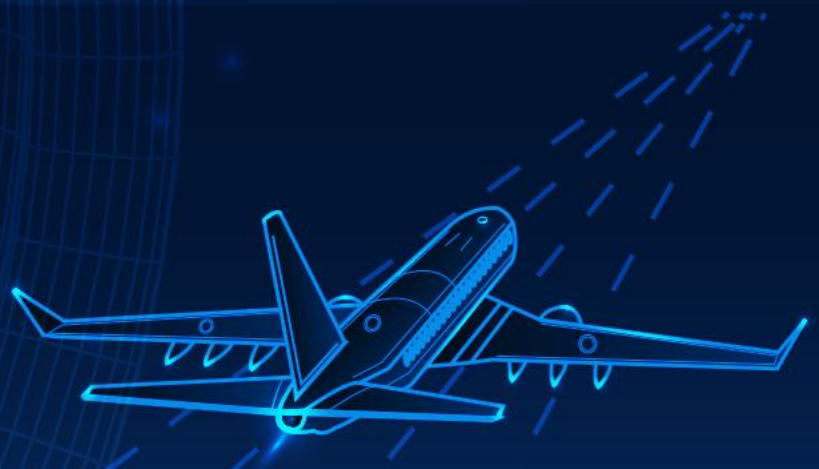
Free Route Airspace Implementation Workshop

17-18 November 2026







INTERNATIONAL CIVIL AVIATION ORGANIZATION

Free Route Airspace Implementation Workshop

Beijing, China

17 – 18 November 2026

Workshop Session

01 Introduction to Free Route Airspace

02 Progressive steps towards FRA

03 Preparing FRA Implementation

04 The Implementation of FRA

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Session X

Flexible Use of Airspace and Free Route Airspace

ZHANG Ying
Deputy Chief, ICAO APAC Regional Sub Office
17 November 2026

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01 What is FUA and FRA?

02 GANP Requirements & References

03 Summary

What is FUA?

- **FUA: *An airspace management concept*** based on the principle that airspace should not be designated as purely civil or military, but as a **continuum** in which all user requirements are **accommodated** to the greatest possible extent.
- Optimizing airspace for both civil and military operations result in nation-wide benefits, based on the principle **“as civil as possible, as military as necessary” .**





Ref: Manual on Civil-Military Cooperation in Air Traffic Management (ICAO Doc 10088)

“Conventional” ASM vs FUA ASM

“Conventional”

- Static environment
- Negative impact on system performance
- Not in line with needs (e.g. H24 activated zones)

FUA

- Dynamic airspace
- Continuous process
- Meeting users need
- Avoid “wasting” airspace
- Enhance system performance



Do we still need “Conventional” Airspace?

Prohibited Area

Un-manageable Area

……

What is FRA?

ICAO GANP ASBU FRTO-B1/1 Free Route Airspace (FRA)

FRA Capabilities: FRA is a **specified volume of airspace** within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) waypoints, without reference to the ATS route network, **subject to airspace availability**. Within this airspace, flights remain **subject to air traffic control**. FRA enables airspace users to fly as close as possible to what they consider the **optimal trajectory** without the constraints of a fixed route network structure.

FRA Enablers

Procedures & Airspace Design	Design and use of operational procedures. *Reference: ERNIP – Part 1*
ATC System Upgrade	Upgrade to ensure conformance monitoring of flights and conflict detection
Upgrade of AO Flt Planning Sys	Upgrade Computerized Flight Plan Service Providers (CFSP) system for FRA operation
Training Requirements	ATCO and AO training for FRA operation
ATFM System	Upgrade for ATFM/flight planning systems to support FRA

**EUROCONTROL European Route Network Improvement Plan (ERNIP) - Part 1*

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Relationship between FUA & FRA

Conventional Airspace Structure

- ATS Route
- Prohibited Area (P)
- Restricted Area (R)
- Danger Area (D)
- ATC Sectors
- Others

FUA Airspace Structures

- ATS Route + *Conditional Route(CDR)*
- *Un-manageable Area*
- *Temporary Reserved Area (TRA)*
- *Cross-Border Area (CBA)*
- ATC Sectors
- Others

