

SESAR		Achieved							ECAC+		
ATC16		Implement ACAS II compliant with TCAS II change 7.1									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP	

Subject matter and scope

This implementation objective is aligned to Regulation (EU) No 1332/2011 of 16 December 2011 laying down common airspace usage requirements and operating procedures for airborne collision avoidance.

This objective is applicable to all flights performed by turbine-powered aeroplanes, regardless of State of Registry:

- with MTOW > 5700 kg, or
- authorised to carry more than 19 passengers; or
- any other aeroplane equipped on a voluntary basis with ACAS II.

This objective is not applicable to unmanned aircraft systems

Regulation (EU) No 1332/2011 applies as of 01 March 2012. By way of derogation, for aircraft with individual certificate of airworthiness issued before 1 March 2012, the provisions in Regulation (EU) No 1332/2011 shall apply as of 1st December 2015.

For ACAS II (with 7.0 logic), Military Authorities of ECAC Member States previously agreed on a voluntary installation programme on military transport type aircraft from 01 January 2005. Germany made ACAS II mandatory within its airspace from 01 January 2000 for all aircraft including military transport type aircraft (DE AIC IFR 8 - 23 DEC 04).

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		
Timescales:		From:	By:	Applicable to:
Initial operational capability		01/03/2012		Applicability Area
Full operational capability			31/12/2015	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -									
Enablers -	PRO-AC-21									
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

Commission Regulation (EU) No 1332/2011 of 16 December 2011 laying down common airspace usage requirements and operating procedures for airborne collision avoidance

Essential Operational Changes

- none -

SESAR Solution

- none -

ICAO GANP - ASBUs

B0-ACAS	ACAS Improvements
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Deployment Programme

- none -

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European Plan for Aviation Safety

- none -

Operating Environments

- none -

Stakeholder Lines of Action (SLOAs)

SloA ref.	Title	From	By
ATC16-REG01	Supervise compliance with regulatory provisions	01/03/2012	31/12/2015
ATC16-REG02	Provide airworthiness certification	01/03/2012	31/12/2015
ATC16-REG03	Deliver operational approval for ACAS II version 7.1 equipped aircraft	01/03/2012	31/12/2015
ATC16-ASP01	Train controllers	01/03/2012	01/03/2012
ATC16-ASP02	Establish ACAS II (TCAS II version 7.1) performance monitoring	01/03/2012	01/03/2012
ATC16-MIL01	Equip and put into service transport-type aircraft with ACAS II (TCAS II version 7.1) capability	01/03/2012	31/12/2015
ATC16-MIL02	Train aircrews of tactical aircraft (not ACAS II equipped)		31/03/2012
ATC16-USE01	Obtain airworthiness certification for ACAS II version 7.1 equipped aircraft	01/03/2012	31/12/2015
ATC16-USE02	Obtain operational approval for ACAS II version 7.1 equipped aircraft	01/03/2012	31/12/2015

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

Expected Performance Benefits

Safety:	Improve ATM safety by reducing incidence of mid-air collisions between aircraft.
Capacity:	N/A
Operational Efficiency:	-
Cost Efficiency:	N/A
Environment:	N/A
Security:	N/A

Detailed SLOA Descriptions

ATC16-REG01	Supervise compliance with regulatory provisions	From:	By:
		01/03/2012	31/12/2015
Action by:	State Authorities		
Description & purpose:	Supervise compliance with regulatory provisions for ACAS II (TCAS II version 7.1). The tasks to be done are as follows: - Ensure that all concerned aircraft in the State of Registry under its oversight are equipped with certified ACAS II equipment; - Ensure that these ACAS II equipment have received airworthiness certificate, in compliance with applicable EASA certification material; - Ensure that all concerned aircraft operators in the State of Registry under its oversight have received an operational approval in compliance with applicable EASA material.		
Supporting material(s):	EUROCAE - ED-181 - Guidance for the Development of Airborne Collision Avoidance Systems 09/2010 Url : https://eshop.eurocae.net/eurocae-documents-and-reports ICAO - Doc 9863 - Airborne Collision Avoidance System (ACAS) Manual - Edition 2 / 01/2012 Url : https://store.icao.int/ ICAO - Annex 10, Volume IV - Aeronautical Telecommunications, Volume IV - Surveillance and Collision Avoidance Systems - 4th Edition Url : http://store1.icao.int/ EASA - AMC 20-15 - Airworthiness Certification Considerations for the Airborne Collision Avoidance System (ACAS II) with optional Hybrid Surveillance - ED Decision 2011/001/R / 03/2011 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-15.pdf EASA - ETSO-C119c - Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS II - ED Decision 2009/015/R / 12/2009 Url : http://easa.europa.eu/system/files/dfu/ws_prod-g-doc-Agency_Mesures-Agency_Decisions-2009-cs_etso_5-Annex-II---ETSO.pdf		
Finalisation criteria:	1 - Evidence on the status of compliance with regulatory provisions for ACAS II (TCAS 7.1) for aircraft and aircraft operators in the State of Registry under the NSA oversight has been provided.		
ATC16-REG02	Provide airworthiness certification	From:	By:

