



INTERNATIONAL CIVIL AVIATION ORGANIZATION

Ninth Meeting of the AASPG Infrastructure and Information Management Sub-Group (IIM/SG9)

Dakar, Senegal, from 3 to 7 August 2026

Agenda Item 3: Achievements in Infrastructure and Information Management

3.6: Other Air Navigation Initiatives

WP3.6M Global Developments related to Communication, Navigation, Surveillance and Spectrum

(Presented by the Secretariat)

SUMMARY
This working paper presents significant global developments related to Communication, Navigation, Surveillance and Spectrum (CNS), including recent ICAO amendments, emerging technologies, GNSS resilience initiatives, surveillance modernization, spectrum management activities associated with WRC-27, and the ongoing development of the Integrated CNS and Spectrum Global Concept. These developments will influence future CNS implementation strategies and spectrum management activities within the AFI region. The paper highlights their implications for States of the AFI region and identifies actions necessary to support aviation safety, spectrum protection, CNS modernization, and long-term planning. Action by the meeting in paragraph 3
REFERENCE(S): ▪ ICAO Global Air Navigation Plan (GANP, Doc 9750) ▪ ICAO Annex 10 — Aeronautical Telecommunications ▪ ICAO Position for WRC-27
This working paper relates to ICAO Strategic Objectives: A: Every Flight is Safe and Secure; C: Aviation Delivers Seamless, Accessible and Reliable Mobility for All.

1. INTRODUCTION

- 1.1. CNS systems and associated radio-frequency spectrum are fundamental of safe, secure, and efficient air navigation services. Rapid technological advances, increasing automation, digitalization, and growing spectrum demands are accelerating the evolution of CNS systems worldwide.
- 1.2. ICAO and its expert groups continue to develop new Standards and Recommended Practices (SARPs), guidance material, and long-term strategic initiatives to support the modernization of air navigation systems while ensuring safety, interoperability, cyber resilience, and efficient utilization of frequency spectrum resources.
- 1.3. This paper summarizes the most significant global developments and their relevance to States of the AFI

region and stakeholders.

2. DISCUSSIONS

2.1. Communications

2.1.1. ICAO continues to modernize aeronautical communications through new amendments of Annex 10 provisions (volume II and III), publication of ATN/IPS guidance material, and the development of SARPS related to future communication technologies including Space-Based VHF, LDACS, AeroMACS, and VoIP communications.

2.2. Navigation

2.2.1. The increasing occurrence of GNSS interference events worldwide has elevated GNSS resilience as a major ICAO priority. The ICAO GNSS Radio Frequency Interference (RFI) Roadmap and Assembly Resolution A42-8 provide a framework for addressing GNSS RFI through enhanced monitoring, reporting, mitigation measures, and the development of Complementary Positioning, Navigation and Timing (C-PNT) capabilities.

ICAO's GNSS resilience roadmap also includes future work on navigation authentication, SBAS authentication, GNSS interference mitigation, and C-PNT provisions.

Implications for States of the AFI region:

- Strengthen national mechanisms for monitoring and reporting GNSS interference events;
- Review contingency arrangements for GNSS disruptions;
- Participate in GNSS resilience initiatives and capacity-building programmes; and
- Support implementation of future C-PNT concepts and navigation authentication services.

2.3. Surveillance

2.3.1. Recent surveillance developments include the adoption of Amendment 92 to Annex 10 Volume IV introducing updated SSR transponder requirements compatible with 1090 MHz Extended Squitter ADS-B Version 3. The amendment becomes applicable on 26 November 2026.

2.3.2. Additional work is progressing on ACAS III, ADS-B IN, Flight Interval Management (FIM), surveillance performance requirements, and associated guidance material. These developments support future surveillance capabilities and enhanced ATM performance globally.

2.4. Spectrum Management and World Radiocommunication Conference 2027 (WRC -27)

2.4.1. The outcomes of the 2027 World Radiocommunication Conference (WRC-27) will have significant implications for aviation. Several agenda items, particularly Agenda Item 1.7 concerning potential IMT use in frequency bands adjacent to the radio altimeter spectrum, are of critical importance to aviation safety.

2.4.2. ICAO has developed and circulated its Position for WRC-27 and emphasized the need for active participation by States in national, regional, and ITU preparatory activities. The protection of aeronautical spectrum resources remains essential to ensure the continued safe operation of aviation systems.

2.4.3. In parallel, ICAO continues to modernize the Frequency Finder Tool through the introduction of enhanced security features, web-based capabilities, and additional CNS modules to improve regional spectrum management and coordination.

2.5. Integrated CNS and Spectrum Strategy

2.5.1. ICAO has established the Integrated CNS and Spectrum Task Force (ICNSS-TF) to develop an Integrated CNS & Spectrum Global Concept. The initiative will provide a long-term CNS and spectrum roadmap together with a modernized, performance-based CNS standardization framework.

3. ACTIONS BY THE MEETING

3.1 The meeting is invited to:

- a) Note the information on recent global developments related to CNS and spectrum management;
- b) Encourage States to monitor and prepare for the implementation of new ICAO CNS provisions, guidance material, and emerging technologies;
- c) Encourage States to strengthen GNSS resilience and aeronautical spectrum protection activities;
- d) Encourage active participation in WRC-27 preparatory activities and support for the ICAO Position ; and
- e) Consider the implications of the Integrated CNS & Spectrum Global Concept in future CNS planning and modernization programmes.

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