INTERNATIONAL CIVIL AVIATION ORGANIZATION

Second Meeting of the AFI Aviation System Planning and implementation Group (AASPG/2)

Livingstone, Zambia, from 2 to 6 November 2026

Agenda Item 4: Implementation of safety and air navigation goals, targets and indicators, including priorities set in the Regional Aviation Safety and Air Navigation Plans

Transitioning to RNAV 5 routes in the AFI region

(Presented by the Secretariat)

SUMMARY	
This paper presents the rationale and operational justification for transitioning from conventional ATS routes to RNAV 5 routes within the AFI region. It highlights the historical context of PBN implementation, the ambiguity surrounding the definition of "remote airspace," and the high level of RNAV 5 equipage among aircraft operating in African airspace. The paper proposes that the African continent be considered "continental airspace" for PBN purposes, enabling the replacement of RNAV 10 routes with RNAV 5 and supporting the transition recommended in the AFI Regional PBN Implementation Roadmap. Action by the Meeting is at Section 3 of this Paper.	
Strategic Goals:	A - Every Flight is Safe and Secure; C - Aviation Delivers Seamless, Accessible, and Reliable Mobility for All

1. INTRODUCTION

1.1. The APIRG/17 endorsed in 2010 the AFI Regional PBN Implementation Plan including a roadmap and invited States to customize it into national PBN implementation plans. The roadmap prescribed RNAV 10 and RNP 4 for oceanic and remote en-route operations, and RNAV 5, RNAV 2, and RNAV 1 for continental en-route operations.

1.2. The roadmap further encouraged AFI States to review existing conventional ATS routes and transition them to RNAV 5 where operationally required for flow management.

1.3. However, during the AFI Regional workshop on ATS route review held in Accra, Ghana from 20 to 24 April 2026, statistics indicated that 90 RNAV 10 routes were implemented within the continental airspace of Africa. This occurred because the AFI region historically considered most of its airspace as "remote," despite the absence of a clear ICAO definition of "remote area."

1.4. ICAO documentation (Doc 4444, Doc 7030, Annex 11, Doc 9613) describes remote airspace as areas with limited surveillance, constrained communication, and sparse navigation infrastructure. However, the African continent today benefits from:

- full GNSS coverage with no/minor GNSS RFI event reported in remote continental airspace and the established resilient operational network (ground navigational aids) as well as the ongoing regional strategy for GNSS RFI mitigation
- HF communication availability and enhanced by Data link communication (CPDLC/ADS-C);
- increasing ADS-B surveillance; and
- growing VHF coverage, making RNAV 5 fully implementable without surveillance.

1.5. On this basis, the African continent can be considered continental airspace for PBN purposes. This enables the application of RNAV 5 as the primary en-route navigation specification and supports the transition from RNAV 10 to RNAV 5 in accordance with the AFI PBN Roadmap.

1.6. This working paper presents the relevance of the implementation of RNAV 5 in the continental AFI airspace for consideration by the meeting.

2. DISCUSSIONS

2.1. ICAO does not provide a strict definition of “remote area,” or "remote airspace" but operational usage refers to regions where:

- surveillance is limited or unavailable;
- Communication is constrained ; and
- ground navigation aids are sparse.

2.2. While parts of Africa previously met this description, current infrastructure and GNSS availability allow RNAV 5 operations across the continent without reliance on surveillance.

2.3. These developments support increased implementation of RNAV 5 for continental en-route operations in the AFI region, consistent with the AFI Regional PBN Implementation Plan.

2.4. The table below (provided by the ICAO Corporate IA) presents estimated equipage levels for aircraft operating in African airspace, based on global fleet capability and AFI traffic composition.

Navigation specification	Typical area of operation	Equipage level	Comments
RNAV 10	Oceanic & Remote En-route	**≈ 95–100%**	Universal equipage among long-haul fleets; historically applied across AFI.
RNAV 5 (with GNSS)	Continental En-route	**≈ 92–97%**	GNSS is standard on modern aircraft; overflying traffic is fully GNSS-equipped.
RNP 4	Oceanic & Remote En-route	**≈ 70–85%**	Increasing adoption among long-haul fleets; recommended replacement for RNAV 10.
RNP 2	Continental & Remote En-route	**≈ 60–75%**	Supported by modern narrow-body and wide-body fleets; growing adoption.

2.5. The equipage levels demonstrate that RNAV 5 capability is nearly universal among aircraft operating in African airspace.

2.6. This readiness strongly supports transitioning from conventional ATS routes to RNAV 5 and replacing RNAV 10 routes in continental airspace.

2.7. Transitioning to RNAV 5 may:

- improve route efficiency and reduce track mileage;
- enhance airspace capacity and flow management;
- reduce controller workload through predictable trajectories;
- support future transitions to RNAV 2, RNAV 1, and ultimately RNP 2; and
- align AFI airspace with global PBN evolution.

2.8. RNAV 10 will remain applicable in oceanic and remote airspace; however, its use in continental airspace is no longer operationally justified.

3. ACTIONS BY THE MEETING

3.1. The meeting is invited to:

a) note the information provided in this working paper;
b) endorse the transition to RNAV 5 for remote continental en-route operations in the AFI region;
c) urge States of the AFI region and main stakeholders to review existing conventional ATS routes and transition them to RNAV 5, where appropriate, in accordance with the AFI Regional PBN Implementation Plan; and
d) note the continued applicability of RNAV 10 and RNP 4 for oceanic and remote operations, subject to the applicable operational requirements.

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<table>
<tr><td colspan="6">AASPG/2 Conclusion 2/XX: Transition to RNAV 5 for Continental En-route Operations in the AFI region</td></tr>
<tr><td>Why:</td><td colspan="5">That, to support the harmonized and performance-based implementation of PBN for remote continental en-route operations in the AFI region</td></tr>
<tr><td>What:</td><td colspan="5">a) RNAV 5 be envisaged as the baseline navigation all continental en-route operations in the AFI region
b) States, in coordination with air navigation service providers and airspace users, to review existing conventional and RNAV 10 ATS routes and transition them to RNAV 5, where appropriate, in accordance with the AFI Regional PBN Implementation Plan.</td></tr>
<tr><td>Who:</td><td colspan="5">a) AASPG/2
b) States, ANSPs and Airspace users</td></tr>
<tr><td>When:</td><td colspan="5">a) 6 November 2027
b) In accordance with the implementation timelines of the AFI Regional PBN Implementation Plan</td></tr>
<tr><td colspan="6">Implementation follow-up</td></tr>
<tr><td>Follow-up required</td><td>Yes ☒
No ☐</td><td>Metrics</td><td>Metric 1:
Number/percentage of identified conventional and RNAV 10 continental ATS routes reviewed for transition to RNAV 5.

Metric 2:
Number/percentage of identified continental conventional ATS routes transitioned to RNAV 5</td><td>Means to collect data</td><td>Secretariat report to PRCC and AASPG

States’ air navigation Implementation report</td></tr>
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