

## SESAR Solution

### Description form for deployment planning

#### 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 – User Preferred Routing' included in the technical data pack.

#### Improvement in ATM Operations

User Preferred Routing (UPR) in this solution refers to direct routing (DCT) defined between published entry and exit point inside a complex area (i.e. the complete Maastricht Upper Airspace Area). It extends the current use of DCTs in the MUAC Area of Responsibility (AoR). In extending current practice, it can be seen as a 'quick-win' on the way towards more advanced UPR concepts. It increases the number of available DCTs and extends their availability reaching H24/7 capability.

#### Operational Improvements – OI Steps

**AOM-0501** : Free Routing for Flights both in cruise and vertically evolving within low to medium complexity environments

**AOM-0502** : Free Routing for Flights both in cruise and vertically evolving within high-complexity environments

#### Background and validation process

Through simulations and live trials involving several airlines, this exercise EXE-07.05.03-VP-571 aimed to elaborate recommendations for UPR inside Europe. Real-time simulations were carried out at the MUAC for testing a new set of DCTs and concerned H24/7 operations.

The exercise can be considered to be a step along the way to full validation of UPR in a full free-routing environment.

### Results and performance achievements

As a result of the validation, 79%<sup>1</sup> of the tested DCTs for night, near-night and week-end operation have been approved for implementation. Among the validated routes, 98 DCTs have been identified for 24-hour activation.

The implementation of UPR operations in the MUAC area brings benefits in terms of:

- **Improved flight efficiency** - a reduction of the average flown distance of 7% and a reduction in flight-time of 5% (~ 2 minutes per flight);
- **Improved environmental sustainability** – a reduction in fuel burnt and emissions ranging from 6 to 12%; and
- **No impact on safety** - despite increased complexity.

### Additional activities

The validation activity showed that allowing DCT flight to cross an active segregated area is not always manageable in the execution phase due to sometimes unacceptable increases in ATCO workload. Hence interactions of UPR (DCT) with Advanced Flexible use of Airspace (AFUA) have to be further investigated.

### Actors involved

The actors involved User Preferred Routing operations are as follows:

- Airspace managers,
- ACC Supervisors,
- FOC/WOC,
- ATCOs,
- AIS personnel,
- Airspace Users and
- Network Managers.

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<sup>1</sup> 255 new direct routes out of 322, representing 79% of the tested routes

**Impact on A/C system**

There is no impact on A/C system.

**Impact on ground systems**

There is no impact on ground system.

**Consideration of Regulatory Framework**

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

**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**

There is no specific topic in the field of the Regulatory Oversight and Certification Activities to be considered in deployment, beyond the applicable existing ones.

**Intellectual property rights (foreground)**

The foreground is owned by the SJU.