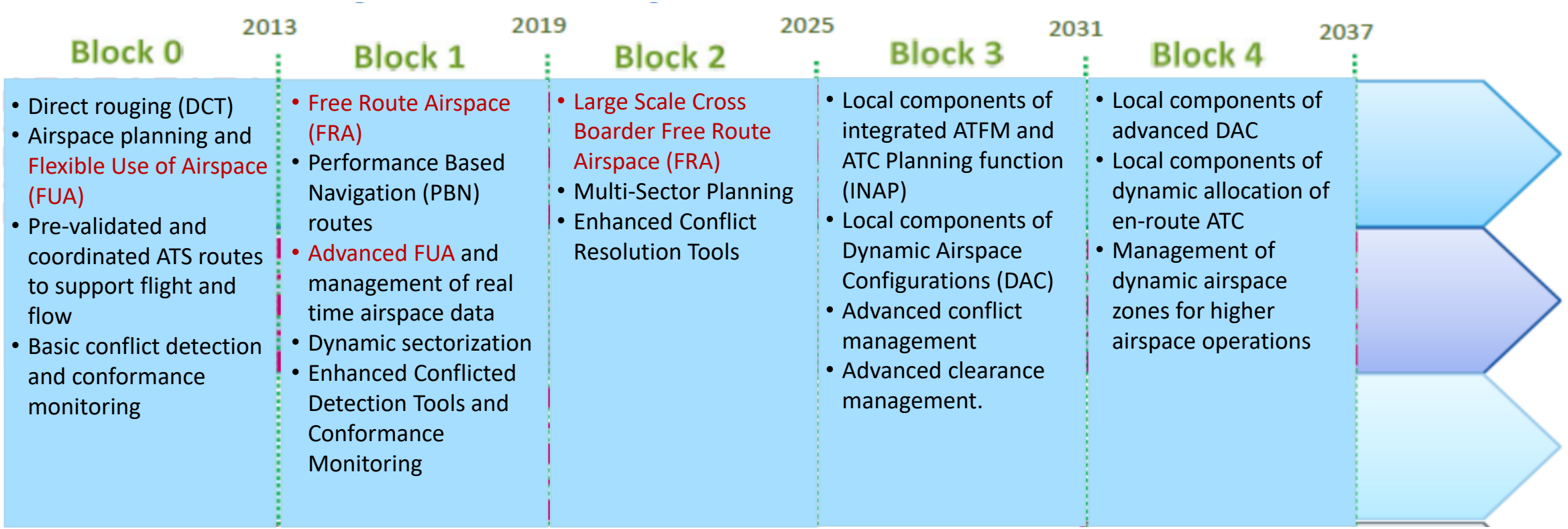
Free Route Airspace (FRA)

FUA: *An airspace management concept*
FRA: A *specified volume of airspace*

FUA & FRA in ASBU Framework

FRTO: Improved operations through enhanced en-route trajectories

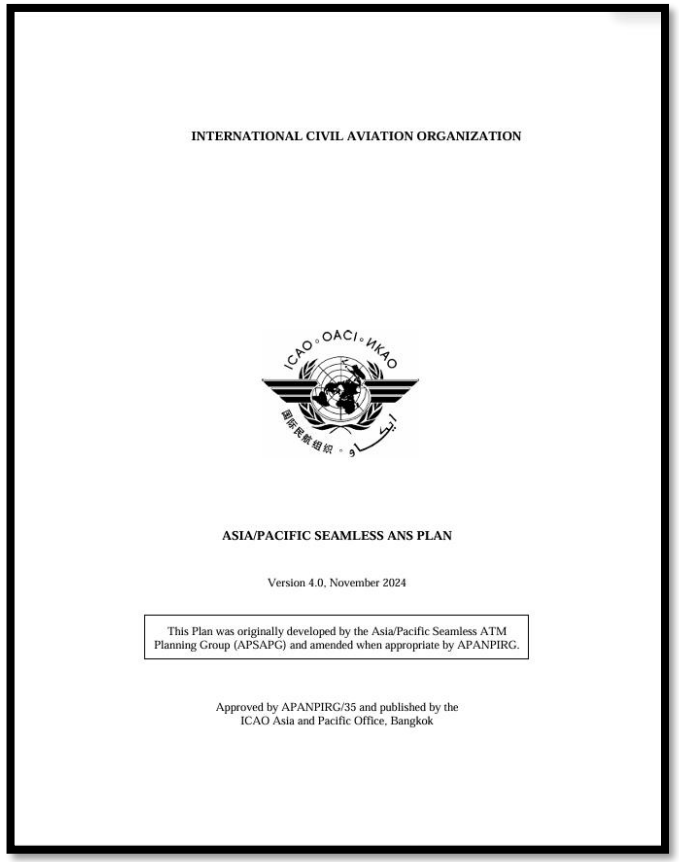
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Asia/Pacific Seamless ANS PLAN (Ver. 4.0)
《亚太地区无缝空中航行规划》

The objective of Seamless ATM is the **safe** and **interoperable** provision of **harmonized and consistent** air traffic management service provided to a flight, appropriate to the airspace category **and free of transitions** due to a change in the air navigation service provider or Flight Information Region.


INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA/PACIFIC SEAMLESS ANS PLAN

Version 4.0, November 2024

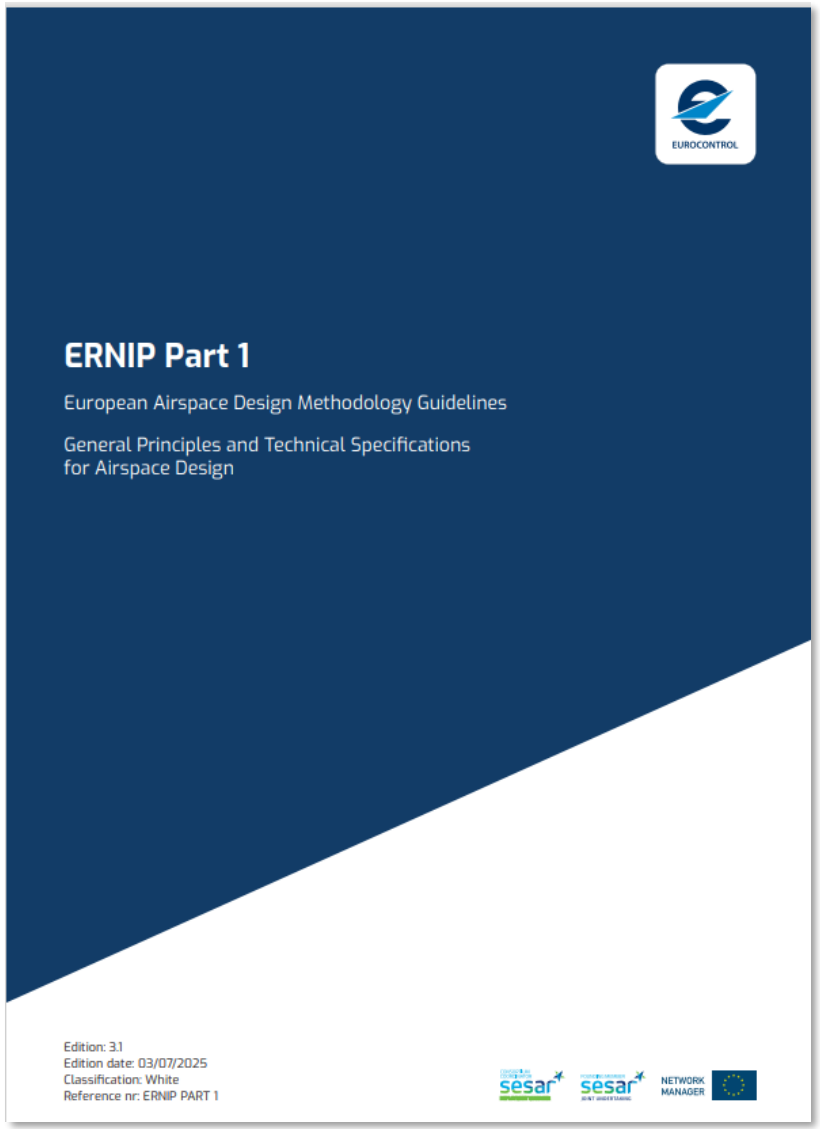
This Plan was originally developed by the Asia/Pacific Seamless ATM Planning Group (APSAPG) and amended when appropriate by APANPIRG.

