-03a]-Provision of G/G ATFCM Information Services [SWIM-APS-05a]-Provision and Consumption of Flight Object Sharing services
Finalisation criteria:	1 - Services are provided in order to allow the manipulation of the Flight Object information as required by the Regulation (EU) 716/2014.

SESAR	Initial						LOC	
INF09	Digital Integrated Briefing							
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The AIS and MET information provided to pilots and dispatchers as pre-flight briefing products and services needs to become more user-friendly: easier to understand, better prioritised, with the aim to improve the pilot awareness and to reduce the workload. Traditionally, the pre-flight briefing takes the form of a "Pre-flight Information Bulletin (PIB), which may comprise up to 30-40 pages of NOTAM messages, all in upper case. Filtering and prioritisation are significantly limited by the free text nature of the NOTAM message. MET messages may be embedded in textual format as well, while weather maps are presented separately.

This implementation objective consists of an innovative approach to pilot briefing through the use of digital aeronautical data, in particular Digital NOTAM (encoded as "events" in AIXM format), and digital MET data (METAR, TAF, SIGMET in the ICAO iWXXM format). The AIS and MET information provided to pilots and dispatchers in the form of digital briefing products and services, will be merged (joint) with the geographical and planned flight trajectory information, and presented (visualised) in a graphical way.

The digital integrated briefing will introduce the following key changes:

- generation of the briefing products from digital aeronautical data (in particular from Digital NOTAM) instead of providing a list of NOTAM messages;
- extensive graphical presentation of the information that affects elements that are usually displayed on aeronautical maps (taxiway/runway/apron closures, nav aids unserviceable, temporary obstacles, airspace restrictions, etc.);
- use of normal sentence case for the textual/tabular part of the briefing;
- joint presentation of the aeronautical and MET events that may have a combined effect on the flight trajectory (such as airspace restrictions and significant weather);
- the possibility for interactive briefing, thus allowing the pilot/dispatcher to highlight/prioritise information that is more relevant for each individual flight.

The digital integrated briefing is currently targeted for ground use (FOC/WOC, pre-flight briefing rooms and ARO offices). Some enablers (Digital NOTAM and digital MET data) support the use in the cockpit, in all phases of flight, while enablers for transmission into the cockpit are not yet mature (see IS-0206 Digital Integrated Briefing during flight execution phase).

NOTE: The following implementations like 'Digital Aeronautical Data', 'Aeronautical Data Quality', 'Digital NOTAM' are seen as prerequisite to the successful implementation of this INF09 objective. Their maturity/availability should be analysed before making INF09 an Active objective.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability area (Subject to local need)			
Timescales:	From:	By:	Applicable to:
Subject to local needs	31/05/2019		

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase									
Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01 a INF08.1	SWIM-APS-02 a INF08.1		
	SWIM-INFR-0 5a INF08.1, INF08.2	SWIM-NET-01 a INF08.1, INF08.2	SWIM-STD-01							
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler			WXYZ-003	Not covered in the Implementation Plan		

Applicable legislation

The EC implementing Regulation No 73/2010 (Aeronautical Data Quality) is going to be repealed by the EASA RMT.0477 for which EASA issued Opinion No 02/2018 (Specific requirements for providers of meteorological services, aeronautical information services/aeronautical information management) and which covers Digital NOTAM. ICAO Annex 3 Meteorological Service for International Air Navigation (including Amendment 77-A). ICAO Annex 15 Aeronautical Information Services Procedures for Air Navigation Services - Aeronautical Information Management (PANS-AIM)

Essential Operational Changes

Digital AIM and MET Services

ICAO GANP – ASBUs

AMET-B1/4	Dissemination of meteorological information
DAIM-B1/7	NOTAM improvements

Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport
Network

Stakeholder Lines of Action (SLOAs)

SloA ref.	Title	From	By
INF09-ASP01	Update the systems to receive and distribute AIS and MET information electronically		
INF09-ASP02	Provide airspace users with pre-flight digital integrated briefing		
INF09-ASP03	Develop a local safety assessment		
INF09-INT01	Develop the standards for the use of digital NOTAM		
INF09-INT02	Develop regulatory material for the use of digital NOTAM		
INF09-NM01	Generate and provide pre-flight briefings based on digital data		

Description of finalised and deleted SLOAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	The issue of very large PIB (20-30 pages for a cross-European flight) is frequently mentioned by pilots as a difficulty when trying to comply with the legal obligation for reading and understanding all the NOTAM that can affect their flight, while they are also under time pressure to fulfil other pre-departure tasks. The graphical presentation of digital NOTAM data should facilitate the task of finding the relevant information (geospatial and temporal filtering) and understanding the aeronautical and meteorological information relevant for a specific flight. For example, a visual "work in progress" symbol on the airport map is much easier to spot as compared with the same information presented in the PIB text. This leads to a reduction in the number of incidents that are sometimes due to the lack of informational awareness, such as airspace infringements, attempts to use a closed runway or runway excursions, attempts to use a closed airport surface, temporary changes in operational procedures, etc.
Capacity:	No
Operational Efficiency:	In terms of benefits, the graphical presentation of digital information, a better filtering and a more logical organisation of the pre-flight information bulletins improve pilot and dispatcher awareness, improve briefing efficiency and reduces the risk of information being misunderstood or missed.
Cost Efficiency:	no
Environment:	No
Security:	No

INF09	Digital Integrated Briefing
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Detailed SLoA Descriptions

INF09-ASP01	Update the systems to receive and distribute AIS and MET information electronically	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Update the systems to: a) exchange AIS information using the AIXM format for digital data and electronic form for AIP and NOTAM. b) exchange MET information METAR, TAF, SIGMET in the ICAO iWXXM format.		
ATM Master Plan relationship:	[AIMS-19a]-Aeronautical Information system is interfaced to receive and distribute aeronautical information electronically to/from ANSPS systems.		
Finalisation criteria:	1 - The systems are capable of exchanging information using the AIXM format for digital data and electronic form for AIP and NOTAM 2 - The systems are capable of exchanging MET information METAR, TAF, SIGMET in the ICAO iWXXM format		

INF09-ASP02	Provide airspace users with pre-flight digital integrated briefing	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Generate pre-flight briefing information/data, based on digital AIS and digital NOTAM data, and provide it to airspace users. The digital integrated briefing introduces the following key requirements : • Generation of the pilot and dispatcher briefing based on digital aeronautical and meteorological data (including the Digital NOTAM) provided by SWIM services. • Extensive and interactive graphical visualisation, filtering, searching and alerting by using the geospatial and temporal aspects of the aeronautical and meteorological information. • Use of normal sentence case for the textual/tabular part of the briefing, instead of the full upper case presentation of the current Pre-flight Information Bulletins. • Joint presentation of the aeronautical and MET events that may have a combined effect on the flight trajectory (such as airspace restrictions and significant weather). All the relevant information exchanges, including the generation and provision of digital NOTAM, shall be compliant with the applicable SWIM specifications. Note :INF08.1-ASP02 and INF08.1-ASP03 are a pre-requisite for the implementation this SLoA.		
Supporting material(s):	SJU - SESAR Solution 34: Data Pack Digital integrated briefing Url : https://www.sesarju.eu/sesar-solutions/digital-integrated-briefing <Publisher> - Specification for the provision of Digital NOTAM (INT01) / EUROCONTROL Specification for Digital NOTAM		
ATM Master Plan relationship:	[AIMS-07a]-Generation of Enhanced Pre-flight Briefing based on digital data [METEO-04b]-Generate and provide MET information services relevant for Airport and final approach related operations (PCP) [METEO-05b]-Generate and provide MET information relevant for TMA and En-route related operations (PCP)		
Finalisation criteria:	1 - Airspace users are provided with a pre-flight digital integrated briefing		

INF09-ASP03	Develop a local safety assessment	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	The tasks to be done are as follows: • Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; • Develop safety assessment; • Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the Regulator/NSA/Competent Authority, as necessary.		

INF09-INT01	Develop the standards for the use of digital NOTAM	From: -	By: -
Action by:	ICAO		
Description & purpose:	Develop a Global Specification for the provision of Digital NOTAM including harmonised coding rules, in accordance to the ISO/IEC process and in accordance with existing SWIM specifications (see item * below). This global specification will refine and replace initial Eurocontrol Specifications "For the provision of Digital NOTAM including harmonised coding rules". * EUROCONTROL Specifications for: - SWIM Service Description - SWIM Information Definition - SWIM Technical Infrastructure Yellow Profile.		
Finalisation criteria:	1 - The Global Specification for the provision of Digital NOTAM including harmonised coding rules has been published		

INF09	Digital Integrated Briefing
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INF09-INT02	Develop regulatory material for the use of digital NOTAM	From:	By:
		-	-
Action by:	EASA		
Description & purpose:	Develop and publish Technical requirements and operational procedures for aeronautical information services and aeronautical information management.		
Finalisation criteria:	1 - Regulatory material for the use of Digital NOTAM has been published		

INF09-NM01	Generate and provide pre-flight briefings based on digital data	From:	By:
		-	-
Action by:	NM		
Description & purpose:	Generate and provide pre-flight briefing information/data, based on digital AIS and digital NOTAM data in accordance with the applicable SWIM specifications.		
Supporting material(s):	SJU - SESAR Solution 34: Data Pack Digital integrated briefing Url : https://www.sesarju.eu/sesar-solutions/digital-integrated-briefing <Publisher> - Specification for the provision of Digital NOTAM (INT01) / EUROCONTROL Specification for Digital NOTAM		
ATM Master Plan relationship:	[AIMS-07a]-Generation of Enhanced Pre-flight Briefing based on digital data		
Finalisation criteria:	1 - The generation and provision of pre-flight briefings, including the Digital NOTAM, are compliant with the applicable SWIM specification		

SES		Active					EU+	
ITY-ACID		Aircraft Identification						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This SES-related implementation objective is derived from Implementing Regulation (EU) No 1206/2011 of 22 November 2011 (amended by Regulation 2020/587), laying down requirements on aircraft identification for surveillance for the single European sky. The main objective of the Regulation is to ensure the unambiguous and continuous identification of individual aircraft operating as general air traffic under instrument flight rules throughout the airspace of the single European sky (the ACID IR) through a phased approach.

The scope of this Implementation Objective is limited to the milestone of 2 January 2020 as identified in the Regulation. By this date, the Regulation requires that air navigation service providers deploy the capability to use the downlinked aircraft identification feature as well as the associated procedures so as to ensure the unambiguous and continuous identification of all individual aircraft operating IFR/GAT flights, by using this feature. It also addresses the possible exemptions associated to this date, under specific conditions.

Implementing Regulation (EU) No 1206/2011 requires that air navigation service providers, in all Member States, have the capability to establish individual aircraft identification using the downlinked aircraft identification feature, for all IFR/GAT flights. This will be achieved with the deployment of the appropriate elements of the surveillance chain as identified in the Implementing Regulation, so as to ensure this capability. Practically this capability can be ensured by deploying Mode S surveillance, or ADS-B or WAM, taking into account the local operating environments, constraints and needs as well as the airspace user's capabilities. The possibility of delayed compliance, under very specific conditions (approach area where air traffic services are provided by military units or under military supervision) is envisaged for no later than 2 January 2025.

For completeness of information, Implementing Regulation (EU) No 1206/2011 of 22 November 2011 includes a first milestone, applicable from 9 February 2012, requiring the use the downlinked aircraft identification feature, or the deployment of improved and harmonised capabilities for the automatic assignment of SSR codes (e.g. directional assignments of SSR codes, multiple simultaneous assignments to flights operated in conflict-free directions, etc). As the first milestone has been already implemented, it is outside the scope of the Master Plan Level 3 - Implementation Plan as an implementation planning tool.

It should be noted that the technical capability of the airborne constituents (the carriage of transponders capable to downlink of the aircraft identification) is addressed by Regulation (EU) No 1207/2011 of 22 November 2011 (as amended) laying down requirements for the performance and the interoperability of surveillance for the single European sky (as amended) being covered by Implementation Objective ITY-SPI. However, as the ACID-IR identifies specific procedures to be used by the operators, notably with regard the setting of the downlinked aircraft identification on-board, the ITY-ACID Implementation Objective defines a specific Stakeholder Line of Action with regard the appropriate training to be provided by the Operators to the personnel operating and maintaining surveillance equipment, in relationship with the use of the aircraft identification feature.

This SES-related implementation objective does not replace the EC legislation. It aims at facilitating the monitoring and reporting of the implementation of the requirements on aircraft identification for surveillance in European ATM in line with the EC regulations.

This SES-related implementation objective does not replace the EU legislation. It aims at facilitating the monitoring and reporting of the implementation of aircraft identification in European ATM in line with the EU regulations and through the SES implementation monitoring and reporting mechanism.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Morocco		
Timescales:	From:	By:	Applicable to:
Entry into force of the Regulation	13/12/2011		Applicability Area
System capability		02/01/2020	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	GSURV-0101						

Legend:	WXYZ-001	Covered by SLoA(s) in	WXYZ-002	Covered by SLoA(s) in another objective	WXYZ-	Not covered in the
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ITY-ACID	Aircraft Identification
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	this objective	zzz	Objective covering the enabler	003	Implementation Plan
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Applicable legislation

Regulation (EU) No 1206/2011 of 22 November 2011 laying down requirements on aircraft identification for surveillance for the single European sky
 Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky as amended

Essential Operational Changes

ICAO GANP ? ASBUs

- none -	
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Deployment Programme

- none -	
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European Plan for Aviation Safety

- none -	
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Operating Environments

Airport	
En-Route	
Network	
Terminal Airspace	

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ITY-ACID-ASP01	Ensure the capability of the cooperative surveillance chain, to use the downlinked aircraft identification		02/01/2020
ITY-ACID-ASP02	Organise personnel training and awareness		02/01/2020
ITY-ACID-ASP03	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature		02/01/2020
ITY-ACID-USE01	Organise personnel training and awareness		02/01/2020

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Enhanced safety levels by ensuring that unambiguous individual aircraft identification is achieved, maintained and shared accurately throughout EATMN airspace.
Capacity:	Avoidance of delays and of reduction in network capacity due to shortage of SSR transponder codes or by increased controller workload caused by code changes.
Operational Efficiency:	The use of downlinked aircraft identification represents the most efficient long term solution as primary mean of identification, as shown in the impact assessment of Regulation (EU) No 1206/2011.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ITY-ACID	Aircraft Identification
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ITY-ACID-ASP01	Ensure the capability of the cooperative surveillance chain, to use the downlinked aircraft identification	From: -	By: 02/01/2020
Action by:	ANS Providers		
Description & purpose:	<p>Ensure that the cooperative surveillance chain has the necessary capability to allow the establishment of the individual aircraft identification using the downlinked aircraft identification feature in compliance with Article 4.2 and ensure the operational use of this capability as prescribed in Article 4.3 (including Annex II) of Regulation (EU) No 1206/2011. The deployment and the use of this capability will have an impact on the surveillance systems as well as on flight data processing systems, surveillance data processing systems, human machine interface systems and ground-to-ground communication systems used for the distribution of surveillance data.</p> <p>With regard to the specific surveillance technologies the ANSPs could use to support this requirement they have the choice between Mode S surveillance, ADS-B or WAM, taking into account the local operating environments, constraints and needs as well as the capabilities of the airspace users.</p>		
Derogations:	<p>For the specific case of approach areas where air traffic services are provided by military units or under military supervision and when procurement constraints prevent compliance with Article 4(2) of the Regulation, Member States shall communicate to the Commission by 31 December 2017 at the latest, the date of compliance with downlinked aircraft identification that shall not be later than 2 January 2025, as prescribed in Article 11 'Exemptions' of Regulation (EU) No 1206/2011. Following consultation with the Network Manager, and not later than 31 December 2018, the Commission may review the exemptions that could have a significant impact on the EATMN.</p>		
Supporting material(s):	<p>EUROCONTROL - Mode S Elementary Surveillance (ELS) Operations Manual Url : https://www.eurocontrol.int/publication/mode-s-elementary-surveillance-els-operations-manual</p> <p>EUROCONTROL - Wide Area Multilateration (WAM) Guidance Material Url : https://www.eurocontrol.int/publication/wide-area-multilateration-guidelines-achieving-operational-approval-wam-system</p>		
Finalisation criteria:	<p>1 - All the appropriate systems have been upgraded 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA) 3 - The upgraded systems have been put into service, allowing the establishment of the individual aircraft identification using the downlinked aircraft identification.</p>		

ITY-ACID-ASP02	Organise personnel training and awareness	From: -	By: 02/01/2020
Action by:	ANS Providers		
Description & purpose:	<p>Ensure that:</p> <ul style="list-style-type: none"> - personnel are made duly aware of the requirements of the Regulation and adequately trained as prescribed in Art 8. (1)] - operations manuals, working methods and operating procedures comply with Article 8(2) of Regulation (EU) No 1206/2011. <p>Note :The completion dates should take into account the possible derogations identified in SLoA ITY-ACID-ASP01 (ref, Article 11 'Exemptions' of Regulation (EU) No 1206/2011).</p>		
Supporting material(s):	<p>EUROCONTROL - Mode S Elementary Surveillance (ELS) Operations Manual Url : https://www.eurocontrol.int/publication/mode-s-elementary-surveillance-els-operations-manual</p> <p>EUROCONTROL - Wide Area Multilateration (WAM) Guidance Material Url : https://www.eurocontrol.int/publication/wide-area-multilateration-guidelines-achieving-operational-approval-wam-system</p>		
Finalisation criteria:	<p>1 - The training plans have been updated and a training package has been developed. 2 - All concerned personnel have been trained.</p>		

ITY-ACID-ASP03	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature	From: -	By: 02/01/2020
Action by:	ANS Providers		
Description & purpose:	<p>Notify the Regulator/NSA/Competent Authority of planned safety related changes and develop safety assessment of these changes, imposed by implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature.</p> <p>The tasks to be performed are as follows:</p> <ul style="list-style-type: none"> - notify the Regulator/NSA/Competent Authority of the planned safety related changes. - conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks - develop a safety argument - deliver the safety argument to the Regulator/NSA/Competent Authority, if the severity class of identified risks is 1 or 2 or if the implementation of the changes requires the introduction of new aviation standards. <p>The assessment should consider transition planning leading to the introduction of the capability as well as fall-back mitigation.</p>		

ITY-ACID	Aircraft Identification
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	<p>Note :1 - Any other validated/recognised method for the safety assessment, is acceptable, if agreed with the Regulator/NSA/Competent Authority.</p> <p>2 - The completion dates should take into account the possible derogations identified in SLoA ITY-ACID-ASP01 (ref, Article 11 'Exemptions' of Regulation (EU) No 1206/2011.</p>
Supporting material(s):	<p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017</p> <p>Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p> <p>EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006</p> <p>Url : https://www.eurocontrol.int/tool/safety-assessment-methodology</p> <p>EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001</p> <p>Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm</p>
Finalisation criteria:	<p>1 - Safety argument addressing the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature, has been developed.</p> <p>2 - Safety argument addressing the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature, has been delivered to the Regulator/NSA/Competent Authority, as appropriate, depending on the severity of the identified risks or the introduction of new aviation standards.</p>

ITY-ACID-USE01	Organise personnel training and awareness	From:	By:
		-	02/01/2020
Action by:	Airspace Users		
Description & purpose:	Operators shall ensure that the personnel operating and maintaining surveillance equipment are made duly aware of Regulation (EU) No 1206/2011, that they are adequately trained to use this equipment, that instructions are available in the cockpit and that the correct processes are applied in operations, so as to ensure compliance with the provisions of Article 9 'Additional requirements for operators' of Regulation (EU) No 1206/2011.		
	<p>Note :This SLoA is specific to the provision and use of the downlinked aircraft identification feature and complements the User SLoAs identified in the ITY-SPI ESSIP objective.</p>		
Finalisation criteria:	<p>1 - Training manuals have been updated, as required and that instructions are available in the cockpit.</p> <p>2 - All personnel operating surveillance equipment have been trained and the correct processes are applied in operations.</p>		

SES		Active					EU+	
ITY-ADQ		Ensure Quality of Aeronautical Data and Aeronautical Information						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This SES-related implementation objective is derived from Regulation (EU) No 73/2010 of 26 January 2010, amended by Commission Implementing Regulation (EU) No 1029 of 26 September 2014, laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky (Official Journal L23/6, dated 27.01.2010). The Regulation lays down the requirements on the quality of aeronautical data and aeronautical information in terms of accuracy, resolution and integrity [Article 1].

It applies to European Air Traffic Management Network (EATM Network) systems, their constituents and associated procedures involved in the origination, production, storage, handling, processing, transfer and distribution of aeronautical data and aeronautical information [Article 2(1)].

The Regulation applies to the following aeronautical data and aeronautical information [Article 2(1)]:

- the integrated aeronautical information package (IAIP) made available by Member States, with the exception of aeronautical information circulars;
- electronic obstacle and electronic terrain data or elements thereof, where made available by Member States;
- aerodrome mapping data, where made available by Member States.

It applies to ANSPs, AIS Providers, operators of those aerodromes and heliports for which IFR or Special-VFR procedures have been published in national aeronautical information publications, public or private entities providing services for the origination and provision of survey data, procedure design services, electronic terrain data, electronic obstacle data and manufacturing industry [Article 2(2)].

It applies up to the moment when the aeronautical data and/or aeronautical information are made available by the aeronautical information service to the next intended user [Article 2(3)].

The terms used in this objective are defined in Article 2 of Regulation (EC) No 549/2004, complemented by definitions set in Article 3 of Regulation (EU) No 73/2010, amended by Commission Implementing Regulation (EU) No 1029 of 26 September 2014.

This SES-related implementation objective does not replace the EU legislation. It aims at facilitating the monitoring and reporting of the implementation of quality of aeronautical data and aeronautical information in terms of accuracy, resolution and integrity in European ATM in line with the EU regulations and through the SES implementation monitoring and reporting mechanism.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Maastricht UAC		
Timescales:	From:	By:	Applicable to:
Entry into force of the regulation	16/02/2010		Applicability Area
Article 5(4)(a), Article 5(4)(b) and Article 6 to 13 to be implemented by		30/06/2013	Applicability Area
Article 4, Article 5(1) and Article 5(2), Article 5(3) and Article 5(4)(c) to be implemented by		30/06/2014	Applicability Area
All data requirements implemented by		30/06/2017	Applicability Area

References

European ATM Master Plan

Ol step -	[IS-0202]-Improved Supply Chain for Aeronautical Data through Common Quality Measures						
Enablers -	AIMS-13						
Ol step -	[IS-0204]-Facilitated Aeronautical Data Exchanges through Digitalised/Electronic Information						
Enablers -	AIMS-19a INF09	AIMS-19b AOM13.1	CTE-C06c COM10	GGSWIM-11	GGSWIM-52	GGSWIM-53	

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky, amended by Regulation (EU) No 1029/2014 of 26 September 2014.

Essential Operational Changes**ICAO GANP ? ASBUs**

- none -

Deployment Programme

1.2.2 Geographic database for procedure design

European Plan for Aviation Safety

RMT.0477	Technical requirements and operational procedures for aeronautical information services and aeronautical information management
RMT.0722	Provision of aeronautical data by the aerodrome operator

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ITY-ADQ-REG01	Verify the compliance with data quality requirements and supervise safety assessments		30/06/2013
ITY-ADQ-REG02	Verify the establishment of formal arrangements		30/06/2013
ITY-ADQ-REG03	Verify the compliance with the common dataset specifications and the data exchange format requirements	DELETED	
ITY-ADQ-REG04	Verify that all parties comply with all data requirements		30/06/2017
ITY-ADQ-ASP01	Implement data quality and process requirements		30/06/2013
ITY-ADQ-ASP02	Establish formal arrangements		30/06/2013
ITY-ADQ-ASP03	Establish consistency mechanisms and implement timeliness requirements		30/06/2013
ITY-ADQ-ASP04	Implement personnel and performance requirements		30/06/2013
ITY-ADQ-ASP05	Implement a quality management system and fulfil safety and security objectives		30/06/2013
ITY-ADQ-ASP06	Implement the common dataset and digital exchange format		30/06/2014
ITY-ADQ-ASP07	Implement all data requirements		30/06/2017
ITY-ADQ-APO01	Implement data quality and process requirements		30/06/2013
ITY-ADQ-APO02	Implement personnel and performance requirements		30/06/2013
ITY-ADQ-APO03	Implement a quality management system and fulfil safety and security objectives		30/06/2013
ITY-ADQ-APO04	Implement the common dataset and digital exchange format requirements		30/06/2014
ITY-ADQ-APO05	Implement all data quality requirements		30/06/2017
ITY-ADQ-IND01	Implement data quality and process requirements		30/06/2013
ITY-ADQ-IND02	Implement personnel and performance requirements		30/06/2013
ITY-ADQ-IND03	Implement a quality management system and fulfil safety and security objectives		30/06/2013
ITY-ADQ-IND04	Implement the common dataset and digital exchange format requirements		30/06/2014
ITY-ADQ-IND05	Implement all data quality requirements		30/06/2017

ITY-ADQ	Ensure Quality of Aeronautical Data and Aeronautical Information
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Description of finalised and deleted SLOs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved consistency, reliability and integrity of aeronautical data and aeronautical information.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	Enhanced security due to the implementation of security requirements.

Detailed SLOA Descriptions

ITY-ADQ-REG01	Verify the compliance with data quality requirements and supervise safety assessments	From: -	By: 30/06/2013
Action by:	State Authorities		
Description & purpose:	<p>Verify that data quality and process requirements are fulfilled in accordance with Article 6 (with the exception of Article 6 (3), see ITY-ADQ-REG02) and Annex IV Parts A, B, D, E and F of Regulation (EU) No 73/2010.</p> <p>Supervise that a safety assessment is conducted in accordance with Article 10 of Regulation (EU) No 73/2010 and review the safety assessment report. If applicable review the safety arguments. Notify the acceptance of the change to the ANSP/ANS.</p>		
Supporting material(s):	<p>EUROCONTROL - SPEC-152 - EUROCONTROL Specification for Data Quality Requirements - 1.2 / 02/2016 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-quality-requirements-dqr</p> <p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - CHAIN Preliminary Safety Case Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - NSA Coordination Platform - Guidelines on Interoperability Oversight - Edition 1.0 / 06/2012 Url : https://eurocontrol.int/sites/default/files/article/files/reg-nsa-guidelines-iop-v1-0.pdf</p> <p>EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>		
Finalisation criteria:	<p>1 - An EN ISO 9001 certificate has been submitted to the NSA by relevant organisations.</p> <p>2 - (For ANSPs, APOs and IND certified as ANS): A safety assessment report, including safety arguments where applicable, has been received and reviewed.</p> <p>3 - (For ANSPs, APOs and IND certified as ANS): Proposed changes have been accepted and formally notified to the relevant organisation.</p> <p>4 - (For ANSPs, APOs and IND certified as ANS): An EC declaration of verification of systems and technical file containing evidence of compliance with the relevant regulatory provisions and with the relevant parts of EUROCONTROL specifications or other acceptable means of compliance received and assessed.</p>		
ITY-ADQ-REG02	Verify the establishment of formal arrangements	From: -	By: 30/06/2013
Action by:	State Authorities		
Description & purpose:	Verify that appropriate formal arrangements, respecting at least the minimum content, are established between the relevant parties in accordance with Article 6(3) and Annex IV Part C of Regulation (EU) No 73/2010.		

ITY-ADQ	Ensure Quality of Aeronautical Data and Aeronautical Information
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Supporting material(s):	<p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - NSA Coordination Platform - Guidelines on Interoperability Oversight - Edition 1.0 / 06/2012 Url : https://eurocontrol.int/sites/default/files/article/files/reg-nsa-guidelines-iop-v1-0.pdf</p> <p>EUROCONTROL - Service Level Agreements (SLA) package Url : http://www.eurocontrol.int/articles/adq-library</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>
Finalisation criteria:	1 - Formal arrangements have been established and signed by relevant parties.

ITY-ADQ-REG04	Verify that all parties comply with all data requirements	From: -	By: 30/06/2017
Action by:	State Authorities		
Description & purpose:	Verify that those aeronautical data and aeronautical information items published before 1 July 2013 and not amended since are brought in line by 30 June 2017, at the latest, and that all parties fulfil the requirements in accordance with Article 14 of Regulation (EU) No 73/2010.		
Supporting material(s):	EUROCONTROL - NSA Coordination Platform - Guidelines on Interoperability Oversight - Edition 1.0 / 06/2012 Url : https://eurocontrol.int/sites/default/files/article/files/reg-nsa-guidelines-iop-v1-0.pdf		
Finalisation criteria:	1 - All parties publishing aeronautical data and/or aeronautical information comply with all the requirements set in Regulation (EU) No 73/2010 and an according statement of compliance has been received.		

