International Civil Aviation Organization

MIDANPIRG/21 and RASG-MID/11 Meetings

(Abu Dhabi, UAE, 4 - 8 March 2024)

Agenda Item 5.3: ANS (AIM, PBN, AGA-AOP, ATM-SAR, CNS and MET

FREE ROUTE AIRSPACE (FRA) CONCEPT AND ICAO STANDARD AND RECOMMENDED PRACTICES (SARPS)

(Presented by the United Arab Emirates)

SUMMARY

This working paper describes the United Arab Emirates (UAE) successful experience with the implementation of Free Route Airspace (FRA) and recommends that the Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG) start the formal process for the development of an ICAO Framework for the concept.

REFERENCES

− Doc 7300/9 – Convention on International Civil Aviation Doc 10022 – Assembly Resolutions ICAO Annexes 1 to 19 inclusive PANS (Procedures for Air Navigation Services)
− ICAO GUIDE TO THE DRAFTING OF SARPS AND PANS
− Doc 7030 – Regional Supplementary Procedures
− Doc 9673 – Air Navigation Plan
− Doc 7231 – ICAO Publications Regulations
− Doc 8146 – Rules of Procedures for Standing Committees of the Council
− Doc 7984 – Directives for Panels of the Air Navigation Commission
− Doc 8143 – Directives to Divisional-type Air Navigation Meetings and Rules of Procedure for their Conduct
− Doc 9482 – Directives for Panels of the Air Transport Committee

1.   INTRODUCTION

1.1   Free Route Airspace embodies a transformative shift in air traffic management, enabling aircraft to navigate between defined points using the most efficient paths, unrestricted by conventional airway structures. This innovation is increasingly critical amidst rising air traffic volumes and heightened sustainability concerns. ICAO's pivotal role in standardizing and guiding FRA implementation is crucial for achieving global safety, efficiency, and environmental sustainability objectives.

2. **DISCUSSION**

2.1   Understanding Free Route Airspace:

- Concept and Benefits:

  – FRA allows dynamic route planning, leveraging advanced navigation and air traffic management technologies to optimize flight paths.

  – Key benefits include operational efficiency through direct routing, reduced fuel consumption and emissions, and enhanced airspace capacity.

2.2   Global Landscape of FRA Implementation:

- Variability in Global Implementation:

  – Implementation levels vary, with Europe, under EUROCONTROL's guidance, showcasing a successful model.

  – EUROCONTROL's "European Route Network Improvement Plan" offers valuable lessons for global application, highlighting the seamless transition to FRA and its operational and environmental benefits.

2.3   Challenges in Diverse Implementations:

Despite the evident global interest in FRA for its potential to enhance airspace efficiency and reduce environmental impacts, a gap exists in consolidated ICAO technical material to support states in implementing FRA:

- Technical, Operational, and Regulatory Challenges:

  – Implementing FRA globally presents technical challenges, requiring advanced systems and operational challenges in coordinating across volumes of airspace.

  – Regulatory challenges stem from the need for unified regulations that provides a prospect for cross-border FRA opportunities while ensuring global interoperability.

2.4   Emphasis on the need for ICAO's Guidance and Standardization:

- Lack of Consolidated Technical Material:

  – The absence of consolidated ICAO technical material on FRA hinders a unified global implementation.

  – Drawing upon ICAO's "Guide to the Drafting of SARPs and PANS," there's a need for clear, consistent, and comprehensive guidelines to facilitate FRA implementation.

2.5   Proposing an ICAO Framework for FRA:

- Recommendations for ICAO's FRA Guidelines:

    – Develop structural guidelines detailing procedural and operational standards for FRA.

    – Establish safety protocols to ensure the highest safety standards in FRA operations.

    – Define efficiency metrics and interoperability standards to ensure seamless global integration.

2.6   Implementing FRA presents an opportunity to enhance global air traffic management significantly. The lack of consolidated ICAO guidance on FRA implementation limits its potential benefits. Standardized guidelines are essential for the worldwide adoption of FRA, leading to a more efficient, safer, and environmentally friendly airspace systems.

3.   ACTION BY THE MEETING

3.1   The meeting is invited to:

a) Take note of this working paper; and

b) The United Arab Emirates recommends that MIDANPIRG initiates the process of integrating FRA technical material into ICAO SARPs.

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