



International Civil Aviation Organization

**TWELFTH MEETING OF THE PERFORMANCE BASED NAVIGATION
IMPLEMENTATION COORDINATION GROUP (PBNICG/12)**

(Beijing, China 16- 18 December 2025)

Agenda Item 7: Any other business

GLOBAL ACTION PLAN TO COUNTER GNSS INTERFERENCE
(Presented by India)

SUMMARY

The global civil aviation has experienced a rapid rise in Global Navigation Satellite System (GNSS) interference, notably spoofing and jamming incidents. These events increasingly threaten aviation safety, navigation reliability, and global airspace efficiency. While ICAO has issued general guidance on GNSS vulnerabilities, the scale and persistence of the current threats demand stronger, coordinated global action. This paper proposes a comprehensive ICAO-led strategy to address GNSS interference at the global level through regulatory updates, international coordination, and technology resilience.

1. INTRODUCTION

1.1 Global Navigation Satellite Systems (GNSS) signals empower the modern aviation ecosystem by providing Position Navigation and Timing (PNT) both in aircraft systems and in space-based or ground-based systems. Performance-Based Navigation (PBN), ADS-B surveillance, and many modern CNS/ATM systems, flight systems and procedures rely heavily on uninterrupted GNSS signal integrity.

1.2 While GNSS vulnerabilities were a matter of concern earlier, the world in the past two years has witnessed a dramatic and sustained increase in GNSS interference, both jamming and spoofing, at an unprecedented rate. Initially limited to only conflict zones, it has gradually spread to different parts of the world, affecting flights globally, leading to navigation deviation alerts, false terrain warnings, failed approaches and ATC contingency actions.

1.3 A strong and coordinated global response is needed to neutralize this threat and prevent it from affecting global aviation plans in irrevocable manner.

2. DISCUSSION

2.1 GNSS is a threat that has showed no signs of slowing down and it compromises ICAO's strategic objectives on Safety, Security and Air Navigation Capacity and Efficiency.

2.2 While the issue is essentially global, the global response has been uncoordinated. States have released different guidance material and advisories with various mitigation measures and

reporting requirements which are not globally harmonized. Many States do not have GNSS interference detection networks.

2.3 ICAO and its regional offices have since then conducted workshops to increase awareness and discussed the issue in various meetings. Existing strategies, however, offer guidance but lack the operational, regulatory, and technical depth needed to mitigate and respond to such a dynamic and growing threat in an effective manner.

2.4 ICAO Doc 9849 GNSS manual and various regional initiatives highlight the threat of GNSS vulnerabilities. However, the following gaps exist in the present framework to tackle GNSS interference:

- (a) No globally mandated incident reporting and database;
- (b) No centralized threat monitoring and analysis;
- (c) No standardized response protocols; and
- (d) No enforcement mechanisms.

3. PROPOSED ICAO ACTION PLAN

3.1 Safety recognition and Strategic inclusion

3.1.1 ICAO should recognize GNSS interference as a global safety risk under Global Aviation Safety Plan (GASP), in view of the escalating risks and the aviation industry's dependence on GNSS.

3.1.2 Such an inclusion would align the measures being undertaken by various aviation authorities and organization, thus enhancing global aviation safety.

3.2 Standardized Global reporting and database

3.2.1 Reporting of GNSS interference should be brought in as a Standard within SARPs, and guidance should be provided on classification criteria for spoofing, jamming and other signal disruptions.

3.2.2 A centralized, ICAO-managed global database on GNSS interference should be developed to enable comprehensive trend and incident analysis for a more refined threat response.

3.3 Global Threat Monitoring and Analysis Network

3.3.1 ICAO should lead establishment of a standardized global network for GNSS threat monitoring and analysis to provide a real-time threat overview to support global coordination in predictive risk management and harmonized response protocols.

3.4 Technical Resilience and alternate PNT (APNT) solutions

3.4.1 ICAO should collaborate with OEMs and technology providers to enhance system resilience and to develop alternate PNT and CNS/ATM solutions.

3.5 International coordination and enforcement

3.5.1 ICAO should establish a multidisciplinary task force on GNSS resilience and spoofing mitigation, addressing both SARPs and operational procedures.

3.5.2 ICAO should work closely with International Telecommunication Union (ITU) to promote accountability and legal consequences for intentional signal interference.

3. ACTION REQUIRED BY THE MEETING

3.1 In light of the rapidly intensifying GNSS interference threats, timely and coordinated high-level global action is required to support the sustained safety and stability of international civil aviation.

3.2 The meeting is invited to:

- a) recognize GNSS interference, including spoofing, as a priority aviation safety and security issue;
- b) request the Council to initiate a global action plan on GNSS resilience, including mandatory incident reporting, monitoring networks, and multi-source navigation alternatives;
- c) direct ICAO to establish a multidisciplinary task force to develop SARPs and operational protocols to mitigate spoofing and jamming; and
- d) encourage ICAO to work with international bodies to address legal and enforcement frameworks for intentional GNSS disruption.

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Executive Summary for consideration for inclusion in the Meeting Report