60th CONFERENCE OF DIRECTORS GENERAL OF CIVIL AVIATION ASIA AND PACIFIC REGIONS

Sendai, Japan
28 July - 1 August 2025

AGENDA ITEM 3: AVIATION SAFETY

GNSS RFI & MITIGATION ACTIONS TAKEN BY PAKISTAN

(Presented by Pakistan Civil Aviation Authority)

SUMMARY

The paper describes the various actions taken by Pakistan to manage the existing challenge of GNSS Radio Frequency Interference (RFI). It is pivotal that all relevant industry stakeholders are kept on board to manage this challenge. This includes sharing of decisions, recommendations and best practices as an outcome of global events with relevant stakeholders, issuance of Guidance Material by the regulatory body, development of contingency procedures by the ANSP and airline operator, data analysis and related safety promotion activities.

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1. INTRODUCTION

1.1 GNSS is crucial in modern aviation, enabling precise navigation, surveillance, and time synchronization for various flight phases, from departure to landing. GNSS is key enabler for Performance-Based Navigation. However, GNSS Radio Frequency Interference (RFI) through Jamming and Spoofing is matter of safety concern. It has become a global challenge and is being deliberated at various international forums. The recommendations and best practices as outcome of these events/activities are being shared with states, International organizations and Industry. It is important for States to recognize this challenge while keeping all the relevant stakeholders on board and taking necessary mitigation measures to manage it.

2. DISCUSSION

2.1 Pakistan has also witnessed the impact of GPS jamming and spoofing within its airspace. Lahore FIR was identified among the top 10 FIRs in the OPS Group report. According to data analysis, the number of such events started to increase in June 2024 with the highest frequency of 165 events recorded in February 2025.

2.2 Pakistan CAA (PCAA) is maintaining continuous liaison with all relevant stakeholders since the emergence of this safety issue. These stakeholders include Pakistan Airports Authority (ANSP), Pakistan Telecommunication Authority - Frequency Allocation Board (PTA – FAB), relevant Military Authorities, Airline Operators and General Aviation. The inter-ministerial sub-committee has also been established at Federal Govt. level to deliberate the issue with all relevant stakeholders for adoption of possible mitigation measures and resolution of safety issues. Subsequently, the activity has decreased significantly with less than 40 events in April 2025.

2.3 Besides these efforts, the decisions, recommendations, best practices as an outcome of the Global events/activities e.g. 14th Air Navigation Conference (ANC/14), 41st ICAO Assembly Resolution A41-8 (Appendix C), GNSS Interference Reporting Form for APAC, OPS GROUP REPORT, 59th DGCAA Conference, ICAO EUR/MID Radio Navigation Symposium Antalya, Turkey (from 6 to 8 February, 2024), Joint statements by ICAO, IMO and ITU were forwarded to all relevant stakeholders for information and necessary action, as appropriate while outcomes of APAC Radio Navigation Symposium held in New Delhi (07-09 April 2025) are being studied.

2.4 In the light of above, following list contains an overview of mitigation actions taken by Pakistan;

a) issuance of Guidance Material by the PCAA in the form of Air Safety Circular # 01/2025 “GNSS RFI/Spoofing” accessible on following link;
https://www.pcaa.gov.pk/regulatory-publications/state-safety-programme

b) issuance of NOTAM by Pakistan Airports Authority (PAA) for concerned portion of airspace and aerodrome;

c) issuance of ATC contingency procedures by Pakistan Airports Authority;

d) conduct of coordination meetings among PCAA, PAA, Frequency Allocation Board (FAB), Military Authorities and other stakeholders;

e) conduct of safety promotion activities by PCAA and PAA in the form of awareness sessions for air traffic controllers and CNS technical staff;

f) collection of data and its analysis on regular basis.

2.5 Pakistan CAA is also conducting a study of the possible impact of GPS RFI in its airspace and possible way forward to address the issue. It has been noted that the non-availability of DME-DME

infrastructure was the basis for adoption of GNSS as primary sensor during PBN implementation. The possible upgrade of ground-based navigation infrastructure to support RNAV1 DME-DME operations could be a solution. However, the decision will be based on the outcome of study and cost-benefit analysis.

2.6 Pakistan CAA is also planning to conduct a safety workshop/seminar at national level to create awareness for all stakeholders.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

a) note the information contained in this paper;

b) states may share the best practices and lesson learned on subject; and

c) discuss any other related aspect.

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