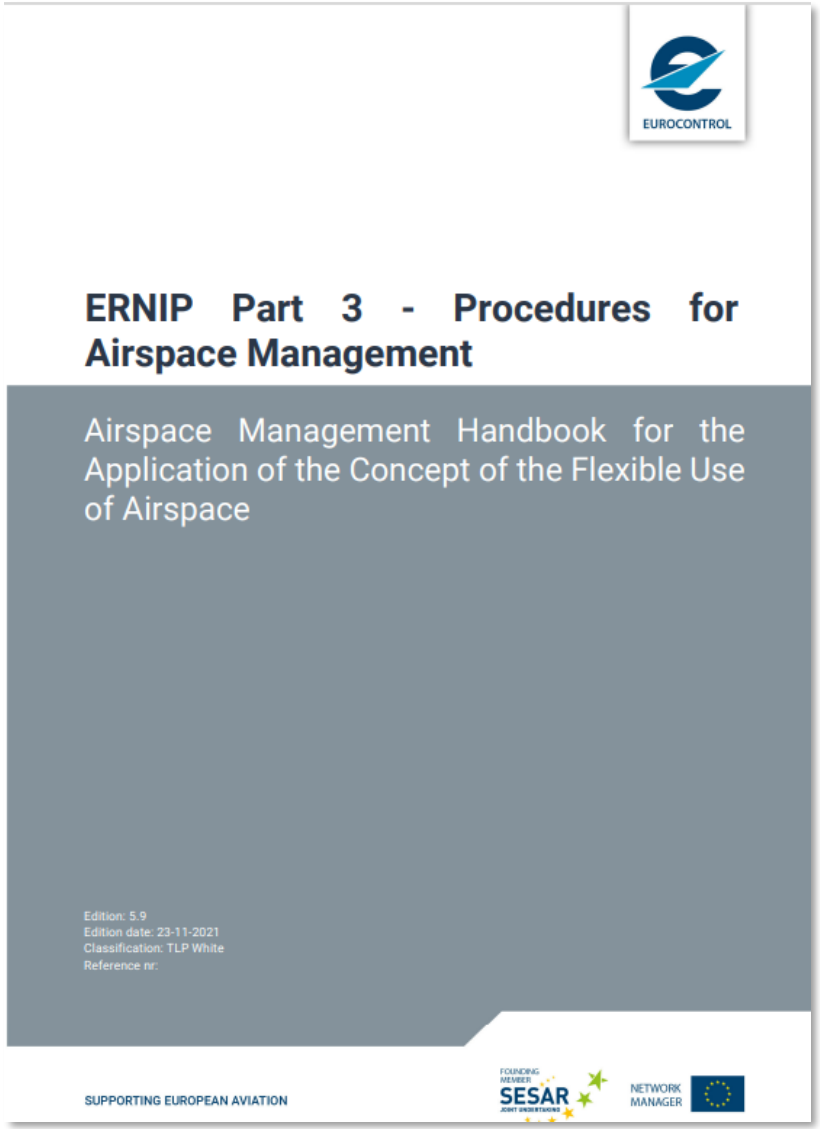
Approved by APANPIRG/35 and published by the ICAO Asia and Pacific Office, Bangkok

FUA and FRA are both included in the Asia/Pacific ASBU Blocks of APAC Seamless ANS Plan.

