



# AOM21.3 — Enhanced Free Route Airspace Operations

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This implementation objective addresses the following three elements:

- Final FRA implementation
- Cross-border FRA implementation
- FRA connectivity with TMAs.

1) The Final FRA implementation shall eliminate the structural limitations that are permissible for Enhanced FRA in terms of timing limitations (night FRA, weekend FRA, seasonal FRA) and lateral and vertical limitations. RAD restrictions should be applied to the minimum extent possible, where unlimited free route airspace operations would endanger airspace capacity (e.g. in high-density, complex airspaces).

2) Cross-border FRA operations provide further benefits of the FRA concept to Airspace Users. Cross-border FRA shall be implemented with at least one neighbouring State. However, it should be considered by the implementing ANSPs, that maximum benefits for airspace users in terms of time, fuel and CO2 emissions savings will be achieved when cross-border FRA is implemented among all neighbouring states from the lowest mutual flight level upwards. For the time being, there are several cross-border FRA implementations, in some cases addressing the airspace controlled by several ANSPs within FAB and between FABs.

3) FRA connectivity with TMAs must be ensured by one of the following options:

- lowering the FRA vertical limit until the TMAs upper vertical boundaries;
- linking appropriate arrival/departures points;
- defining FRA connecting routes;
- extending the existing standard arrival and departure routes;
- connecting with the underlying fixed ATS routes via set of waypoints reflecting the typical climbing/descending profiles

Final FRA implementation, Cross-border FRA with at least one neighbouring State and FRA connectivity with TMAs shall be provided and operated at least above flight level 305.

The system requirements for implementation of the 3 elements of this objective need to encompass the system upgrades listed for Enhanced FRA and additional system upgrades as follows:

NM systems:

- Environmental database adaptations for cross-border FRA operations and FRA connectivity with TMAs;
- Data exchange for cross border FRA and FRA connectivity with TMAs.

AU systems:

- Optimisation of free routing trajectories taking into account the ATM constraints, including possible differences of FRA lower limit implementations throughout the flight.

ANSPs may decide which system improvements are needed in addition to those required for Initial FRA. The choice of the appropriate tool/function remains a stakeholder decision based on operational environment and may include the tools listed for Enhanced FRA plus additional tool/functions, as for example:

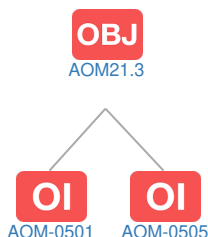
- COP management for FRA supporting Cross Border COP handling;
- Tactical Controller Tool (TCT), managing the Cross-Border clearances;
- Multi-Sector Planner/Extended ATC Planner (MSP/EAP) function.

*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 MIL Authorities.*

<b>Edition</b>	2022
<b>Stakeholders</b>	Air Navigation Service Provider / Airspace Users / Network Manager
<b>Type</b>	CP1
<b>Scope</b>	ECAC+
<b>Status</b>	Active

## Context

### Related Elements



## Applicability Area(s) and Timescales

<b>Applicability Area 1:</b>	All EU SES States (All EU SES States)
<b>Applicability Area 2:</b>	Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, Morocco, North Macedonia, Serbia, Ukraine, United Kingdom

Timescales	From	By	Applicable to
Initial Operational Capability	01-01-2021	-	Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date	-	31-12-2025	Applicability Area 1 + Applicability Area 2

## Links to ATM Master Plan Level 2

### OI Operational Improvement Steps

Code	Title	IOC	FOC	Related Elements
AOM-0501	Free Routing for Flights both in cruise and vertically evolving within low to medium complexity environments	31-12-2020	01-10-2025	<a href="#">SOL</a> <a href="#">OI</a> <a href="#">EN</a> <a href="#">OBJ</a> <a href="#">DS</a> <a href="#">PCP</a> <a href="#">ICAO</a> <a href="#">ATM</a>
AOM-0505	Free Routing for Flights both in cruise and vertically evolving within high and very high complexity environments in Upper En Route airspace	31-12-2026	31-12-2030	<a href="#">SOL</a> <a href="#">OI</a> <a href="#">EN</a> <a href="#">OBJ</a> <a href="#">DS</a> <a href="#">PCP</a> <a href="#">ICAO</a>

### 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		

## References

### Applicable legislation

- COMMISSION IMPLEMENTING REGULATION (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014

### Applicable ICAO Annexes and other references

None

### Deployment Programme 2022

Family 3.2.2 - Enhanced Free Route Airspace Operations

### Operating Environments

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## Expected Performance Benefits

<b>Safety</b>	Safety maintained.
<b>Capacity</b>	Increased airspace capacity.
<b>Operational efficiency</b>	Improved operational efficiency. Optimised flight trajectories.
<b>Cost efficiency</b>	-
<b>Environment</b>	Reduced fuel burn and emissions.
<b>Security</b>	-

## Stakeholder Lines of Action

Code	Title	From	By	Related Enablers
ASP01	Implement Enhanced FRA procedures and processes in support of the Network dimension	01-01-2021	31-12-2025	
ASP02	Implement Enhanced FRA system improvements	01-01-2021	31-12-2025	
ASP03	Implement Enhanced FRA procedures and processes in support of the local dimension	01-01-2021	31-12-2025	
ASP04	Safety Assessment	01-01-2021	31-12-2025	
ASP05	Training	01-01-2021	31-12-2025	
ASP06	Operational use	01-01-2021	31-12-2025	
USE01	Implement Enhanced FRA system improvements	01-01-2021	31-12-2025	
USE02	Implement Enhanced FRA procedures and processes	01-01-2021	31-12-2025	
USE03	Training	01-01-2021	31-12-2025	
USE04	Operational use	01-01-2021	31-12-2025	
NM01	Implement Enhanced FRA system improvements	01-01-2021	31-12-2025	
NM02	Implement Enhanced FRA procedures and processes	01-01-2021	31-12-2025	
NM03	Safety Assessment	01-01-2021	31-12-2025	
NM04	Training	01-01-2021	31-12-2025	
NM05	Operational use	01-01-2021	31-12-2025	

## Supporting Material

### Title

### Related SLoAs

SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1  
07/2021

<https://www.sesardeploymentmanager.eu/publications/deployment-programme>

ASP01, ASP02, ASP03, NM01, NM02,  
USE02

## Consultation & Approval

Working Arrangement in charge -

Outline description approved in -

Latest objective review at expert level -

Commitment Decision Body -

Objective approved/endorsed in -

Latest change to objective approved/endorsed in -