ITY-ADQ-ASP01	Implement data quality and process requirements	From: -	By: 30/06/2013
Action by:	ANS Providers		
Description & purpose:	<p>Implement the data quality, evidence, origination, process, error reporting and rectification requirements in accordance with Article 6 (with the exception of Article 6(3), see: ITY-ADQ-ASP02) and Annex IV Parts A, B, D, E and F of Regulation (EU) No 73/2010 and provide written evidence that the requirements are met.</p> <p>Validate and verify all tools used to support or automate processes in the origination, production, storage, handling, processing and transfer of aeronautical data and/or aeronautical information in accordance with Article 8 and Annex V of Regulation (EU) No 73/2010. Protect data against loss or alteration in accordance with Article 9 and Annex VI of Regulation (EU) No 73/2010.</p> <p>Conduct a safety assessment including hazard identification, risk assessment and mitigation in accordance with Article 10 of Regulation (EU) No 73/2010 and provide a safety assessment report to the NSA. If applicable provide safety arguments to the NSA.</p> <p>Conduct a verification of the systems demonstrating the conformity with the interoperability, performance and safety requirements in accordance with Article 12 and Annex IX and X of Regulation (EU) No 73/2010 and draw up an EC declaration of verification of systems together with a technical file.</p>		
Supporting material(s):	<p>EUROCONTROL - SPEC-152 - EUROCONTROL Specification for Data Quality Requirements - 1.2 / 02/2016 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-quality-requirements-dqr</p> <p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - CHAIN Preliminary Safety Case Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>		

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ATM Master Plan relationship:	[AIMS-13]-Controlled & Harmonised Aeronautical Information Network Activity (CHAIN)
Finalisation criteria:	<p>1 - Data quality requirements have been implemented and are documented for verification and audit.</p> <p>2 - A safety assessment report, including safety arguments where applicable, has been provided to the NSA.</p> <p>3 - The introduction of the change into service was accepted by the NSA and a notification of acceptance has been received.</p> <p>4 - An EC declaration of verification of systems and a technical file containing evidence of compliance with the relevant regulatory provisions and with the relevant parts of EUROCONTROL specifications or other acceptable means of compliance has been submitted to the NSA.</p>

ITY-ADQ-ASP02	Establish formal arrangements	From: -	By: 30/06/2013
Action by:	ANS Providers		
Description & purpose:	Establish formal arrangements with other relevant parties for the exchange of aeronautical data and/or aeronautical information in accordance with Article 6(3) and Annex IV Part C of Regulation (EU) No 73/2010.		
Supporting material(s):	<p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - Service Level Agreements (SLA) package Url : http://www.eurocontrol.int/articles/adq-library</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>		
Finalisation criteria:	1 - Formal arrangements signed by all relevant parties have been established.		

ITY-ADQ-ASP03	Establish consistency mechanisms and implement timeliness requirements	From: -	By: 30/06/2013
Action by:	ANS Providers		
Description & purpose:	Establish and document mechanisms to ensure consistency and implement the timeliness requirements in accordance with Article 7(1), 7(2) and 7(3) of Regulation (EU) No 73/2010.		
Supporting material(s):	<p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>		
Finalisation criteria:	1 - Mechanisms ensuring consistency and, if relevant, annotating AIP items not meeting the data quality requirements have been established and documented		

ITY-ADQ-ASP04	Implement personnel and performance requirements	From: -	By: 30/06/2013
Action by:	ANS Providers		
Description & purpose:	<p>Develop and maintain awareness material and implement training and competence requirements in accordance with Articles 7(4) and 7(5) of Regulation (EU) No 73/2010.</p> <p>Develop and maintain operating manuals and request security clearances in accordance with Article 13 of Regulation (EU) No 73/2010.</p>		
Supporting material(s):	<p>EUROCONTROL - AIS Training Development Guidelines - Edition 1.1 / 10/2011 Url : https://www.eurocontrol.int/sites/default/files/2019-05/20111001-aistdg.pdf</p> <p>EUROCONTROL - Common AIS Staff Profiling (CASP) - Edition 2.0 / 10/2010 Url : https://www.icao.int/ESAF/Documents/ICAO-IATA-EURO%20CONTROL%202017/FINAL%20%20PDF%20Papers/DP-3%20B-%20Eurocontrol%20CASP-%20Document.pdf</p> <p>EUROCONTROL - SPEC-146 - EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP) - 2.1 / 10/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-electronic-aeronautical-information-publication-eaip</p>		

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Finalisation criteria:	1 - Awareness material and training records have been published. 2 - Competence requirements for staff have been met. 3 - Operating manuals have been provided. 4 - Security clearances for authorised staff have been provided.
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ITY-ADQ-ASP05	Implement a quality management system and fulfil safety and security objectives	From: -	By: 30/06/2013
Action by:	ANS Providers		
Description & purpose:	Implement and maintain a quality management system meeting the safety management and the security management objectives in accordance with Article 10 and Annex VII of Regulation (EU) No 73/2010. Note : An EN ISO 9001 certificate issued by an appropriately accredited organisation shall be considered as a sufficient means of compliance for the quality management system.		
Supporting material(s):	EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010		
Finalisation criteria:	1 - A quality management system meeting the safety and security management objectives has been implemented, documented and is maintained. 2 - An EN ISO 9001 certificate has been obtained. 3 - Documentation related to certification has been provided to the NSA. 4 - Access authorisations have been provided.		

ITY-ADQ-ASP06	Implement the common dataset and digital exchange format	From: -	By: 30/06/2014
Action by:	ANS Providers		
Description & purpose:	Implement the common dataset, provide and document the IAIP, aerodrome mapping, electronic obstacle data, electronic terrain data and metadata in accordance with Article 4 and Annex I of Regulation (EU) No 73/2010. Implement a common data exchange for IAIP, aerodrome mapping, electronic obstacle data and electronic terrain data allowing digital data exchange and verify that all aeronautical data and aeronautical information within the IAIP, AIP amendments and AIP supplements are made available to the next intended user in accordance with Article 5 and Annex II of Regulation (EU) No 73/2010. Conduct a safety assessment including hazard identification, risk assessment and mitigation in accordance with Article 10 of Regulation (EU) No 73/2010 and provide a safety assessment report to the NSA. If applicable provide safety arguments to the NSA.		
	Note :(1). Digital NOTAM may be excluded from the data exchange format ref. Article 5(3) (subject to revision once digital NOTAM work progressed). Note: (2). Concerning the provision of Electronic obstacle data, electronic terrain data and aerodrome mapping data, ref. Article 2(1)(b-d).		
Derogations:	Refer to Article 15(2) of Regulation (EU) No 73/2010.		

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Supporting material(s):	<p>EUROCONTROL - SPEC 151 - EUROCONTROL Specification for Aeronautical Information Exchange - 1.0 / 12/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-aeronautical-information-exchange-aix</p> <p>EUROCONTROL - SPEC-146 - EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP) - 2.1 / 10/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-electronic-aeronautical-information-publication-eaip</p> <p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - CHAIN Preliminary Safety Case Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>
Finalisation criteria:	<p>1 - The common dataset and digital exchange format requirements have been implemented.</p> <p>2 - A safety assessment report, including safety arguments where applicable, has been provided to the NSA.</p> <p>3 - The introduction of the change into service was accepted by the NSA and a notification of acceptance has been received.</p> <p>4 - An EC declaration of verification of systems and a technical file containing evidence of compliance with the relevant regulatory provisions and with the relevant parts of EUROCONTROL specifications or other acceptable means of compliance has been submitted to the NSA.</p>

ITY-ADQ-ASP07	Implement all data requirements	From: -	By: 30/06/2017
Action by:	ANS Providers		
Description & purpose:	Update those aeronautical data and aeronautical information items which were published before 1 July 2013 and not amended since in accordance with Article 14 of Regulation (EU) No 73/2010.		
Finalisation criteria:	1 - All electronic data is compliant to all requirements and a statement of compliance has been provided to the NSA.		

ITY-ADQ-APO01	Implement data quality and process requirements	From: -	By: 30/06/2013
Action by:	Aerodrome & heliport Operators for which IFR or Special-VFR procedures have been published in national AIPs		
Description & purpose:	<p>Implement the data quality and data origination requirements in accordance with Article 6 and Annex IV Parts A - F of Regulation (EU) No 73/2010 and provide written evidence that the requirements are met.</p> <p>Validate and verify all tools used to support or automate processes in the origination, production, storage, handling, processing and transfer of aeronautical data and/or aeronautical information and document the validation in a technical file in accordance with Article 8 and Annex V of Regulation (EU) No 73/2010. Protect data against loss or alteration in accordance with Article 9 and Annex VI of Regulation (EU) No 73/2010.</p> <p>Conduct a safety assessment including hazard identification, risk assessment and mitigation in accordance with Article 10 of Regulation (EU) No 73/2010. If certified as ANS, provide a safety assessment report to the NSA and if applicable provide safety arguments to the NSA.</p>		
Supporting material(s):	<p>EUROCONTROL - SPEC-152 - EUROCONTROL Specification for Data Quality Requirements - 1.2 / 02/2016 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-quality-requirements-dqr</p> <p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p> <p>EUROCONTROL - CHAIN Preliminary Safety Case Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p>		

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Finalisation criteria:	<p>1 - Data quality requirements have been implemented and are documented for verification and audit.</p> <p>2 - (For APOs certified as ANS): A safety assessment report, including safety arguments where applicable, has been provided to the NSA.</p> <p>3 - (For APOs certified as ANS): The introduction of the change into service was accepted by the NSA and a notification of acceptance has been received.</p> <p>4 - (For APOs certified as ANS): An EC declaration of verification of systems and a technical file containing evidence of compliance with the relevant regulatory provisions and with relevant parts of EUROCONTROL specifications or other acceptable means of compliance has been submitted to the NSA.</p>
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ITY-ADQ-APO02	Implement personnel and performance requirements	From: -	By: 30/06/2013
Action by:	Aerodrome & heliport Operators for which IFR or Special-VFR procedures have been published in national AIPs		
Description & purpose:	<p>Develop and maintain awareness material and implement training and competence requirements in accordance with Article 7(4) and Article 7(5) of Regulation (EU) No 73/2010.</p> <p>Develop and maintain operating manuals and request security clearances in accordance with Article 13 of Regulation (EU) No 73/2010.</p>		
Supporting material(s):	<p>EUROCONTROL - AIS Training Development Guidelines - Edition 1.1 / 10/2011 Url : https://www.eurocontrol.int/sites/default/files/2019-05/20111001-aistdg.pdf</p> <p>EUROCONTROL - Common AIS Staff Profiling (CASP) - Edition 2.0 / 10/2010 Url : https://www.icao.int/ESAF/Documents/ICAO-IATA-EURO%20CONTROL%202017/FINAL%20%20PDF%20Papers/DP-3%20B-%20Eurocontrol%20CASP-%20Document.pdf</p>		
Finalisation criteria:	<p>1 - Awareness material and training records have been published.</p> <p>2 - Competence requirements for staff have been met.</p> <p>3 - Operating manuals have been provided.</p> <p>4 - Security clearances for authorised staff have been provided.</p>		

ITY-ADQ-APO03	Implement a quality management system and fulfil safety and security objectives	From: -	By: 30/06/2013
Action by:	Aerodrome & heliport Operators for which IFR or Special-VFR procedures have been published in national AIPs		
Description & purpose:	<p>Implement and maintain a quality management system meeting the safety management and the security management objectives in accordance with Article 10 and Annex VII of Regulation (EU) No 73/2010.</p> <p>Note : An EN ISO 9001 certificate issued by an appropriately accredited organisation shall be considered as a sufficient means of compliance for the quality management system.</p>		
Supporting material(s):	<p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>		
Finalisation criteria:	<p>1 - A quality management system meeting the safety and security management objectives have been implemented, documented and is maintained.</p> <p>2 - An EN ISO 9001 certificate has been obtained.</p> <p>3 - Documentation related to certification has been provided to the NSA.</p> <p>4 - Access authorisations have been provided.</p>		

ITY-ADQ-APO04	Implement the common dataset and digital exchange format requirements	From: -	By: 30/06/2014
Action by:	Aerodrome & heliport Operators for which IFR or Special-VFR procedures have been published in national AIPs		
Description & purpose:	<p>Implement the common dataset, provide and document the IAIP, aerodrome mapping, electronic obstacle data, electronic terrain data and metadata in accordance with Article 4 and Annex I of Regulation (EU) No 73/2010.</p> <p>If certified as ANS, implement a common data exchange for IAIP, aerodrome mapping, electronic obstacle data and electronic terrain data allowing digital data exchange and verify that all aeronautical data and aeronautical information within the IAIP, AIP amendments and AIP supplements are made available to the next intended user in accordance with Article 5 and Annex II of Regulation (EU) No 73/2010.</p> <p>Conduct a safety assessment including hazard identification, risk assessment and mitigation in accordance with Article 10 of Regulation (EU) No 73/2010. If certified as ANS, provide a safety assessment report to the NSA and if applicable provide safety arguments to the NSA.</p> <p>Note : Digital NOTAM may be excluded from the data exchange format ref. Article 5(3) (subject to revision once digital NOTAM work progressed).</p>		

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Supporting material(s):	<p>EUROCONTROL - SPEC 151 - EUROCONTROL Specification for Aeronautical Information Exchange - 1.0 / 12/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-aeronautical-information-exchange-aiex</p> <p>EUROCONTROL - SPEC-146 - EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP) - 2.1 / 10/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-electronic-aeronautical-information-publication-eaip</p> <p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - CHAIN Preliminary Safety Case Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>
Finalisation criteria:	<p>1 - The common dataset requirements have been implemented.</p> <p>2 - (For APOs certified as ANS): The common digital exchange format requirements have been implemented.</p> <p>3 - (For APOs certified as ANS): A safety assessment report, including safety arguments where applicable, has been provided to the NSA.</p> <p>4 - (For APOs certified as ANS): The introduction of the change into service was accepted by the NSA and a notification of acceptance has been received.</p> <p>5 - (For APOs certified as ANS): An EC declaration of verification of systems and a technical file containing evidence of compliance with relevant regulatory provisions and with the relevant parts of EUROCONTROL specifications or other acceptable means of compliance has been submitted to the NSA.</p>

ITY-ADQ-APO05	Implement all data quality requirements	From: -	By: 30/06/2017
Action by:	Aerodrome & heliport Operators for which IFR or Special-VFR procedures have been published in national AIPs		
Description & purpose:	Update those aeronautical data and aeronautical information items which were published before 1 July 2013 and not amended since in accordance with Article 14 of Regulation (EU) No 73/2010.		
Finalisation criteria:	1 - All electronic data is compliant to all requirements and a statement of compliance has been provided to the NSA.		

ITY-ADQ-IND01	Implement data quality and process requirements	From: -	By: 30/06/2013
Action by:	Public/private entities providing services for the origination/provision of survey, electronic terrain & obstacle data and procedures design services		
Description & purpose:	<p>Implement the data quality and data origination requirements in accordance with Article 6 and Annex IV Parts A - F of Regulation (EU) No 73/2010 and provide written evidence that the requirements are met.</p> <p>Validate and verify all tools used to support or automate processes in the origination, production, storage, handling, processing and transfer of aeronautical data and/or aeronautical information in accordance with Article 8 and Annex V of Regulation (EU) No 73/2010. Protect data against loss or alteration in accordance with Article 9 and Annex VI of Regulation (EU) No 73/2010.</p> <p>Conduct a safety assessment including hazard identification, risk assessment and mitigation in accordance with Article 10 of Regulation (EU) No 73/2010. If certified as an ANS, provide a safety assessment report to the NSA and if applicable provide safety arguments to the NSA.</p> <p>Assess the conformity or suitability for use of constituents in accordance with Article 11 and Annex VIII of Regulation (EU) No 73/2010 and issue an EC declaration of conformity or suitability for use of constituents together with a technical file.</p>		

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Supporting material(s):	<p>EUROCONTROL - SPEC-152 - EUROCONTROL Specification for Data Quality Requirements - 1.2 / 02/2016 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-quality-requirements-dqr</p> <p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - CHAIN Preliminary Safety Case Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>
Finalisation criteria:	<p>1 - Data quality requirements have been implemented and are documented for verification and audit.</p> <p>2 - (For IND certified as ANS): The introduction of the change into service has been accepted by the NSA and a notification of acceptance was received.</p> <p>3 - (For IND certified as ANS): An EC declaration of verification of systems and a technical file containing evidence of compliance with the relevant regulatory provisions and with the relevant parts of EUROCONTROL specifications or other acceptable means of compliance has been submitted to the NSA.</p> <p>4 - (For Manufacturers of constituents): An EC declaration of conformity of constituents or of suitability for use has been issued.</p> <p>5 - (For IND certified as ANS): A safety assessment report, including safety arguments where applicable, has been provided to the NSA.</p>

ITY-ADQ-IND02	Implement personnel and performance requirements	From: -	By: 30/06/2013
Action by:	Public/private entities providing services for the origination/provision of survey, electronic terrain & obstacle data and procedures design services		
Description & purpose:	<p>Develop and maintain awareness material and implement training and competence requirements in accordance with Articles 7(4) and 7(5) of Regulation (EU) No 73/2010.</p> <p>Develop and maintain operating manuals and request security clearances in accordance with Article 13 of Regulation (EU) No 73/2010.</p>		
Supporting material(s):	<p>EUROCONTROL - AIS Training Development Guidelines - Edition 1.1 / 10/2011 Url : https://www.eurocontrol.int/sites/default/files/2019-05/20111001-aistdg.pdf</p> <p>EUROCONTROL - Common AIS Staff Profiling (CASP) - Edition 2.0 / 10/2010 Url : https://www.icao.int/ESAF/Documents/ICAO-IATA-EURO%20CONTROL%202017/FINAL%20%20PDF%20Papers/DP-3%20B-%20Eurocontrol%20CASP-%20Document.pdf</p>		
Finalisation criteria:	<p>1 - Awareness material and training records have been published.</p> <p>2 - Competence requirements for staff have been met.</p> <p>3 - Operating manuals have been provided.</p> <p>4 - Security clearances for authorised staff have been provided.</p>		

ITY-ADQ-IND03	Implement a quality management system and fulfil safety and security objectives	From: -	By: 30/06/2013
Action by:	Public/private entities providing services for the origination/provision of survey, electronic terrain & obstacle data and procedures design services		
Description & purpose:	<p>Implement and maintain a quality management system meeting the safety management and the security management objectives in accordance with Article 10 and Annex VII of Regulation (EU) No 73/2010</p>		
Supporting material(s):	<p>EUROCONTROL - Guidelines supporting the implementation of the Regulation on Aeronautical Data and Information Quality Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - GUID-163 - EUROCONTROL Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 - 1.6 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-supporting-implementation-commission-regulation-eu-732010</p>		
Finalisation criteria:	<p>1 - A quality management system meeting the safety and security management objectives has been implemented documented and is maintained.</p> <p>2 - Access authorisations have been provided.</p> <p>3 - An EN ISO 9001 certificate has been obtained.</p> <p>4 - Documentation related to certification has been provided to the NSA.</p>		

ITY-ADQ	Ensure Quality of Aeronautical Data and Aeronautical Information
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ITY-ADQ-IND04	Implement the common dataset and digital exchange format requirements	From: -	By: 30/06/2014
Action by:	Public/private entities providing services for the origination/provision of survey, electronic terrain & obstacle data and procedures design services		
Description & purpose:	<p>Implement the common dataset, provide and document the IAIP, aerodrome mapping, electronic obstacle data, electronic terrain data and metadata in accordance with Article 4 and Annex I of Regulation (EU) No 73/2010.</p> <p>If certified as ANS, implement a common data exchange for IAIP, aerodrome mapping, electronic obstacle data and electronic terrain data allowing digital data exchange and verify that all aeronautical data and aeronautical information within the IAIP, AIP amendments and AIP supplements are made available to the next intended user in accordance with Article 5 and Annex II of Regulation (EU) No 73/2010.</p> <p>Conduct a safety assessment including hazard identification, risk assessment and mitigation in accordance with Article 10 of Regulation (EU) No 73/2010. If certified as an ANS, provide a safety assessment report to the NSA and if applicable provide safety arguments to the NSA.</p> <p>Note : (1). Digital NOTAM may be excluded from the data exchange format ref. Article 5(3) (subject to revision once digital NOTAM work progressed). Note: (2). Concerning the provision of Electronic obstacle data, electronic terrain data and aerodrome mapping data, ref. Article 2(1)(b-d).</p>		
Supporting material(s):	<p>EUROCONTROL - SPEC 151 - EUROCONTROL Specification for Aeronautical Information Exchange - 1.0 / 12/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-aeronautical-information-exchange-aix</p> <p>EUROCONTROL - CHAIN Preliminary Safety Case Url : https://www.eurocontrol.int/service/aeronautical-data-and-information-quality</p> <p>EUROCONTROL - SPEC-148 - EUROCONTROL Specification for Data Assurance Levels - 1.1 / 03/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-assurance-levels-dal</p> <p>EUROCONTROL - SPEC-154 - EUROCONTROL Specification for the Origination of Aeronautical Data - 1.0 / 02/2013 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-origination-aeronautical-data-do</p> <p>EUROCONTROL - SPEC-146 - EUROCONTROL Specification for the Electronic Aeronautical Information Publication (eAIP) - 2.1 / 10/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-electronic-aeronautical-information-publication-eaip</p>		
Finalisation criteria:	<p>1 - The common dataset requirements have been implemented. 2 - (For IND certified as ANS): The common digital exchange format requirements have been implemented. 3 - (For IND certified as ANS): A safety assessment report, including safety arguments where applicable, has been provided to the NSA. 4 - (For IND certified as ANS): The introduction of the change into service was accepted by the NSA and a notification of acceptance has been received. 5 - (For IND certified as ANS): An EC declaration of verification of systems and a technical file containing evidence of compliance with the relevant regulatory provisions and with the relevant parts of EUROCONTROL specifications or other acceptable means of compliance has been submitted to the NSA. 6 - (For Manufacturers of constituents): An EC declaration of conformity of constituents or of suitability for use has been issued.</p>		

ITY-ADQ-IND05	Implement all data quality requirements	From: -	By: 30/06/2017
Action by:	Public/private entities providing services for the origination/provision of survey, electronic terrain & obstacle data and procedures design services		
Description & purpose:	Update those aeronautical data and aeronautical information items which were published before 1 July 2013 and not amended since in accordance with Article 14 of Regulation (EU) No 73/2010.		
Finalisation criteria:	1 - All electronic data is compliant to all requirements and a statement of compliance has been provided to the NSA.		

SES		Active					ECAC+	
ITY-AGDL		Initial ATC Air-Ground Data Link Services						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This SES-related implementation objective is derived from Regulation (EU) No 2015/310 of 26 February 2015, amending Regulation (EC) No 29/2009 of 16 January 2009 and repealing Regulation (EU) No 441/2014, laying down requirements on data link services for the single European sky.

Regulation (EC) No 29/2009 applies to air-ground data communications systems, their constituents and associated procedures and to flight data processing systems serving air traffic control units providing services to general air traffic, their constituents and associated procedures [Ref. Article 1 (2)].

Regulation (EC) No 29/2009 requires the interoperable implementation of the first set of en-route non-time critical air-ground data link services DLIC, ACL, ACM and AMC [Ref. Annex II].

This regulation applies to all flights operating as general air traffic in accordance with instrument flight rules above FL 285, within the defined airspace areas [Ref. Article 1.1 of Regulation (EU) 2015/310].

The terms used in this objective are defined in Article 2 of Regulation (EC) No 549/2004 and in Article 2 of Regulation (EC) No 29/2009.

In 2016, what is known as the ELSA Consortium Study was finalised. The Study addresses the recommendations made by EASA in their report from 2014 on the technical issues in the implementation of Data Link Services (DLS). Also in 2016, the SESAR Deployment Manager has been mandated by the EC to act as DLS Implementation Project Manager and on this basis the SDM has developed a DLS Recovery Plan.

The implementation objective is aligned with Regulation (EU) No 2015/310, amending Regulation (EC) No 29/2009 and repealing Regulation (EU) No 441/2014.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	All EU SES States except: Luxembourg, Netherlands		
Applicability Area 2	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Montenegro, Morocco, North Macedonia, Serbia, Turkey		
Timescales:	From:	By:	Applicable to:
Entry into force	06/02/2009		Applicability Area 1
ATS unit operational capability		05/02/2018	Applicability Area 1 + Applicability Area 2
Aircraft capability		05/02/2020	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AUO-0301]-Voice Controller-Pilot Communications (En-Route) Complemented by Data Link						
Enablers -	A/C-31	ER ATC 154a	ER ATC 154b	PRO-044b	PRO-228a		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) 2015/310 amending Regulation (EC) No 29/2009 and repealing Implementing Regulation (EU) No 441/2014, laying down requirements on data link services for the single European sky

Essential Operational Changes

ICAO GANP ? ASBUs

ITY-AGDL	Initial ATC Air-Ground Data Link Services
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COMI-B0/4	VHF Data Link (VDL) Mode 2 Basic
COMI-B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency

Deployment Programme

6.1.1	ATN B1 based services in ATSP domain
6.1.3	A/G and G/G Multi Frequency DL Network in defined European Service Areas
6.1.4	ATN B1 capability in Multi Frequency environment in Aircraft domain

European Plan for Aviation Safety

RMT.0524	Data link services
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Operating Environments

En-Route Network

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ITY-AGDL-REG01	Ensure that safety is assessed before any change to the existing system	DELETED	
ITY-AGDL-REG02	Ensure the processing and the distribution of the information on the data link capability by the IFPS	DELETED	
ITY-AGDL-REG03	Ensure the publication of relevant information in the national aeronautical information publication		05/02/2018
ITY-AGDL-REG04	Ensure ATN/VDL-2 availability, security policy and address management procedures		05/02/2018
ITY-AGDL-REG05	Approve the operational use of air-ground data link services	DELETED	
ITY-AGDL-REG06	Notify potential exemption cases to the European Commission	FINALISED	
ITY-AGDL-ASP01	Ensure the conformity of communications, flight data and initial flight plan processing systems and associated procedures		05/02/2018
ITY-AGDL-ASP02	Organise personnel awareness and training		05/02/2018
ITY-AGDL-ASP03	Ensure ground communication systems comply with air-ground communication requirements		05/02/2018
ITY-AGDL-ASP04	Deploy communication infrastructure to handle air-ground data link services		05/02/2018
ITY-AGDL-ASP05	Implement Logon Forward process		05/02/2018
ITY-AGDL-ASP06	Implement Next Authority Notified process		05/02/2018
ITY-AGDL-MIL01	Equip transport-type State aircraft		01/01/2019
ITY-AGDL-USE01	Equip aircraft with data link equipment supporting the identified services		05/02/2020
ITY-AGDL-USE02	Specify relevant operational procedures		05/02/2020
ITY-AGDL-USE03	Arrange air-ground ATS data link service provision		05/02/2020
ITY-AGDL-USE04	Organise personnel awareness and training		05/02/2020
ITY-AGDL-IND01	Provide avionics and ground systems for data link services	DELETED	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Through the delivery of standard and unambiguous messages (significant error and fatigue reduction), provision of a communications backup and the possibility of immediate message retrieval.
Capacity:	Through both reduction of voice congestion and increase in controller and sector productivity. Capacity gain is expected from 3.4 % (if 25% of flights is equipped) up to 11% (if 75% of flights is equipped). This will lead to reduction of delays.
Operational Efficiency:	-

ITY-AGDL	Initial ATC Air-Ground Data Link Services
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Cost Efficiency: -
Environment: -
Security: -

Detailed SLA Descriptions

ITY-AGDL-REG03	Ensure the publication of relevant information in the national aeronautical information publication	From: -	By: 05/02/2018
Action by:	State Authorities		
Description & purpose:	Ensure that relevant information on the use of data link services is published in the national aeronautical information publications [Regulation (EC) No 29/2009, Article 13(8)].		
Finalisation criteria:	1 - National aeronautical information publications have been updated appropriately.		

ITY-AGDL-REG04	Ensure ATN/VDL-2 availability, security policy and address management procedures	From: -	By: 05/02/2018
Action by:	State Authorities		
Description & purpose:	Member States which have designated ATS providers in the applicable airspace shall: <ul style="list-style-type: none"> - Ensure that air-ground communications services satisfying requirements for ATN and VDL-2 are available to operators for aircraft flying within that airspace under their responsibility for CM and CPDLC data exchanges, with due regard to possible coverage limitations inherent in the communication technology used [Regulation (EC) No 29/2009, Article 7(1)]; - Ensure that air navigation service providers and other entities providing communication services implement an appropriate security policy for data exchanges of the DLIC, ACM, ACL and AMC services, notably by applying common security rules to protect distributed physical resources supporting those data exchanges [Regulation (EC) No 29/2009, Article 7(2)]; - Ensure that harmonised procedures apply for the management of addressing information in order to unambiguously identify air and ground communications systems supporting data exchanges of the CM and CPDLC air/ground applications [Regulation (EC) No 29/2009, Article 7(3)]. 		
Finalisation criteria:	1 - Availability of ATN/VDL-2 service has been published in national aeronautical information publication. 2 - Security policy is available. 3 - Harmonised addressing procedures are available.		