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The European Experience

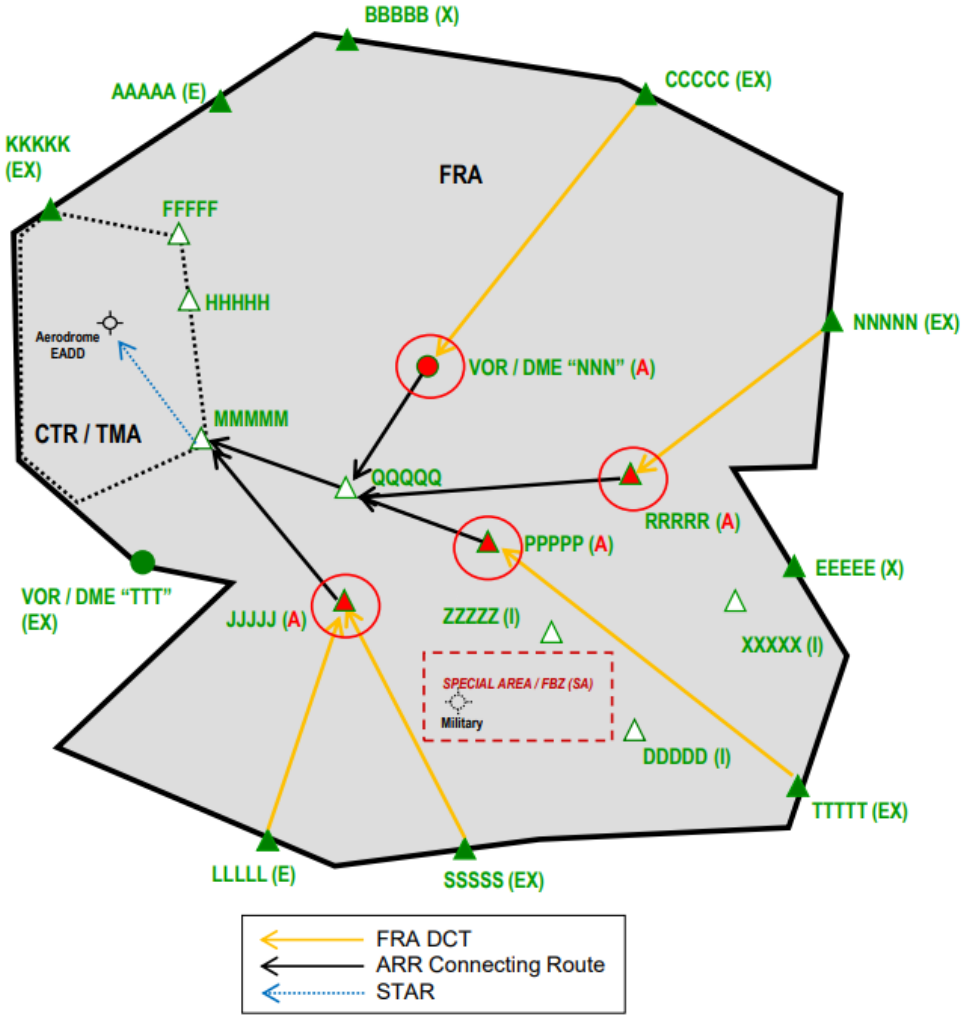




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Airspace Organization

- FRA forms an integral part of the overall European ATM network, interfacing vertically or laterally with adjoining fixed ATS route operations airspace.
- Airspace limitations will **remain**, and as all airspace users will have equal access to FRA, **harmonized application of the FUA Concept and Civil/Military Coordination** are taken into account in order to ensure harmonized procedures and service provision for the benefit of all the airspace users.



**Airspace Limitation* *is a generic term used to harmonize the terms expressions in the FRA Concept, referenced to the airspace reservations, airspace restrictions and flight plan capturing volumes.*

