

SESAR		Active								ECAC+	
ATC02.8		Ground-Based Safety Nets									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP	

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 an optional system requirement for the implementation of Free Route Airspace (FRA) in Regulation (EU) No 2021/116 (the CP1 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: Bosnia and Herzegovina, Netherlands			
Timescales:		From:	By:	Applicable to:	
Initial operational capability		01/01/2009		Applicability Area	
Full operational capability			31/12/2021	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		

Applicable legislation

-none-

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

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ICAO GANP - ASBUs

SNET-B0/2	Minimum Safe Altitude Warning (MSAW)
SNET-B0/3	Area Proximity Warning (APW)

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SNET-B0/4	Approach Path Monitoring (APM)
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Deployment Programme

3.2.1	Initial 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	31/12/2021
ATC02.8-ASP02	Align ATCO training with the use of APW ground-based safety tools	01/01/2009	31/12/2021
ATC02.8-ASP03	Implement the MSAW function	01/01/2009	31/12/2021
ATC02.8-ASP04	Align ATCO training with the use of MSAW ground-based safety tools	01/01/2009	31/12/2021
ATC02.8-ASP05	Implement the APM function	01/01/2009	31/12/2021
ATC02.8-ASP06	Align ATCO training with the use of APM ground-based safety tools	01/01/2009	31/12/2021

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

Expected Performance Benefits

Safety:	Major safety improvement through the systematic presentation of: - 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:	By:
		01/01/2009	31/12/2021
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		
Finalisation criteria:	1 - Ground systems have been upgraded to support the APW function. 2 - APW function in operational use.		
ATC02.8-ASP02	Align ATCO training with the use of APW ground-based safety tools	From:	By:
		01/01/2009	31/12/2021
Action by:	ANS Providers		

ATC02.8		Ground-Based Safety Nets					
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	<table><tr><td>From:</td><td>By:</td></tr><tr><td>01/01/2009</td><td>31/12/2021</td></tr></table>	From:	By:	01/01/2009	31/12/2021
From:	By:						
01/01/2009	31/12/2021						
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 - 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-160 - EUROCONTROL Guidelines for Minimum Safe Altitude Warning - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum-safe-altitude-warning							
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	<table><tr><td>From:</td><td>By:</td></tr><tr><td>01/01/2009</td><td>31/12/2021</td></tr></table>	From:	By:	01/01/2009	31/12/2021
From:	By:						
01/01/2009	31/12/2021						
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-160 - EUROCONTROL Guidelines for Minimum Safe Altitude Warning - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum-safe-altitude-warning							
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	<table><tr><td>From:</td><td>By:</td></tr><tr><td>01/01/2009</td><td>31/12/2021</td></tr></table>	From:	By:	01/01/2009	31/12/2021
From:	By:						
01/01/2009	31/12/2021						
Action by:		ANS Providers					
Description & purpose: Put into service ground-based safety tool systems and associated procedures supporting the APM function.							
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-162 - EUROCONTROL Guidelines for Approach Path Monitor - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-approach-path-monitor							
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	
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	31/12/2021
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 - 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-162 - EUROCONTROL Guidelines for Approach Path Monitor - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-approach-path-monitor		
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.		