ITY-AGDL-ASP01	Ensure the conformity of communications, flight data and initial flight plan processing systems and associated procedures	From: -	By: 05/02/2018
Action by:	ANS Providers		
Description & purpose:	Ensure that air-ground communications systems, flight data processing systems and human-machine interface systems serving ATS units providing service to general air traffic within the applicable airspace areas comply with the following articles of Regulation (EC) No 29/2009: <ul style="list-style-type: none"> - Article 1(3) on the operational coverage; - Article 3(1) on the capability to provide and operate the DLIC, ACM, ACL and AMC data link services; - Article 4 on procedures for CPDLC establishment, operation and termination, and for the filing of flight plans regarding information pertaining to data link capability; - Article 5(1) on ground systems support of CM and CPDLC; - Article 5(2) on seamless provision, message set and integrity requirements of end-to-end communications for data exchanges of the CM and CPDLC air-ground applications; - Article 5(3) on service level agreement for communication services for CM and CPDLC data exchanges that may be provided by other organisations (i.e. CSPs); - Article 5(4) on ensuring that data exchanges can be established with all compliant aircraft flying in the airspace under their responsibility; - Article 5(5) on automated notification, coordination and transfer of flights between ATC units (Note that this requires implementation of LOF/NAN processes in accordance with Regulation (EC) No 1032/2006 - as complemented by Regulation (EC) No 30/2009 - refer to SES-related implementation objective ITY-COTR); - Article 5(6) on performance monitoring; - Article 9 on the application of air-ground communications in ground communication systems and their constituents for CM and CPDLC data exchanges, allowing either ATN/VDL-2 or an alternative communication technology; - Article 13(1) and (2) on the ground-based recording of data link communications. 		
Supporting material(s):	EUROCAE - ED-111 - Functional specifications for CNS/ATM Recording - Including Amendment N°1 - 30 July 2003 07/2002 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - SPEC-0116 - EUROCONTROL Specification on Data Link Services - 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services ICAO - Annex 10, Volume III, Part 1 - Aeronautical Telecommunications, Volume III Communication Systems, Part 1 Digital Data Communication Systems - Edition 2.0 Url : http://store1.icao.int/		

ITY-AGDL	Initial ATC Air-Ground Data Link Services
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ATM Master Plan relationship:	[ER ATC 154b]-Enhance En-route ATC sub-systems (internal processing, FDP and Controller Workstation) to enable CPDLC dialog with Pilot [PRO-044b]-ATC Procedures involving protocol for utilization of DataLink communications, message composition, receipt acknowledgement
Finalisation criteria:	1 - Air-ground ANSP communications systems enable data link communication between controllers and operators of equipped aircraft. 2 - Flight data and initial flight plan processing systems are able to handle the information about the data link capability of flights. 3 - Associated procedures are applied in operation.

ITY-AGDL-ASP02	Organise personnel awareness and training	From: -	By: 05/02/2018
Action by:	ANS Providers		
Description & purpose:	Develop and maintain operations manuals containing the necessary instructions and information to enable all personnel concerned to apply Regulation (EC) No 29/2009. Ensure that these manuals are accessible and kept up to date and that their update and distribution are subject to appropriate quality and documentation configuration management. Ensure that the working methods and operating procedures comply with Regulation (EC) No 29/2009. Ensure that all personnel concerned are made duly aware of the relevant provisions in Regulation (EC) No 29/2009. Ensure that all personnel concerned are adequately trained for their job functions. Note: In accordance with Regulation (EC) No 29/2009, Articles 13(3) and 13(5)		
Finalisation criteria:	1 - Air Navigation Service Providers have produced the operations manuals and the training programmes.		

ITY-AGDL-ASP03	Ensure ground communication systems comply with air-ground communication requirements	From: -	By: 05/02/2018
Action by:	ANS Providers		
Description & purpose:	Entities providing communication services shall ensure that the ground communication systems and their constituents apply air-ground communications for CM and CPDLC data exchanges in compliance with Article 9 of Regulation (EC) No 29/2009, allowing either ATN/VDL-2 or an alternative communication technology.		
ATM Master Plan relationship:	[ER ATC 154a]-Basic air-ground datalink communications service derived from the CM and CPDLC applications		
Finalisation criteria:	1 - CSP has deployed and made available ground communication systems which allow ATN/VDL-2 or alternative communication technology.		

ITY-AGDL-ASP04	Deploy communication infrastructure to handle air-ground data link services	From: -	By: 05/02/2018
Action by:	ANS Providers		
Description & purpose:	Ensure that the entities providing communication services for data exchanges of the air-ground applications deploy the appropriate telecommunication infrastructure (e.g. based on ATN/VDL-Mode 2).		
Supporting material(s):	EUROCONTROL - LINK 2000+ Network Planning Document - Edition 3.6 / 12/2012 ARINC - 631-6 - VHF Digital Link (VDL) Mode 2 Implementation Provisions Standards - ARINC 600 Series / 11/2010 Url : https://www.arinc.com/cf/store/catalog.cfm?prod_group_id=1&category_group_id=3 EUROCONTROL - Generic Requirements for a LINK 2000+ Air/Ground Communications Service Provider (ACSP) - Edition 1.6 / 12/2009 ARINC - 631-5 - VHF Digital Link (VDL) Mode 2 Implementation Provisions - ARINC 600 Series / 12/2008 Url : https://www.arinc.com/cf/store/catalog.cfm?prod_group_id=1&category_group_id=3 EUROCONTROL - SPEC-0116 - EUROCONTROL Specification on Data Link Services - 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services		
ATM Master Plan relationship:	[CTE-C02b]-A/G Datalink over ATN/OSI - Single frequency		
Finalisation criteria:	1 - Appropriate telecommunication infrastructure has been deployed in the specific locations selected by the State, and is ready to handle the selected air-ground data link services.		

ITY-AGDL-ASP05	Implement Logon Forward process	From: -	By: 05/02/2018
Action by:	ANS Providers		

ITY-AGDL	Initial ATC Air-Ground Data Link Services
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Description & purpose:	<p>Implement a process for the transmission of logon parameters of flight data between ATC units as specified in the Annex to Regulation (EC) No 30/2009 amending Regulation (EC) No 1032/2006.</p> <p>The Logon Forward process is transmitted to provide the ATN or FANS/1A logon parameters to the receiving data-link equipped unit, to allow the unit to use the data link applications (CM, CPDLC, ADS, FIS).</p> <p>This process shall comply with the interoperability and performance requirements specified in Art. 3 of Regulation (EC) No 1032/2006.</p> <p><u>Note :This SLoA corresponds to ITY-COTR-ASP08 from ESSIP Plan Edition 2015.</u></p>
Specific applicability:	<u>Related to Commission Regulation 29/2009 laying down requirements on datalink services for the Single European Sky.</u>
Derogations:	It shall not apply to flight data processing systems for which the flight data are synchronised by means of a common system.
Supporting material(s):	<p>EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp</p> <p>EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi</p>
ATM Master Plan relationship:	<u>[ER ATC 154b]-Enhance En-route ATC sub-systems (internal processing, FDP and Controller Workstation) to enable CPDLC dialog with Pilot</u>
Finalisation criteria:	1 - The Logon Forward process has been implemented, documented and is in operational use.

ITY-AGDL-ASP06	Implement Next Authority Notified process	From: -	By: 05/02/2018
Action by:	ANS Providers		
Description & purpose:	<p>Implement a process for the transmission of information of flight data between ATC units as specified in the Annex to Regulation (EC) No 30/2009 amending Regulation (EC) No 1032/2006.</p> <p>Information subject to the next authority notified process shall provide as a minimum: aircraft identification, departure aerodrome, destination aerodrome.</p> <p>This process shall comply with the interoperability and performance requirements specified in Art. 3 of Regulation (EC) No 1032/2006.</p> <p><u>Note :This SLoA corresponds to ITY-COTR-ASP09 from ESSIP Plan Edition 2015.</u></p>		
Specific applicability:	<u>Related to Commission Regulation 29/2009 laying down requirements on datalink services for the Single European Sky.</u>		
Derogations:	It shall not apply to flight data processing systems for which the flight data are synchronised by means of a common system.		
Supporting material(s):	<p>EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - 3.2 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp</p> <p>EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 4.3 / 12/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi</p>		
ATM Master Plan relationship:	<u>[ER ATC 154b]-Enhance En-route ATC sub-systems (internal processing, FDP and Controller Workstation) to enable CPDLC dialog with Pilot</u>		
Finalisation criteria:	1 - The Next Authority Notified process has been implemented, documented and is in operational use with all partners within the applicability area.		

ITY-AGDL-MIL01	Equip transport-type State aircraft	From: -	By: 01/01/2019
Action by:	Military Authorities		
Description & purpose:	<p>States which decide to equip new transport type State aircraft entering into service from 1 January 2019 with data link capability relying upon standards which are not specific to military operational requirements, shall ensure that those aircraft comply with the following articles of Regulation (EC) No 29/2009:</p> <ul style="list-style-type: none"> - Article 3(5), amended by Article 1.2.4 of COMMISSION IMPLEMENTING REGULATION (EU) 2015/310, on the capability to operate the data link services DLIC, ACM, ACL and AMC; - Article 8(1) on communications systems support of CM and CPDLC; - Article 8(2) on seamless provision, message set and integrity requirements of end-to-end communications for data exchanges of the CM and CPDLC air-ground applications; - Article 8(3) on requirements for air-ground communication systems and their constituents to apply air-ground communications for data exchanges of the CM and CPDLC applications, allowing either ATN/VDL-2 or an alternative communication technology. 		
Supporting material(s):	<p>EUROCONTROL - SPEC-0116 - EUROCONTROL Specification on Data Link Services - 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services</p>		

ITY-AGDL	Initial ATC Air-Ground Data Link Services
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Finalisation criteria:	1 - Transport-type aircraft have been equipped with data link capabilities.
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ITY-AGDL-USE01	Equip aircraft with data link equipment supporting the identified services	From: -	By: 05/02/2020
Action by:	Airspace Users		
Description & purpose:	Operators shall ensure that: <ul style="list-style-type: none"> - Their aircraft operating IFR/GAT flights within the applicable airspace above FL285 have the capability to operate the DLIC, ACM, ACL and AMC services [Article 1.(2).2 of COMMISSION IMPLEMENTING REGULATION 2015/310] - Aircraft air-ground communication systems and their constituents support the CM and CPDLC air-ground applications [Regulation (EC) No 29/2009, Article 6(1)]; - Aircraft air-ground communication systems and their constituents apply end-to-end communications for data exchanges of the CM and CPDLC air-ground applications in compliance with Regulation (EC) No 29/2009, Article 6(2); - Aircraft air-ground communication systems and their constituents apply air-ground communications for data exchanges of the CM and CPDLC air-ground applications in compliance with Regulation (EC) No 29/2009, Article 6(3), allowing either ATN/VDL-2 or an alternative communication technology. 		
Derogations:	Not applicable to: <ul style="list-style-type: none"> - Aircraft with an individual certificate of airworthiness first issued before 01.01.14 and fitted with FANS-1/A data link equipment certified against the requirements of EUROCAE ED-100 or ED-100A [Article 1.(2).3.a of COMMISSION IMPLEMENTING REGULATION 2015/310]; - Aircraft with an individual certificate of airworthiness first issued before 31.12.2003 which will cease operation in the applicable airspace by 31.12.2022 [Article 1.(2).3.b of COMMISSION IMPLEMENTING REGULATION 2015/310]; - State aircraft [Article 1.(2).3.c of COMMISSION IMPLEMENTING REGULATION 2015/310]; - Aircraft being flown for testing, delivery or for maintenance purpose or with data link constituents temporarily inoperative under conditions specified in the applicable minimum equipment list [Article 1.(2).3.d of COMMISSION IMPLEMENTING REGULATION 2015/310]; - Specific aircraft types for which exemptions are justified and granted according to the procedure in Article 5(3) of Regulation (EC) No 549/2004 [Article 14]. 		
Supporting material(s):	EUROCONTROL - SPEC-0116 - EUROCONTROL Specification on Data Link Services - 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services		
ATM Master Plan relationship:	[A/C-31]-Data link exchange compliant with Link 2000+		
Finalisation criteria:	1 - Airworthiness certificate with evidence of compliance with the certification specification has been granted by EASA.		

ITY-AGDL-USE02	Specify relevant operational procedures	From: -	By: 05/02/2020
Action by:	Airspace Users		
Description & purpose:	Specify and apply common standardised procedures consistent with relevant ICAO provisions for CPDLC establishment, operation and termination, and for the filing of flight plans regarding information pertaining to data link capability, in compliance with Regulation (EC) No 29/2009, Article 4.		
Supporting material(s):	EUROCONTROL - SPEC-0116 - EUROCONTROL Specification on Data Link Services - 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services		
Finalisation criteria:	1 - Operators have updated flight manuals with relevant information for the use of data link equipment and for CPDLC operations.		

ITY-AGDL-USE03	Arrange air-ground ATS data link service provision	From: -	By: 05/02/2020
Action by:	Airspace Users		
Description & purpose:	Make appropriate arrangements (with a CSP) to ensure that data exchanges can be established between their aircraft and all ATS units which may control the flights they operate in the applicable airspace, with due regard to possible coverage limitations inherent in the communication technology used [Regulation (EC) No 29/2009, Article 6(4)].		
Finalisation criteria:	1 - Operators have made appropriate arrangements with Communication Service Providers serving all relevant ATS units.		

ITY-AGDL-USE04	Organise personnel awareness and training	From: -	By: 05/02/2020
Action by:	Airspace Users		
Description & purpose:	Ensure that the personnel operating data link equipment are made duly aware of Regulation (EC) No 29/2009, and that they are adequately trained for their job functions, and that instructions for using data link equipment are available in the cockpit [Regulation (EC) No 29/2009, Article 13(6)].		
Finalisation criteria:	1 - Operators have training package added to training courses. 2 - Operators have training plans. 3 - Operators have Flight Manual with relevant information for the use of data link equipment available in the cockpit.		

SES		Active					EU+	
ITY-AGVCS2		8,33 kHz Air-Ground Voice Channel Spacing below FL195						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This SES-type objective is derived from Implementing Regulation (EU) No 1079/2012 of 16 November 2012, amended by Commission Implementing Regulation (EU) No 657/2013 of 10 July 2013, laying down requirements for voice channels spacing for the single European sky.

The Regulation applies to:

- all radios operating in the 117,975-137 MHz band ('the VHF band') allocated to the aeronautical mobile route service, including systems, their constituents and associated procedures;
- all flights operating as general air traffic, within the airspace of the ICAO EUR region where States are responsible for the provision of air traffic services in accordance with Regulation (EC) No 550/2004.

The conversion requirements of the Regulation do NOT apply to frequency assignments:

(a) that will remain in 25 kHz channel spacing on the following frequencies:

- the emergency frequency (121,5 MHz);
- the auxiliary frequency for search and rescue operations (123,1 MHz);
- the VHF digital link (VDL) frequencies (136,725 MHz, 136,775 MHz, 136,825 MHz, 136,875 MHz, 136,925 MHz and 136,975 MHz);
- the aircraft communications addressing and reporting system (ACARS) frequencies (131,525 MHz, 131,725 MHz and 131,825 MHz);

(b) where offset carrier operation within a 25 kHz channel spacing is utilised.

According to Article 14 of Regulation (EU) No 1079/2012, for cases having limited impact on the network, States may take local measures granting exemptions from compliance with:

- Article 4(5) on the obligation for all radios to have 8,33 kHz channel spacing capability by 31 December 2017 at the latest (except ground radios operated by air navigation service providers);
- Article 5(4) on the obligation for aircraft to be equipped with an 8,33 kHz-capable radio from 1 January 2018 to operate in airspace where carriage of radio is required;
- and 6(10) on the obligation to convert all frequency assignments to 8,33 kHz channel spacing by 31 December 2018 at the latest (except frequency assignments that stay in 25 kHz as a result of a safety requirement, or 25 kHz frequency assignments used to accommodate State aircraft).

However, the State shall provide the Commission with detailed information justifying the exemption at the latest one year before the dates identified in the relevant articles. Within six months of receiving the information and after consultation with the Network Manager, the Commission may review the exemption if the impact on the network is not limited.

The terms used in this objective are defined in Article 2 of Regulation (EC) No 549/2004 and Article 2 of Regulation (EU) No 1079/2012.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All EU+ States except: Georgia, Maastricht UAC, Moldova		
Timescales:	From:	By:	Applicable to:
Entry into force	07/12/2012		Applicability Area
New and upgraded radio equipment	17/11/2013		Applicability Area
New or upgraded radios on State aircraft	01/01/2014		Applicability Area
Interim target for freq. conversions		31/12/2014	Applicability Area
All radio equipment		31/12/2017	Applicability Area
All frequencies converted		31/12/2018	Applicability Area
State aircraft equipped, except those notified to EC		31/12/2018	Applicability Area
State aircraft equipped, except those exempted [Art 9(11)]		31/12/2020	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	CTE-C01a						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) No 1079/2012 of 16 November 2012 laying down requirements for voice channels spacing.
Regulation (EC) No 552/2004 of 10 March 2004 - the interoperability Regulation

Essential Operational Changes

CNS Infrastructure and Services

ICAO GANP – ASBUs

- none -

Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ITY-AGVCS2-REG01	Ensure radios have 8,33 kHz channel spacing capability		31/12/2017
ITY-AGVCS2-REG02	Ensure the achievement of the interim target for 8,33 kHz frequency conversions	FINALISED	
ITY-AGVCS2-REG03	Ensure compliance with the requirements on 8,33 kHz frequency conversions		31/12/2018
ITY-AGVCS2-ASP01	Ensure conformity of voice communications systems and associated procedures		31/12/2018
ITY-AGVCS2-ASP02	Convert 25 kHz frequencies to 8,33 kHz to achieve the interim target	FINALISED	
ITY-AGVCS2-ASP03	Convert all 25 kHz frequencies to 8,33 kHz		31/12/2018
ITY-AGVCS2-ASP04	Develop safety assessment		31/12/2018
ITY-AGVCS2-ASP05	Organise personnel training and awareness		31/12/2018
ITY-AGVCS2-MIL01	Equip State aircraft with radio equipment with 8,33 kHz channel spacing capability		31/12/2020
ITY-AGVCS2-MIL02	Organise personnel training and awareness of military aircrew		31/12/2020
ITY-AGVCS2-APO01	Convert all 25 kHz frequencies to 8,33 kHz		31/12/2018
ITY-AGVCS2-APO02	Accommodate non-equipped vehicles		31/12/2017
ITY-AGVCS2-APO03	Organise personnel training and awareness		31/12/2018
ITY-AGVCS2-USE01	Equip aircraft with radio equipment with 8,33 kHz channel spacing capability		31/12/2017
ITY-AGVCS2-USE02	Organise personnel training and awareness		31/12/2017
ITY-AGVCS2-NM01	Ensure the centralised flight planning processing and distribution service complies with the Regulation	FINALISED	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195
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Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	Optimisation of the use of the bandwidth, which is a prerequisite to a number of crucial operational improvements that will deliver benefits such as reduced delays and increased capacity. Such benefits will be postponed or even impossible if the additional frequencies required are not readily available.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ITY-AGVCS2-REG01	Ensure radios have 8,33 kHz channel spacing capability	From: -	By: 31/12/2017
Action by:	State Authorities		
Description & purpose:	<p>Take the necessary measures to ensure compliance of ANSPs, operators and other users of radios with the interoperability and performance requirements as specified in Article 4 of Regulation (EU) No 1079/2012. In particular</p> <p>i) From entry into force of the Regulation, ensure that all radios having the 8,33 kHz channel spacing capability:</p> <ul style="list-style-type: none"> - Are able to tune to 25 kHz spaced channels [Art. 4(6)]; - The performance of these radios and the transmitter/receiver ground constituent complies with the ICAO standards referred to in the supporting material of this SLoA [Art. 4(7) & 4(8)]. <p>ii) From 17 November 2013:</p> <ul style="list-style-type: none"> - all radio equipment put into service or subject to radio upgrades by ANSPs, operators and other users or owners of radios includes the 8,33 kHz channel spacing capability [Art. 4(2) & 4(4)]; - aircraft for which the individual certificates of airworthiness or individual flight permits are first issued in the States included in the applicability area of this objective from 17 November 2013 and have a radio equipage requirement are fitted with radios having the 8,33 kHz channel spacing capability [Art. 4(3)]. <p>iii) By 31 December 2017 at the latest all radios have the 8,33 kHz channel spacing capability with the exception of ground radios operated by air navigation service providers [Art. 4(5)].</p>		
	<p>Note : Note that Regulation (EU) No 1079/2012 applies to 'all radios operating in the VHF band allocated to the aeronautical mobile route service' which goes beyond ATM and might affect stakeholders that are not part of the ESSIP/LSSIP process, however this objective is limited to ATM in line with the scope of ESSIP/LSSIP.</p>		
Supporting material(s):	<p>ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/</p> <p>ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 15 Url : https://store.icao.int/</p> <p>EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook</p>		
Finalisation criteria:	<p>1 - Where applicable, the State has published the additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012.</p> <p>2 - From 17 November 2013: Measures have been taken to ensure that all radio equipment put into service or subject to radio upgrades by ANSPs, operators and other users or owners of radios includes the 8,33 kHz channel spacing capability.</p> <p>3 - From 17 November 2013: Measures have been taken to ensure that aircraft for which the individual certificates of airworthiness or individual flight permits are first issued from 17 November 2013 and have a radio equipage requirement are fitted with radios having the 8,33 kHz channel spacing capability.</p> <p>4 - By 31 December 2017: The NSA has evidence that all radios in the State have 8,33 kHz channel spacing capability except where derogations apply and/or exemptions have been granted.</p>		

ITY-AGVCS2-REG03	Ensure compliance with the requirements on 8,33 kHz frequency conversions	From: -	By: 31/12/2018
Action by:	State Authorities		
Description & purpose:	<p>Ensure that, by 31 December 2018 at the latest, all frequency assignments are converted to 8,33 kHz [Art 6(10)]. Where the State decides not to convert a 25 kHz frequency assignment as a result of a safety requirement (see Derogations below) this shall be subject to a safety assessment.</p>		
Derogations:	<p>The conversion requirements to 8,33 kHz channel spacing do not apply to frequency assignments:</p> <ul style="list-style-type: none"> a) that are outside the scope of the Regulation [Art 2(4)]; b) that stay in 25 kHz as a result of a safety requirement [Art. 6(10)]; c) 25 kHz frequency assignments used to accommodate State aircraft [Art. 6(10)]. <p>States may grant additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012 (see Objective "Subject Matter and Scope").</p>		

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195		
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Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook
Finalisation criteria:	1 - All applicable frequencies converted to 8.33 kHz are published in the national AIP.

ITY-AGVCS2-ASP01	Ensure conformity of voice communications systems and associated procedures	From: -	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Ensure that voice communication systems and associated communication procedures comply with the following articles of Regulation (EU) No 1079/2012: i) From entry into force: - Articles 4(6), 4(7) and 4(8) on interoperability and performance requirements; - Article 7(1) on operational coverage; - Article 8(1) on the identification of the transmitting channel; - Article 8(2) on air-ground voice communication procedures; - Article 8(3) on the accommodation of non-equipped aircraft; - Article 12(1) and 12(2) on the verification of systems. ii) From 17 November 2013: - Articles 4(2) and 4(4) on the 8,33 kHz channel spacing capability of new radio equipment or equipment subject to radio upgrades; iii) By 31 December 2017: - Article 4(5) on the 8,33 kHz channel spacing capability of all radios.		
Supporting material(s):	ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/ ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 15 Url : https://store.icao.int/ EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook		
Finalisation criteria:	1 - Voice communication systems have been upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Procedures have been updated (including e.g. LoAs between centres). 4 - Upgraded communication systems have been put into service.		

ITY-AGVCS2-ASP03	Convert all 25 kHz frequencies to 8,33 kHz	From: -	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Ensure that, by 31 December 2018 at the latest, all 25 kHz frequencies are converted 8,33 kHz [Art. 6(10)].		
Derogations:	The conversion requirements to 8,33 kHz channel spacing do not apply to frequency assignments: a) that are outside the scope of the Regulation [Art 2(4)]; b) that stay in 25 kHz as a result of a safety requirement [Art. 6(10)]; c) 25 kHz frequency assignments used to accommodate State aircraft [Art. 6(10)]. States may grant additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012 (see Objective "Subject Matter and Scope").		
Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook		
ATM Master Plan relationship:	[CTE-C01a]-Existing Voice radio (VHF 25/8.33KHz)		
Finalisation criteria:	1 - All applicable frequencies converted to 8.33 kHz are published in the national AIP.		

ITY-AGVCS2-ASP04	Develop safety assessment	From: -	By: 31/12/2018
Action by:	ANS Providers		
Description & purpose:	Develop a safety assessment of any changes to existing systems or introduction of new systems referred to in Article 2(1) of Regulation (EU) No 1079/2012 [Art 10]. The tasks to be performed are as follows: - notify the NSA of planned changes; - conduct hazard identification, risk assessment and mitigation; - develop safety assessment; - deliver safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. The assessment shall be based in full validated/recognised method and shall take into consideration, as a minimum, the requirements of Annex III to the Regulation.		
Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195		
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Finalisation criteria:	1 - Safety assessment report including safety arguments for the changes has been submitted to the NSA and notification of acceptance was received.		
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ITY-AGVCS2-ASP05	Organise personnel training and awareness	From:	By:
		-	31/12/2018
Action by:	ANS Providers		
Description & purpose:	Ensure that: - personnel are made duly aware of the requirements of the Regulation and adequately trained [Art 13.(1)] - operations manuals, working methods and operating procedures comply with Article 13(3) of the Regulation.		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed. 2 - All concerned personnel have been trained.		

ITY-AGVCS2-MIL01	Equip State aircraft with radio equipment with 8,33 kHz channel spacing capability	From:	By:
		-	31/12/2020
Action by:	Military Authorities		
Description & purpose:	Ensure that aircraft are equipped with 8,33 kHz channel spacing capability in compliance with the following articles of Regulation (EU) No 1079/2012: i) From entry into force of the Regulation, ensure that all radios having the 8,33 kHz channel spacing capability comply with: - Articles 4(6), 4(7) and 4(8) on interoperability and performance requirements; - Articles 8(4) and 8(5) on flight plan requirements, where applicable; - Article 8(6) on the notification to the IFPS, where applicable. ii) From 1 January 2014: - ensure all new State aircraft entering into service are equipped with radios having the 8,33 kHz channel spacing capability [Art. 9.(6)] - ensure that whenever the radios installed on-board State aircraft are subject to radio upgrades, the new radios have the 8,33 kHz channel spacing capability [Art. 9.(7)]. iii) By 30 June 2018: - communicate to the Commission the list of State aircraft that cannot be equipped with 8,33 kHz radios due to compelling technical or budgetary constraints or procurement constraints [Art. 9(9)]. iv) By 31 December 2018: - ensure all State aircraft, except those communicated to the Commission as per the previous bullet, are equipped with radios having the 8,33 kHz channel spacing capability [Art. 9(8)]. v) By 31 December 2020: - ensure the State aircraft not equipped by 31 December 2018 due to procurement constraints (as communicated to the Commission by 30 June 2018) are equipped with radios having the 8,33 kHz channel spacing capability [Art. 9(10)].		
Derogations:	The obligation does not apply to State aircraft that will be withdrawn from operational service by 31 December 2025 [Art 9(11)]. The State can grant additional exemptions to State aircraft that cannot be equipped with radios having the 8,33 kHz channel spacing capability due to compelling technical or budgetary constraints.		
Supporting material(s):	EUROCONTROL - GUID-174 - EUROCONTROL Guidelines on 8.33kHz Channel Spacing for Military Operators - 2.0 / 07/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-833khz-channel-spacing-military-operators ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/ ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 15 Url : https://store.icao.int/		
Finalisation criteria:	1 - List of State aircraft that cannot be equipped with 8,33 kHz radios by 31 December 2018 has been communicated to the Commission. 2 - State aircraft have been equipped.		

ITY-AGVCS2-MIL02	Organise personnel training and awareness of military aircrew	From:	By:
		-	31/12/2020
Action by:	Military Authorities		
Description & purpose:	Military Authorities shall ensure that the personnel operating radio equipment are made duly aware of Regulation (EU) No 1079/2012 that they are adequately trained to use this equipment and that instructions are available in the cockpit where feasible.		
Supporting material(s):	EUROCONTROL - GUID-174 - EUROCONTROL Guidelines on 8.33kHz Channel Spacing for Military Operators - 2.0 / 07/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-833khz-channel-spacing-military-operators		
Finalisation criteria:	1 - Training manuals have been updated, as required. 2 - All personnel operating radio equipment have been trained.		

ITY-AGVCS2-APO01	Convert all 25 kHz frequencies to 8,33 kHz	From:	By:
		-	31/12/2018
Action by:	Airport Operators		

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195
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Description & purpose:	Ensure that, by 31 December 2018 at the latest, all 25 kHz frequencies are converted 8,33 kHz [Art. 6(10)].
Derogations:	The conversion requirements to 8,33 kHz channel spacing do not apply to frequency assignments: <ul style="list-style-type: none"> a) that are outside the scope of the Regulation [Art 2(4)]; b) that stay in 25 kHz as a result of a safety requirement [Art. 6(10)]; c) 25 kHz frequency assignments used to accommodate State aircraft [Art. 6(10)]. States may grant additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012 (see Objective "Subject Matter and Scope").
Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook
ATM Master Plan relationship:	[CTE-C01a]-Existing Voice radio (VHF 25/8.33KHz)
Finalisation criteria:	1 - All applicable frequencies converted to 8.33 kHz are published in the national AIP.

ITY-AGVCS2-APO02	Accommodate non-equipped vehicles	From:	By:
		-	31/12/2017
Action by:	Airport Operators		
Description & purpose:	Ensure that procedures for handling non-8,33 kHz equipped vehicles through airport areas using 8,33 kHz channel spacing are published and applied as appropriate [Annex III.8].		
Finalisation criteria:	1 - Procedures for handling non-8,33 kHz equipped vehicles through airport areas using 8,33 kHz channel spacing have been published and are applied as appropriate.		