ATC16	Implement ACAS II compliant with TCAS II change 7.1
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		01/03/2012	31/12/2015
Action by:	State Authorities		
Description & purpose:	Provide airworthiness certification to all concerned aircraft in the State of Registry under its responsibility, which are equipped with ACAS II equipment compliant with applicable airworthiness requirements.		
Supporting material(s):	<p>EUROCAE - ED-181 - Guidance for the Development of Airborne Collision Avoidance Systems 09/2010 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>ICAO - Doc 9863 - Airborne Collision Avoidance System (ACAS) Manual - Edition 2 / 01/2012 Url : https://store.icao.int/</p> <p>ICAO - Annex 10, Volume IV - Aeronautical Telecommunications, Volume IV - Surveillance and Collision Avoidance Systems - 4th Edition Url : http://store1.icao.int/</p> <p>EASA - AMC 20-15 - Airworthiness Certification Considerations for the Airborne Collision Avoidance System (ACAS II) with optional Hybrid Surveillance - ED Decision 2011/001/R / 03/2011 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-15.pdf</p> <p>EASA - ETSO-C119c - Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS II - ED Decision 2009/015/R / 12/2009 Url : http://easa.europa.eu/system/files/dfu/ws_prod-g-doc-Agency_Mesures-Agency_Decisions-2009-cs_etso_5-Annex-II---ETSO.pdf</p> <p>EUROCAE - ED-143 Change 1 - Minimum Operational Performance Standards For Traffic Alert and Collision Avoidance 04/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>EUROCAE - ED-143 - Volume I : Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) Volume II : TCAS II Collision Avoidance System (CAS) Requirements Specification- Attachment A to Volume II 09/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p>		
Finalisation criteria:	1 - Airworthiness certification for ACAS II (TCAS 7.1) aircraft in the State of Registry under its responsibility has been provided.		
ATC16-REG03	Deliver operational approval for ACAS II version 7.1 equipped aircraft	From: 01/03/2012	By: 31/12/2015
Action by:	State Authorities		
Description & purpose:	<p>Deliver operational approval for ACAS II version 7.1 equipped aircraft. The tasks to be done are as follows:</p> <ul style="list-style-type: none"> - Instruction of the certification application file delivered by the applicant in accordance with the appropriate certification process; - Approval of pertinent training programs, checklists, operations manuals or training manuals, maintenance programs, minimum equipment lists or other pertinent documents or document revisions applicable to that operator. <p>The requirements for certification and operation of ACAS II within the EU Member States, Norway and Switzerland are covered in EU-OPS 1.</p>		
Supporting material(s):	<p>EUROCAE - ED-181 - Guidance for the Development of Airborne Collision Avoidance Systems 09/2010 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>RTCA - DO-185B - Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) 08/2006 Url : http://www.rtca.org/store_list.asp</p> <p>EUROCAE - ED-143 Change 1 - Minimum Operational Performance Standards For Traffic Alert and Collision Avoidance 04/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>RTCA - DO-185B-Change 1 - Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) - Change 1 01/2007 Url : http://www.rtca.org/store_list.asp</p> <p>RTCA - DO-185A - Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) Airborne Equipment 12/1997 Url : http://www.rtca.org/store_list.asp</p> <p>EUROCAE - ED-143 - Volume I : Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) Volume II : TCAS II Collision Avoidance System (CAS) Requirements Specification- Attachment A to Volume II 09/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p>		
Finalisation criteria:	1 - Operational approval to aircraft operators having submitted an application has been delivered.		
ATC16-ASP01	Train controllers	From: -	By: 01/03/2012
Action by:	ANS Providers		

