



ATC20 — Enhanced STCA with down-linked parameters via Mode S EHS

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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 to 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.

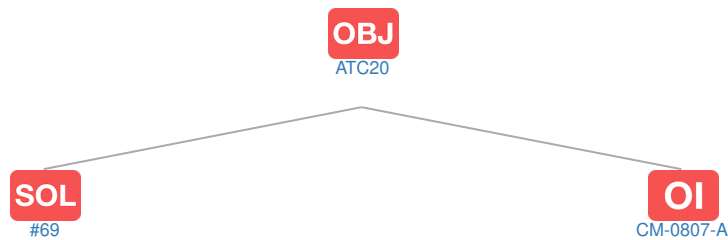
NOTE: The implementation of this functionality requires the appropriate equipment on board. The airborne carriage and operation of Mode S EHS capable transponders is addressed by objective ITY-SPI (ITY-SPI-USE06 and ITY-SPI-MIL02) based on the provision of Regulation (EU) No 2020587/386.

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.

Edition	2022
Stakeholders	Regulator / Air Navigation Service Provider
Type	SESAR
Scope	Local
Status	Active

Context

Related Elements










Applicability Area(s) and Timescales

Applicability Area: All EU SES States except: Bulgaria, Estonia, Latvia, Malta, Slovak Republic. Plus: Albania, Israel, Moldova, Montenegro, Serbia, Türkiye, United Kingdom (ACCs and collocated ACCs/APPs. Stand-alone APP Units providing services to more than 100K IFR movements per year. Subject to local need.)






Timescales	From	By	Applicable to
FOC used for Analytics functioning only - not for implementation planning	31-05-2019	-	Applicability Area
FOC used for Analytics functioning only - not for implementation planning	-	01-01-2030	Applicability Area

Links to ATM Master Plan Level 2

OI Operational Improvement Steps

Code	Title	IOC	FOC	Related Elements
CM-0807-A	Enhanced Short Term Conflict Alert using Mode S EHS data	31-12-2015	31-12-2027	      

SOL Links to SESAR Solutions

Code	Title	Program	Related Elements
#69	Enhanced STCA with down-linked parameters	SESAR1	    

PCP Links to PCP ATM Sub-Functionalities

Code	Title	Related Elements
No record found		

 ICAO Block Modules: No associated data

References

Applicable legislation

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

Applicable ICAO Annexes and other references

None

Deployment Programme 2022

-

Operating Environments

Terminal Airspace

En-Route

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	-
Operational efficiency	-
Cost efficiency	-
Environment	-
Security	-

Stakeholder Lines of Action

Code	Title	From	By	Related Enablers
REG01	Mandate the airborne carriage and operation of suitable equipment (Mode S EHS transponders)	31-05-2019	01-01-2030	
ASP01	Deploy enhanced STCA function with the use of Selected Flight Level downlinked parameter	31-05-2019	01-01-2030	
ASP02	Develop and implement ATC procedures related to the availability for display and use of SFL in the STCA functionality	31-05-2019	01-01-2030	
ASP03	Align ATCO training to address the availability and use of the SFL downlinked parameter	31-05-2019	01-01-2030	
ASP04	Develop a local safety assessment	31-05-2019	01-01-2030	

Supporting Material

Title	Related SLOs
EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 3 / 05/2021 https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-3	REG01
EUROCAE - ED-73F - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 12/2020 https://eshop.eurocae.net/eurocae-documents-and-reports	REG01
EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 https://www.eurocontrol.int/tool/safety-assessment-methodology	ASP04
EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm	ASP04
EUROCONTROL - GUID-159 - EUROCONTROL Guidelines for Short Term Conflict Alert - Part I to III - Edition 1.0 / 01/2017 https://www.eurocontrol.int/publication/eurocontrol-guidelines-short-term-conflict-alert-stca	ASP04
EUROCONTROL - SPEC-108 - EUROCONTROL Specification for Short Term Conflict Alert - Edition 1.0 / 11/2007 https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca	ASP01, ASP02, ASP03, ASP04
ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 https://store.icao.int/	REG01
SJU - SESAR Solution 69: Data Pack for Enhanced STCA with down-linked parameters https://www.sesarju.eu/sesar-solutions/enhanced-stca-down-linked-parameters	ASP01, ASP02, ASP03, ASP04

Consultation & Approval

Working Arrangement in charge	-
Outline description approved in	-
Latest objective review at expert level	-
Commitment Decision Body	Provisional Council (PC)
Objective approved/endorsed in	05/2019
Latest change to objective approved/endorsed in	-