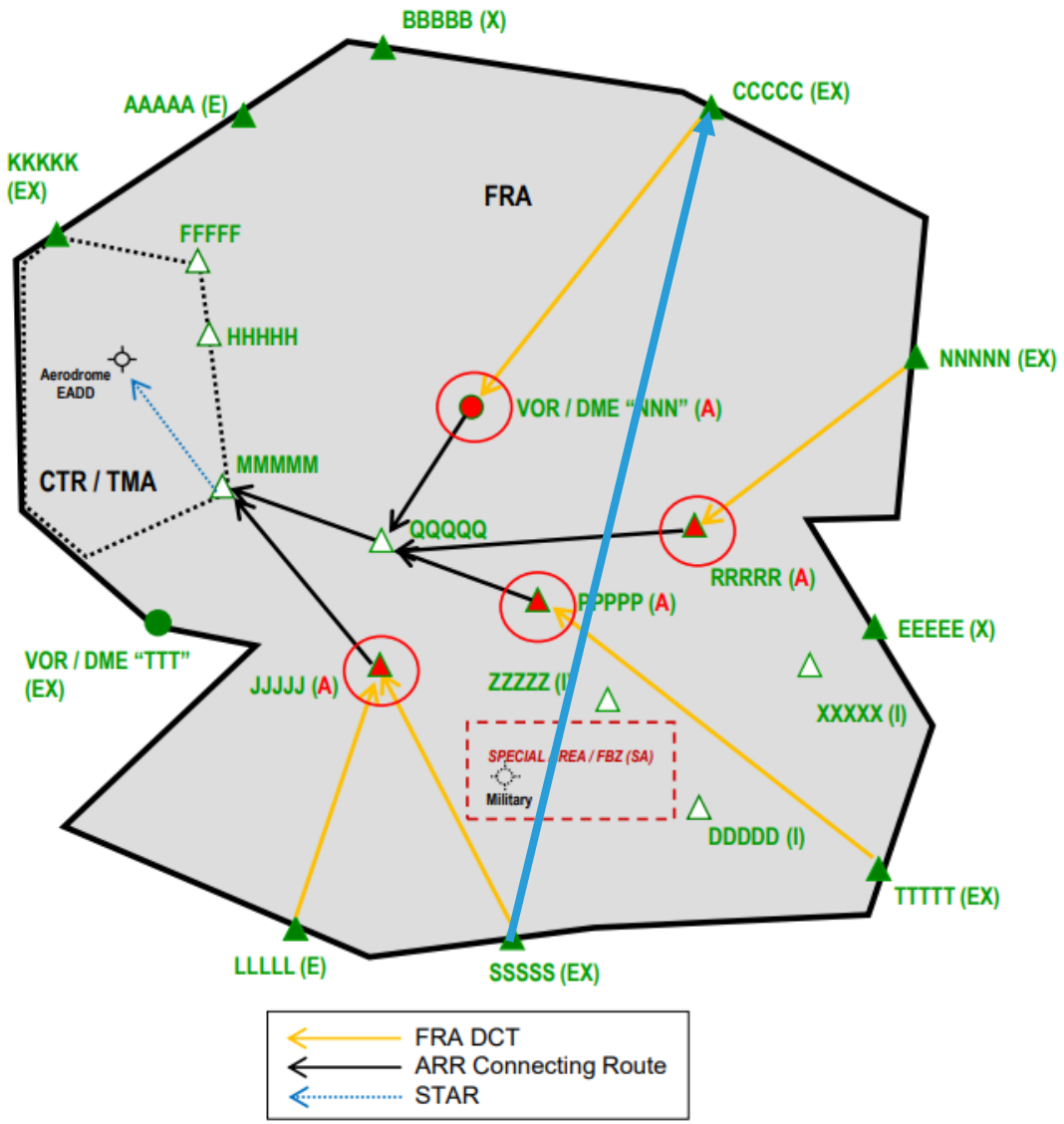
Airspace Limitations

- **Airspace limitations** are permanently active (such as prohibited areas) while others are active for varying periods of time and at varying levels. (e.g. TSA and similar exercise areas).
- Active airspace limitations **are crossed or avoided** depending on the degree of coordination (including civil/military coordination) and the status of the activity in the area.

This will remain the case in FRA.

- Publication of **activation time** of airspace limitations should be considered.
- There is a potential for airspace limitations to **be reconfigured** to meet different task needs.