ATC16	Implement ACAS II compliant with TCAS II change 7.1		
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Description & purpose:	Train air traffic control staff in ACAS II (TCAS II version 7.1) procedures for the provision of air traffic control services. The tasks to be done are as follows: - Update existing training package (material) to ACAS II - TCAS II version 7.1; - Develop training plan; - Determine staff population to be trained; - Apply the training plan.		
Supporting material(s):	ICAO - Doc 9863 - Airborne Collision Avoidance System (ACAS) Manual - Edition 2 / 01/2012 Url : https://store.icao.int/ ICAO - Annex 10, Volume IV - Aeronautical Telecommunications, Volume IV - Surveillance and Collision Avoidance Systems - 4th Edition Url : http://store1.icao.int/ EASA - AMC 20-15 - Airworthiness Certification Considerations for the Airborne Collision Avoidance System (ACAS II) with optional Hybrid Surveillance - ED Decision 2011/001/R / 03/2011 Url : http://www.easa.europa.eu/system/files/dfu/Annex_II_-_AMC_20-15.pdf EASA - ETSO-C119c - Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS II - ED Decision 2009/015/R / 12/2009 Url : http://easa.europa.eu/system/files/dfu/ws_prod-g-doc-Agency_Mesures-Agency_Decisions-2009-cs_etso_5-Annex-II---ETSO.pdf EUROCONTROL - ACAS Guide Url : https://www.eurocontrol.int/system/airborne-collision-avoidance-system		
Finalisation criteria:	1 - The training plan and package has been developed by the ANSP. 2 - All concerned personnel have been trained.		
ATC16-ASP02	Establish ACAS II (TCAS II version 7.1) performance monitoring	From: -	By: 01/03/2012
Action by:	ANS Providers		
Description & purpose:	Establish a monitoring of the performance of ACAS in the ATC environment, as described in PANS-ATM (Procedures for Air Navigation Services - ICAO Doc. 4444 Fifteenth Edition 2007-ATM/501)		
Supporting material(s):	ICAO - Doc 9863 - Airborne Collision Avoidance System (ACAS) Manual - Edition 2 / 01/2012 Url : https://store.icao.int/ EASA - ETSO-C119c - Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS II - ED Decision 2009/015/R / 12/2009 Url : http://easa.europa.eu/system/files/dfu/ws_prod-g-doc-Agency_Mesures-Agency_Decisions-2009-cs_etso_5-Annex-II---ETSO.pdf EUROCAE - ED-143 Change 1 - Minimum Operational Performance Standards For Traffic Alert and Collision Avoidance 04/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-143 - Volume I : Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) Volume II : TCAS II Collision Avoidance System (CAS) Requirements Specification- Attachment A to Volume II 09/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports		
Finalisation criteria:	1 - A monitoring system of the performance of ACAS in the ATC environment, by means of regular incident occurrence reporting, investigation and analysis, has been put in place.		
ATC16-MIL01	Equip and put into service transport-type aircraft with ACAS II (TCAS II version 7.1) capability	From: 01/03/2012	By: 31/12/2015
Action by:	Military Authorities		
Description & purpose:	Equip and put into service ACAS II (TCAS II version 7.1) in military fixed-wing turbine engine transport-type aircraft as specified in EASA ETSO C-119c. Note : Where TCAS has been mandated or States have been agreed on a voluntary installation for transport type military aircraft, as well as for any future fitment to military airframes, TCAS implementation should be carried out with due regard to the TCAS version 7.1.		
Supporting material(s):	EUROCAE - ED-181 - Guidance for the Development of Airborne Collision Avoidance Systems 09/2010 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-143 Change 1 - Minimum Operational Performance Standards For Traffic Alert and Collision Avoidance 04/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-143 - Volume I : Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) Volume II : TCAS II Collision Avoidance System (CAS) Requirements Specification- Attachment A to Volume II 09/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports		
Finalisation criteria:	1 - Transport-type aircraft have been equipped with ACAS II (TCAS II Version 7.1) compliant equipment.		

