SESAR	Removed								ECAC	
ATC02.6	Implement ground based safety nets - Minimum Safe Altitude Warning - level 2									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Implement and make operational use of the MSAW ground based safety net.

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.

Terrain and traffic characteristics can lead to a significant safety risk that can be mitigated by this tool.

An explanation of the difference between Level 1 and 2 is described below.

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.

Safety nets performance must be monitored and regularly analysed, not only to improve the safety nets but also to identify other safety improvement opportunities. For example, "hot spots" could be identified and removed by making changes to airspace structure or procedures.

In order to avoid the "Cry Wolf" syndrome, 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 MIL Authorities.

Military ATC authorities are invited to consider implementation of MSAW level 2 when providing ATS surveillance services to GAT

Existing draft EUROCONTROL Specification for MSAW could be used as guidance material (ref. supporting material of individual SLoAs)

Applicability Area(s) & Timescale(s)

Applicability Area			
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2009		Applicability Area
Full operational capability		31/12/2016	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0801]-Ground Based Safety Nets (TMA, En-Route)								
	Enablers -	CTE-S01	CTE-S01a ATC02.8, ATC12.1	ER APP ATC 133	PRO-059 ATC02.8	PRO-219 ATC02.8			

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

- none -

SESAR Solution

ATC02.6	Implement ground based safety nets - Minimum Safe Altitude Warning - level 2

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC02.6-REG01	Approve EUROCONTROL Specification for MSAW	**DELETED**	
ATC02.6-ASP01	Implement the MSAW function	01/01/2009	31/12/2016
ATC02.6-ASP02	Align ATCO training with the use of MSAW ground-based safety tools	01/01/2009	31/12/2016
ATC02.6-INT01	Amend ICAO documentation if required	**DELETED**	
ATC02.6-AGY01	Produce a EUROCONTROL Specification for MSAW	**DELETED**	

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

Expected Performance Benefits

Safety:	The systematic presentation of possible infringements of minimum safe altitude to controllers ahead of their occurrence, as provided by MSAW, is a major safety contribution.
Capacity:	N/A
Operational Efficiency:	-
Cost Efficiency:	Standardisation of MSAW enables cost-effective use of resources and is in particular a critical success factor for smaller ANSP.
Environment:	N/A
Security:	N/A

Detailed SLoA Descriptions

ATC02.6-ASP01	**Implement the MSAW function**	From: 01/01/2009	By: 31/12/2016
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:	[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.		
Finalisation criteria:	1 - Ground systems have been upgraded to support the MSAW function. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - MSAW function for operational use.		
ATC02.6-ASP02	**Align ATCO training with the use of MSAW ground-based safety tools**	From: 01/01/2009	By: 31/12/2016
Action by:	**ANS Providers**		

ATC02.6	Implement ground based safety nets - Minimum Safe Altitude Warning - level 2

Description & purpose:	Train operational staff in the use of MSAW. 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
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed by the ANSP for the use of MSAW functions.