ITY-AGVCS2-APO03	Organise personnel training and awareness	From:	By:
		-	31/12/2018
Action by:	Airport Operators		
Description & purpose:	Ensure that the personnel operating radio equipment are made duly aware of this Regulation, that they are adequately trained for their job functions [Art 13(1)].		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed. 2 - All personnel operating radio equipment have been trained.		

ITY-AGVCS2-USE01	Equip aircraft with radio equipment with 8,33 kHz channel spacing capability	From:	By:
		-	31/12/2017
Action by:	Airspace Users		
Description & purpose:	Ensure that aircraft are equipped with 8,33 kHz channel spacing capability in compliance with the following articles of Regulation (EU) No 1079/2012: <ul style="list-style-type: none"> i) From entry into force: <ul style="list-style-type: none"> - Articles 4(6), 4(7) and 4(8) on interoperability and performance requirements; - Articles 8(4) and 8(5) on flight plan requirements; - Article 8(6) on the notification to the IFPS. ii) From 17 November 2013: <ul style="list-style-type: none"> - Articles 4(2) and 4(4) on the 8,33 kHz channel spacing capability of new radio equipment or equipment subject to radio upgrades; iii) By 31 December 2017: <ul style="list-style-type: none"> - Article 4(5) on the 8,33 kHz channel spacing capability of all radios. 		
Supporting material(s):	ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/ ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 15 Url : https://store.icao.int/		
Finalisation criteria:	1 - Operators are able to demonstrate the conformity of airborne equipment.		

ITY-AGVCS2-USE02	Organise personnel training and awareness	From:	By:
		-	31/12/2017
Action by:	Airspace Users		
Description & purpose:	Operators shall ensure that the personnel operating radio equipment are made duly aware of Regulation (EU) No 1079/2012, that they are adequately trained to use this equipment and that instructions are available in the cockpit where feasible.		
Finalisation criteria:	1 - Training manuals have been updated, as required. 2 - All personnel operating radio equipment have been trained.		

SES		Active					ECAC+	
ITY-FMTP		Common Flight Message Transfer Protocol (FMTP)						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This SES-related implementation objective is derived from Regulation (EC) No 633/2007 of 7 June 2007 laying down requirements for the application of a flight message transfer protocol (FMTP) for information exchanges between flight data processing systems for the purpose of notification, coordination and transfer of flights between air traffic control units and for the purposes of civil-military coordination, in accordance with Regulation (EC) No 1032/2006 [Ref. Article 1(1)].

Regulation (EC) No 633/2007 applies to [Ref. Article 1(2)]:

- Communication systems supporting the coordination procedures between air traffic control units using a peer-to-peer communication mechanism and providing services to general air traffic;
- Communication systems supporting the coordination procedures between air traffic services units and controlling military units, using a peer-to-peer communication mechanism and providing services to general air traffic.

The terms used in this objective are defined in Article 2 of Regulation (EC) No 549/2004, complemented by Article 2 of Regulation (EC) No 633/2007.

This implementation objective has been amended in order to introduce the new optional conditional transitional arrangements defined in Regulation (EU) No 283/2011 of 22 March 2011.

This SES-related implementation objective does not replace the EC legislation. It aims at facilitating the monitoring and reporting of the implementation of a common flight message transfer protocol in European ATM in line with the EC regulations and through the SES implementation monitoring and reporting mechanism.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States		
Timescales:	From:	By:	Applicable to:
Entry into force of regulation	28/06/2007		Applicability Area
All EATMN systems put into service after 01/01/09	01/01/2009		Applicability Area
All EATMN systems in operation by 20/04/11		20/04/2011	Applicability Area
Transitional arrangements		31/12/2012	Applicability Area
Transitional arrangements when bilaterally agreed between ANSPs		31/12/2014	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	CTE-C06						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EC) No 633/2007 of 07 June 2007;
 Regulation (EC) No 283/2011 of 22 March 2011 amending Regulation No 633/2007;
 Commission Communication (OJ No 2007/C 188/03) concerning the implementation of Article 4 of Regulation (EC) No 552/2004 referring to EUROCONTROL Spec-0100 Edition No 2.0 as Community Specification.

Essential Operational Changes

Fully Dynamic and Optimised Airspace

ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)
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ICAO GANP – ASBUs

- none -	
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Deployment Programme

- none -	
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European Plan for Aviation Safety

- none -	
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Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ITY-FMTP-REG02	Ensure that the verification of systems has been conducted	DELETED	
ITY-FMTP-REG03	Conduct safety oversight of the changes	DELETED	
ITY-FMTP-ASP01	Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination and transfer of the flights between ATC units		20/04/2011 31/12/2012 31/12/2014
ITY-FMTP-ASP02	Develop safety assessment for the changes		20/04/2011 31/12/2012 31/12/2014
ITY-FMTP-ASP03	Train technical staff		20/04/2011 31/12/2012 31/12/2014
ITY-FMTP-MIL01	Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination, transfer of the flights and civil-military coordination between ATS units and controlling military units		20/04/2011 31/12/2012 31/12/2014

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	More cost efficient as X.25 maintenance costs are increasing while TCP/IP costs are lower.
Environment:	-
Security:	-

Detailed SLoA Descriptions

ITY-FMTP-ASP01	Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination and transfer of the flights between ATC units	From:	By:
		-	20/04/2011 31/12/2012 31/12/2014
Action by:	ANS Providers		

ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)
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Description & purpose:	<p>Ensure that the communication systems supporting the coordination procedures between ATC units using a peer-to-peer communication mechanism and providing services to general air traffic shall apply the flight message transfer protocol (FMTP).</p> <p>The tasks to be performed are as follows:</p> <ul style="list-style-type: none"> - Define requirements based on relevant standards/regulations; - Upgrade communication systems to comply with defined requirements; - Verify compliance with Interoperability Regulation(s); - Integrate upgraded communication systems into the EATM Network; - Put into service upgraded communication systems. <p>The application of FMTP shall be in accordance with the interoperability requirements specified in Annex I of Regulation (EC) No 633/2007.</p> <p>The verification of the systems shall be done as defined in Annex II and IV of Regulation (EC) No 633/2007.</p>
Supporting material(s):	<p>EUROCONTROL - Guidelines for Implementation Support (EGIS) Part 5 Communication & Navigation Specifications Chapter 13 Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 12/2008</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-implementation-support-egis-flight-message-transfer-protocol</p> <p>EUROCONTROL - EUROCONTROL Inter Centre Test Tool (ETIC) - Version 3.2.2. / 08/2012</p> <p>EUROCONTROL - SPEC-0100 - EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 06/2007</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-specification-interoperability-and-performance-requirements-flight-message</p>
ATM Master Plan relationship:	[CTE-C06]-Ground ATM Data communication Network
Finalisation criteria:	<ol style="list-style-type: none"> 1 - Communications systems have been upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded communication systems have been put into service. 4 - Note: For states where Regulation (EC) No 552/2004 on the interoperability of the European Air Traffic Management network does not apply, ANSPs should apply compliance procedures as defined by their competent National Authority.

ITY-FMTP-ASP02	Develop safety assessment for the changes	From:	By:
		-	20/04/2011 31/12/2012 31/12/2014
Action by:	ANS Providers		
Description & purpose:	<p>Notify the NSA of planned changes and develop safety assessments of the changes for the upgrades of communication systems which support information exchange using a peer-to-peer communication mechanism via FMTP between FDPS(s).</p> <p>The tasks to be performed are as follows:</p> <ul style="list-style-type: none"> - Notify the NSA of planned changes; - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. <p>This safety assessment shall be based on fully validated/recognised method.</p>		

ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)
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Supporting material(s):	<p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017</p> <p>Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p> <p>EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006</p> <p>Url : https://www.eurocontrol.int/tool/safety-assessment-methodology</p> <p>EUROCONTROL - Guidelines for Implementation Support (EGIS) Part 5 Communication & Navigation Specifications Chapter 13 Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 12/2008</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-implementation-support-egis-flight-message-transfer-protocol</p> <p>EUROCONTROL - SPEC-0100 - EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 06/2007</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-specification-interoperability-and-performance-requirements-flight-message</p> <p>EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001</p> <p>Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm</p>
Finalisation criteria:	1 - Safety assessment report including safety arguments for the changes has been submitted to the NSA.

ITY-FMTP-ASP03	Train technical staff	From:	By:
		-	20/04/2011 31/12/2012 31/12/2014
Action by:	ANS Providers		
Description & purpose:	<p>Train technical staff to supervise and maintain communication systems which support information exchange via FMTP between FDPS(s).</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans. 		
Supporting material(s):	<p>EUROCONTROL - Guidelines for Implementation Support (EGIS) Part 5 Communication & Navigation Specifications Chapter 13 Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 12/2008</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-implementation-support-egis-flight-message-transfer-protocol</p> <p>EUROCONTROL - SPEC-0100 - EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 06/2007</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-specification-interoperability-and-performance-requirements-flight-message</p>		
Finalisation criteria:	<p>1 - The training plans have been updated and a training package has been developed by the ANSP.</p> <p>2 - All concerned personnel has been trained.</p>		

ITY-FMTP-MIL01	Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination, transfer of the flights and civil-military coordination between ATS units and controlling military units	From:	By:
		-	20/04/2011 31/12/2012 31/12/2014
Action by:	ANS Providers		

ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)
Description & purpose:	<p>Ensure that the communication systems supporting the coordination procedures between ATC units and controlling military units using a peer-to-peer communication mechanism shall apply the flight message transfer protocol (FMTP).</p> <p>The application of FMTP shall be in accordance with the interoperability requirements specified in Annex I of Regulation (EC) No 633/2007.</p> <p>The verification of the systems shall be done as defined in Annex II and IV of Regulation (EC) No 633/2007.</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Define requirements based on relevant standards/regulations; - Upgrade communication systems to comply with defined requirements; - Verify compliance with Interoperability Regulation(s); - Integrate upgraded communication systems into the EATM Network; - Put into service upgraded communication systems.
Finalisation criteria:	<ol style="list-style-type: none"> 1 - Communications systems upgraded. 2 - Demonstration of compliance with the essential requirements as laid out in Regulation (EC) No 552/2004 and relevant implementing rules delivered to the competent National Authority. 3 - Upgraded communication systems put into service.

SES		Active					EU+	
ITY-SPI		Surveillance Performance and Interoperability						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

This SES-related implementation objective is derived from Regulation (EU) No 1207/2011 (as amended), laying down requirements on the systems contributing to the provision of surveillance data, their constituents and associated procedures in order to ensure the harmonisation of performance, the interoperability and the efficiency of these systems within the European air traffic management network (EATMN) and for the purpose of civil- military coordination (SPI-IR).

Regulation (EU) No 1207/2011 (as amended) applies to the surveillance chain (as defined in Article 3(6) of the Regulation) constituted of:

- (a) airborne surveillance systems, their constituents and associated procedures;
- (b) ground-based surveillance systems, their constituents and associated procedures;
- (c) surveillance data processing systems, their constituents and associated procedures;
- (d) ground-to-ground communications systems used for distribution of surveillance data, their constituents and associated procedures.

Regulation (EU) No 1207/2011 (as amended) applies to all flights operating as general air traffic in accordance with instrument flight rules within the airspace provided for in Article 1(3) of Regulation (EC) No 551/2004 with the exception of Articles 7(3) and 7(4) which apply to all flights operating as general air traffic. This Regulation applies to air traffic service providers which provide air traffic control services based on surveillance data, and to communication, navigation or surveillance service providers which operate systems laid down in paragraph 1 of the Regulation itself.

Regulation (EU) No 1207/2011 (as amended) should be read in conjunction with the existing locally published requirements that European States already have in force on the subject matter.

The timescales identified in the objective as well as the possible exemptions reflect the amendments published through the Commission Implementing Regulation (EU) No 2020/587 published in April 2020.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Georgia, Turkey		
Timescales:	From:	By:	Applicable to:
Entry into force of regulation	13/12/2011		Applicability Area
ATS unit operational capability		12/12/2013	Applicability Area
EHS and ADS-B Out in transport-type State aircraft		07/12/2020	Applicability Area
ELS in transport-type State aircraft		07/12/2020	Applicability Area
Ensure training of MIL personnel		07/12/2020	Applicability Area
Retrofit aircraft capability		07/12/2020	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	GSURV-0101						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EC) No 1207/2011 of 22 November 2011 for the performance and the interoperability of surveillance (SPI-IR);

Essential Operational Changes

ICAO GANP ? ASBUs

ITY-SPI	Surveillance Performance and Interoperability
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ASUR-B0/1	Automatic Dependent Surveillance ? Broadcast (ADS-B)
ASUR-B0/3	Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS)

Deployment Programme

- none -	
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European Plan for Aviation Safety

RMT.0519	Maintaining CS-ACNS
RMT.0679	Revision of surveillance performance and interoperability (SPI)

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
ITY-SPI-REG01	Conduct safety oversight for the existing surveillance chain		05/02/2015
ITY-SPI-ASP01	Ensure interoperability of surveillance data		12/12/2013
ITY-SPI-ASP02	Conduct Safety Assessment for the existing surveillance chain		05/02/2015
ITY-SPI-ASP03	Conduct Safety Assessment for changes introduced to the surveillance infrastructure		12/12/2013
ITY-SPI-ASP04	Ensure the training of personnel		12/12/2013
ITY-SPI-MIL01	Carriage and operation of Mode S Elementary Surveillance avionics		07/12/2020
ITY-SPI-MIL02	Carriage and operation of Mode S Enhanced Surveillance and ADS-B Out avionics		07/12/2020
ITY-SPI-MIL03	Ensure the training of personnel		07/12/2020
ITY-SPI-USE01	Carriage and operation of Mode S Elementary Surveillance avionics by aircraft with an individual certificate of airworthiness first issued on or after 8 January 2015	DELETED	
ITY-SPI-USE02	Carriage and operation of ADS-B Out avionics by aircraft with an individual certificate of airworthiness first issued on or after 8 June 2016	DELETED	
ITY-SPI-USE03	Carriage and operation of Mode S Enhanced Surveillance avionics by aircraft with an individual certificate of airworthiness first issued on or after 8 June 2016	DELETED	
ITY-SPI-USE04	Carriage and operation of Mode S Elementary Surveillance avionics		07/12/2020
ITY-SPI-USE05	Carriage and operation of ADS-B Out avionics		07/12/2020
ITY-SPI-USE06	Carriage and operation of Mode S Enhanced Surveillance avionics		07/12/2020
ITY-SPI-USE07	Ensure the training of personnel		07/12/2020

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved safety through the deployment of surveillance solutions in non-radar areas.
Capacity:	Capacity increase through the deployment of surveillance solutions in areas where currently procedural separation is applied.
Operational Efficiency:	The application of surveillance based separation instead of procedural separation will allow the airspace users to fly more efficient trajectories.
Cost Efficiency:	-
Environment:	-
Security:	-

ITY-SPI	Surveillance Performance and Interoperability
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Detailed SLoA Descriptions

ITY-SPI-REG01	Conduct safety oversight for the existing surveillance chain	From: -	By: 05/02/2015
Action by:	National Supervisory Authorities (NSAs)		
Description & purpose:	Verify that the necessary safety assessments for the existing surveillance chain (systems identified in Art. 2.1 (b), (c) and (d) of Regulation (EU) No 1207/2011 (SPI-IR)), as required by Art 9.1 of the Regulation are conducted by the parties concerned and review, as appropriate, the safety assessment report(s) before their acceptance.		
	Note : 'existing' refers to systems in place at the date of entry into force of Regulation (EU) 1207/2011		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 10/2011 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN		
Finalisation criteria:	1 - Safety assessment to existing surveillance chain (see SLoA description) has been conducted by the ANSP and delivered to the NSA. The NSA has reviewed the safety assessment as appropriate and the outcome of the assessment has been communicated to the ANSP.		

ITY-SPI-ASP01	Ensure interoperability of surveillance data	From: -	By: 12/12/2013
Action by:	ANS Providers		
Description & purpose:	As required by Article 5(1) of the Regulation (EU) No 1207/2011 (SPI-IR) , air navigation service providers shall ensure interoperability of all surveillance data transferred from their ground-based surveillance systems and their surveillance data processing systems to other navigation service providers are subject to a common protocol.		
	Note :The ASTERIX Standard has been transposed into a EUROCONTROL Specification which may be considered for recognition as Community Specification by the European Commission.		
Supporting material(s):	EUROCONTROL - SPEC 147 - EUROCONTROL Specification for ATM Surveillance System Performance (ESASSP) - Volumes 1 and 2 - 1.1 / 09/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-atm-surveillance-system-performance-esassp EUROCONTROL - SPEC-149 - EUROCONTROL Specification for Surveillance Data Exchange - Part 1 All Purpose Structured EUROCONTROL Surveillance Information Exchange (ASTERIX) - Edition 2.4 / 10/2016 Url : https://www.eurocontrol.int/asterix		
Finalisation criteria:	1 - All surveillance data transferred from their ground-based surveillance systems and their surveillance data processing systems to other navigation service providers: a) are subject to a data format that is agreed between the parties concerned; b) allow identification of the data source and identification of the type of data; c) are time stamped and expressed as coordinated universal time (UTC).		

ITY-SPI-ASP02	Conduct Safety Assessment for the existing surveillance chain	From: -	By: 05/02/2015
Action by:	ANS Providers		
Description & purpose:	Conduct a safety assessment: for all existing ground-based surveillance systems, surveillance data processing systems and ground-to-ground communications systems used for the distribution and processing of surveillance data, as required in Art. 9.1 and Annex VI of SPI-IR.		
	Note : 'existing' refers to systems in place at the date of entry into force of Regulation (EU) 1207/2011		
Derogations:	The SLoA does not apply to ANSP which do not use or do not provide surveillance data.		
Supporting material(s):	EUROCONTROL - SPEC 147 - EUROCONTROL Specification for ATM Surveillance System Performance (ESASSP) - Volumes 1 and 2 - 1.1 / 09/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-atm-surveillance-system-performance-esassp EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		

ITY-SPI	Surveillance Performance and Interoperability
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Finalisation criteria:	1 - Safety assessment to all existing systems (see SLoA description) has been developed and delivered to the NSA.
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ITY-SPI-ASP03	Conduct Safety Assessment for changes introduced to the surveillance infrastructure	From: -	By: 12/12/2013
Action by:	ANS Providers		
Description & purpose:	<p>Conduct a safety assessment of the changes introduced to systems and associated procedures, identified in Art. 2.1 (b), (c) and (d) of SPI-IR in order to achieve compliance with Article 9.2 of the aforementioned regulation.</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. <p>This safety assessment shall be based on fully validated/recognised method.</p>		
Derogations:	The SLoA does not apply to ANSP which do not use or do not provide surveillance data.		
Supporting material(s):	<p>EUROCONTROL - SPEC 147 - EUROCONTROL Specification for ATM Surveillance System Performance (ESASSP) - Volumes 1 and 2 - 1.1 / 09/2015</p> <p>Url : https://www.eurocontrol.int/publication/eurocontrol-specification-atm-surveillance-system-performance-esassp</p> <p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017</p> <p>Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p> <p>EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006</p> <p>Url : https://www.eurocontrol.int/tool/safety-assessment-methodology</p> <p>EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001</p> <p>Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm</p>		
Finalisation criteria:	1 - The safety assessment report including safety arguments for the changes has been delivered to the NSA and a notification of acceptance was received as appropriate.		

ITY-SPI-ASP04	Ensure the training of personnel	From: -	By: 12/12/2013
Action by:	ANS Providers		
Description & purpose:	<p>Ensure the training of their personnel affected by system and procedural changes introduced by compliance to SPI-IR.</p> <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans. 		
Finalisation criteria:	<p>1 - The training plans have been updated and a training package has been developed.</p> <p>2 - All personnel affected by the changes to the surveillance infrastructure have been trained.</p>		

ITY-SPI-MIL01	Carriage and operation of Mode S Elementary Surveillance avionics	From: -	By: 07/12/2020
Action by:	Military Authorities		
Description & purpose:	Equip and certify for operational use of secondary surveillance radar transponders having the Mode S Elementary Surveillance capability, as set out in Part A of Annex II of the SPI-IR, the State aircraft operating as GAT in accordance with IFR rules.		
Derogations:	<p>In line with Art. 8.3 of SPI-IR and communication to the European Commission:</p> <ul style="list-style-type: none"> a) compelling technical reasons; b) State aircraft out of service by 01 January 2024; c) Procurement constraints. 		

ITY-SPI	Surveillance Performance and Interoperability
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Supporting material(s):	<p>EUROCAE - ED-73E - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 05/2011 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/</p>
Finalisation criteria:	1 - Aircraft have been equipped with Mode S Elementary Surveillance equipment and certified for operational use.

ITY-SPI-MIL02	Carriage and operation of Mode S Enhanced Surveillance and ADS-B Out avionics	From: -	By: 07/12/2020
Action by:	Military Authorities		
Description & purpose:	Equip with and certify for operational use of Mode S Enhanced Surveillance and ADS-B Out on 1090 Extended Squitter avionics, as set out in Part B and Part C of Annex II of the SPI-IR the transport-type State aircraft operating as GAT in accordance with IFR rules with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots. This is in addition to the capability set out in Part A of that Annex (Mode S Elementary Surveillance).		
Derogations:	In line with Art. 8.3 of SPI-IR and communication to the European Commission: <ol style="list-style-type: none"> compelling technical reasons; State aircraft out of service by 01 January 2024; Procurement constraints. 		
Supporting material(s):	<p>EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 2 / 04/2019 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-2</p> <p>EUROCAE - ED-126 - Safety, Performance and Interoperability Requirements Document for ADS-B-NRA Application 12/2006 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-102A - Minimum Operational Performance Specification for 1090 MHz Extended Squitter Automatic Dependant Surveillance - Broadcast (ADS-B) & Traffic Information Services - Broadcast (TIS-B) with Corrigendum 1 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-161 - Safety, Performance and Interoperability Requirements Document for ADS-B-RAD Application 09/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-73E - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 05/2011 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/</p>		
Finalisation criteria:	1 - Aircraft have been equipped with Mode S Enhanced Surveillance and ADS-B Out (1090 extended squitter) equipment, and certified for operational use.		

ITY-SPI-MIL03	Ensure the training of personnel	From: -	By: 07/12/2020
Action by:	Military Authorities		
Description & purpose:	Ensure the training of all their personnel affected by changes introduced by compliance to SPI-IR. <p>The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans. 		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed. 2 - All personnel affected by the changes to the surveillance ground infrastructure have been trained.		

ITY-SPI-USE04	Carriage and operation of Mode S Elementary Surveillance avionics	From: -	By: 07/12/2020
Action by:	Airspace Users		
Description & purpose:	Equip with secondary surveillance radar transponders having the Mode S Elementary Surveillance capability, as set out in Part A of Annex II of the SPI-IR the aircraft operating as GAT in accordance with IFR rules.		

ITY-SPI	Surveillance Performance and Interoperability
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Supporting material(s):	EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 2 / 04/2019 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-2 EUROCAE - ED-73E - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 05/2011 Url : https://eshop.eurocae.net/eurocae-documents-and-reports ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/
Finalisation criteria:	1 - Aircraft have been equipped with Mode S Elementary Surveillance equipment certified as appropriate. 2 - Aircraft have obtained airworthiness approval.

ITY-SPI-USE05	Carriage and operation of ADS-B Out avionics	From: -	By: 07/12/2020
Action by:	Airspace Users		
Description & purpose:	Equip with secondary surveillance radar transponders having the ADS-B Out on 1090 Extended Squitter capability, as set out in Part B of Annex II of the SPI-IR, the aircraft with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots, operating as GAT in accordance with IFR rules.		
	Note :subject to the conditions identified in Article 5 paragraph 5 of Regulation 2020/587, the compliance date may be extended to 7/06/2023		
Supporting material(s):	EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 2 / 04/2019 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-2 EUROCAE - ED-126 - Safety, Performance and Interoperability Requirements Document for ADS-B-NRA Application 12/2006 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-102A - Minimum Operational Performance Specification for 1090 MHz Extended Squitter Automatic Dependant Surveillance - Broadcast (ADS-B) & Traffic Information Services - Broadcast (TIS-B) with Corrigendum 1 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-161 - Safety, Performance and Interoperability Requirements Document for ADS-B-RAD Application 09/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-73E - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 05/2011 Url : https://eshop.eurocae.net/eurocae-documents-and-reports ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/		
Finalisation criteria:	1 - Aircraft have been equipped with ADS-B Out on 1090 Extended Squitter equipment and certified as appropriate. 2 - Aircraft have obtained airworthiness approval.		

ITY-SPI-USE06	Carriage and operation of Mode S Enhanced Surveillance avionics	From: -	By: 07/12/2020
Action by:	Airspace Users		
Description & purpose:	Equip with secondary surveillance radar transponders having the Mode S Enhanced Surveillance capability, as set out in Part C of Annex II of the SPI-IR the fixed wing aircraft with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots operating as GAT in accordance with IFR rules.		
	Note :subject to the conditions identified in Article 5 paragraph 5 of Regulation 2020/587, the compliance date may be extended to 7/06/2023		
Derogations:	Aircraft of specific types with a first certificate of airworthiness issued before 7 June 2020 that have a maximum take off mass exceeding 5 700 kg or a maximum cruising true airspeed greater than 250 knots that do not have the complete set of parameters detailed in Part C of Annex II available on a digital bus on-board the aircraft may be exempted by the European Commission from complying with the requirements of point (c) of Article 5(5) of the SPI-IR.		

ITY-SPI	Surveillance Performance and Interoperability
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Supporting material(s):	<p>EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 2 / 04/2019 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-2</p> <p>EUROCAE - ED-73E - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 05/2011 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/</p>
Finalisation criteria:	<p>1 - Aircraft have been equipped with Mode S Enhanced Surveillance equipment certified as appropriate. 2 - Aircraft have obtained airworthiness approval.</p>

ITY-SPI-USE07	Ensure the training of personnel	From: -	By: 07/12/2020
Action by:	Airspace Users		
Description & purpose:	<p>Ensure the training of all their personnel affected by changes introduced by compliance to SPI-IR.</p> <p>The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.</p>		
Finalisation criteria:	<p>1 - The training plans have been updated and a training package has been developed. 2 - All personnel affected by the changes to the surveillance infrastructure have been trained.</p>		

SES		Active					ECAC+	
NAV03.1		RNAV 1 in TMA Operations						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Performance-based navigation distinguishes between RNAV and RNP Specifications, both of which rely on area navigation techniques which allow aircraft to operate on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these. An RNAV 1 specification includes several requirements, one being a requirement for the lateral and longitudinal total system error (TSE) to be within +/- 1NM at least 95% of the flight time.

Individual States, ANSPs, and airports will evaluate the business need for SID routes or STAR routes. Where providers of ATM/ANS have established SID or STAR, they shall implement those routes in accordance with the requirements of RNAV 1 or RNP1 specification, as applicable.

PBN Regulation (EU) 2018/1048 of 18 July 2018, does not impose obligatory establishment of SID or STAR (business decision on having SID or STAR is up to an individual stakeholder). However, the regulation does prescribe obligatory set of specifications to be complied with, where a stakeholder had decided to establish SID or STAR.

