AOP26 — Reduced separation based on local Runway Occupancy Time (ROT) characterisation

The Increased Runway Throughput based on local ROT characterization is a concept that intends to enable to the reduction the in-trail separation on final approach with the aim of increasing runway throughput by taking into account the Runway Occupancy Time (ROT) of lead traffic in an arrival pair. The most constraining factor for the reduction of the longitudinal separation is, beside wake turbulence minima when applicable, the need to maintain sufficient spacing compatible with ROT of the lead landing traffic; and therefore reduced surveillance separation could be enabled, based on individualised ROT characterisation or other applicable criteria (as set in ICAO PANS-ATM Doc 4444 §8.7.3), for the part of the traffic for which the ROT is compatible, while the other traffic part would remain spaced by larger spacing due to ROT.

The operational application can be based either per individual aircraft type (iROT) or per aircraft ROT-based category (ROCAT). Based on local – and runway-specific - ROT characterisation, ROCAT defines separation sub-categories based on runway occupancy time, and these categories could also be similar to the wake RECAT-EU one in order to facilitate a combined implementation.

The solution can increase runway throughput by up to 12% where the aircraft traffic mix is predominantly medium aircraft, and the constraint for separation between medium aircraft is the ROT rather than the Minimum Wake Separation (MWS). Rather than making the same assumption on ROT for all aircraft (which would necessarily need to consider as a constraint the highest observed ROT values and result in higher separation minima), the enhanced ROT spacing application is based on local individualised. Runway Occupancy Time characterisation which allows that different ROT assumptions for different aircraft be made, so that for leading aircraft with lower ROT supports and can be compatible with reduced separation minima.

The objective addresses the development of optimised runway occupancy minima through data analytics to determine runway occupancy time (statistical) values per aircraft type using historical data. The separation minima can be delivered by ATC through a change in the separation minima on final approach used by controllers, either procedurally with ROCAT-based application, or with automation support through a controller decision support tool providing an Optimised Runway Delivery for ‘iROT’ application and maximising the operational benefits.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

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.

Edition	2022
Stakeholders	Air Navigation Service Provider
Type	SESAR
Scope	Local/Airport
Status	Active

Context

Related Elements

OBJ
AOP26

Applicability Area(s) and Timescales

Applicability Area: *(Subject to local need)*

Timescales	From	By	Applicable to
IOC used for Analytics functioning only - not for implementation planning	01-07-2022	-	
FOC used for Analytics functioning only - not for implementation planning	-	31-12-2030	

Links to ATM Master Plan Level 2

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SOL Links to SESAR Solutions

Code	Title	Program	Related Elements
No record found			

PCP Links to PCP ATM Sub-Functionalities

Code	Title	Related Elements
No record found		

ICAO ICAO Block Modules: No associated data

References

Applicable legislation
None
Applicable ICAO Annexes and other references
None
Deployment Programme 2022
-
Operating Environments
-

Expected Performance Benefits

Safety	When supported by a separation delivery tool, such as TBS-ORD, the implementation makes easier for controllers to identify separation infringement on final approach so the situation awareness is increased compared to the current way of work, which has a positive impact on safety
Capacity	A reduced spacing between aircraft has positive impact on the runway throughput. The higher the throughput, the higher the number of movements, leading to a positive impact on Capacity
Operational efficiency	-
Cost efficiency	-
Environment	-
Security	-

Stakeholder Lines of Action

Code	Title	From	By	Related Enablers
ASP01	Establish local ROT characterisation and determine corresponding ROCAT / iROT spacing scheme			
ASP02	Implement procedures or separation delivery support function for the use of the optimised ROCAT / iROT spacing scheme			
ASP03	Safety assessment			
ASP04	Training			
ASP05	Operational use			

Supporting Material

Title	Related SLoAs
SJU - SESAR Solution 02-08 SPRINTEROP/ OSED for V3 – Part I https://www.sesarju.eu/sites/default/files/documents/solution/SESAR 2020 PJ02-08 D6_1_20 V3 SPR INTEROP OSED Part I - 00.02.00.pdf	ASP01, ASP02, ASP03, ASP04, ASP05
SJU - SESAR Solution PJ.02-08-03: Contextual Note for “Reduced separation based on local Runway Occupancy Time characterisation” https://www.sesarju.eu/sites/default/files/documents/solution/PJ.02-08-03 Contextual Note_Final.pdf	ASP01, ASP02, ASP03, ASP04, ASP05

Consultation & Approval

Working Arrangement in charge	Airport Operations Team (AOT)
Outline description approved in	-
Latest objective review at expert level	-
Commitment Decision Body	Provisional Council (PC)
Objective approved/endorsed in	-
Latest change to objective approved/endorsed in	-