

SESAR Solution

AMAN + Point Merge– Quick-Win Contextual note

Purpose:

This contextual note is a vehicle to summarize the results stemming from Release delivery activities. It provides a summary of the SESAR Solution in terms of results of the Validation exercises and achievements as well as additional activities to be conducted before or as part of deployment.

This contextual note is part of a package prepared for each SESAR Solution for which exercise results are conclusive and sufficient to support a decision for industrialisation. It complements a technical data pack comprising available deliverables required for further industrialization.

In addition, adequate consideration of the recommendations on the regulatory and standardisation frameworks and the regulatory and certification activities is required. These recommendations are detailed in the 'SESAR Solution Regulatory Overview – AMAN + Point Merge' included in the technical data pack.

Improvement in ATM Operations

The implementation of a Point Merge System (PMS) in Extended TMA (E-TMA) coupled with the use of an Arrival Manager (AMAN) allows to absorb TMA delays.

The concept aims to replace radar vectoring by a more efficient traffic synchronization mechanism. It provides the ability to shift delay absorption to the E-TMA without detrimental impact on the neighboring civil and military ACCs and on the European Network, in terms of capacity, safety, predictability, efficiency and environment.

Integrated sequence building and optimization of arrivals improve the overall arrival management process, both in terms of aircraft operations/efficiency and general TMA operations.

The concept also aims to support CDOs in high density traffic environment through the use of a standard AMAN Tool coupled to PMS.

Operational Improvements – OI Steps

TS-0102

Arrival Management support is improved by Basic AMAN to facilitate the use of fixed routes (e.g. PRNAV) in the terminal area together with the use of CDA approaches. Sequencing support based upon trajectory prediction will also enhance operations within the terminal area thus allowing a mixed navigation capability to operate within the same airspace and provide a transition to eventual 4D operations.

Arrival Management will facilitate the possible use of CTA applications to merging points (e.g. IAFs) in the TMA.

TS-0102 is deployment baseline. The covered aspects have been documented.

Background and validation process

The validation of EXE-05.06.07-VP-427 was undertaken through two series of live trials performed in the Paris ACC environment respectively in June and November/December 2012. The goal of this validation exercise was to investigate the ability to support CDO in high density traffic environment through the use of an AMAN and PMS in the Paris ACC Extended TMA, Brussels ACC and MUAC.

Results and performance achievements

Implementation of Extended AMAN operations coupled with Point Merge procedures successfully demonstrated benefits in terms of:

- Increased **safety** resulting from a more structured airspace, with positive impacts on controller and pilot situational awareness ;
- Reduced controller workload, due to the reduction in frequency usage, that could allow to increase **capacity**
- An improvement in trajectory prediction and a reduction in the number of open loops which have a positive impact on predictability;
- Increased number of CDOs leading to an equal or reduced fuel burn profile.

Additional activities

No Additional R&D needs were identified as necessary for implementation in Paris TMA.

Actors involved

Actors are ATC, APP and Flight Crew :

ACC Supervisor (Support)

E-TMA Planning Controller (Primary) & E-TMA Executive Controller (Primary)

APP Supervisor (Support)

APP Executive Controller (Primary)

APP Sequence Manager (Primary)

Flight Crew (Primary)

Impact on A/C system

No Impact on A/C system identified

Impact on ground systems

No Impact on Ground systems.

Note: No IBP or SUT have been used. The Paris legacy system was configured for the validation (basic AMAN), hence technical specification and description of the enabler is not available.

Consideration of Regulatory Framework

It must be ensured the consistency with the applicable regulatory framework, in particular the PBN Implementing Rule.

Consideration of Standardisation Framework

There is no specific topic in the field of the standardisation framework to be considered in deployment, beyond the applicable standardisation currently existing.

Considerations of Regulatory Oversight and Certification Activities

Advancing some ATC instructions can be considered in the local environment.

The capacity of the runway, and the lower levels of predictability on the airport operations side, have to be taken into account as a limiting factor in the local business case.

Due considerations in the local environment can be given to AMAN horizon definition, changes to the airspace design, and concrete ATC instructions.

Intellectual property rights (foreground)

The foreground of this deliverable is owned by the SJU.