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Eighth Meeting of the AASPG Airspace and Aerodrome Operations Sub-Group (AAO/SG8)

Dakar, Senegal, 14-18 July 2025

Agenda Item 3: **Advancing Free Route Airspace (FRA) and User Preferred Routes (UPR) Implementation in the AFI Region.**

(Presented by the FRA PMT)

SUMMARY
This working paper outlines the progress made, challenges encountered, and prospects regarding the implementation of the Free Route Airspace (FRA) concept in the AFI Region. It also presents the outcomes of the activities from the User Preferred Routes (UPR) trials. The paper underscores the critical importance of broad regional engagement and strong State commitment to ensure continuity, operational performance, and the realization of expected benefits in efficiency, safety and environmental sustainability.
REFRENCE(S): • Global Air Navigation Plan (GANP): FRTO-B0/1, FRTO-B1/1, FRTO-B1/2 • APIRG Conclusions and Decisions: Conclusions 22/36; 23/02; 24/14; 25/03; 26/09 ; Decisions 26/04; 27/01 • AFI Regional Air Navigation Plan • States' Aeronautical Information Publications
Related ICAO Strategic Objective(s): • Safety • Air Navigation Capacity and Efficiency • Environmental Protection

1. INTRODUCTION

1.1 The Free Route Airspace (FRA) concept represents a modern and forward-looking approach to airspace management, enabling airline operators to plan and fly their preferred routes trajectories within a specified airspace, from a defined entry point to a defined exit point, without being constrained by the conventional fixed ATS route network.

1.2 In parallel, the ongoing User Preferred Routes (UPR) trials have produced encouraging results, offering a solid foundation for regional FRA implementation thereby allowing a more flexible and performance-driven evolution of air traffic management and flight operations.

2. DISCUSSION

2.1 Several States in the AFI Region—including Ghana, Nigeria, Uganda, Mauritius, and ASECNA Member States—have already implemented FRA. This growing trend demonstrates a strong regional commitment to the modernization of air navigation services, resulting in measurable improvements in distance, time, payload, and fuel efficiency, emissions reduction, and operational flexibility.

2.2 Early results indicate that the benefits of FRA are significantly amplified when implemented across a wide area and supported by strong inter-State and inter-FIR cooperation. The implementation can follow a phased approach: tactical direct (real-time ad hoc direct route clearances), plannable DCT (Direct route segments filed in flight plans), local FRA (within a single FIR), and finally, cross-border FRA. It appears that cross-border FRA initiatives, in particular, should be actively promoted, as they unlock enhanced efficiency and optimization potential.

2.3 The successful implementation of FRA requires a thorough and systematic adaptation of airspace management structures. This includes the clear publication of usage conditions (e.g. eligible flights, time windows, applicable flight phases, …), regular and coherent updates to aeronautical charts and AIPs, robust civil-military coordination, and alignment with both ICAO standards and recommended practices as well as with regional and international best practices.

2.4 The effective implementation of FRA requires not only aircraft equipage but also a harmonized Navigation Specification (NAVSPEC), as it directly impacts route trajectory spacing and the definition of FRA points (E/X/I). In line with APIRG Conclusion 24/14**,** regional coordination is essential to align NAVSPECs, optimize airspace design, and ensure safe and seamless cross-border operations.

2.5 Performance monitoring tools are being progressively deployed and refined, including data collection templates to identify gaps, assess opportunities, and track key performance indicators (such as route usage, flight distance and fuel savings, and incident rates). Current limitations in the use of the 5LNC database can be temporarily addressed by using geographic coordinates for new entry and exit points until FRA and UPR solutions reach full maturity. The flexible use of airspace—with military collaboration where necessary—also supports traffic management efficiency and operational continuity. Building on the experience and lessons learned from FRA pioneer States in the AFI Region, it is now timely to scale up FRA implementation at the regional level.

2.6 In parallel to FRA implementation, UPR trials have been conducted over continental airspace, inspired by successful implementations of the same in Latin America. Launching these trials required close coordination between adjacent Flight Information Regions (FIRs) and initially revealed several operational constraints. However, by adopting a phased approach—starting with one-day/one-way flights and progressively extending to three-day, seven-day, thirty-day, and ninety-day round-trip operations—stakeholders were able to gradually address and overcome these challenges.

2.7 A total of five airlines—Ethiopian Airlines, Kenya Airways, Royal Air Maroc, EgyptAir and RwandAir—have so far voluntarily taken part in the UPR trials. Three of them—Ethiopian Airlines, Royal Air Maroc and Egyptair—successfully completed a full 90-day UPR trial cycle. Additional airlines are eager to participate and have been put on standby.

2.8 The program validated the feasibility of connecting city pairs via direct trajectories even outside the fixed ATS route network, with demonstrable gains in both operational efficiency and flexibility. The transition toward regular UPR operations expanding participating airlines and more city pairs is currently under consideration and will require a dedicated in-person workshop involving all relevant FIRs or sectors.

2.9 Key challenges encountered include limited human resource availability, the lack of a real-time coordination tool comparable to CADENA, and the pressing need to reinforce project teams—particularly through the appointment of a vice-chairperson and new PMT members—to ensure sustained momentum.

2.10 The last in-person PMT meeting Regional Coordination Workshop, which proved to be a vital cog in the success of FRA implementation in the region, was kindly hosted and supported by Mauritius. This was followed by two consecutive physical meetings held in Addis Ababa and Nairobi, sponsored by the AFREXIMBANK, which played a pivotal role in fostering stakeholder engagement.

2.11 To date, airlines continue to carry on board the fuel savings generated through UPR trials or Tactical Direct operations. However, with the progressive implementation of FRA and plannable DCTs, it is important to note that, over time, this saved fuel will no longer need to be carried. Instead, it can be converted into payload in terms of additional passenger capacity and/or cargo, thereby significantly amplifying FRA's operational, economic and environmental benefits. Ultimately, economic and efficiency gains will translate into connectivity and frequency increases for the benefit of airlines, ANSPs and the wider aviation value chain (stakeholders).

2.12 From a safety perspective, the decongestion of fixed-route concentration points at navigation aids and other operational hotspots further enhances airspace efficiency and risk mitigation.

2.13 It is therefore essential that States which have not yet implemented FRA actively assess the potential for transitioning from their current operational frameworks—whether based on direct (DCT) routes or fixed ATS route networks—towards FRA, taking into account applicable safety requirements and established regional agreements. A coordinated and collective regional effort will be critical to firmly establish FRA as a standard operational model across the AFI region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the progress made in FRA implementation and the results of the UPR trials,

b) Encourage States that have not yet implemented FRA to initiate feasibility studies, particularly along East-West and North-South axes to support the major traffic flows,

c) Support efforts in data collection, performance monitoring, and updating relevant aeronautical publications,

d) Harmonize NAVSPEC across FIRs to ensure coherent FRA point determination and enable seamless cross-border operations.

e) Promote the strengthening of technical teams, including the appointment of FRA project vice-chairperson,

f) Organize a regional face-to-face FRA coordination meeting to refine implementation, support cross-border expansion, and align technical and operational strategies.

g) Support the transition from UPR trials to regular operations, while extending the program to other airlines and routes,

h) Active participation in the implementation of cross-border FRA in the East-West traffic flow as a priority and to support North-South traffic flow through implementation of DCT/FRA

i) Reaffirm the importance of civil-military coordination and flexible use of airspace for better optimization of plannable direct routes,

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