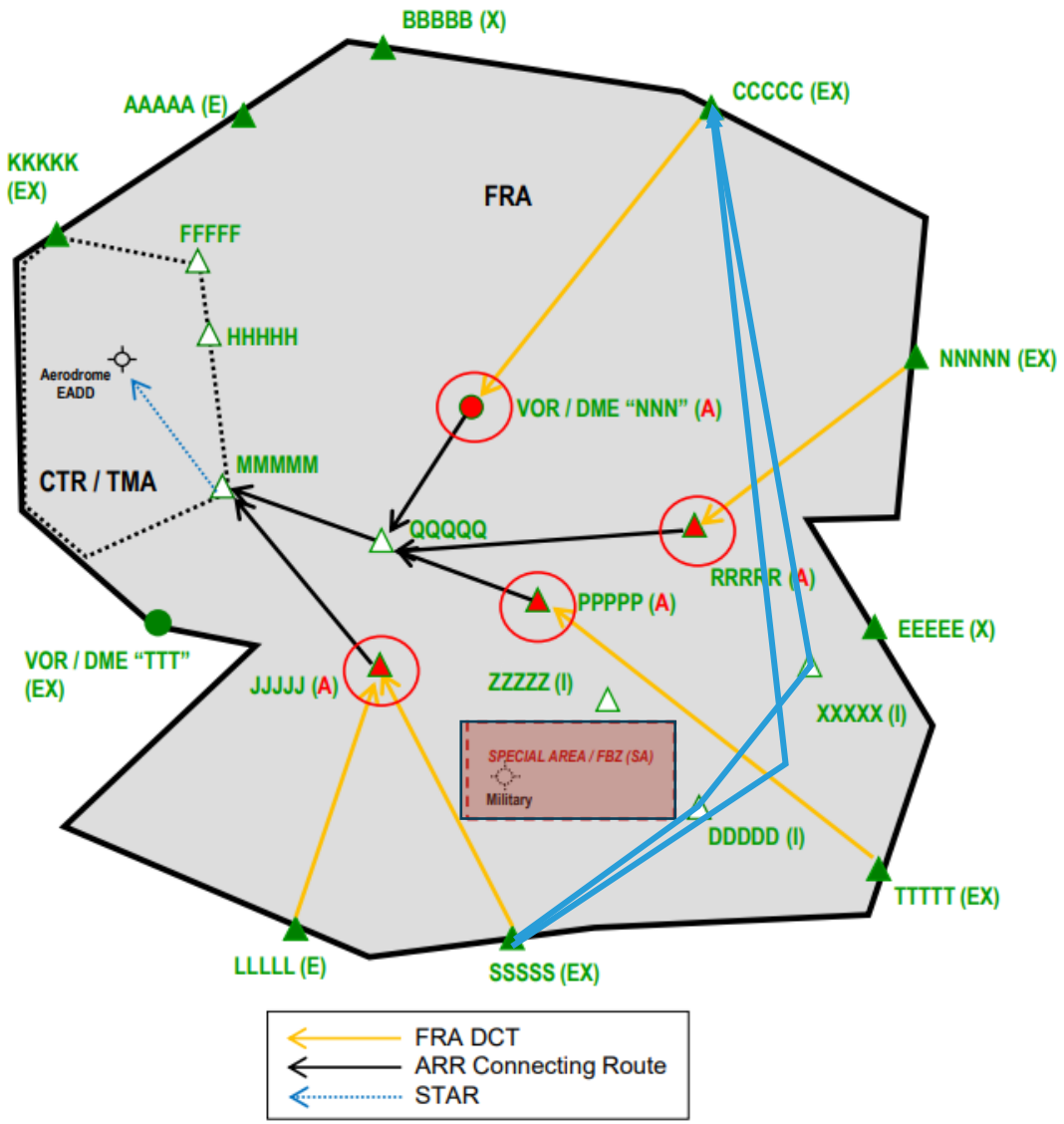
Scenarios



- **Scenario 1:** In areas where coordination procedures (including civil/military coordination procedures) and airspace conditions permit, the airspace users are permitted to **flight plan routings through airspace limitations**.

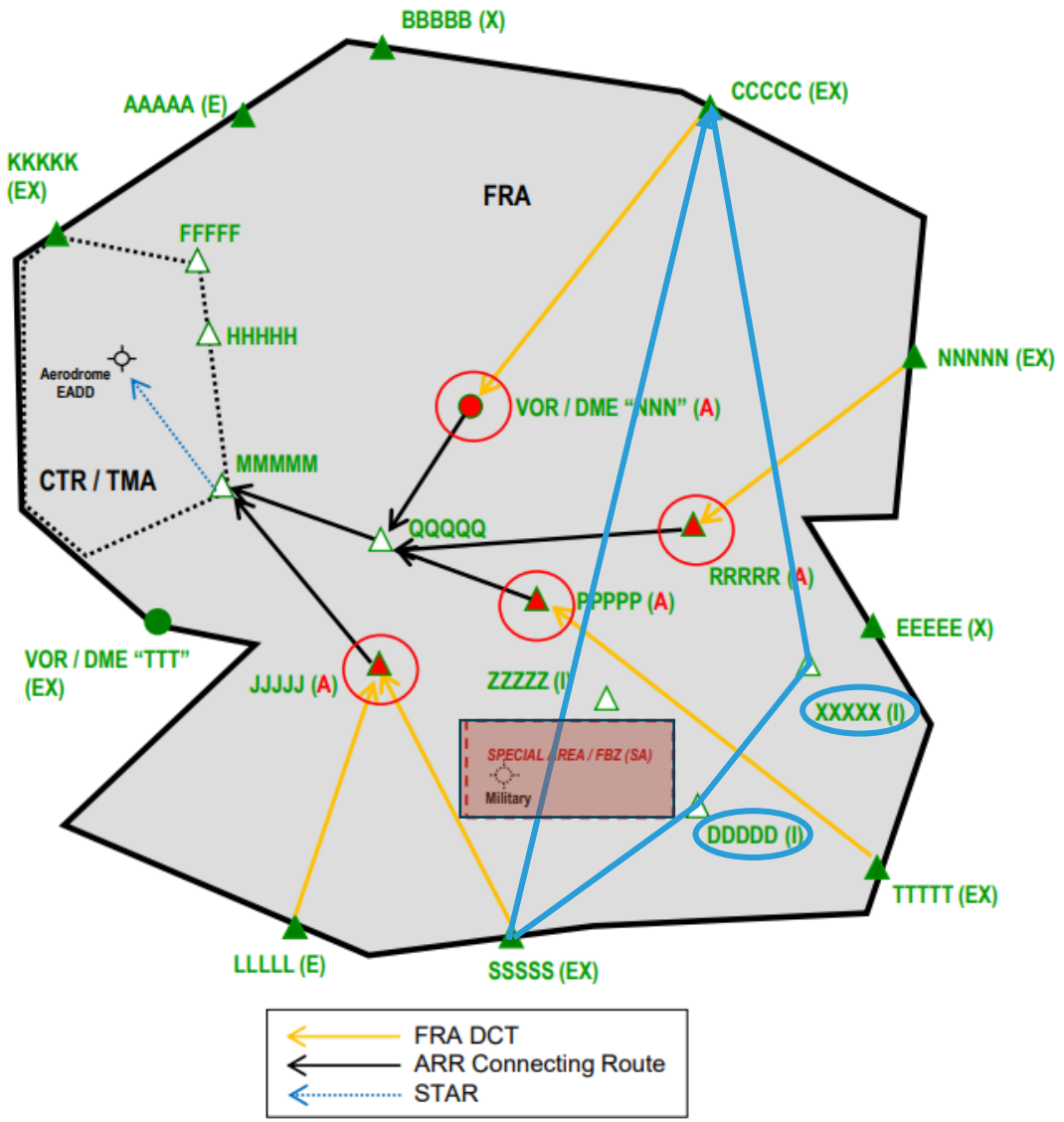
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Scenarios