NOTE: Where higher performance requirements than RNAV 1 are required in order to maintain air traffic capacity and safety in environments with high traffic density, traffic complexity or terrain features, SIDs or STARs shall be implemented in accordance with the requirements of the RNP 1 specification. See objective NAV 03.2 for details.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES states instrument RWY ends)	All EU SES States except: Maastricht UAC		
Applicability Area 2 (Other ECAC+ states' instrument RWY ends, except those already listed in Applicability Area 1.)	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Israel, Moldova, Morocco, North Macedonia, Serbia, Turkey, Ukraine		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2001		Applicability Area 1 + Applicability Area 2
One SID and STAR per instrument RWY, where established		25/01/2024	Applicability Area 1
All SIDs and STARs per instrument RWY, where established		06/06/2030	Applicability Area 1
Locally determined number of RNAV1 SID/STAR, where established		06/06/2030	Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0601]-Terminal Airspace Organisation Adapted through Use of Best Practice						
	Enablers -	MIL-STD-01	MIL-STD-02	PRO-021			
OI step -	-No OI Link-						
	Enablers -	CTE-N08					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

Essential Operational Changes

ICAO GANP ? ASBUs

APTA-B0/2	PBN SID and STAR procedures (with basic capabilities)
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NAV03.1	RNAV 1 in TMA Operations
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Deployment Programme

- none -

European Plan for Aviation Safety

RMT.0445	Technical requirements and operational procedures for airspace design, including flight procedure design
RMT.0639	Performance-based navigation implementation in the European air traffic management network

Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLOAs)

SloA ref.	Title	From	By
NAV03.1-REG01	Verify the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.1-ASP01	Develop an airspace concept based on RNAV 1 arrival and departure procedures	01/01/2001	06/06/2030
NAV03.1-ASP02	Provide appropriate terrestrial navigation infrastructure to support RNAV 1 operations	01/01/2001	06/06/2030
NAV03.1-ASP03	Train air traffic controllers in RNAV 1 procedures	01/01/2003	06/06/2030
NAV03.1-ASP04	Train procedure designers in RNAV 1 capabilities	FINALISED	
NAV03.1-ASP05	Develop and implement at least one RNAV 1 SID and RNAV 1 STAR per instrument RWY	01/01/2001	25/01/2024 06/06/2030
NAV03.1-ASP06	Publish in AIPs all co-ordinate data in WGS-84 meeting the quality requirements set out in ICAO Annex 15	FINALISED	
NAV03.1-ASP07	Define all RNAV procedures to be for RNAV 1 approved aircraft and designed in accordance with the EUROCONTROL guidelines and ICAO PANS OPS	DELETED	
NAV03.1-ASP08	Adapt ATS automated systems to ensure the availability of information regarding aircraft RNAV equipage for systematic display to relevant control positions	FINALISED	
NAV03.1-ASP09	Implement adaptations to ATS systems to permit the display on flight strips (and extended track labels) radar labels and/or radar position symbols, of aircraft RNAV equipage	DELETED	
NAV03.1-ASP10	Recommend to adapt ATS radar display systems to permit the display, on radar labels and/or radar position symbols, of aircraft RNAV equipage. Such display should be automatic. Manual updates should be possible	DELETED	
NAV03.1-ASP11	Develop a local RNAV 1 safety assessment	01/01/2001	06/06/2030
NAV03.1-ASP12	Establish the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.1-ASP13	Develop and implement all RNAV 1 SID and RNAV 1 STAR per instrument RWY	01/01/2001	06/06/2030
NAV03.1-USE01	Install appropriate RNAV 1 equipment	01/01/2001	31/12/2023
NAV03.1-USE02	Train flight crews in RNAV 1 TMA procedures	01/01/2001	31/12/2023

Description of finalised and deleted SLOAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increased situational awareness and indirect benefit to both ATC and pilot through reduction of workload during RNAV operations.
Capacity:	-
Operational Efficiency:	Reduction in fuel burn through optimised routes and TMA procedures.
Cost Efficiency:	-
Environment:	Emissions and noise nuisance reduced by use of optimal flight procedures and routings.
Security:	-

NAV03.1	RNAV 1 in TMA Operations
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Detailed SLoA Descriptions

NAV03.1-REG01	Verify the transition plan for PBN in ANS provision	From: 03/12/2020	By: 06/06/2030
Action by:	National Supervisory Authorities (NSAs)		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.		
	Note :This SLoA is recommended as the best practice to other ECAC+ States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		

NAV03.1-ASP01	Develop an airspace concept based on RNAV 1 arrival and departure procedures	From: 01/01/2001	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Develop an airspace concept based on RNAV 1 arrival and departure procedures with a view to providing performance benefits.		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>		
ATM Master Plan relationship:	[PRO-021]-ATC Procedures to facilitate the design and utilization of more noise sensitive and efficient SID/STAR routings including CDA and to integrate P-RNAV or RNAV with APV/Baro VNAV capabilities into the TMA route structure		
Finalisation criteria:	1 - An airspace concept based on RNAV 1 arrival and departure procedures has been developed.		

NAV03.1-ASP02	Provide appropriate terrestrial navigation infrastructure to support RNAV 1 operations	From: 01/01/2001	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Implement appropriate DME/DME Navaid Infrastructure to support nominal or non-nominal mode, dependant on the Airspace Concept at NAV03.1-ASP01. Where RNAV 1 procedures are dependent upon sufficient DME transponders being distributed geographically to allow for DME/DME navigation either in nominal or in non-nominal mode (in the absence of onboard GNSS equipment or GNSS failure), this may result in a requirement to install new DME stations and/or the relocation of existing units.		
Supporting material(s):	<p>EUROCONTROL - Distance Measuring Equipment Tracer (DEMETER) Tool - Version 1.0.4 / 01/2012 Url : https://www.eurocontrol.int/online-tool/distance-measuring-equipment-tracer</p> <p>EUROCONTROL - GUID-0114 - Guidelines for P-RNAV Infrastructure Assessment - Edition 1.2 / 04/2008 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-p-rnav-infrastructure-assessment</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>		
ATM Master Plan relationship:	[CTE-N08]-DME Ground Infrastructure optimisation		

NAV03.1	RNAV 1 in TMA Operations
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Finalisation criteria:	1 - Infrastructure has been assessed and modified if required to meet the requirements for RNAV 1 procedures based on DME/DME procedures.
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NAV03.1-ASP03	Train air traffic controllers in RNAV 1 procedures	From:	By:
		01/01/2003	06/06/2030

Action by:	ANS Providers
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Description & purpose:	Train ATCOs in RNAV capabilities and new methods of managing traffic on SID/STARs to ensure safe and expeditious operations. RNAV procedures could reduce the need for radar vectors up to the final approach point (FAP).
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Supporting material(s):	ICAO - Doc 8168-Volume I - Aircraft Operations - Volume I - Flight Procedures - Edition 5 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 4444 - Air Traffic Management - Edition 15 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx
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Finalisation criteria:	1 - The necessary training has been given to controllers responsible for the operation of RNAV 1 terminal procedures.
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NAV03.1-ASP05	Develop and implement at least one RNAV 1 SID and RNAV 1 STAR per instrument RWY	From:	By:
		Applicability Area 1: 01/01/2001	Applicability Area 1: 25/01/2024 Applicability Area 2: 06/06/2030

Action by:	ANS Providers
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Description & purpose:	Design, develop and implement RNAV 1 arrival and departure procedures based on the airspace concept and the transition plan. Publish the procedures in the State AIP. Where SID and STAR are established, at least one RNAV 1 SID and RNAV1 STAR shall be implemented at all instrument runway ends in EU SES states by 25 January 2024.
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Note :Note 1: Other ECAC+ States (i.e. non EU SES States) may chose to implement this SLoA by 06/06/2030.

Supporting material(s):	EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/
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ATM Master Plan relationship:	[PRO-021]-ATC Procedures to facilitate the design and utilization of more noise sensitive and efficient SID/STAR routings including CDA and to integrate P-RNAV or RNAV with APV/Baro VNAV capabilities into the TMA route structure
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Finalisation criteria:	1 - At least one RNAV 1 SID and RNAV 1 STAR have been implemented.
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NAV03.1-ASP11	Develop a local RNAV 1 safety assessment	From:	By:
		01/01/2001	06/06/2030

Action by:	ANS Providers
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Description & purpose:	Develop safety assessment of the changes related to the implementation of RNAV 1 procedures. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.
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NAV03.1	RNAV 1 in TMA Operations
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Supporting material(s):	<p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017</p> <p>Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p> <p>EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006</p> <p>Url : https://www.eurocontrol.int/tool/safety-assessment-methodology</p>
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the NSA as necessary.

NAV03.1-ASP12	Establish the transition plan for PBN in ANS provision	From: 03/12/2020	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	<p>This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p> <p>Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date.</p> <p>The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council.</p> <p>Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate:</p> <p>a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services;</p> <p>b) the Network Manager;</p> <p>c) ANS providers in adjacent airspace blocks.</p> <p>The PBN Transition Plan will have to cover both aspects related to the navigation applications to be implemented, but also the related supporting infrastructure.</p> <p>Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority.</p>		
	<p>Note : This SLoA is recommended as the best practice to other ECAC+ States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018</p> <p>Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011</p> <p>Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013</p> <p>Url : http://store1.icao.int/</p>		
Finalisation criteria:	0 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval		

NAV03.1-ASP13	Develop and implement all RNAV 1 SID and RNAV 1 STAR per instrument RWY	From: 01/01/2001	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	<p>Design, develop and implement RNAV 1 arrival and departure procedures based on the airspace concept and the transition plan. Publish the procedures in the State AIP.</p> <p>Where SID and STAR are established, all SID and STAR shall be RNAV 1 at all instrument runway ends by 6 June 2030.</p>		
	<p>Note : Other ECAC+ States (i.e. non EU SES States) may chose to implement locally determined number of RNAV1 SID/STAR per instrument RWY, where established.</p>		

NAV03.1	RNAV 1 in TMA Operations
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Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>
ATM Master Plan relationship:	[PRO-021]-ATC Procedures to facilitate the design and utilization of more noise sensitive and efficient SID/STAR routings including CDA and to integrate P-RNAV or RNAV with APV/Baro VNAV capabilities into the TMA route structure
Finalisation criteria:	1 - All SID and STAR have been implemented as RNAV 1.

NAV03.1-USE01	Install appropriate RNAV 1 equipment	From: 01/01/2001	By: 31/12/2023
Action by:	Airspace Users		
Description & purpose:	Install equipment meeting RNAV 1 requirements. Where existing RNAV/FMS equipment meets only B-RNAV requirements, there will be a need to update or replace the systems. Aircraft already equipped with RNAV/FMS will need to gain regulatory approval which will include operational approval for the application of the system on RNAV 1 routes.		
Supporting material(s):	<p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p> <p>JAA - TGL 10 Revision 1 - Airworthiness and Operational Approval for Precision RNAV Operations in Designated European Airspace 02/2005 Url : http://www.eurocontrol.int/articles/navigation-library</p>		
ATM Master Plan relationship:	[A/C-04]-Flight management and guidance for improved lateral navigation in approach via RNP [A/C-71]-Aircraft Based Augmentation System (ABAS) for Military A/C		
Finalisation criteria:	1 - Aircraft have been certified for RNAV 1 operations.		

NAV03.1-USE02	Train flight crews in RNAV 1 TMA procedures	From: 01/01/2001	By: 31/12/2023
Action by:	Airspace Users		
Description & purpose:	Train flight crews in the application of RNAV 1 TMA procedures.		
Supporting material(s):	<p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>		
Finalisation criteria:	<p>1 - Training manuals have been updated to include RNAV TMA procedures. 2 - The aircrew has been trained accordingly. 3 - The aircrew have met the regulatory requirements for RNAV1 operations.</p>		

SES		Active					ECAC+	
NAV03.2		RNP 1 in TMA Operations						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Performance-based navigation distinguishes between RNAV and RNP Specifications, both of which rely on area navigation techniques which allow aircraft to operate on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these. An RNP 1 specification allows an aircraft to fly a specific path between two 3D-defined points in space; to this end, the RNP 1 specification requires a lateral performance accuracy of +/- 1NM 95% of the flight time, on-board performance monitoring, alerting capability and high integrity navigation databases.

Where ANS providers have established SID or STAR and where higher performance requirements than those of RNAV 1 are required in order to maintain air traffic capacity and safety in environments with high traffic density, traffic complexity or terrain features, they shall implement those routes in accordance with the requirements of the RNP 1 specification, including one or more of the following additional navigation functionalities:

- (a) operations along a vertical path and between two fixes and with the use of:
- (i) an 'AT' altitude constraint;
 - (ii) an 'AT or ABOVE' altitude constraint;
 - (iii) an 'AT or BELOW' altitude constraint;
 - (iv) a 'WINDOW' constraint;
- (b) the radius to fix (RF) leg.

Except for the airports listed in section 1.2.1 of the Annex of the PCP Regulation, establishment of RNP1 SID or STAR is not imposed as obligatory requirement by the PBN Regulation (EU) 2018/1048 (business decision on having SID or STAR is up to an individual stakeholder). However, the PBN regulation does prescribe obligatory set of specifications to be complied with, where a stakeholder had decided to establish SID or STAR. Individual ANSPs, airports and aircraft operators outside of the Applicability Area 1 may implement this functionality on a voluntary basis. In this case they will need to evaluate the business case for the implementation of RNP 1 procedures according to local circumstances.

NOTE 1: System improvements for controller support tools which may be required are covered by other Implementation Objectives like ATC12.1 (MTCD, conflict resolution support info and MONA), ATC02.9 (STCA) and ATC02.8 (APW).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES states instrument RWY ends. Mandatory for TMAs listed in section 1.2.1 of the Annex of the PCP Regulation.)	All EU SES States except: Estonia, Latvia, Maastricht UAC, Malta, Portugal, Romania
Applicability Area 2 (Other ECAC+ states instrument RWY ends, except those already listed in Applicability Area 1.)	Albania, Bosnia and Herzegovina, Georgia, Israel, Moldova, Montenegro, Morocco, North Macedonia, Serbia, Turkey, Ukraine

Timescales:	From:	By:	Applicable to:
Start	07/08/2018		Applicability Area 1 + Applicability Area 2
All SIDs and STARs per instrument RWY, at PCP airports		25/01/2024	Applicability Area 1
One SID and STAR per instrument RWY, where established		25/01/2024	Applicability Area 1
All SIDs and STARs per instrument RWY, where established		06/06/2030	Applicability Area 1
Locally determined number of RNP1 SID/STAR, where established.		06/06/2030	Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0603]-Enhanced Terminal Airspace for RNP-based Operations						
	Enablers -	APP ATC 134	CTE-N08	MIL-STD-01	MIL-STD-02	REG-0500	
OI step -	[AOM-0605]-Enhanced Terminal Operations with RNP transition to ILS/GLS/LPV						
	Enablers -	A/C-07	CTE-N01	MIL-STD-01	MIL-STD-02		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002	Covered by SLoA(s) in another objective	WXYZ-003	Not covered in the Implementation Plan
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NAV03.2	RNP 1 in TMA Operations
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Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project; COMMISSION IMPLEMENTING REGULATION (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation
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Essential Operational Changes

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ICAO GANP ? ASBUs

APTA-B1/2	PBN SID and STAR procedures (with advanced capabilities)
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Deployment Programme

1.2.3	RNP 1 Operations in high density TMAs (ground capabilities)
1.2.4	RNP 1 operations (aircraft capabilities)

European Plan for Aviation Safety

RMT.0445	Technical requirements and operational procedures for airspace design, including flight procedure design
RMT.0639	Performance-based navigation implementation in the European air traffic management network

Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
NAV03.2-REG01	Verify the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.2-ASP01	Develop an airspace concept based on designated RNP 1 arrival and departure procedures with Radius to Fix (RF)	01/01/2018	25/01/2024 06/06/2030
NAV03.2-ASP02	Where necessary, provide appropriate navigation infrastructure to support RNP 1 operations including the infrastructure required for GNSS reversion	01/01/2018	06/06/2030
NAV03.2-ASP03	Train air traffic controllers in RNP1 with Radius to Fix (RF) procedures	01/01/2018	06/06/2030
NAV03.2-ASP04	Implement at least one RNP1 SID and STAR with radius to Fix (RF), per instrument RWY	01/01/2018	25/01/2024 06/06/2030
NAV03.2-ASP05	Develop a local safety assessment	01/01/2018	06/06/2030
NAV03.2-ASP06	Establish the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.2-ASP07	Implement all RNP1 SID and STAR with radius to Fix (RF), per instrument RWY	07/08/2018	25/01/2024 06/06/2030 06/06/2030
NAV03.2-USE01	Install appropriate RNP 1 with Radius to Fix (RF) equipment	01/01/2018	06/06/2030
NAV03.2-USE02	Train flight crews in RNP 1 TMA procedures	01/01/2018	06/06/2030

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increased situational awareness and indirect benefit to both ATC and pilot through reduction of workload during RNP operations.
Capacity:	Increased capacity through efficient and improved systemisation of SID/STARs based on RNP 1, particularly on curved paths using Radius to Fix functionality.
Operational Efficiency:	Reduction in fuel burn and potential to reduce track miles through optimised TMA procedures using the Radius to Fix Functionality.

NAV03.2	RNP 1 in TMA Operations
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Cost Efficiency:	-
Environment:	Emissions and noise nuisance reduced by use of optimal flight procedures and routings.
Security:	-

Detailed SLoA Descriptions

NAV03.2-REG01	Verify the transition plan for PBN in ANS provision	From: 03/12/2020	By: 06/06/2030
Action by:	National Supervisory Authorities (NSAs)		
Description & purpose:	<p>This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p> <p>Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft.</p> <p>Inform the providers of ATM/ANS of the outcome of that verification without undue delay.</p> <p>Note : This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011</p> <p>Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013</p> <p>Url : http://store1.icao.int/</p>		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		
NAV03.2-ASP01	Develop an airspace concept based on designated RNP 1 arrival and departure procedures with Radius to Fix (RF)	From: 01/01/2018	By: Applicability Area 1: 25/01/2024 Applicability Area 2: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	<p>Develop an airspace concept, including designated RNP 1 SID and STAR procedures with Radius to Fix (RF) with a view to providing performance benefits. The airspace concept is to include non-nominal operations to accommodate reversion from RNP 1 operations.</p> <p>Note : The date 25/01/2024 is mandatory for TMAs listed in section 1.2.1 of the Annex of the PCP Regulation.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013</p> <p>Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011</p> <p>Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013</p> <p>Url : http://store1.icao.int/</p>		
Finalisation criteria:	1 - An airspace concept based on RNP 1 arrival and departure procedures with Radius to Fix (RF) has been implemented.		

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NAV03.2-ASP02	Where necessary, provide appropriate navigation infrastructure to support RNP 1 operations including the infrastructure required for GNSS reversion	From: 01/01/2018	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	The RNP 1 specification requires the mandatory use of GNSS, specifically GPS. This means that the ANSPs would need to determine whether and to what extent a DME infrastructure is needed to accommodate non-nominal operations in the event of a GNSS outage requiring reversion from RNP 1 operations. Such a determination is made on the basis of several criteria, including fleet equipage with DME/DME, traffic density and complexity. This may result in a requirement to install new DME stations and/or the relocation of existing units.		
	Note :According to ICAO standards the only appropriate basis for RNP1 procedures is GNSS. For reversion a fallback to RNAV1 operations based on DME/DME is a feasible option (see NAV03.1-ASP02). The actual fallback solution has to be chosen under local considerations.		
Supporting material(s):	EUROCONTROL - Distance Measuring Equipment Tracer (DEMETER) Tool - Version 1.0.4 / 01/2012 Url : https://www.eurocontrol.int/online-tool/distance-measuring-equipment-tracer EUROCONTROL - GUID-0114 - Guidelines for P-RNAV Infrastructure Assessment - Edition 1.2 / 04/2008 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-p-rnav-infrastructure-assessment ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/		
ATM Master Plan relationship:	[CTE-N01]-GPS L1/L5 [CTE-N08]-DME Ground Infrastructure optimisation		
Finalisation criteria:	1 - Infrastructure has been assessed and modified if required to meet the requirements for RNP1 procedures.		

NAV03.2-ASP03	Train air traffic controllers in RNP1 with Radius to Fix (RF) procedures	From: 01/01/2018	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Train ATCOs in RNP1 with radius to Fix (RF) operations and new methods of managing traffic on SID/STARs to ensure safe and expeditious operations. RNP1 with radius to Fix (RF) procedures could reduce the need for radar vectors up to the FAP.		
Supporting material(s):	ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 4444 - Air Traffic Management - Edition 15 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx		
Finalisation criteria:	1 - The necessary training has been given to controllers responsible for the operation of RNP1 with Radius to Fix (RF) terminal procedures.		

NAV03.2-ASP04	Implement at least one RNP1 SID and STAR with radius to Fix (RF), per instrument RWY	From: 01/01/2018	By: Applicability Area 1: 25/01/2024 Applicability Area 2: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Where SID or STAR are established, design, develop and implement at least one RNP 1 arrival and departure procedures with Radius to Fix (RF), based on the airspace concept and the transition plan. Publish the procedures in the State AIP.		
	Note :Note 1: This SLoA is applicable only where higher performance requirements than those of RNAV 1 are required. Otherwise RNAV1 SID/STAR described in objective NAV03.1 are sufficient. Note 2: If you implement RNP1 SID and STAR with vertical paths defined by the constraints, rather than RF, please report it in the LSSIP comment to this SLoA. Note 3: The deadline of 25/01/2024 applies only to EU SES states. Other ECAC+ states have deadline 06/06/2030. Note 4: This SLoA is not intended for PCP airports. PCP airports should be reported in SLoA ASP07.		

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Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>
Finalisation criteria:	1 - RNP 1 arrival and departures with radius to Fix (RF) have been published in AIP and implemented. (If you implement RNP1 SID and STAR with vertical paths defined by the constraints, rather than RF, please report it in the LSSIP comment to this SLoA).

NAV03.2-ASP05	Develop a local safety assessment	From: 01/01/2018	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Develop safety assessment of the changes related to the implementation of RNP 1 procedures. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the NSA as necessary.		

NAV03.2-ASP06	Establish the transition plan for PBN in ANS provision	From: 03/12/2020	By: 06/06/2030
Action by:	ATM Service Providers		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date. The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council. Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate: a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services; b) the Network Manager; c) ANS providers in adjacent airspace blocks. Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority.		
	Note : This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		

NAV03.2	RNP 1 in TMA Operations
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Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>
Finalisation criteria:	1 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval.

NAV03.2-ASP07	Implement all RNP1 SID and STAR with radius to Fix (RF), per instrument RWY	From:	By:
		07/08/2018	06/06/2030 Applicability Area 1: 25/01/2024

Action by:	ANS Providers
Description & purpose:	Where SID or STAR are established design, develop and implement RNP 1 arrival and departure procedures with Radius to Fix (RF), based on the airspace concept and the transition plan. Publish the procedures in the State AIP.
	<p>Note :Note 1: This SLoA is mandatory for PCP airports listed in EU PCP Regulation. PCP airports shall implement this SLoA by 25/01/2024.</p> <p>Note 2: This SLoA is applicable only where higher performance requirements than those of RNAV 1 are required. Otherwise RNAV1 SID/STAR described in objective NAV03.1 are sufficient.</p> <p>Note 3: If you implement RNP1 SID and STAR with vertical paths defined by the constraints, rather than RF, please report it in the LSSIP comment to this SLoA.</p> <p>Note 4: In the LSSIP comment field, name the airports where the implementation takes/took place.</p>

Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>
Finalisation criteria:	1 - RNP 1 arrival and departures with radius to Fix (RF) have been published in AIP and implemented.

NAV03.2-USE01	Install appropriate RNP 1 with Radius to Fix (RF) equipment	From:	By:
		01/01/2018	06/06/2030
Action by:	Airspace Users		
Description & purpose:	Install equipment meeting RNP1 requirements.		
Supporting material(s):	<p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>		

NAV03.2	RNP 1 in TMA Operations
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ATM Master Plan relationship:	[A/C-07]-Flight management and guidance for RNP transition to ILS/GLS/LPV
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Finalisation criteria:	1 - Aircraft have been certified for both RNP 1 and Radius to Fix (RF) operations.
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NAV03.2-USE02	Train flight crews in RNP 1 TMA procedures	From:	By:
		01/01/2018	06/06/2030

Action by:	Airspace Users
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Description & purpose:	Train flight crews in the application of RNP1 TMA procedures.
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Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/
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Finalisation criteria:	1 - Training manuals have been updated to include RNP1 TMA procedures. 2 - The aircrew has been trained accordingly. 3 - The aircrew have met the regulatory requirements for RNP1 and RF transition operations.
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SES		Active					ECAC+	
NAV10		RNP Approach Procedures to instrument RWY						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

Implement RNP Approach procedures with vertical guidance. The intention is to transition from conventional Non Precision Approach (NPA) procedures to RNP approach procedures with vertical guidance. RNP approach operations with vertical guidance using SBAS are flown to LPV minima, while the operations using Baro are flown to LNAV/VNAV minima. In addition, RNP approach operations using SBAS can be flown to LNAV/VNAV minima. The main incentive is to enhance safety but there are potential benefits in terms of reduced minima and better access to airports that do not have precision approach and landing capabilities.

This objective is in line with Regulation (EU) 2018/1048 on PBN and Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project. (S-AF1.2 Enhanced TMA using RNP-based operations). It also supports the Performance Based Navigation implementation and harmonisation strategy of the ICAO European Region. Individual ANSPs, airports and aircraft operators in ECAC area (in non-EU member states) should implement this functionality based on ICAO 37th Assembly resolution which recommends implementation of RNP approaches with vertical guidance to all instrument RWY ends.

At instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, providers of ATM/ANS shall implement RNP Non-precision approach procedures (NPA) in accordance with the requirements of the RNP APCH specification, down to LNAV minima (See SLoA-ASP06 in this objective).

NOTE 1: The implementation of RNP approach procedures based on SBAS may be restricted by the coverage limitation of EGNOS satellite signal within the concerned airspace.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES states instrument RWY ends, including both PCP airports and Non-PCP airports.)	All EU SES States except: Maastricht UAC		
Applicability Area 2 (Other ECAC+ instrument RWY ends, which are not listed in Applicability Area 1.)	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Israel, Moldova, Montenegro, Morocco, North Macedonia, Serbia, Turkey, Ukraine		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/06/2011		Applicability Area 1 + Applicability Area 2
Instrument RWY ends without precision approach in EU SES States, at Non-PCP airports		03/12/2020	Applicability Area 1
Instrument RWY ends served by precision approach (including PCP airports)		25/01/2024	Applicability Area 1 + Applicability Area 2
Instrument RWY ends without precision approach at other ECAC+ instrument RWYs.		25/01/2024	Applicability Area 2
Instrument RWY ends without precision approach in EU SES States, at PCP airports		25/01/2024	Applicability Area 1

References

European ATM Master Plan

OI step -	[AOM-0602]-Enhanced terminal operations with APV using Barometric VNAV								
Enablers -	A/C-04 NAV03.1	A/C-05a	CTE-N01 NAV03.2	MIL-STD-01	MIL-STD-02				
OI step -	[AOM-0604]-Enhanced terminal operations with LPV using SBAS								
Enablers -	A/C-01	A/C-06	CTE-N01 NAV03.2	CTE-N06	CTE-N06a	MIL-STD-01	MIL-STD-02	PRO-AC-06	
OI step -	- No OI Link -								
Enablers -	CTE-N06a	CTE-N06b							

NAV10	RNP Approach Procedures to instrument RWY
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Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Regulation (EU) 716/2014 Establishment of the Pilot Common Project; Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

Essential Operational Changes

CNS Infrastructure and Services

ICAO GANP – ASBUs

APTA-B0/1	PBN Approaches (with basic capabilities)
APTA-B1/1	PBN Approaches (with advanced capabilities)
NAVS-B0/2	Satellite Based Augmentation Systems (SBAS)

Deployment Programme

1.2.1	RNP Approaches with vertical guidance
1.2.2	Geographic database for procedure design

European Plan for Aviation Safety

RMT.0445	Technical requirements and operational procedures for airspace design, including flight procedure design
RMT.0639	Performance-based navigation implementation in the European air traffic management network
RMT.0643	Regular update of AMC-20

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
NAV10-REG01	Apply EASA material to local national regulatory activities	01/06/2010	25/01/2024
NAV10-REG02	Verify the transition plan for PBN in ANS provision	03/12/2020	25/01/2024
NAV10-ASP01	Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs served by precision approach	01/06/2008	25/01/2024
NAV10-ASP02	Provide an approved SBAS Service to support APV/SBAS and declare the Service area	FINALISED	
NAV10-ASP03	Develop National safety case for RNP approach down to LNAV/VNAV and LPV minima	01/01/2009	25/01/2024
NAV10-ASP04	Publish in AIPs all coordinates data in WGS-84 in accordance with ICAO Annex 15 requirements and Article 14 of Regulation (EU) No 73/2010	01/01/2009	25/01/2024
NAV10-ASP05	Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach	07/08/2018	03/12/2020 25/01/2024
NAV10-ASP06	Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima	07/08/2018	03/12/2020 25/01/2024
NAV10-ASP07	Establish the transition plan for PBN in ANS provision	03/12/2020	25/01/2024
NAV10-ASP08	At PCP airport, Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach	07/08/2018	25/01/2024
NAV10-ASP09	At PCP airport, Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima	07/08/2018	25/01/2024
NAV10-USE01	Equip aircraft with systems approved for RNP approach down to LNAV/VNAV and/or LPV minima operations	01/04/2006	25/01/2024
NAV10-USE02	Get airworthiness certification and operational approval	01/04/2006	25/01/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

NAV10	RNP Approach Procedures to instrument RWY
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Expected Performance Benefits

Safety:	Reduction in Controlled Flight Into Terrain (CFIT) occurrences. Improved pilot situation awareness and reduced crew workload.
Capacity:	Potential to enhance capacity due to lower minima than can be achieved through conventional NPA.
Operational Efficiency:	Improved thanks to shortened approaches, increased flexibility in the use of runways, reduced landing minima for runways with only conventional NPAs, fallback during precision approach system outages.
Cost Efficiency:	-
Environment:	Emissions and noise nuisance reduced by use of optimal flight procedures and routings and the elimination of step-down approach procedures.
Security:	-

Detailed SLoA Descriptions

NAV10-REG01	Apply EASA material to local national regulatory activities	From: 01/06/2010	By: 25/01/2024
Action by:	State Authorities		
Description & purpose:	Publish national regulatory material for RNP approach procedures based on Airworthiness Approval and Operational Criteria for RNP approach (RNP APCH) operations including LNAV/VNAV minima (EASA AMC 20-27) and Airworthiness approval and Operational criteria RNP approach (RNP APCH) Operations including LPV minima (EASA AMC 20-28).		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>EASA - AMC 20-27 - Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations Including APV BARO- NAV Operations - ED Decision 2009/019/R / 12/2009 Url : https://www.easa.europa.eu/agency-measures/docs/agency-decisions/2009/2009-019-R/Annex%20III%20-%20AMC%2020-27.pdf</p> <p>EASA - AMC 20-28 - Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localiser Performance with Vertical guidance minima using Satellite Based Augmentation System ED Decision 2009/014/R 09/2012 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-28.pdf</p>		
Finalisation criteria:	1 - National regulatory material for RNP approach procedures based on EASA AMC 20-27 and EASA AMC 20-28 has been published.		