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ATC16-MIL02	Train aircrews of tactical aircraft (not ACAS II equipped)	From: -	By: 31/03/2012
Action by:	Military Authorities		
Description & purpose:	Train aircrews of tactical aircraft (not ACAS II equipped) on the implications of ACAS operations, when operating in the airspace environment.		
Supporting material(s):	ICAO - Doc 9863 - Airborne Collision Avoidance System (ACAS) Manual - Edition 2 / 01/2012 Url : https://store.icao.int/ ICAO - Annex 10, Volume IV - Aeronautical Telecommunications, Volume IV - Surveillance and Collision Avoidance Systems - 4th Edition Url : http://store1.icao.int/		
Finalisation criteria:	1 - The training plan and package has been developed by the Military Authority. 2 - All concerned personnel have been trained.		
ATC16-USE01	Obtain airworthiness certification for ACAS II version 7.1 equipped aircraft	From: 01/03/2012	By: 31/12/2015
Action by:	Airspace Users		
Description & purpose:	Provide a certification application case to the competent authority for the state of registry of the aircraft to obtain airworthiness certification for their airframes equipped with ACAS II equipment.		
Supporting material(s):	EUROCAE - ED-181 - Guidance for the Development of Airborne Collision Avoidance Systems 09/2010 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EASA - ETSO-C119c - Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS II - ED Decision 2009/015/R / 12/2009 Url : http://easa.europa.eu/system/files/dfu/ws_prod-g-doc-Agency_Mesures-Agency_Decisions-2009-cs_etso_5-Annex-II--ETSO.pdf EUROCAE - ED-143 Change 1 - Minimum Operational Performance Standards For Traffic Alert and Collision Avoidance 04/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-143 - Volume I : Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) Volume II : TCAS II Collision Avoidance System (CAS) Requirements Specification- Attachment A to Volume II 09/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports		
Finalisation criteria:	1 - Aircraft operators have received airworthiness certificate by the Competent Authorities, for ACAS II version 7.1 equipped aircraft.		
ATC16-USE02	Obtain operational approval for ACAS II version 7.1 equipped aircraft	From: 01/03/2012	By: 31/12/2015
Action by:	Airspace Users		
Description & purpose:	In order to obtain operational approval by the Competent authority of the State from which they hold an Air Operator Certificate, operators must provide evidence which pertains to: - Changes to training and maintenance programmes; - Changes to manuals, operational procedures, minimum equipment lists; and - Other areas necessary for safe and effective TCAS use and the qualification of aircrews through the approved training programmes.		

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Supporting material(s):	<p>EUROCAE - ED-181 - Guidance for the Development of Airborne Collision Avoidance Systems 09/2010 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>RTCA - DO-185B - Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) 08/2006 Url : http://www.rtca.org/store_list.asp</p> <p>EASA - AMC 20-15 - Airworthiness Certification Considerations for the Airborne Collision Avoidance System (ACAS II) with optional Hybrid Surveillance - ED Decision 2011/001/R / 03/2011 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-15.pdf</p> <p>EASA - ETSO-C119c - Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, TCAS II - ED Decision 2009/015/R / 12/2009 Url : http://easa.europa.eu/system/files/dfu/ws_prod-g-doc-Agency_Mesures-Agency_Decisions-2009-cs_etso_5-Annex-II---ETSO.pdf</p> <p>EUROCAE - ED-143 Change 1 - Minimum Operational Performance Standards For Traffic Alert and Collision Avoidance 04/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p> <p>RTCA - DO-185B-Change 1 - Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) - Change 1 01/2007 Url : http://www.rtca.org/store_list.asp</p> <p>EUROCAE - ED-143 - Volume I : Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II) Volume II : TCAS II Collision Avoidance System (CAS) Requirements Specification- Attachment A to Volume II 09/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports</p>
ATM Master Plan relationship:	[PRO-AC-21]-Cockpit procedure for AP/FD TCAS
Finalisation criteria:	1 - Aircraft operators have received operational approval by the Competent Authorities, for ACAS II version 7.1 equipped aircraft.

