SE	SAR		Active ECAC+							
ATO	C02.8	2.8 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 exc	cept: Bosnia an	d 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 S	` '	WXYZ-002	Covered by SLo	A(s) in another o	objective	WXYZ-	Not covered in the
Legena.	this objective			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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SNET-B0/4	Approach Path Monitoring (APM)
01121 00/1	ripprodon ratin monitoring (rit m)

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 finalise	d and deleted CL a As is a visibable on the a ATM Portal @ https://www.actmportal.o	u/working/dopl/cosin_ch	do otivo o

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

Detailed SLOA Descriptions							
ATC02.8-ASP01	Implement the APW 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 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 - Au	s - 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 - Ed							
	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:	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:	By:				
ATC02.8-ASP02	tools	01/01/2009	31/12/2021				
Action by:	ANS Providers						

Description & purpose:						
	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 - Au	ugust 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 War	rning - Edition 1.0 / 05/2009			
	Url: https://www.eurocontrol.int/sites/default/files/publication/files/20090	519-apw-guid-v1.0.	<u>pdf</u>			
ATM Master Plan elationship:	[PRO-059]-ATC Procedures to provide a systematic and common response	onse to ground base	d Safety Net alerts			
Finalisation criteria:	1 - The training plans have been updated and a training package has be	een developed for th	e use of APW functions.			
	2 - The concerned personnel have been trained.					
		From:	Ву:			
ATC02.8-ASP03	Implement the MSAW function	one the MSAW function 01/01/2009 31/12/2021				
Action by:	ANS Providers	1				
escription & purpose:	Put into service ground-based safety tool systems and associated procedures supporting the MSAW function.					
upporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - Au					
, , · · · · · · · · · · · · · · · ·	Url: https://www.eurocontrol.int/sites/default/files/publication/files/safety	· ·	2017.pdf			
	EUROCONTROL - GUID-160 - EUROCONTROL Guidelines for Minimu		<u> </u>			
	1.0 / 01/2017					
	Url: https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum-safe-altitude-warning					
TM Master Plan	[CTE-S01a]-SSR Mode A/C/S					
elationship:	[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					
inalisation criteria:	1 - Ground systems have been upgraded to support the MSAW function. 2 - MSAW function in operational use.					
	Align ATCO training with the use of MSAW ground-based safety	From:	Ву:			
ATC02.8-ASP04	tools	01/01/2009	31/12/2021			
Action by:	ANS Providers					
	Train operational staff in the use of APW. The tasks to be done are as for	ollows:				
	Train operational staff in the use of APW. The tasks to be done are as formula - Develop a training package (material);	ollows:				
	Train operational staff in the use of APW. The tasks to be done are as formula - Develop a training package (material); - Update the training plans;	ollows:				
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Description & purpose:	Train operational staff in the use of APW. The tasks to be done are as formula - 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 - August 1985 - August 2015 - August 20	ugust 2017 -nets-guide-august-				
Description & purpose:	Train operational staff in the use of APW. The tasks to be done are as formula 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 Minimula 1.0 / 01/2017	ugust 2017 - <u>nets-guide-august-</u> ım Safe Altitude Wa	rning - Part I to III - Edition			
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Ground-Based Safety Nets

ATC02.8

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.						