NAV10-REG02	Verify the transition plan for PBN in ANS provision	From: 03/12/2020	By: 25/01/2024
Action by:	National Supervisory Authorities (NSAs)		
Description & purpose:	<p>This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.</p>		
Supporting material(s):	<p>Note : This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p> <p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		

NAV10	RNP Approach Procedures to instrument RWY
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NAV10-ASP01	Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs served by precision approach	From: 01/06/2008	By: 25/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>Develop RNP approach procedures at all instrument runway ends already served by precision approach, either as the primary approach or as a back-up for precision approaches except where due to terrain, obstacles or air traffic separation conditions, the implementation is not feasible. This action includes the following tasks:</p> <ul style="list-style-type: none"> - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs. <p>At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available. Where required due to traffic density or traffic complexity, implement radius to fix (RF) legs.</p>		
	<p>Note : Note1: An alternative implementation option, for the case where LNAV/VNAV and LPV are not feasible, is described in SLoA-ASP06 of this objective. Note2: If RF legs are implemented due to traffic density or traffic complexity, it should be reported via LSSIP in the comment to this SLoA. Note3: The name (the list) of the aerodrome(s) where this SLoA is implemented, and the minima which was applied (i.e. LNAV/VNAV or LPV) should be reported via LSSIP in the comment field to this SLoA. Note4: This SLoA should be used to provide reports for all ECAC + RWYs served by Precision Approach, including PCP airports RWYs.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p>		
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs		
Finalisation criteria:	1 - RNP approach down to LNAV, LNAV/VNAV and LPV minima Procedures have been implemented in accordance with guidance material and published in the National AIP, and are in use.		

NAV10-ASP03	Develop National safety case for RNP approach down to LNAV/VNAV and LPV minima	From: 01/01/2009	By: 25/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>Develop a generic safety case for RNP approach down to LNAV/VNAV and/or LPV, or LNAV minima procedures developed upon the EASA AMC for RNP APCH. Identify and develop the means for mitigation of any issues requiring remedial action to ensure safety targets are met. The material will be developed in a manner, and approval sought through the appropriate bodies, that will enable cross reference to be made by States in their implementation of RNP approaches. At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available.</p>		
Supporting material(s):	<p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm</p>		
Finalisation criteria:	1 - National Safety case for RNP approach down to LNAV/VNAV, LPV, and LNAV minima has been developed and submitted to the NSA.		

NAV10-ASP04	Publish in AIPs all coordinates data in WGS-84 in accordance with ICAO Annex 15 requirements and Article 14 of Regulation (EU) No 73/2010	From: 01/01/2009	By: 25/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>It is an essential requirement for RNAV/RNP procedures that all coordinates data published in AIPs, e.g. Runway Thresholds, Navigation Aids, Waypoints, etc, are surveyed with reference to the WGS84 standard. Following survey which must be undertaken in accordance with the Eurocontrol standard for WGS 84 survey (Doc 006), the data must be maintained with adequate integrity.</p>		

NAV10	RNP Approach Procedures to instrument RWY
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Supporting material(s):	<p>EC - Regulation (EU) No 73/2010-(OJ L 23, 27.1.2010, p.6) - Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information 01/2010</p> <p>Url : http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en</p> <p>ICAO - Doc 9674 - World Geodetic System - 1984 (WGS-84) Manual - Edition 2 / 12/2002</p> <p>Url : https://store.icao.int/</p>
Finalisation criteria:	1 - AIP Updated accordingly

NAV10-ASP05	Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach	From: 07/08/2018	By: Applicability Area 1: 03/12/2020 Applicability Area 2: 25/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>Develop RNP approach procedures at all instrument runway ends without precision approach, except where due to terrain, obstacles or air traffic separation conditions, the implementation is not feasible. This action includes the following tasks:</p> <ul style="list-style-type: none"> - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs. <p>At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available. Where required due to traffic density or traffic complexity, implement radius to fix (RF) legs.</p>		
Supporting material(s):	<p>Note :Note 1: For EU SES states instrument RWY without precision approach procedures at Non-PCP airports, i.e. with NPA, this SLoA shall be finalised by 03/12/2020. For other ECAC+ states (non-EU SES states), it should be implemented by 25/01/2024.</p> <p>Note 2: An alternative implementation option, for the case where LNAV/VNAV and LPV is not feasible, is described in SLoA-ASP06 of this objective.</p> <p>Note 3: If RF legs are implemented due to traffic density or traffic complexity, it should be reported via LSSIP in the comment to this SLoA.</p> <p>Note 4: Name (list) of the aerodrome(s) where this SLoA is implemented, and the minima which was applied (i.e. LNAV/VNAV or LPV) should be reported via LSSIP in the comment field to this SLoA.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p>		
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs		
Finalisation criteria:	1 - RNP approach down to LNAV, LNAV/VNAV and LPV minima Procedures have been implemented in accordance with guidance material and published in the National AIP, and are in use.		

NAV10-ASP06	Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima	From: 07/08/2018	By: Applicability Area 1: 03/12/2020 Applicability Area 2: 25/01/2024
Action by:			
Description & purpose:	<p>At instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, providers of ATM/ANS shall implement RNP Non-precision approach procedures (NPA) in accordance with the requirements of the RNP APCH specification, down to LNAV minima.</p> <p>RWY end with only circling approach is not a subject to this SLoA and a requirement of PBN IR.</p> <p>This action includes the following tasks:</p> <ul style="list-style-type: none"> - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs. 		
Supporting material(s):	<p>Note :Note 1: This SLoA is alternative implementation option to the one described in SLoA-ASP01 and SLoA-ASP05 of this objective.</p> <p>Note 2: For EU SES states instrument RWY without precision approach procedures, at Non-PCP airports, i.e. with NPA, this SLoA shall be finalised by 03/12/2020. For other ECAC+ states (non-EU SES states), it should be finalised by 25/01/2024.</p> <p>Note 3: As an 'instrument runway' means instrument runway adequate for straight-in approaches, and knowing that a circling is an extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing (in other words a visual manoeuvre), RWY end with a only circling approach is not included in PBN IR.</p> <p>Note 4: The name (the list) of the aerodromes where this SLoA is implemented, should be reported via LSSIP in the comment field to this SLoA.</p> <p>Note 5: If RF legs are implemented due to traffic density or traffic complexity, report it in the comment to this SLoA.</p>		

NAV10	RNP Approach Procedures to instrument RWY
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Supporting material(s):	EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs
Finalisation criteria:	1 - RNP non-precision approach (NPA) down to LNAV minima have been implemented in accordance with guidance material and published in the National AIP, and are in use.

NAV10-ASP07	Establish the transition plan for PBN in ANS provision	From: 03/12/2020	By: 25/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p> <p>Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date.</p> <p>The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council.</p> <p>Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate:</p> <p>a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services;</p> <p>b) the Network Manager;</p> <p>c) ANS providers in adjacent airspace blocks.</p> <p>Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority</p> <p>Note :This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p>		
Supporting material(s):	EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/		
Finalisation criteria:	1 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval.		

NAV10-ASP08	At PCP airport, Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach	From: Applicability Area 1: 07/08/2018	By: Applicability Area 1: 25/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>Develop RNP approach procedures at all instrument runway ends without precision approach, except where due to terrain, obstacles or air traffic separation conditions, the implementation is not feasible. This action includes the following tasks:</p> <ul style="list-style-type: none"> - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs. <p>At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available.</p> <p>Where required due to traffic density or traffic complexity, implement radius to fix (RF) legs.</p>		

NAV10	RNP Approach Procedures to instrument RWY
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	<p>Note :Note 1: This SLoA is intended only for a PCP airport in EU SES states, for instrument RWY without precision approach procedures, i.e. with NPA.</p> <p>Note 2: An alternative implementation option, for the case where LNAV/VNAV and LPV is not feasible, is described in SLoA-ASP09 of this objective.</p> <p>Note 3: If RF legs are implemented due to traffic density or traffic complexity, it should be reported via LSSIP in the comment to this SLoA.</p> <p>Note 4: Name (list) of the aerodrome(s) where this SLoA is implemented, and the minima which was applied (i.e. LNAV/VNAV or LPV) should be reported via LSSIP in the comment field to this SLoA.</p>
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p>
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs
Finalisation criteria:	1 - RNP approach down to LNAV, LNAV/VNAV and LPV minima Procedures have been implemented in accordance with guidance material and published in the National AIP, and are in use.

NAV10-ASP09	At PCP airport, Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima	From: Applicability Area 1: 07/08/2018	By: Applicability Area 1: 25/01/2024
Action by:	ANS Providers		
Description & purpose:	<p>At instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, providers of ATM/ANS shall implement RNP Non-precision approach procedures (NPA) in accordance with the requirements of the RNP APCH specification, down to LNAV minima.</p> <p>RWY end with only circling approach is not a subject to this SLoA and a requirement of PBN IR.</p> <p>This action includes the following tasks:</p> <ul style="list-style-type: none"> - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs. 		
	<p>Note :Note 1: This SLoA is alternative implementation option to the one described in SLoA-ASP08 of this objective.</p> <p>Note 2: This SLoA is intended only for a PCP airport in EU SES states, for instrument RWY without precision approach procedures, i.e. with NPA.</p> <p>Note 3: As an 'instrument runway' means instrument runway adequate for straight-in approaches, and knowing that a circling is an extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing (in other words a visual manoeuvre), RWY end with a only circling approach is not included in PBN IR.</p> <p>Note 4: The name (the list) of the aerodromes where this SLoA is implemented, should be reported via LSSIP in the comment field to this SLoA.</p> <p>Note 5: If RF legs are implemented due to traffic density or traffic complexity, report it in the comment to this SLoA.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p>		
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs		
Finalisation criteria:	1 - RNP non-precision approach (NPA) down to LNAV minima have been implemented in accordance with guidance material and published in the National AIP, and are in use.		

NAV10-USE01	Equip aircraft with systems approved for RNP approach down to LNAV/VNAV and/or LPV minima operations	From: 01/04/2006	By: 25/01/2024
Action by:	Airspace Users		
Description & purpose:	<p>Fit the aircraft with suitably approved equipment (Stand alone or integrated with existing FMS) as follows:</p> <ul style="list-style-type: none"> - APV/Baro equipment compliant to AMC 20-27; - APV/SBAS SBAS compliant to AMC 20-28. <p>For new or modified aircraft, the Aircraft Flight Manual (AFM) or the Pilot's Operating Handbook (POH), whichever is applicable, should be updated according to AMC 20-27 and AMC 20-28.</p>		

NAV10	RNP Approach Procedures to instrument RWY
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Supporting material(s):	<p>EASA - AMC 20-27 - Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations Including APV BARO- NAV Operations - ED Decision 2009/019/R / 12/2009 Url : https://www.easa.europa.eu/agency-measures/docs/agency-decisions/2009/2009-019-R/Annex%20III%20-%20AMC%2020-27.pdf</p> <p>EASA - AMC 20-28 - Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localiser Performance with Vertical guidance minima using Satellite Based Augmentation System ED Decision 2009/014/R 09/2012 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-28.pdf</p> <p>FAA - AC 20-138C - Airworthiness Approval of Positioning and Navigation Systems 05/2012 Url : http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.list/parentTopicID/101</p> <p>FAA - AC 90-105 - Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System 01/2009 Url : http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.list/parentTopicID/128</p>
ATM Master Plan relationship:	<p>[A/C-05a]-APV Barometric VNAV [CTE-N06]-Space Based Augmentation System (SBAS) [CTE-N06a]-EGNOS V2.4.X [CTE-N06b]-EGNOS V3</p>
Finalisation criteria:	<p>1 - Aircraft have been fitted with suitable APV/Baro equipment compliant to AMC 20-27 or APV/SBAS compliant to AMC 20-28. 2 - The AFM or the POH, whichever is applicable, have been updated according to AMC 20-27 and AMC 20-28.</p>

NAV10-USE02	Get airworthiness certification and operational approval	From: 01/04/2006	By: 25/01/2024
Action by:	Airspace Users		
Description & purpose:	<p>Apply for approval against EASA AMC 20-27 and 20-28.</p> <p>The applicant needs to submit, to the competent National Authorities, a compliance statement which shows how the criteria of the AMC 20-27 and 20-28 have been satisfied.</p>		
Supporting material(s):	<p>EASA - AMC 20-27 - Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations Including APV BARO- NAV Operations - ED Decision 2009/019/R / 12/2009 Url : https://www.easa.europa.eu/agency-measures/docs/agency-decisions/2009/2009-019-R/Annex%20III%20-%20AMC%2020-27.pdf</p> <p>EASA - AMC 20-28 - Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localiser Performance with Vertical guidance minima using Satellite Based Augmentation System ED Decision 2009/014/R 09/2012 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-28.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>		
Finalisation criteria:	1 - The airworthiness and operational approval has been granted by the competent National Authorities to the operator.		

SESAAR		Initial					LOC	
NAV11		Implement precision approach procedures using GBAS CAT II/III based on GPS L1						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

In current ILS Cat II/III operations there is a need to protect the ILS critical and sensitive areas which result in restricted ground movements and extra spacing margins between aircraft in order to accommodate the longer runway occupancy times (ROT) through the need to protect the larger ILS sensitive area. At capacity constrained airports this may lead to flights being diverted or even cancelled. In addition, this is typically also associated with longer flight times, i.e. more fuel being used.

This objective proposes the use of GBAS which has limited (GBAS Local Object Consideration Areas) or no protection areas, usually located outside aircraft movement areas. This allows the reduction of runway occupancy times in low visibility conditions resulting in reduced spacing between arrival aircraft. The amount of runway throughput gained depends on wake turbulence separation and any other additional spacing needs. With a proper siting of the GBAS ground equipment (compliant with the GBAS Local Object Consideration Areas), there's no need for critical/sensitive areas. Use of GBAS CAT II/III enables:

- a) flexible approaches; synergistic with RNAV/RNP, PA where ILS cannot due to geography, signal stability (immune to signal bends inherent in ILS);
- b) complement ILS at airports with multiple RWYs during LVP;
- c) the rationalization of some ILS thus reducing operation and maintenance costs and optimizing spectrum;
- d) PA at aerodromes without SBAS coverage or where PA performances cannot be achieved with SBAS.

Benefits of using GBAS CATII/II in Low Visibility Conditions include improved resilience of airport capacity with fewer flight cancellations due to LVP in force. GBAS CATII/III will enable runway ends, which are not ILS CATII/III equipped to be used for CATII/III operations as long as the runway is CATII/III qualified. This will have positive effects on gaseous emissions, i.e. less CO2.

Note: The benefits mentioned are obviously only gained if a sufficient number of aircraft are equipped; therefore, an action should be included to promote airborne equipage, monitor aircraft equipage rate and assess incentives.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each Military Authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the Military Authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to MIL Authorities.

Applicability Area(s) & Timescale(s)

Subject to local need. (Subject to local need.)			
Timescales:	From:	By:	Applicable to:
Subject to local need.	31/05/2019		

References

European ATM Master Plan

OI step -	[AO-0505-A]-Improve Low Visibility Operation using GBAS Cat II/III based on GPS L1						
Enablers -	A/C-02a	A/C-56a	CTE-N01 NAV03.2	CTE-N07	CTE-N07b		
Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective	WXYZ-003	Objective covering the enabler	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

CNS Infrastructure and Services

ICAO GANP – ASBUs

NAVS-B1/1	Extended GBAS
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NAV11	Implement precision approach procedures using GBAS CAT II/III based on GPS L1
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Deployment Programme

- none -

European Plan for Aviation Safety

RMT.0682	Implementation of the regulatory needs of the SESAR common projects
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Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
NAV11-REG01	Apply EASA material to local national regulatory activities		
NAV11-ASP01	Install GBAS CAT II/III ground equipment		
NAV11-ASP02	Design and Publish GBAS CAT II/III precision approach procedures		
NAV11-USE01	Equip aircraft with systems approved for GBAS CAT II/III		
NAV11-USE02	Get airworthiness certification and operational approval		
NAV11-INT01	Develop material for certification of GBAS ground facilities		
NAV11-IND01	Get certification for GBAS CAT II/III ground equipment		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety of approach, landing and guided-take-off operations based on GBAS CAT III L1 (GAST-D) are as safe as operations based on ILS CAT III assuming the identified safety requirements are met. GBAS improves safety in the segment of avoiding a scenario of false LOC or Glide beam capture.
Capacity:	GBAS has limited (GBAS Local Object Consideration Areas) or no protection areas, usually located outside aircraft movement areas. This allows the reduction of runway occupancy times in low visibility conditions resulting in reduced spacing between arrival aircraft. The amount of runway throughput gained depends on wake turbulence separation and any other additional spacing needs.
Operational Efficiency:	Fewer flights will be cancelled or diverted saving the Airspace User (Main and Regional airliners) associated costs. To be noted that cancellations also affect the subsequent legs planned with those aircraft. Business Aviation see minimal benefits as they fly infrequently to capacity constrained airports during LVP. Avoiding the loss of runway capacity will reduce the level of delay and avoid the associated costs. A key issue is the impact of the primary delays on the subsequent legs to be performed by those aircraft which try to absorb the delay where possible. Higher glide slopes than those possible with ILS, 3.2° even in CAT II/III weather conditions.
Cost Efficiency:	One GBAS station can provide approaches for multiple runway end as well as multiple approaches per runway end. The GBAS station in the long term is much more cost efficient than the ILS in terms of less maintenance and flight inspection required.
Environment:	The environmental benefits come from the saving of jet fuel due to the resilience of the system in keeping its capacity even in Low Visibility Operations. Fuel savings results in direct reductions in CO2 emissions. There is also a direct benefit in term of local air quality by having less aircraft queuing on the runway for departure conditions. Noise abatement.
Security:	Not identified.

Detailed SLoA Descriptions

NAV11-REG01	Apply EASA material to local national regulatory activities	From:	By:
		-	-
Action by:	State Authorities		
Description & purpose:	Publish national regulatory material for GBAS CAT II/III procedures based on Airworthiness Approval and Operational Criteria for GBAS CAT II/III (EASA AMC XX-YY).		
Supporting material(s):	SJU - SESAR Solution 55: Data pack for Precision approaches using GBAS CAT II/III based on GPS L1 Url : https://www.sesarju.eu/sesar-solutions/precision-approaches-using-gbas-cat-iiiii		
Finalisation criteria:	1 - National regulatory material for GBAS CAT II/III procedures based on EASA AMC XX-YY		

NAV11	Implement precision approach procedures using GBAS CAT II/III based on GPS L1		
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NAV11-ASP01	Install GBAS CAT II/III ground equipment	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Procure and install GBAS CAT II/III ground equipment to support the precision approach procedures based on GBAS CAT II/III. Perform siting and site feasibility study. Integrate GBAS CAT II/III ground equipment in ATC (& airport) infrastructure. Verify performance of installed GBAS CAT II/III ground equipment (ground testing, flight testing). Develop maintenance and training material.		
Supporting material(s):	SJU - SESAR Solution 55: Data pack for Precision approaches using GBAS CAT II/III based on GPS L1 Url : https://www.sesarju.eu/sesar-solutions/precision-approaches-using-gbas-cat-iii ICAO - Eur-Doc 013 - Guidance Material on All Weather Operations at Aerodromes Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Documents.aspx?RootFolder=%2FEURNAT%2FEUR%20and%20AT%20Documents%2FEUR%20Documents%2F013%20%2D%20EUR%20Guidance%20Material%20on%20AWO%20at%20Aerodromes&FolderCTID=0x012000DAF95319EADD9946B510C5D7B595637D00AA5EB47B299B9A4BAD1968B24E18655C&View=%7B2666E7DD%2D5F4E%2D4E64%2DB16A%2DCF142A1E5BC9%7D ICAO - Annex 10 - Aeronautical Telecommunications Url : http://store1.icao.int/		
ATM Master Plan relationship:	[CTE-N07]-Ground Based Augmentation System (GBAS) [CTE-N07b]-GBAS Cat II/III based on Single-Constellation / Single-Frequency GNSS (GPS L1)		
Finalisation criteria:	1 - GBAS CAT II/III is procured, installed and flight tested.		

NAV11-ASP02	Design and Publish GBAS CAT II/III precision approach procedures	From: -	By: -
Action by:	ANS Providers		
Description & purpose:	Develop GBAS CAT II/III precision approach procedures at instrument runways. This action includes the following tasks: - Identify runways where GBAS CAT II/III should be introduced; - Design GBAS CAT II/III procedures; - Provide Final Approach Segment (FAS) data for GBAS CAT II/III ground equipment (in EUROCAE ED-114B FAS data file format) - Publish GBAS CAT II/III procedures in national AIPs.		
Supporting material(s):	SJU - SESAR Solution 55: Data pack for Precision approaches using GBAS CAT II/III based on GPS L1 Url : https://www.sesarju.eu/sesar-solutions/precision-approaches-using-gbas-cat-iii ICAO - Eur-Doc 013 - Guidance Material on All Weather Operations at Aerodromes Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Documents.aspx?RootFolder=%2FEURNAT%2FEUR%20and%20AT%20Documents%2FEUR%20Documents%2F013%20%2D%20EUR%20Guidance%20Material%20on%20AWO%20at%20Aerodromes&FolderCTID=0x012000DAF95319EADD9946B510C5D7B595637D00AA5EB47B299B9A4BAD1968B24E18655C&View=%7B2666E7DD%2D5F4E%2D4E64%2DB16A%2DCF142A1E5BC9%7D ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - GBAS CAT II/III precision approach procedures have been implemented in accordance with guidance material and published in the National AIP, and are in operational use.		

NAV11-USE01	Equip aircraft with systems approved for GBAS CAT II/III	From: -	By: -
Action by:	Airspace Users		
Description & purpose:	Fit the aircraft with suitably approved equipment GBAS CAT II/III equipment compliant to EASA AMC XX-YY.		
Supporting material(s):	SJU - SESAR Solution 55: Data pack for Precision approaches using GBAS CAT II/III based on GPS L1 Url : https://www.sesarju.eu/sesar-solutions/precision-approaches-using-gbas-cat-iii		
ATM Master Plan relationship:	[A/C-02a]-Enhanced positioning using GBAS single frequency [A/C-56a]-Flight management and guidance for Precision Approach GBAS CATII/III using GPS L1		
Finalisation criteria:	1 - Aircraft have been fitted with suitable GBAS CAT II/III equipment compliant to EASA AMC XX-YY.		

NAV11-USE02	Get airworthiness certification and operational approval	From: -	By: -
Action by:	Airspace Users		
Description & purpose:	Apply for approval against EASA CS AWO and IR OPS. The applicant needs to submit, to the competent National Authorities, a compliance statement which shows how the criteria of the EASA CS AWO and IR OPS have been satisfied.		
Supporting material(s):	SJU - SESAR Solution 55: Data pack for Precision approaches using GBAS CAT II/III based on GPS L1 Url : https://www.sesarju.eu/sesar-solutions/precision-approaches-using-gbas-cat-iii		

NAV11	Implement precision approach procedures using GBAS CAT II/III based on GPS L1		
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ATM Master Plan relationship:	[A/C-02a]-Enhanced positioning using GBAS single frequency [A/C-56a]-Flight management and guidance for Precision Approach GBAS CATII/III using GPS L1		
Finalisation criteria:	1 - The airworthiness and operational approval has been granted by the competent National Authorities to the operator.		

NAV11-INT01	Develop material for certification of GBAS ground facilities	From:	By:
		-	-
Action by:	EASA ICAO		
Description & purpose:	Publish EASA material for GBAS CAT II/III ground facilities approval/certification.		
Supporting material(s):	SJU - SESAR Solution 55: Data pack for Precision approaches using GBAS CAT II/III based on GPS L1 Url : https://www.sesarju.eu/sesar-solutions/precision-approaches-using-gbas-cat-iii		
Finalisation criteria:	1 - EASA material for approval of GBAS CAT II/III ground facilities has been published		

NAV11-IND01	Get certification for GBAS CAT II/III ground equipment	From:	By:
		-	-
Action by:	Airport Operators Industry		
Description & purpose:	Apply for certification of GBAS CAT II/III equipment against EASA material for approval of GBAS CAT II/III ground facilities (deliverable of SLoA NAV11-INT01), and EUROCAE ED-114B. The applicant needs to submit, to the competent National Authorities, a compliance statement which shows how the required criteria have been satisfied.		
	Note : This is action for GBAS equipment manufacturer		
ATM Master Plan relationship:	[CTE-N07]-Ground Based Augmentation System (GBAS) [STD-026]-ED-114B, MOPS for GBAS ground systems to support precision approach and landing (CATIII)		
Finalisation criteria:	1 - The certificate/approval has been granted by the competent National Authorities to the manufacturer.		

SES		Active					ECAC+	
NAV12		ATS IFR Routes for Rotorcraft Operations						
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The implementation objective is aligned to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down requirements for PBN. The objective describes the implementation of:

- ATS routes for rotorcraft operations,
- SID and STAR for rotorcraft to instrument RWYs,
- Low-level IFR routes (LLR) for rotorcraft.

PBN Regulation (EU) 2018/1048 of 18 July 2018, does not impose obligatory establishment of ATS routes, SID or STAR for rotorcraft operations. However, the regulation does prescribe obligatory set of specifications to be complied with, where a stakeholder had decided to establish ATS routes, SID or STAR for rotorcraft operations.

Where ANSPs have established ATS routes, SID or STAR for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, or RNP 1, or RNAV 1 specifications. In that case, they shall be entitled to decide which of those three requirements (specifications) they comply with.

This Objective supports implementation of SESAR Solution #113 "Low-level IFR routes (LLR) for rotorcraft" which improves connectivity between the airports included into the TMA airspace and also introduces the use of "Standard PinS - Point In Space" procedures concept. The PinS procedures consist in flying under instrument flight rules (IFR) to/from a Point-In-Space in the proximity of the landing/departure site using very high accuracy (RNP0.3 or better). The segment joining the "PinS" and the landing/departure site (FATO - Final Approach & Take-Off areas) is flown visually. The point-in-space procedures allow an easier way to manage both traffic flows - fixed-wing aircraft and rotorcraft - at medium and large airports, simultaneously and in a non-interfering way (SNI operations). If this objective is implemented where NAV03.2 is also applied, it should be part of the airspace concept developed in SLoA NAV03.2 - ASP01.

NOTE 1: System improvements for controller support tools which may be required are covered by other Implementation Objectives like ATC12.1 (MTCD, conflict resolution support info and MONA), ATC02.9 (STCA) and ATC02.8 (APW). NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this implementation Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this implementation Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES States)	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Ireland, Italy, Luxembourg, Malta, Norway, Poland, Spain, Switzerland		
Applicability Area 2 (Other ECAC+ States not listed in Applicability Area 1)	Albania, Azerbaijan, Bosnia and Herzegovina, Georgia, Moldova, North Macedonia		
Timescales:	From:	By:	Applicable to:
Entry in force of regulation	01/08/2018		
Rotorcraft RNP0.3, RNP1 or RNAV1 ATS routes above FL150, where established.		03/12/2020	Applicability Area 1
One rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY, where established.		25/01/2024	Applicability Area 1
Rotorcraft RNP0.3, RNP1 or RNAV1 ATS routes below FL150, where established.		25/01/2024	Applicability Area 1
All rotorcraft RNP0.3, RNP01 or RNAV1 SIDs and STARs per instrument RWY, where established.		06/06/2030	Applicability Area 1
IFR ATS route above/below FL150, SID and STAR for Rotorcraft Operations, where established		06/06/2030	Applicability Area 2

References

European ATM Master Plan

Ol step -	[AOM-0810]-Integration into the TMA route structure of optimised Low Level IFR route network for rotorcraft using RNP-1/RNP-0.3						
Enablers -	A/C-04b	PRO-258					

NAV12	ATS IFR Routes for Rotorcraft Operations
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Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

Essential Operational Changes

ICAO GANP ? ASBUs

APTA-B0/6	PBN Helicopter Point in Space (PinS) Operations
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Deployment Programme

- none -	
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European Plan for Aviation Safety

MST.031	Implementation of SESAR solutions aiming to facilitate safe IFR operations
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Operating Environments

En-Route	
Terminal Airspace	

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
NAV12-REG01	Verify the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV12-ASP01	Implement low-level IFR routes (LLR) for rotorcraft operations		25/01/2024 06/06/2030
NAV12-ASP02	Train air traffic controllers procedures supporting low-level IFR routes (LLR) in TMA and other routes for rotorcraft operations		06/06/2030
NAV12-ASP03	Develop a local safety assessment for the implementation of low-level IFR routes (LLR) in TMA and other ATS routes for rotorcraft operations		06/06/2030
NAV12-ASP04	Implement Rotorcraft ATS routes above FL150		03/12/2020 06/06/2030
NAV12-ASP05	Implement Rotorcraft ATS routes below FL150		25/01/2024 06/06/2030
NAV12-ASP06	Implement one rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY		25/01/2024 06/06/2030
NAV12-ASP07	Implement all rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY		06/06/2030 06/06/2030
NAV12-ASP08	Establish the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV12-USE01	Install appropriate RNP equipment		06/06/2030
NAV12-USE02	Train flight crews in RNP ATS routes		06/06/2030

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety: Improved through airspace de-confliction of low altitude airways. It can provide more visibility into planning of those sectors (up-stream sectors) where the ATCO is arranging the arrivals sequence.

