SESAR	Initial									APT
AOP21	**Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)**									
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

This objective represents optimisation of the ICAO wake turbulence separation classes by use of longitudinal wake turbulence static pair-wise separation minima on arrivals (S-PWS-A), applicable in all operating conditions.

S-PWS-A is the efficient aircraft type pairwise wake separation rules for final approach consisting of both the 96 x 96 aircraft type based wake separation minima (for the most common aircraft types in ECAC area) and the twenty wake category (20-CAT) based wake separation minima for arrival pairs involving all the remaining aircraft types. This allows reduction of separation minima for most aircraft pairs, enabling runway throughput increase compared to ICAO scheme, whilst maintaining acceptable levels of safety.

The S-PWS-A is applied using a separation delivery tool, where the pairwise separations will be used as input into the separation delivery tool.

S-PWS-A requires the Optimised Runway Delivery (ORD) tool to be integrated at CWP and the wind measurement or forecast on the final approach path.

This objective targets capacity constrained runways during high intensity runway operations and applies to very large, large and possibly medium airports.

NOTE: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

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 (Not yet defined)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	From:	By:	Applicable to:
IOC used for Analytics functioning only - not for implementation planning	01/01/2020		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AO-0306]-Static Pairwise Separations (S-PWS) for Arrivals						
	Enablers -	AERODROME -ATC-42a	APP ATC 118	REG-0523			

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

Airport and TMA performance

SESAR Solution

PJ.02-01-04 - Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics

ICAO GANP - ASBUs

- none -	

AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP21-ASP01	Install ATC tool to support static pair-wise wake separation on final approach		
AOP21-ASP02	Adapt ATC system (AMAN) to support static pair-wise wake separation on final approach		
AOP21-ASP03	Develop procedures for application of static pair-wise wake separation on final approach		
AOP21-ASP04	Safety Assessment		
AOP21-ASP05	Training		
AOP21-ASP06	System in use		
AOP21-INT01	Regulatory provisions (AMC) for static pair-wise wake separation minima		

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

Expected Performance Benefits

Safety:	Safety maintained while increasing capacity
Capacity:	Increased airport capacity
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP21-ASP01	Install ATC tool to support static pair-wise wake separation on final approach	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Install an automated ATC tool (separation delivery tool) to enable application of static pair-wise wake separation on final approach		
ATM Master Plan relationship:	[AERODROME-ATC-42a]-Airport ATC tool to support static pair-wise wake separation (S-PWS) in final approach		
Finalisation criteria:	1 - ATC tool installed.		
AOP21-ASP02	Adapt ATC system (AMAN) to support static pair-wise wake separation on final approach	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Adapt AMAN to support reduced, pairwise separation for aircraft on final approach, based on configurable, static parameters.		
ATM Master Plan relationship:	[APP ATC 118]-ATC System to support static pair-wise wake separation (S-PWS) on approach		
Finalisation criteria:	1 - The system adapted.		
AOP21-ASP03	Develop procedures for application of static pair-wise wake separation on final approach	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the application of static pair-wise wake separation on final approach		

AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)		

Finalisation criteria:	1 - The procedures implemented.		
AOP21-ASP04	**Safety Assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP21-ASP05	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train the air traffic controller on static pair-wise wake separation on final approach.		
Finalisation criteria:	1 - Training has been performed		
AOP21-ASP06	**System in use**	From: -	By: -
Action by:			
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - system has been put into service		
AOP21-INT01	**Regulatory provisions (AMC) for static pair-wise wake separation minima**	From: -	By: -
Action by:	**EASA**		
Description & purpose:	A regulatory change as per the RECAT-PWS-EU Safety Case Ed. 1.4 has been submitted to EASA and is under review. Pairwise separation is expected to become an EASA AMC to Req. ATS.TR.220 Application of wake turbulence separation from Reg. EC 2017/373 Annex IV Part-ATS		
ATM Master Plan relationship:	[REG-0523]-Regulatory provisions (AMC) for static pair-wise wake separation minima (S-PWS)		
Finalisation criteria:	1 - Relevant AMC has been published		