SESAR		Active ECAC+							
ATC02.8		Ground-Based Safety Nets							
REG A	SP 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 ex	All ECAC+ States except: Bosnia and Herzegovina, Netherlands				
Timescales:		From:	Ву:	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]-G	[CM-0801]-Ground Based Safety Nets (TMA, En-Route)							
	Enablers -	CTE-S01	CTE-S01	a ER APP A 133	TC PRO-059	PRO-219			
Legend:	: WXYZ-001 Covered by SLoA(s) in this objective		` '	WXYZ-002	Covered by SLoA(s) in another objective		objective	WXYZ-	Not covered in the
Legena.				zzz	Objective covering the enabler			003	Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

ICAO GANP - ASBUs

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

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SNE	T-B0/4	Approach Path Monitoring (APM)

Deployment Programme

Initial FRA

European Plan for Aviation Safety

- none -

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	Ву
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 finalica	d and deleted SL a As is socilable on the a ATM Portal @ https://www.coatmoutel.o	u/working/dopl/occip_ok	nio otivo o

 $Description \ of \ finalised \ and \ deleted \ SLoAs \ is \ available \ on \ the \ eATM \ Portal \ @ \ \underline{https://www.eatmportal.eu/working/depl/essip \ objectives}$

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

	Detailed SLoA Descriptions					
.=		From:	Ву:			
ATC02.8-ASP01	Implement the APW function	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	[CTE-S01a]-SSR Mode A/C/S					
relationship:	[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 resp		d Safety Net alerts			
Finalisation criteria:	Ground systems have been upgraded to support the APW function. APW function in operational use.					
	Align ATCO training with the use of APW ground-based safety	From:	Ву:			
ATC02.8-ASP02	tools	01/01/2009	31/12/2021			
Action by:	ANS Providers					

	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 Url : https://www.eurocontrol.int/sites/default/files/publication/files/20090		g - Edition 1.0 / 05/2009				
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response		afety Net alerts				
Finalisation criteria:	1 - The training plans have been updated and a training package has be2 - The concerned personnel have been trained.	een developed for the us	se of APW functions.				
ATC02.8-ASP03	Implement the MSAW function From: 01/01/2009 By: 31/12/2021						
Action by:	ANS Providers						
Description & purpose:	Put into service ground-based safety tool systems and associated proce	dures supporting the M	SAW function.				
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - Au	igust 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						
ATM Master Plan	Url: https://www.eurocontrol.int/publication/eurocontrol-guidelines-minin	<u>num-sare-amuude-warnir</u>	<u>10</u>				
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.						
	RO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts						
Placette ed en entrente	[PRO-219]-ATC Procedures to give priority to SNET alarm						
Finalisation criteria:	1 - Ground systems have been upgraded to support the MSAW function2 - MSAW function in operational use.	I	1				
ATC02.8-ASP04	Align ATCO training with the use of MSAW ground-based safety tools From: By: 01/01/2009 31/12/2021						
71.002.07.01.01			01/12/2021				
Action by:	ANS Providers		01/12/2021				
		ollows:	01/12/2021				
Action by:	ANS Providers Train operational staff in the use of APW. The tasks to be done are as formula and training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans. EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - Augustian Apply the training plans.	ıgust 2017					
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Action by: Description & purpose: Supporting material(s): ATM Master Plan relationship: Finalisation criteria: ATC02.8-ASP05	ANS Providers Train operational staff in the use of APW. The tasks to be done are as for Develop a training package (material); Update the training plans; Determine staff population to be trained; Apply the training plans. EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - Au Url: https://www.eurocontrol.int/sites/default/files/publication/files/safety/ EUROCONTROL - GUID-160 - EUROCONTROL Guidelines for Minimum 1.0 / 01/2017 Url: https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum 1.0 / 059]-ATC Procedures to provide a systematic and common response [PRO-219]-ATC Procedures to give priority to SNET alarm 1 - The training plans have been updated and a training package has be 2 - The concerned personnel have been trained.	igust 2017 -nets-guide-august-2017 im Safe Altitude Warning num-safe-altitude-warning inse to ground based Sa een developed for the us From:	7.pdf g - Part I to III - Edition ng afety Net alerts se of MSAW functions. By:				
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ATC02.8	Ground-Based Safety Nets
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Finalisation criteria:	1 - Ground systems have been upgraded to support the APM function.2 - APM function in operational use.						
	Align ATCO training with the use of APM ground-based safety	From:	Ву:				
ATC02.8-ASP06	tools	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.						