- **Scenario 2:** In some cases, **tactical rerouting** will be given if airspace is not available for crossing.
  - The expected maximum additional length of a **tactical rerouting** shall be promulgated through national AIP.
    - it is expected that the average flight extension to be considered by aircraft operators is approximately **5NM**; in exceptional occasions **15NM**.
  - In most of the cases **radar vectors** shall be provided by ICAO.

Scenarios



- **Scenario 3**: when such airspace is not available for crossing, FRA **Intermediate points** will be defined to facilitate **flight planning** clear of the airspace limitation and ensure **sufficient separation** from the activity.
  - The promulgation of FRA Intermediate points shall be ensured through the **national AIP**.
  - If these points are to be used only for avoidance of airspace limitations, specific conditions for the use of these points for flight planning shall be provided in the **national AIP** or **centralized data management sources** e.g. Route Availability Document (RAD) in Europe.
  - An overall standardization of **the separation from airspace limitations** will be required

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Advanced Flexible Use of Airspace (AFUA)

FRTO-B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data	Operational

☐ Sixth edition of the GANP

Main Purpose

FUA and airspace mangement (ASM) need to be enhanced with collaborative airspace data sharing between all ATM actors, negotiation procedures, system support and real time ASM data integration.

New Capabilities

FUA procedures are enhanced by ASM data sharing between the ATM network function, ASM actors, airspace users and ATC. ASM data regarding the planning and tactical management of airspace reservations are continuously exchanged and integrated in real time between the ATM systems. Continuous exchange of ASM data between civil and military national actors will be enhanced.

Description

Automated ASM systems to ensure uninterrupted data flow between ATM Network functions and the neighbouring ASM systems from the pre-tactical planning to the real time airspace status.

AFUA Main Goals

- Improve Planning Process
- Promote dynamicity
- Support Free Route (FRA) implementation
- Enhance ASM/ATFCM integration
- Ensure Network approach
- Enhance automation

Dynamic trajectory operations



Summary

- Active airspace reservations **are crossed or avoided** depending on the level of coordination (including civil/military coordination) and the status of the activity in the area. ***This will remain the case in Free Route Airspace.***
- ASM in FRA will differ from that of the fixed ATS route network in that AOs will no longer be given information on which routes are available but will need to know which **airspace is available/not available**, so as to enable the **selection of a flight path** that will **avoid** them.
- ATC units, corresponding military authorities, airspace users and relevant stakeholders (e.g. the Network Manager) will need to know and share the **same updated information** with regard to activity of **airspace limitations**.
- Procedures shall be developed between all relevant stakeholders to ensure a **harmonized application of procedures** for the avoidance of airspace limitations.

Thank You



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