ATC26 — Point Merge in complex TMA

Terminal Control (TC) Approach operations currently employ “Open-loop” techniques to sequence and space the arrival traffic. This entails the use of tactical vectors: heading, speed and vertical altitude intervention, to merge traffic onto the line of the Final Approach ILS (Instrument Landing System).

Point Merge is a method of merging arrival flows with existing technology including PBN. Under a Point Merge System, the aircraft are merged to a point using “Closed-loop” techniques. This technique allows controllers to sequence and merge arrivals without vectoring, while enabling continuous descent operations and maintaining runway throughput, even under high traffic.

This concept builds on previous concept development and implementation by further developing it to cater for a Point Merge centric PBN route structure and operating method for Very High Capacity (VHC) or High Capacity (HC) needs TMAs.

This concept provides a Point Merge centric PBN route structure and operating method for a complex TMA. Therefore, the concept is centred on Point Merge procedures but also incorporates aspects of PBN route structures for Arrivals & Departures so that a fully effective concept for TMA airspace is developed.

NOTE: Point Merge usually relies on existing technology on-board aircraft such as PBN navigation specification. More stringent navigation specifications (RNP x) may be used if deemed necessary depending on local/specific requirements (e.g. airspace complexity, terrain clearance, runway spacing in case of independent parallel approaches, etc...).

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 / Airspace Users
Type	SESAR
Scope	Local/Airport
Status	Active

Context

Related Elements

OBJ ATC26

OI AOM-0601

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IOC used for Analytics functioning only - not for implementation planning	01-07-2022	-	
FOC used for Analytics functioning only - not for implementation planning	-	31-12-2030	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

OI Operational Improvment Steps

Code	Title	IOC	FOC	Related Elements
AOM-0601	Terminal Airspace Organisation Adapted through Use of Best Practice	-	-	SOL OI EN OBJ DS

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 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	TMA safety levels were maintained at current day levels or improved through: a reduction of tactical vectoring; single leg design allowing descent-enabled management of traffic not adequately spaced in the horizontal plane; increased situational awareness
Capacity	Point Merge enables a significant reduction in ATC tactical interventions, hence in controller's workload, R/T occupancy and communications task load leading to possible increases of the terminal airspace capacity
Operational efficiency	-
Cost efficiency	-
Environment	Point Merge offers both the path stretching capability required to build the sequence in dense terminal areas, and, once aircraft are directed to the merge point, the necessary predictability to support continuous descent operations. It also enables a better flow segregation – including departures, which may in turn facilitate Continuous Climb Operations (CCOs)
Security	-

Stakeholder Lines of Action

Code	Title	From	By	Related Enablers
ASP01	Develop and publish Point Merge procedures			
ASP02	Adapt ATM systems to support Point Merge procedures			
ASP03	Safety assessment			
ASP04	Training			
ASP05	Operational use			
USE01	Train flight crews in Point Merge procedures			

Supporting Material

Title	Related SLoAs
EUROCONTROL - Point Merge implementation - A quick guide - Edition 1.4 / 05/2021 https://www.eurocontrol.int/publication/point-merge-implementation	ASP01
EUROCONTROL - Point Merge supporting documentation https://www.eurocontrol.int/concept/point-merge	ASP02, ASP03, ASP04, ASP05, USE01
EUROCONTROL - Point merge integration of arrival flows enabling extensive RNAV application and continuous descent (reference manual) - OSED - Edition 2.0 / 07/2010 https://www.eurocontrol.int/publication/point-merge-integration-arrival-flows-enabling-extensive-rnav-application-and	ASP01
SJU - Operational Service and Environment Definition (OSED) for Point Merge in Complex TMA https://www.sesarju.eu/sites/default/files/documents/solution/Sol107%204%20Point%20Merge%20Complex%20TMA_OSED.pdf	ASP04
SJU - SESAR Solution 107: Data Pack for Point Merge in complex TMA https://www.sesarju.eu/sesar-solutions/point-merge-complex-terminal-airspace	ASP01, ASP02, ASP05
SJU - Safety and Performance Requirements (SPR) for Point Merge in Complex TMA 07/2013 https://www.sesarju.eu/sites/default/files/documents/solution/Sol107 5 Point Merge Complex TMA_Safety_and_Performance_Requirements.pdf	ASP03

Consultation & Approval

Working Arrangement in charge	-
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	-