NAV12	ATS IFR Routes for Rotorcraft Operations
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Capacity:	The point-in-space procedures have the potential to enable an increasing of passenger throughput at medium and large airports, removing IFR rotorcraft from active runways (no low performance/low speed movements into the approach sequence to runway).
Operational Efficiency:	Improved through: <ul style="list-style-type: none"> - Reduced track mileage, resulting in less fuel consumption and associated CO2 emissions; - Enhanced transition from the en-route phase (flying the Low Level IFR routes) to the approach phase (e.g Point In Space IFR rotorcraft procedures) to the final approach and take-off area (FATO) and vice versa; - More direct routing in dense terminal airspace (obstacle-rich or noise-sensitive terminal environment).
Cost Efficiency:	-
Environment:	Reduced track mileage, resulting in less fuel consumption and associated CO2 emissions.
Security:	-

Detailed SLoA Descriptions

NAV12-REG01	Verify the transition plan for PBN in ANS provision	From: 03/12/2020	By: 06/06/2030
Action by:	National Supervisory Authorities (NSAs)		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.		
	Note :This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf SJU - 113 - Solution 113 Data Pack: Optimised Low Level IFR routes for rotorcraft Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Documents.aspx ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		

NAV12-ASP01	Implement low-level IFR routes (LLR) for rotorcraft operations	From: -	By: Applicability Area 1: 25/01/2024 Applicability Area 2: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	This SLoA is focused at implementation of SESAR Solution #113 "Low-level IFR routes (LLR) for rotorcraft". Implement IFR LLR for rotorcraft between the airports included into the TMA airspace, and also implement "Standard PinS - Point In Space" procedures concept. The LLR departure and arrival procedures should comply with normal climb and descent profiles for the operation considered and identify minimum segment altitude requirements. Where NAV03.2 is implemented, these routes should be part of the airspace concept developed in SLoA NAV03.2 - ASP01.		

NAV12	ATS IFR Routes for Rotorcraft Operations
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	<p>Note :Note 1: The deadline of 25/01/2024 does not apply to other ECAC+ (non-EU SES states), in LSSIP context they should not be labelled as being "Late "against this deadline. Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it. Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.</p>
Supporting material(s):	<p>SJU - 113 - Solution 113 Data Pack: Optimised Low Level IFR routes for rotorcraft Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>
Finalisation criteria:	1 - RNP1.0 or RNP0.3 or RNAV 1 low level IFR routes in TMA have been published in AIP and implemented.

NAV12-ASP02	Train air traffic controllers procedures supporting low-level IFR routes (LLR) in TMA and other routes for rotorcraft operations	From: -	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Air traffic controllers who provide ATC services where RNP 1.0 / RNP 0.3 or RNAV 1 is implemented should have completed training specific to the RNP 1.0 / RNP0.3 or RNAV 1 navigation specification.		
Supporting material(s):	<p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 4444 - Air Traffic Management - Edition 15 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>		
Finalisation criteria:	1 - The necessary training has been given to controllers responsible for the operation of RNP 1.0/RNP 0.3 or RNAV 1.		

NAV12-ASP03	Develop a local safety assessment for the implementation of low-level IFR routes (LLR) in TMA and other ATS routes for rotorcraft operations	From: -	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Develop a safety study for the intended operations (which will depend on the route configuration, air traffic density and intervention capability, etc.). Horizontal separation standards are published in PANS-ATM (Doc 4444). Guidance on obstacle clearance is provided in PANS-OPS (Doc 8168, Volume II).		

NAV12	ATS IFR Routes for Rotorcraft Operations
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Supporting material(s):	<p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/</p> <p>EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>
Finalisation criteria:	1 - Local safety assessment has been finalised and delivered to the National Supervisory Authority as necessary.

NAV12-ASP04	Implement Rotorcraft ATS routes above FL150	From: -	By: Applicability Area 1: 03/12/2020 Applicability Area 2: 06/06/2030
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Action by:	ANS Providers
Description & purpose:	Where providers of ATM/ANS have established ATS routes above FL150, for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, RNP 1 or RNAV 1 specifications. The providers are entitled to decide which of those three sets of requirements (specifications) they will comply with.
	<p>Note :Note 1: The deadline of 03/12/2020 does not apply to other ECAC (non-EU member) states, in LSSIP context they should not be labelled as being "Late "against this deadline.</p> <p>Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it.</p> <p>Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.</p>

Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>SJU - 113 - Solution 113 Data Pack: Optimised Low Level IFR routes for rotorcraft Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0 Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/</p>
Finalisation criteria:	1 - RNP03, RNP1 or RNAV 1 ATS routes for rotorcraft above FL150 have been published in AIP and implemented.

NAV12-ASP05	Implement Rotorcraft ATS routes below FL150	From: -	By: Applicability Area 1: 25/01/2024 Applicability Area 2: 06/06/2030
Action by:	ANS Providers		

NAV12	ATS IFR Routes for Rotorcraft Operations
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Description & purpose:	Where providers of ATM/ANS have established ATS routes below FL150, for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, RNP 1 or RNAV 1 specifications. The providers are entitled to decide which of those three sets of requirements (specifications) they will comply with.
	<p>Note :Note 1: The deadline of 25/01/2024 does not apply to other ECAC+ (non-EU SES) states, in LSSIP context they should not be labelled as being "Late "against this deadline.</p> <p>Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it.</p> <p>Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.</p>
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>SJU - 113 - Solution 113 Data Pack: Optimised Low Level IFR routes for rotorcraft</p> <p>Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013</p> <p>Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011</p> <p>Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013</p> <p>Url : http://store1.icao.int/</p>
Finalisation criteria:	1 - RNP03, RNP1 or RNAV1 ATS routes for rotorcraft below FL150 have been published in AIP and implemented.

NAV12-ASP06	Implement one rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY	From: -	By: Applicability Area 1: 25/01/2024 Applicability Area 2: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	Where SID or STAR are established for rotorcraft operations, at least one RNP03, RNP1 or RNAV 1 SID or STAR shall be implemented at all instrument runway ends by 25 January 2024.		
	<p>Note :Note 1: The deadline of 25/01/2024 does not apply to other ECAC+ (non-EU SES) states, in LSSIP context they should not be labelled as being "Late "against this deadline.</p> <p>Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it.</p> <p>Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013</p> <p>Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011</p> <p>Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013</p> <p>Url : http://store1.icao.int/</p>		
Finalisation criteria:	1 - At least one SID and STAR have been implemented per instrument RWY.		

NAV12-ASP07	Implement all rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR	From:	By:
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NAV12	ATS IFR Routes for Rotorcraft Operations
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	per instrument RWY	-	06/06/2030
Action by:	ANS Providers		
Description & purpose:	Where SID or STAR are established for rotorcraft operations, all SID and STAR shall be implemented as RNP03, RNP1 or RNAV 1 at all instrument runway ends by 06 June 2030.		
	<p>Note :Note 1: The deadline of 06/06/2030 does not apply to other ECAC+ (non-EU SES) states, in LSSIP context they should not be labelled as being "Late "against this deadline.</p> <p>Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it.</p> <p>Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013</p> <p>Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011</p> <p>Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013</p> <p>Url : http://store1.icao.int/</p>		
Finalisation criteria:	1 - All SID and STAR have been implemented at all instrument RWYs.		

NAV12-ASP08	Establish the transition plan for PBN in ANS provision	From: 03/12/2020	By: 06/06/2030
Action by:	ANS Providers		
Description & purpose:	<p>This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p> <p>Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date.</p> <p>The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council.</p> <p>Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate:</p> <p>(a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services;</p> <p>(b) the Network Manager;</p> <p>(c) ANS providers in adjacent airspace blocks.</p> <p>Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority.</p>		
	<p>Note :Note: This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.</p>		
Supporting material(s):	<p>EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) ? Annex II to EASA Decision 2018/013/R 11/2018</p> <p>Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf</p> <p>ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013</p> <p>Url : http://store1.icao.int/</p> <p>EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0</p> <p>Url : https://www.eurocontrol.int/sites/default/files/publication/files/handbook-pbn-implement-2013-ed-3a.pdf</p> <p>ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011</p> <p>Url : https://store.icao.int/</p> <p>ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011</p> <p>Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx</p> <p>ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013</p> <p>Url : http://store1.icao.int/</p>		

NAV12	ATS IFR Routes for Rotorcraft Operations
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Finalisation criteria:	1 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval.
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NAV12-USE01	Install appropriate RNP equipment	From:	By:
		-	06/06/2030
Action by:	Airspace Users		
Description & purpose:	Install equipment meeting operational requirements for RNP operations.		
Supporting material(s):	ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/		
ATM Master Plan relationship:	[A/C-04b]-Flight management and guidance for RNP 0.3 (Category H(rotorcraft)) in all phases of flight, except final approach and initial missed approach		
Finalisation criteria:	1 - Aircraft have been fitted with suitable RNP aircraft equipment.		

NAV12-USE02	Train flight crews in RNP ATS routes	From:	By:
		-	06/06/2030
Action by:	Airspace Users		
Description & purpose:	Provide sufficient training to crew (e.g. simulator, training device, or aircraft) on the aircraft RNP system to the extent that the pilot is familiar with RNP equipment operating procedures and system-specific information.		
	Note :Operators need not establish a separate training programme if they already integrate RNAV training as an element of their training programme. However, the operator should be able to identify the aspects of RNP 0.3 operations covered within their training programme.		
Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : http://store1.icao.int/		
Finalisation criteria:	1 - Training manuals have been updated to include RNP equipment operating procedures. 2 - The aircrew has been trained accordingly.		

SESAF11		Active					ECAC+	
Improve Runway Safety by Preventing Runway Excursions								
REG	ASP	MIL	APO	USE	INT	IND	NM	

Subject matter and scope

The EUROCONTROL "Study of Runway Excursions from a European Perspective" showed that the causal and contributory factors leading to a runway excursion were the same in Europe as in other regions of the world. The study findings made extensive use of lessons from more than a thousand accident and incident reports. Those lessons have been used to draft the recommendations contained in the European Action Plan for the Prevention of Runway Excursions, Edition 1.0 of which was published in January 2013.

The European Action Plan for the Prevention of Runway Excursions (EAPPRE) contains practical recommendations with guidance materials to assist operational staff with their implementation. According to ICAO, runway excursions are a persistent problem and their numbers have not decreased in more than 20 years.

The European Working Group for Runway Safety who developed the EAPPRE considered all practicable means available ranging from the design of aircraft, airspace, procedures and technologies to relevant training for operational staff associated with runway excursion prevention. The recommendations and guidance materials contained in the Action Plan are intended for implementation by the relevant stakeholder organisations with the aim of reducing the rate of runway excursions and the runway excursion risk incumbent upon them.

This European Action Plan, directed to all providers and users of European aerodromes and all European aircraft operators, is the result of the combined and sustained efforts of organisations involved in all areas of runway operations and was co-developed with the European Commercial Aviation Safety Team (ECAST) which was a pillar of the European Strategic Safety Initiative (ESSI) of EASA. The EAPPRE is a deliverable of the European Aviation Safety Plan (EASp), Edition 2011-2014. Subsequently, the ESSI and ECAST have been disbanded and the EASp has been superseded by the EPAS (European Plan for Aviation Safety) 2017-2021 which contains various actions to assess and improve risks controls to mitigate runway excursions.

Note: Central to the recommendations contained in this Action Plan is the uniform and consistent application of ICAO provisions. The applicability area of this objective is all ECAC States. Nevertheless, it is for the individual National Safety Authority to decide upon the strategy of implementation by the applicable organisations within its own State.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States except: Maastricht UAC, Morocco		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/09/2013		Applicability Area
Full operational capability		31/01/2018	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -						
Enablers -	PRO-006a						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan
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Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

ICAO GANP – ASBUs

- none -

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Deployment Programme

- none -

European Plan for Aviation Safety

MST.007	Include runway excursions in national SSPs
RMT.0570	Reduction of runway excursions
RMT.0703	Runway Safety

Operating Environments

- none -

Stakeholder Lines of Action (SLoAs)

SLoA ref.	Title	From	By
SAF11-REG01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	01/09/2013	31/01/2018
SAF11-ASP01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	01/09/2013	31/12/2014
SAF11-ASP02	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions with regard to the provision of aeronautical information services	01/09/2013	31/12/2014
SAF11-ASP03	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions with regard to the provision of meteorological services for international aviation	01/09/2013	31/12/2014
SAF11-APO01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	01/09/2013	31/12/2014
SAF11-USE01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	01/09/2013	31/01/2018
SAF11-NM01	Maintain the European Action Plan for the Prevention of Runway Excursions	01/09/2013	31/01/2018
SAF11-NM02	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	01/09/2013	31/01/2018

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Significant improvement, through reduced risk of incidents and accidents on runways.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

SAF11-REG01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	From: 01/09/2013	By: 31/01/2018
Action by:	State Authorities		
Description & purpose:	<ul style="list-style-type: none"> - Ensure that the European Action Plan for the Prevention of Runway Excursions is disseminated widely to increase understanding of runway excursion which includes the Recommendations of the Action Plan, i.e. Part 3.1 references 3.1.1 and Part 3.6 references 3.6.3; 3.6.8 and 3.6.9. - Regulators, i.e. National Supervisory Authorities (NSAs) should focus on runway safety in their oversight activities e.g. preventing runway excursion risks which includes the Recommendations of the Action Plan, i.e. Part 3.1 references 3.1.4; 3.1.5 and Part 3.6 reference 3.6.2. - Verify that aircraft operators, aerodrome operators and air navigation service providers adapt according to the local needs and comply with the respective measures of the European Action Plan for the Prevention of Runway Excursions which includes the Recommendations of the Action Plan, i.e. Part 3.6 references 3.6.1; 3.6.4; 3.6.5; 3.6.6 and 3.6.7. 		

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Supporting material(s):	<p>EUROCONTROL - European Action Plan for the Prevention of Runway Excursions (EAPPRE) - 1.0 / 01/2013 Url : http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE)</p> <p>ICAO - ICAO - Runway Safety Team Handbook - Second Edition 06/2015 Url : http://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/ICAO%20RST%20Handbook%202nd%20Edition%202015%20REV2.pdf</p>
Finalisation criteria:	<p>1 - Documentation for the European Action Plan for the Prevention of Runway Excursions has been disseminated. 2 - Established oversight activities arrangements, e.g. audit plans, audit report published, including corrective actions if applicable. 3 - The applicable measures of the Action plan, Part 3.6 have been implemented. 4 - Implementation is reported through the appropriate mechanism.</p>

SAF11-ASP01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	From: 01/09/2013	By: 31/12/2014
Action by:	ANS Providers		
Description & purpose:	Adapt according to the local operational environment and implement the respective measures of the European Action Plan for the Prevention of Runway Excursions which includes all recommendations of Part 3.3; Part 3.1 references 3.1.1; 3.1.3; 3.1.4; 3.1.5; 3.1.6 and 3.1.7; Part 3.2 references 3.2.8 and 3.2.9.		
Supporting material(s):	<p>EUROCONTROL - European Action Plan for the Prevention of Runway Excursions (EAPPRE) - 1.0 / 01/2013 Url : http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE)</p> <p>ICAO - ICAO - Runway Safety Team Handbook - Second Edition 06/2015 Url : http://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/ICAO%20RST%20Handbook%202nd%20Edition%202015%20REV2.pdf</p>		
ATM Master Plan relationship:	[PRO-006a]-ATC Procedures to standardise phraseology, altitude usage (airport)		
Finalisation criteria:	<p>1 - The applicable measures of the Action plan, Parts 3.1, 3.2 and 3.3 have been implemented. 2 - Implementation is reported through the appropriate mechanism.</p>		

SAF11-ASP02	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions with regard to the provision of aeronautical information services	From: 01/09/2013	By: 31/12/2014
Action by:	AIS Providers		
Description & purpose:	Adapt according to the local operational environment and implement the respective measures of the European Action Plan for the Prevention of Runway Excursions which includes Recommendations of Part 3.3 references 3.3.4 and 3.3.5.		
Supporting material(s):	<p>EUROCONTROL - European Action Plan for the Prevention of Runway Excursions (EAPPRE) - 1.0 / 01/2013 Url : http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE)</p> <p>ICAO - ICAO - Runway Safety Team Handbook - Second Edition 06/2015 Url : http://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/ICAO%20RST%20Handbook%202nd%20Edition%202015%20REV2.pdf</p>		
Finalisation criteria:	<p>1 - The applicable measures of the Action plan, Part 3.3 have been implemented. 2 - Implementation is reported through the appropriate mechanism.</p>		

SAF11-ASP03	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions with regard to the provision of meteorological services for international aviation	From: 01/09/2013	By: 31/12/2014
Action by:			
Description & purpose:	Adapt according to the local operational environment and implement the respective measures of the European Action Plan for the Prevention of Runway Excursions which includes Recommendations of Part 3.2 references 3.2.8 and 3.2.9.		
Supporting material(s):	<p>EUROCONTROL - European Action Plan for the Prevention of Runway Excursions (EAPPRE) - 1.0 / 01/2013 Url : http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE)</p> <p>ICAO - ICAO - Runway Safety Team Handbook - Second Edition 06/2015 Url : http://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/ICAO%20RST%20Handbook%202nd%20Edition%202015%20REV2.pdf</p>		
Finalisation criteria:	<p>1 - The applicable measures of the Action plan, Part 3.2 have been implemented. 2 - Implementation is reported through the appropriate mechanism.</p>		

SAF11		Improve Runway Safety by Preventing Runway Excursions	
SAF11-APO01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	From: 01/09/2013	By: 31/12/2014
Action by:	Airport Operators		
Description & purpose:	Implement the applicable measures of the European Action Plan for the Prevention of Runway Excursions which includes all recommendations of Part 3.2, Part 3.1 references 3.1.1; 3.1.3; 3.1.4; 3.1.5; 3.1.6 and 3.1.7, Part 3.3 references 3.3.4; 3.3.5 and 3.3.6. For the Local Runway Safety Team implement the applicable measures of the Action Plan, recommendations 3.1.2; 3.1.4 and 3.1.6 of Part 3.1.		
Supporting material(s):	EUROCONTROL - European Action Plan for the Prevention of Runway Excursions (EAPPRE) - 1.0 / 01/2013 Url : http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE) ICAO - ICAO - Runway Safety Team Handbook - Second Edition 06/2015 Url : http://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/ICAO%20RST%20Handbook%20nd%20Edition%202015%20REV2.pdf		
Finalisation criteria:	1 - The applicable measures of the Action plan, Parts 3.1, 3.2 and 3.3 have been implemented. 2 - Implementation is reported through the appropriate mechanism.		
SAF11-USE01	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	From: 01/09/2013	By: 31/01/2018
Action by:	Airspace Users		
Description & purpose:	Implement the applicable measures of the European Action Plan for the Prevention of Runway Excursions which includes all recommendations of Part 3.4, Part 3.1 references 3.1.1, 3.1.6, 3.1.7 and Part 3.3 reference 3.3.4.		
Supporting material(s):	EUROCONTROL - European Action Plan for the Prevention of Runway Excursions (EAPPRE) - 1.0 / 01/2013 Url : http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE) ICAO - ICAO - Runway Safety Team Handbook - Second Edition 06/2015 Url : http://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/ICAO%20RST%20Handbook%20nd%20Edition%202015%20REV2.pdf		
Finalisation criteria:	1 - The applicable measures of the Action plan, Parts 3.1, 3.3 and 3.4 have been implemented. 2 - Implementation is reported through the appropriate mechanism.		
SAF11-NM01	Maintain the European Action Plan for the Prevention of Runway Excursions	From: 01/09/2013	By: 31/01/2018
Action by:	NM		
Description & purpose:	EUROCONTROL NM Safety Improvement Sub Group (SISG) (Runway Safety element) monitors the European Action Plan for the Prevention of Runway Excursions with a view to providing inputs for any subsequent Edition which would most likely be developed by EASA under the auspices of the EPAS (European Plan for Aviation Safety) with NM (SISG) support as requested. Development of Edition 2.0 of the Action Plan will most likely be led by EASA.		
Finalisation criteria:	1 - http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE)		
SAF11-NM02	Implement the appropriate parts of the European Action Plan for the Prevention of Runway Excursions	From: 01/09/2013	By: 31/01/2018
Action by:	NM		
Description & purpose:	Implement the applicable measures of the European Action Plan for the Prevention of Runway Excursions which includes Part 3.1 reference 3.1.6.		
Supporting material(s):	EUROCONTROL - European Action Plan for the Prevention of Runway Excursions (EAPPRE) - 1.0 / 01/2013 Url : http://www.skybrary.aero/index.php/European_Action_Plan_for_the_Prevention_of_Runway_Excursions_(EAPPRE)		
Finalisation criteria:	1 - The measures assigned for implementation to the EUROCONTROL Agency have been implemented. 2 - Report on the action plan implementation is produced.		

3. ANNEXES

Annex 1 - Relevant mappings of the Level 3

Mapping of the L3 implementation Objectives to corresponding SESAR Essential Operational Changes, SESAR Solutions, Deployment Program families, ICAO ASBU, EASA EPAS, the Network Strategy Plan, the Airspace Architecture Study Transition Plan (AAS TP) Milestones and the SESAR Key Features.

EOC	Level 3 Implementation Objectives	SESAR Sol.	DP family	ICAO ASBUs	EPAS	NSP	AAS TP	KF
CNS	ATC21-Composite surveillance ADS-B/WAM	#114	-	ASUR-B0/1 ASUR-B0/2	RMT.0679 RMT.0519	SO8/3 SO8/4	-	EAI
	COM10 - Migration from AFTN to AMHS	-	-	COMI B0/7	-	-	-	EAI
	COM11.1 - Voice over Internet Protocol (VoIP) in En-Route	-	3.1.4 3.2.1	COMI B2/1	-	SO8/4	AM-1.3	EAI
	COM11.2 - Voice over Internet Protocol (VoIP) in Airport/Terminal	-	-	COMI B2/1	-	SO8/4	-	EAI
	ITY-ACID - Aircraft identification	-	-	-	-	SO8/2	-	EAI
	ITY-AGDL - Initial ATC air-ground data link services	-	6.1.1 6.1.3 6.1.4	COMI B0/4 COMI B1/2	RMT.0524	SO4/1 SO8/3	AM-1.1	EAI
	ITY-AGVCS2 – 8.33 kHz Air-Ground Voice Channel Spacing below FL195	-	-	-	-	SO8/1	-	EAI
	ITY-SPI - Surveillance performance and interoperability	-	-	ASUR B0/1 ASUR B0/3	RMT.0679 RMT.0519	SO8/3 SO8/4	-	EAI
	NAV10 - RNP Approach Procedures to instrument RWY	#103	1.2.1 1.2.2	APTA B0/1 APTA B1/1 NAVS B0/2	RMT.0639 RMT.0445	SO6/5	-	AATS
	NAV11 - Precision Approach using GBAS CAT II/III based on GPS L1	#55	-	NAVS B1/1	-	-	-	HPO
iN	AOM13.1 - Harmonise OAT and GAT handling	-	-	-	-	SO6/2	-	OANS
	AOP11 - Initial Airport Operations Plan	#21	2.1.4	NOPS B1/3	-	SO6/2	-	HPAO
	AOP17 – Provision/integration of DPI to NMOC	#61	-	NOPS B0/4	-	-	-	HPAO
	COM12 - NewPENS	-	5.1.2 5.2.1	COMI B1/1	-	SO2/3 SO2/4 SO8/3 SO8/4	-	EAI
	FCM03 - Collaborative flight planning	-	4.2.3	NOPS B0/2	-	SO4/2 SO5/1 SO5/6	AM-1.14	OANS
	FCM04.2 - STAM phase 2	#17	4.1.2	NOPS B1/1	-	SO4/3 SO5/4	AM-1.11	OANS
	FCM05 - Interactive rolling NOP	#20, #21	4.2.2 4.2.4	NOPS B1/2	-	SO2/1 SO2/2 SO2/3	AM-1.12	OANS

						SO2/4		
	FCM06 - Traffic Complexity Assessment	#19	4.4.2	NOPS B1/4	-	SO4/3 SO5/4	AM-1.13	OANS
	FCM09 - Enhanced ATFM Slot swapping	#56	-	NOPS B1/7	-	SO6/1	-	OANS
	INF08.1 - Information Exchanges using the SWIM Yellow TI Profile	#35, #46	5.1.3, 5.1.4, 5.2.1, 5.2.2, 5.2.3, 5.3.1, 5.4.1, 5.5.1, 5.6.1	AMET B2/4 DAIM B2/1 SWIM B3/1	-	SO2/4 SO2/5 SO5/2 SO5/5	AM-1.5	EAI
	INF08.2 - Information Exchanges using the SWIM Blue TI Profile	#28, #46	5.1.3, 5.1.4, 5.2.1, 5.2.2, 5.2.3, 5.6.2	SWIM B3/1, TBO B3/1	-	SO5/2S O5/5	AM-9.1	EAI
dS	INF07 - Electronic Terrain and Obstacle Data (e-TOD)	-	1.2.2	DAIM B1/3 DAIM B1/4	RMT.0703 RMT.0722	SO2/5	-	EAI
	INF09 - Digital Integrated Briefing	#34		DAIM B1/7, AMET B1/4	-	SO2/5	-	EAI
	ITY-ADQ - Ensure quality of aeronautical data and aeronautical information	-	1.2.2	-	RMT.0722 RMT.0477	SO2/5	-	EAI
U-s	-	-	-	-	-	-	-	-
vS	AOP14 – Remote Tower Services	#12, #71, #52, #13	-	RATS B1/1	RMT.0624	-	-	HPAO
ATp	AOP04.1 - A-SMGCS Surveillance (former Level 1)	#70	2.2.1	SURF B0/2	MST.029	SO6/6	-	HPAO
	AOP04.2 - A-SMGCS RMCA (former Level 2)	-	2.2.1	SURF B0/3	MST.029	SO6/6	-	HPAO
	AOP05 - Airport CDM	#106	2.1.1 2.1.3	ACDM B0/2 NOPS B0/4 RSEQ B0/2	-	SO6/4	-	HPAO
	AOP10 - Time Based Separation	#64	2.3.1	WAKE B2/7	-	SO6/5	-	HPAO
	AOP12 - Improve RWY and Airfield safety with CATC detection and CMAC	#02	2.1.2 2.5.1	SURF B1/3	MST.029	SP6/6	-	HPAO
	AOP13 - Automated assistance to Controller for Surface Movement planning and routing	#22 #53	2.4.1	SURF B1/4	MST.029	SO6/6	-	HPAO
	AOP15 - Safety Nets for vehicle drivers	#04	-	SURF B2/2	MST.029	-	-	HPAO
	AOP16 - Guidance assistance through airfield lighting	#47	-	SURF B1/1	MST.029	-	-	HPAO

	AOP18 - Runway Status Lights	#01	-	SURF B2/2	MST.029	-	-	HPAO
	ATC07.1 - Arrival management tools	-	1.1.1	RSEQ B0/1	-	SO4/1	-	AATS
	ATC19 - Enhanced AMAN-DMAN integration	#54	-	RSEQ B2/1	-	SO6/5 SO4/1	-	AATS
	ENV01 – Continuous Descent Operations	-	-	APTA B0/4	-	SO6/5	-	AATS
	ENV02 – Airport Collaborative Environmental Management	-	-	-	-	-	-	HPAO
	ENV03 – Continuous Climb Operations	-	-	APTA B0/5	-	SO6/5	-	AATS
	NAV03.1 – RNAV1 in TMA Operations	#62	-	APTA B0/2	RMT.0639 RMT.0445	SO6/5	-	AATS
	NAV03.2 – RNP1 in TMA Operations	#09, #51	1.2.3 1.2.4	APTA B1/2	RMT.0639 RMT.0445	SO6/5	-	AATS
	SAF11 - Improve runway safety by preventing runway excursions	-	-	-	MST.007 RMT.0570 RMT.0703	-	-	HPAO
dA	AOM19.1 - ASM tools to support A-FUA	#31	3.1.1	FRTO B0/2	-	SO3/2 SO3/3	AM-1.8	OANS
	AOM19.2 - ASM management of real-time airspace data	#31	3.1.2	FRTO B1/3 NOPS B1/5	-	SO3/2 SO3/3	AM-1.8	OANS
	AOM19.3 - Full rolling ASM/ATFCM process and ASM information sharing	#31	3.1.3	NOPS B1/5 FRTO B1/3	-	SO3/2 SO3/3	AM-1.8	OANS
	AOM19.4 – Management of Pre-defined Airspace Configurations	#31	3.1.4	NOPS B1/6 FRTO B1/4	-	SO3/2 SO3/3	-	OANS
	AOM21.2 - Free Route Airspace	#33, #66	3.2.1 3.2.4	FRTO B1/1	-	SO3/1 SO3/4	AM-1.6 AM-1.10 AM-5.1	AATS
	ATC12.1 - MONA, TCT and MTCDD	#27, #104	3.2.1	FRTO B1/5	-	SO3/1 SO4/1	AM-1.15 AM-5.1	AATS
	ATC15.1 - Initial extension of AMAN to En-route	-	1.1.2	-	-	SO4/1	-	AATS
	ATC15.2 - Extension of AMAN to En-route	#05	1.1.2	RSEQ B1/1 NOPS B1/8	-	SO4/1	AM-1.3	AATS
	ATC17 - Electronic Dialog supporting COTR	-	3.2.1	-	-	SO3/1 SO4/1	AM-1.3	AATS
	ATC18 - Multi Sector Planning En-route – 1P2T	#63	-	FRTO B1/6	-	SO4/1	AM-4.3 AM-5.1	AATS
	ITY-FMTP - Apply a common flight message transfer protocol (FMTP)	-	-	-	-	SO8/3	AM-1.3	EAI
TBO	ATC02.8 - Ground based safety nets	-	3.2.1	SNET B0/1 SNET B0/2 SNET B0/3 SNET B0/4	-	SO4/1	-	AATS
	ATC02.9 - Enhanced STCA for TMAs	#60	-	SNET B1/2	MST.030	SO4/1	-	AATS

	ATC20 – Enhanced STCA with DAP via Mode S EHS	#60	-	SNET B1/1	-	SO7/2	-	AATS
M3	NAV12 – ATS IFR Routes for Rotorcraft Operations	#113	-	APTA B0/6	MST.031	SO6/5	-	AATS

Annex 2. Applicability to Airports

Several Implementation Objectives are applicable to specific European airports. For the Objectives related to the PCP, the area of applicability fully includes the list of airports as defined in the PCP Regulation. However, the scope of some of the airport Objectives is substantially broader than the PCP as some airports have committed to implementation even if not explicitly targeted by the PCP Regulation. The applicability area for all airport Objectives is consolidated in the following table:

Legend:

✓ In the applicability area & completed ○ In the applicability area & not completed yet - Not in the applicability area

PCP – Objective linked to a PCP sub-functionality

PCP-PR – Objective identified as a predecessor for a PCP sub-functionality

PCP-FC – Objective identified as a facilitator for a PCP sub-functionality

PCP Airports

State	Airport	ICAO code	AOP04.1 (PCP-PR)	AOP04.2 (PCP-PR)	AOP05 (PCP-PR)	AOP10 (PCP)	AOP11 (PCP)	AOP12 (PCP)	AOP13 (PCP)	ATC07.1 (PCP-FC)	ENV01
AT	Vienna	LOWW	✓	✓	○	○	○	○	○	○	✓
BE	Brussels	EBBR	✓	✓	✓	-	○	✓	○	○	✓
CH	Zurich	LSZH	✓	✓	✓	○	○	○	○	✓	○
DE	Berlin Brandenburg	EDDB	○	○	○	-	○	○	○	○	-
DE	Frankfurt Main	EDDF	✓	○	✓	○	○	○	○	✓	✓
DE	Düsseldorf	EDDL	○	○	✓	○	○	○	○	○	✓
DE	Munich	EDDM	✓	✓	✓	○	○	○	○	✓	✓
DK	Copenhagen	EKCH	✓	✓	✓	○	○	○	○	✓	✓
ES	Barcelona	LEBL	✓	○	✓	-	○	○	○	✓	○
ES	Madrid Barajas	LEMD	✓	○	✓	○	○	○	○	✓	○
ES	Palma de Mallorca	LEPA	✓	○	✓	-	○	○	○	✓	✓
FR	Nice	LFMN	✓	✓	○	-	○	○	○	✓	✓
FR	Paris, Charles de Gaulle	LFPG	✓	✓	✓	-	○	○	○	✓	✓
FR	Paris, Orly	LFPO	✓	✓	✓	○	○	○	○	✓	✓
IE	Dublin	EIDW	✓	✓	✓	○	○	○	○	✓	✓
IT	Milan Malpensa	LIMC	○	○	✓	○	○	○	○	-	✓
IT	Rome Fiumicino	LIRF	○	○	✓	○	○	○	○	-	✓
NL	Amsterdam Schiphol	EHAM	✓	✓	✓	○	○	○	○	✓	✓

State	Airport	ICAO code	AOP04.1 (PCP-PR)	AOP04.2 (PCP-PR)	AOP05 (PCP-PR)	AOP10 (PCP)	AOP11 (PCP)	AOP12 (PCP)	AOP13 (PCP)	ATC07.1 (PCP-FC)	ENV01
NO	Oslo Gardermoen	ENGM	✓	✓	✓	○	○	○	○	✓	○
SE	Stockholm Arlanda	ESSA	✓	○	✓	-	○	○	○	✓	✓
UK	Manchester	EGCC	○	○	○	○	○	○	○	○	○
UK	London Gatwick	EGKK	✓	✓	✓	○	✓	✓	○	✓	○
UK	London Heathrow	EGLL	○	○	✓	✓	○	✓	○	✓	○
UK	London Stansted	EGSS	✓	✓	○	-	○	○	○	○	○

Non-PCP Airports

State	Airport	ICAO code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11	AOP12	AOP13	ATC07.1	ENV01
AM	Yerevan	UDYZ	-	-	-	-	-	-	-	-	✓
AZ	Baku	UBBB	✓	✓	-	-	-	✓	-	-	✓
BE	Antwerp	EBAW	-	-	-	-	-	-	-	-	○
BE	Charleroi	EBCI	-	-	-	-	-	-	-	-	✓
BE	Liege	EBLG	-	-	-	-	-	-	-	-	✓
BE	Ostende	EBOS	-	-	-	-	-	-	-	-	○
BA	Sarajevo	LQSA	-	-	○	-	-	-	-	-	○
BG	Sofia	LBSF	✓	-	-	-	-	-	-	-	-
CH	Geneva	LSGG	✓	✓	✓	-	○	-	-	○	○
CZ	Prague	EKPR	✓	✓	✓	-	○	○	-	○	○
DE	Hamburg	EDDH	-	-	-	-	○	-	-	-	✓
DE	Cologne-Bonn	EDDK	-	-	-	-	-	-	-	-	✓
DE	Nurnberg	EDDN	-	-	-	-	○	-	-	-	✓
DE	Stuttgart	EDDS	-	-	-	-	○	-	-	-	✓
DE	Hannover	EDDV	-	-	-	-	○	-	-	-	✓
EE	Tallinn	EETN	✓	✓	○	-	-	-	-	-	✓
FI	Helsinki	EFHK	✓	✓	✓	-	-	-	-	✓	✓
FR	Toulouse	LFBO	○	○	-	-	○	-	-	-	✓
FR	Lyon	LFLL	✓	○	✓	-	✓	-	-	-	✓
FR	Marseille	LFML	○	○	-	-	○	-	-	-	✓
GR	Athens	LGAV	○	○	○	-	-	-	-	-	-

State	Airport	ICAO code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11	AOP12	AOP13	ATC07.1	ENV01
GR	Iraklion	LGIR	-	-	○	-	-	-	-	-	-
GR	Rhodes	LGRP	-	-	○	-	-	-	-	-	-
GR	Thessaloniki	LGTS	○	○	-	-	-	-	-	-	-
HR	Zagreb	LDZA	✓	○	○	-	○	-	-	-	○
HU	Budapest	LHBP	✓	○	○	-	-	-	-	-	✓
IL	Tel-Aviv/ Ben-Gurion	LLBG	✓	✓	○	-	○	-	-	○	✓
IT	Bergamo Orio al Serio	LIME	-	-	-	-	-	-	-	-	-
IT	Milan Linate	LIML	○	○	✓	-	○	-	-	-	✓
IT	Naples	LIRN	-	-	-	-	-	-	-	-	-
IT	Venezia	LIPZ	○	○	✓	-	○	-	-	-	✓
LT	Vilnius	EYVI	✓	✓	○	-	-	-	-	-	✓
LU	Luxembourg	ELLX	✓	○	-	-	-	-	-	-	○
LV	Riga	EVRA	✓	✓	○	-	-	-	-	○	○
MA	Casablanca	GMMN	○	-	○	-	-	-	-	○	○
MA	Marrakesh	GMMX	○	-	○	-	-	-	-	-	-
MD	Chişinău	LUKK	○	○	-	-	-	○	-	-	-
PL	Warsaw	EPWA	○	○	○	-	-	-	-	○	✓
PT	Lisbon	LPPT	○	○	○	-	○	-	-	○	✓
RO	Bucharest	LROP	○	○	-	-	○	-	-	○	○
RS	Belgrade	LYBE	○	○	-	-	-	-	-	-	○
SE	Göteborg	ESGG	-	-	-	-	-	-	-	-	✓
SE	Malmö-Sturup	ESMS	-	-	-	-	-	-	-	-	✓
SE	Umea	ESNU	-	-	-	-	-	-	-	-	✓
SK	Bratislava	LZIB	-	-	-	-	-	-	-	-	-
TR	Ankara	LTAC	✓	✓	-	-	-	-	-	-	-
TR	Antalya	LTAI	✓	✓	○	-	-	-	-	-	○
TR	Istanbul Ataturk	LTBA	✓	✓	○	-	-	○	○	✓	○
TR	Istanbul Airport	LTFM	✓	✓	○	○	○	○	○	✓	-
UA	Kyiv Boryspil	UKBB	○	○	○	-	-	-	-	✓	✓
UK	Birmingham	EGBB	-	-	○	-	-	-	-	-	✓
UK	London Luton	EGGW	-	-	○	-	-	-	-	-	○

State	Airport	ICAO code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11	AOP12	AOP13	ATC07.1	ENV01
UK	Bristol	EGGD	-	-	-	-	-	-	-	-	○
UK	London City	EGLC	-	-	-	-	-	-	-	-	-
UK	Newcastle	EGNT	-	-	-	-	-	-	-	-	○
UK	Nottingham East Midlands	EGNX	-	-	-	-	-	-	-	-	○
UK	Glasgow	EGPF	-	-	-	-	-	-	-	-	○
UK	Edinburgh	EGPH	✓	✓	○	-	-	-	-	-	○

Annex 3.

MPL3 Plan Roadmap with reference to AAS TP

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type			Planned Implementation FOC-Reported progress													AAS Milestone	SESAR Key Feature
					Regulated	Committed	Local	←	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030			
ATp	Nil	Nil	ATC07.1	Arrival management tools				61%												Nil	AATS	
ATp	Enhanced AMAN/DMAN integration	#54	ATC19	Enhanced AMAN/DMAN integration				Based on local decision													Nil	AATS
ATp	Nil	Nil	ENV01	Continuous Descent Operations				39%												Nil	AATS	
ATp	Nil	Nil	ENV03	Continuous Climb Operations				Based on local decision													Nil	AATS
ATp	Enhanced TMA using RNP-based operations	#62	NAV03.1	RNAV1 in TMA Operations				23%												Nil	AATS	
ATp	Enhanced TMA using RNP-based operations	#09, #51	NAV03.2	RNP1 in TMA Operations				7%												Nil	AATS	
ATp	Enhanced GND ATCO awareness in AWO	#70	AOP04.1	A-SMGCS Surveillance (former Level 1)				70%												Nil	HPAO	
ATp	Nil	Nil	AOP04.2	A-SMGCS RMCA (former Level 2)				56%												Nil	HPAO	
ATp	DMAN synchronised with pre-departure sequencing	#106	AOP05	Airport CDM				53%												Nil	HPAO	
ATp	Time-based separation for final approach	#64	AOP10	Time Based Separation				6%												Nil	HPAO	
ATp	Airport safety nets	#02	AOP12	Improve RWY safety with CATC detection and CMAC				23%												Nil	HPAO	

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type			Planned Implementation FOC-Reported progress											AAS Milestone	SESAR Key Feature				
					Regulated	Committed	Local	←	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029			2030			
ATp	Auto. assist to ATCO for surface movement plan & routing DMAN synchronised with pre-DEP sequencing	#22 #53	AOP13	Auto. Assist. ATCO for Surface plan. and routing	█			0%	█	█	█	█	█	█									Nil	HPAO
ATp	Airport safety nets vehicle	#04	AOP15	Traffic sit. awareness and SNET for the vehicle drivers			█																Nil	HPAO
ATp	Integrated surface management	#47	AOP16	Guidance assistance through AGL			█																Nil	HPAO
ATp	Enhanced airport safety nets	#01	AOP18	Runway Status Lights (RWSL)			█																Nil	HPAO
ATp	Nil	Nil	ENV02	Airport Collaborative Env. Management			█																Nil	HPAO
ATp	Nil	Nil	SAF11	Improve RWY safety by preventing RWY excursions		█		66%	█														Nil	HPAO
ATp	D-TAXI service for CPDLC application	#23	Nil	Nil	No decision																		Nil	HPAO
ATp	Virtual block control in LVPs	#48	Nil	Nil	No decision																		Nil	HPAO
ATp	De-icing management tool	#116	Nil	Nil	No decision																		Nil	HPAO
ATp	Reducing landing minima in LVP using enhanced flight vision systems (EFVS)	#117	Nil	Nil	No decision																		Nil	HPAO
ATp	Continuous descent operations (CDO)	#11	Nil	Nil	No decision																		Nil	AATS

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type			Planned Implementation FOC-Reported progress											AAS Milestone	SESAR Key Feature
					Regulated	Committed	Local	←	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029		
ATp	Point merge in complex TMA	#107	Nil	Nil	No decision														Nil	AATS
ATp	AMAN and point merge	#108	Nil	Nil	No decision														Nil	AATS
CNS	CNS rationalisation	#103	NAV10	RNP App. Procedures to instrument RWY				14%											Nil	AATS
CNS	CNS rationalisation	#55	NAV11	PA using GBAS CAT II/III based on GPS L1															Nil	HPAO
CNS	Nil	Nil	COM10	Migration from AFTN to AMHS				64%											Nil	EAI
CNS	Nil	Nil	COM11.1	VoIP in En-Route				11%											AM-1.3	EAI
CNS	Nil	Nil	COM11.2	VoIP in Airport/Terminal				9%											Nil	EAI
CNS	Nil	Nil	ITY-ACID	Aircraft identification				36%											Nil	EAI
CNS	Nil	Nil	ITY-AGDL	Initial ATC air-ground data link services				36%											AM-1.1	EAI
CNS	Nil	Nil	ITY-AGVCS2	8.33 kHz A/G Voice Channel Spacing below FL195				37%											Nil	EAI
CNS	Nil	Nil	ITY-SPI	Surveillance performance and interoperability				40%											Nil	EAI
CNS	CNS rationalisation	#109	OD-3	Iris precursor	No decision														AM-1.16	EAI
CNS	Cooperative SUR ADS-B / WAM	#114	ATC21	ADS-B/WAM															AM-1.17	EAI
CNS	AeroMACS	#102	Nil	Nil	No decision														Nil	EAI
CNS	CNS rationalisation	#110	Nil	Nil	No decision														Nil	EAI
dA	Airspace management and advanced FUA	#31	AOM19.1	ASM Tools to Support AFUA				34%											AM-1.8	OANS

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type			Planned Implementation FOC-Reported progress											AAS Milestone	SESAR Key Feature	
					Regulated	Committed	Local	←	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029			2030
dA	Airspace management and advanced FUA	#31	AOM19.2	ASM Management of Real-Time Airspace Data				5%												AM-1.8	OANS
dA	Airspace management and advanced FUA	#31	AOM19.3	Full Rolling ASM/ATFCM and ASM Information Sharing				14%												AM-1.8	OANS
dA	Airspace management and advanced FUA	#31	AOM19.4	Management of Pre-defined Airspace Configurations				11%												Nil	OANS
dA	Free Route	#66 #33 PJ.06-01	OD-2	FRA ensuring connectivity with TMA	No decision			No impl. objective yet. E.i no date yet.											AM-1.7	OANS	
dA	Free Route	#33, #66	AOM21.2	Free Route Airspace				67%												AM-1.6 AM-1.10 AM-5.1	AATS
dA	Sector team operations - en-route air traffic organiser. MTCD and conformance monitoring tool.	#27, #104	ATC12.1	MONA, TCT and MTCD				49%												AM-1.15 AM-5.1	AATS
dA	Nil	Nil	ATC15.1	Initial extension of AMAN to En-route				61%												Nil	AATS
dA	AMAN extended to en-route airspace	#05	ATC15.2	AMAN Extended to En-route Airspace				18%												AM-1.3	AATS
dA	Nil	Nil	ATC17	E. Dialogue, Automat.Assist to ATCO during COTR				32%												AM-1.3	AATS
dA	Multi-sector planning	#63 #70W2	ATC18	Multi Sector Planning En-route P2T				Based on local decision											AM-4.3 AM-5.1	AATS	

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type			Planned Implementation FOC-Reported progress											AAS Milestone	SESAR Key Feature	
					Regulated	Committed	Local	←	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029			2030
dA	Nil	Nil	ITY-FMTP	Common flight message transfer protocol (FMTP)				77%												AM-1.3	EAI
dA	Optimised route network using advanced RNP	#10	Nil	Nil	No decision			No impl. objective yet. E.i no date yet.											Nil	AATS	
dA	Basic EAP (extended ATC planning function)	#118	Nil	Nil	No decision			No impl. objective yet. E.i no date yet.											Nil	AATS	
dS	Nil	Nil	INF07	Electronic Terrain and Obstacle Data (e-TOD)				21%												Nil	EAI
dS	Digitally enhanced briefing	#34	INF09	Digital Integrated Briefing				Based on local decision											Nil	EAI	
dS	Nil	Nil	ITY-ADQ	Ensure quality of AIM data and information				10%												Nil	EAI
iN	Nil	Nil	AOM13.1	Harmonise OAT and GAT handling				45%												Nil	OANS
iN	Nil	Nil	FCM03	Collaborative flight planning				59%												AM1.14	OANS
iN	Enhanced short-term ATFCM measures	#17	FCM04.2	STAM phase 2				13%												AM-1.11	OANS
iN	Collaborative NOP	#20, #21	FCM05	Interactive rolling NOP				5%												AM-1.12	OANS
iN	Auto. support for traffic complexity assessment	#19	FCM06	Traffic Complexity Assessment				17%												AM-1.13	OANS
iN	CTOT to TTA for ATFCM purposes	#18	FCM07	CTOT to TTA for ATFCM																AM-1.9	OANS
iN	Enhanced ATFM slot swapping	#56	FCM09	Enhanced ATFM Slot swap																Nil	OANS

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type			Planned Implementation FOC-Reported progress													AAS Milestone	SESAR Key Feature
					Regulated	Committed	Local	←	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030			
iN	Collaborative NOP	#21	AOP11	Initial Airport Operations Plan	█			13%	█	█	█								Nil	HPAO		
iN	Airport integration into the network	#61	AOP17	Provision/integration of DEP planning info to NMOC			█	Based on local decision										Nil	HPAO			
iN	Nil	Nil	COM12	NewPENS		█		17%	█	█	█	█	█						Nil	EAI		
iN	Initial SWIM: infrastructure and profiles. Initial SWIM:MET information exchange.	#35, #46	INF08.1	Information Exchanges using the SWIM Yellow TI Profile		█		0%	█	█	█	█	█	█					AM-1.5	EAI		
iN	Initial SWIM: flight information exchange	#28, #46 PJ.18-02b	INF08.2	Info. Exchanges using the SWIM Blue TI Profile		█			█	█	█	█	█						AM-9.1	EAI		
iN	UDPP departure	#57	Nil	Nil	No decision			No impl. objective yet. E.i no date yet.										Nil	OANS			
iN	Initial SWIM: flight information exchange	#67	Nil	Nil	No decision			No impl. objective yet. E.i no date yet.										Nil	EAI			
iN	Initial SWIM: flight information exchange	#37	Nil	Nil	No decision			No impl. objective yet. E.i no date yet.										Nil	EAI			
M3	Optimised low-level IFR routes for rotorcraft	#113	NAV12	ATS IFR Routes for Rotorcraft Operations	█			0%	█	█	█	█	█	█	█	█	█	█	Nil	AATS		
TBO	Nil	Nil	ATC02.8	Ground based safety nets	█			53%	█	█	█								Nil	AATS		
TBO	Enhanced safety nets	#60	ATC02.9	Enhanced STCA for TMAs	█			69%	█	█									Nil	AATS		
TBO	Enhanced safety nets	#69	ATC20	Enhanced STCA with DAPs via Mode S EHS			█	Based on local decision										Nil	AATS			

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type	Planned Implementation FOC-Reported progress											AAS Milestone	SESAR Key Feature	
					Regulated Committed Local	←	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029			2030
TBO	Initial trajectory information sharing (i4D)	#115	OD-1	EPP/ADS C	No decision		No impl. objective yet. E.i no date yet.											AM-1.2	EAI
TBO	CTA in medium density / medium complexity environment	#06	Nil	Nil	No decision		No impl. objective yet. E.i no date yet.											Nil	AATS
TBO	Arrival management into multiple airports	#08	Nil	Nil	No decision		No impl. objective yet. E.i no date yet.											Nil	AATS
TBO	Enhanced ACAS	#105	Nil	Nil	No decision		No impl. objective yet. E.i no date yet.											Nil	AATS
TBO	ACAS ground monitoring and presentation system	#100	Nil	Nil	No decision		No impl. objective yet. E.i no date yet.											Nil	EAI
TBO	Extended hybrid surveillance	#101	Nil	Nil	No decision		No impl. objective yet. E.i no date yet.											Nil	EAI

EOC	Deployment Scenario	SESAR SOL	Impl. Objective	Objective Title	Decision type			Planned Implementation FOC-Reported progress											AAS Milestone	SESAR Key Feature
					Regulated	Committed	Local	↑	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029		
vS	Single remote TWR for medium traffic volumes. Remotely provided ATS for contingency situations at aerodromes. Remote TWR for two low density aerodromes. ATC and AFIS in a single low density aerodrome from a remote CWP.	#12 #71 #52 #13	AOP14	Remote Tower Services				Based on local decision											Nil	HPAO
vS	Virtual centre concept	PJ.16-03	OD-5	VC concept, CWP and service interface	No decision			No impl. objective yet. E.i no date yet.											AM-4.5	EAI

Annex 4.

Acronyms and Abbreviation

A

AAB	Agency Advisory Body (EUROCONTROL)
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
A-CDM	Airport Collaborative Decision Making
ACH	ATC Flight Plan Change
ACID	Aircraft Identification
ACL	ATC Clearance
ACP	Accept (message)
ADEXP	ATC Data Exchange Presentation
ADQ	Aeronautical Data Quality
ADR	Airspace Data Repository
ADS	Automatic Dependent Surveillance
ADS-B	Automatic Dependent Surveillance – Broadcast
ADS-C	Automatic Dependent Surveillance - Contract
AF	ATM Family
AFTN	Aeronautical Fixed Telecommunications Network
AIC	Aeronautical Information Circular
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Service
AIXM	Aeronautical Information Exchange Model
AMAN	Arrival Manager
AMC	Acceptable Means of Compliance
AMC	Airspace Management Cell
AMHS	ATS Message Handling Service
ANS	Air Navigation Service
ANSP	Air Navigation Service Provider
AO	Airline Operator

AOM	Airspace Organisation and Management
AOP	Airport Operations Plan
APL	ATC Flight Plan
APM	Approach Path Monitor
APO	Airport Operations
APOC	Airport Operations Centre
APP	Approach
APV	Approach with Vertical Guidance
APW	Airborne Proximity Warning
ASM	Airspace Management
A-SMCGS	Advanced Surface Movement Control and Guidance System
ASP	Air Navigation Service Providers
ASTERIX	All Purpose Structured EUROCONTROL Radar Information Exchange
ATC	Air Traffic Control
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATCO	Air Traffic Control Officer

B

BA	Business Aviation
B2B	Business to Business

C

CAA	Civil Aviation Authority
CBA	Cost Benefit Analysis
CCO	Continuous Climb Operations
CDM	Collaborative Decision Making
CDN	Coordination (message)
CDO	Continuous Descent Operations
CDR	Conditional Route
CEM	Collaborative Environmental Management
CFIT	Controlled Flight Into Terrain

CHMI Collaboration Human Machine Interface

CIAM Collaboration Interface for Airspace Management

CNMF Central Network Management Function

CNR Management of Common Network Resources Service

CNS Communications, Navigation and Surveillance

COD SSR Code Assignment

COF Change of Frequency (message)

COM Communications

CONOPS Concept of Operations

COTS Connection-mode Transport Service

CPDLC Controller Pilot Data Link Communications

CPR Correlated Position Reports

CRAM Conditional Route Availability Message

CSP Communications Service Provider

D

DCT Direct Routing

DDR Demand Data Repository

DLIC Data Link Initiation Capability

DME Distance Measuring Equipment

DP Deployment Programme

DPI Departure Planning Information

E

EAD European Aeronautical Database

EAPPRE European Action Plan on the Prevention of Runway Excursion

EASA European Aviation Safety Agency

EATM European Air Traffic Management

EATMN European Air Traffic Management Network

EC European Commission

ECAA European Common Aviation Area

ECAC European Civil Aviation Conference

EGNOS European Geostationary Navigation Overlay Service

EGPWS Enhanced Ground Proximity Warning System

ERNIP European Route Network Improvement Plan

ESSIP European Single Sky Implementation

ETFMS Enhanced Tactical Flow Management System

ETSI European Telecommunications Standards Institute

ETSO European Technical Standard Order

EU European Union

EUROCAE European Organisation for Civil Aviation Equipment

F

FA Focus Area

FAB Functional Airspace Block

FANS Future Air Navigation Systems (ICAO)

FAS Flight Plan and Airport Slot Consistency Service

FCM Flow and Capacity Management

FDP Flight Data Processing

FDPS Flight Data Processing System

FIS Flight Information Services

FL Flight Level

FMS Flight Management System

FMTP Flight Message Transfer Protocol

FOC Full Operational Capability

FPL Filed Flight Plan

FRA Free Route Airspace

FSA First System Activation

FUA Flexible Use of Airspace

FUM Flight Update Message

G

GAT General Air Traffic

GBAS Ground Based Augmentation System
 GNSS Global Navigation Satellite System
 GPS Global Positioning System

H

HMI Human Machine Interface
 HOP Hand-Over Proposal (message)

I

IANS Institute of Air Navigation Services
 IATA International Air Transport Association
 ICAO International Civil Aviation Organisation
 IFPL Individual Filed Flight Plan
 IFPS Initial Flight Plan Processing System
 IFR Instrument Flight Rules
 ILS Instrument Landing System
 IND Aeronautics Industry
 INF Information Management
 INT International Organisations and Regional Bodies
 IP Internet Protocol
 IR Implementing Rule
 ISO International Standardisation Organisation
 ITU International Telecommunications Union
 ITY Interoperability

J

JU Joint undertaking

K

KHz Kilohertz
 KPA Key Performance Area
 KPI Key Performance Indicator

L

LARA Local and Regional ASM application
 LoA Letter of Agreement
 LPV Lateral Precision with Vertical Guidance Approach
 LSSIP Local Single Sky Implementation

M

MAS Manual Assumption of Communication (message)
 MET Meteorology
 MHz Megahertz
 MIL Military Authorities
 MP L3 Master Plan Level 3
 Mode S SSR Selective Interrogation Mode
 MONA Monitoring Aids
 MoU Memorandum of Understanding
 MSAW Minimum Safe Altitude Warning
 MTCD Medium Term Conflict Detection
 MTOW Maximum Take-Off Weight
 MUAC Maastricht Upper Area Control (Centre)

N

N/A Not applicable
 NATO North Atlantic Treaty Organisation
 NAV Navigation
 NETOPS Network Operations Team
 NM Network Manager
 NMOC Network Manager Operations Centre
 NOP Network Operations Plan
 NOTAM Notice to Airmen
 NPA Notice of Proposed Amendment
 NPA Non Precision Approach
 NSA National Supervisory Authority

O

OAT Operational Air Traffic
 OI Operational improvements

OLDI On Line Data Interchange
OPC Operational Communications

P

PA Precision Approach
PAC Preliminary Activation message
PANS-OPS Procedures for Air Navigation Services – Aircraft Operations
PBN Performance Based Navigation
PCP Pilot Common Project
PDS Pre-Departure Sequencing
PENS Pan-European Network Service
P-RNAV Precision RNAV

R

RAD Route Availability Document
RAP Referred Activate (message)
REG National Regulatory Authorities/NSAs
RF Radio Frequency
RJC Reject (message)
RMCA Runway Monitoring and Conflict Alerting
RNAV Area Navigation
RNP Required Navigation Performance
ROF Request on Frequency
RRV Referred Revision (message)
R/T Radio Telephony

S

SAF Safety
SBAS Satellite Based Augmentation System
SBY Stand-By (message)
SDM SESAR Deployment Manager
SDM SDM Supplementary Data Message
SDP SESAR Deployment Program
SEAS Single European Airspace System
SES Single European Sky

SESAR Single European Sky ATM Research
SJU SESAR Joint Undertaking
SLoA Stakeholder Line(s) of Action
SOL SESAR Solution
SSR Secondary Surveillance Radar
STAM Short-Term ATFCM Measures
STCA Short Term Conflict Alert
SUR Surveillance
SVS Synthetic Vision System
SWIM System-Wide Information Management

T

TBD To Be Determined
TBO Time-Based Operations
TBS Time-Based Separation
TCAS Traffic Alert and Collision Avoidance System
TCP/IP Transmission Control Protocol / Internet Protocol
TIM Transfer Phase Initiation Message
TOD Terrain and Obstacle Data
TMA Terminal Control Area
TWR Tower Control Unit

U

UAC Upper Area Control (Centre)
UDPP User-Driven Prioritisation Process
USE Airspace Users
UUP Updated Airspace Use Plan

V

VCS Voice Communications System
VDL VHF Digital Link
VFR Visual Flight Rules
VHF Very High Frequency
VNAV Vertical Navigation
VoIP Voice over Internet Protocol

W

WAM Wide Area Multilateration

