International Civil Aviation Organization
Asia and Pacific Office

Twenty-fifth Meeting of the Asia Pacific Regional Aviation Safety Team (APRAST/25)

(Bangkok, Thailand, 22 to 26 June 2026)

Agenda Item 4: Presentations – State / Industry / ICAO / Focused Discussion

PROPOSED REGIONAL COORDINATION FRAMEWORK FOR GNSS RADIO FREQUENCY INTERFERENCE (RFI) REPORTING AND ANALYSIS

(Presented by the Secretariat)

SUMMARY

This paper presents a proposed regional coordination framework and implementation timeline to support the systematic collection, consolidation, and analysis of Global Navigation Satellite System (GNSS) Radio Frequency Interference (RFI) occurrence data within the Asia and Pacific (APAC) Regions.

Under the proposed framework, States would utilize existing operational reporting systems to collect and consolidate GNSS RFI occurrence information at the national level, including operational observations and reported effects on aircraft operations, while regional expert groups would support regional trend analysis, identification of geographical areas of concern, and the development of coordinated mitigation measures.

To facilitate harmonized implementation, a draft operational reporting template is provided as Attachment A for initial consideration by the Meeting. The Meeting is invited to review and endorse the proposed regional coordination framework and implementation timeline, endorse in principle the draft reporting template as the initial basis for regional GNSS RFI occurrence reporting, and invite the OPS WG / CFIT TF to further review and refine the draft reporting data fields, as appropriate, during the APRAST/25 breakout sessions.

1. INTRODUCTION

1.1 Disruptions to Global Navigation Satellite System (GNSS) services caused by Radio Frequency Interference (RFI), including jamming and spoofing, continue to present operational and safety risks within the Asia and Pacific (APAC) Regions. Recognizing the increasing regional significance of this issue, RASG-APAC/15 endorsed a collaboration framework between the APANPIRG CNS SG and APRAST's OPS WG to address GNSS interference as a potential contributing factor to the Global High-Risk Categories (G-HRCs) of Controlled Flight Into Terrain (CFIT) and Mid-air Collision (MAC).

1.2 Related actions were subsequently incorporated into the Operational (OPS) Roadmaps of the Asia-Pacific Regional Aviation Safety Plan (AP-RASP) 2026–2028 to support the identification of geographical areas of concern and the analysis of associated risk factors within the APAC region, specifically tasking the working group to:

a) identify geographical areas of concern within each Flight Information Region (FIR) and analyze the underlying factors specific to the APAC region, in coordination with the appropriate APANPIRG contributing bodies;

b) develop focused regional SEIs and/or RASG-APAC Safety Advisories (RSAs), as appropriate, based on the analysis conducted and in accordance with the RASG Procedural Handbook, and prioritize the SEIs accordingly;

c) develop a comprehensive holistic understanding of OEM guidance and regional efforts on managing the risk of GNSS interference;

d) identify and implement additional efforts to mitigate the risk of GNSS interference within the region, in coordination with the appropriate APANPIRG contributing bodies.

1.3 The initial phase of the roadmap requires the systematic identification of specific geographical areas of concern. GNSS RFI-related information may already be collected through States' existing Safety Data Collection and Processing Systems (SDCPS), including mandatory and voluntary occurrence reporting systems, as applicable. However, regional information is not yet consolidated in a structured manner for safety analysis. Sufficient and structured regional data remain necessary to support the identification of areas of concern, reported operational effects, and mitigation priorities.

1.4 In view of these data limitations, it is necessary to establish a regional coordination mechanism, supported by a standardized reporting template, that enables States to provide operational occurrence information through existing reporting processes, while regional analysis, safety assessment, and mitigation activities are conducted collaboratively through the relevant regional expert groups.

1.5 This paper presents the proposed regional coordination mechanism, associated processes, and preliminary reporting template for consideration by the Meeting and further review during the APRAST/25 breakout sessions.

2. DISCUSSION

2.1 The proposed coordination mechanism establishes regional processes for the reporting, consolidation, safety analysis, and technical coordination of GNSS RFI occurrence information. The mechanism does not establish a new State-level occurrence reporting system; States would utilize existing operational reporting frameworks to submit aggregated occurrence information for regional analysis purposes.

2.2 To support effective analysis, the regional data collection framework includes the following key elements:

a) State-level submission of aggregated occurrence information, based on States' internal review and analysis of available information, including geographical coordinates, phase of flight, and reported operational effects, where available; and

b) utilization of consolidated occurrence data to support regional trend analysis and the identification of geographical areas of concern.

2.3 The proposed coordination framework establishes a structured semi-annual coordination cycle involving States, the ICAO Secretariat, the OPS WG, and the Communications, Navigation and Surveillance Sub-Group (CNS SG). The proposed coordination framework is summarized in Table A.

Phase	Step	Responsible Party	Action / Deliverable	Timeline
1. Data Collection and Processing	1.1 Occurrence Reporting	Operators and ANSPs	Operational occurrences reported to the State authority	Real-time / per occurrence
	1.2 State Data Consolidation	State Focal Points	Consolidation and submission of occurrence data to the ICAO APAC Regional Office	Semi-annually, prior to APRAST meetings
	1.3 Regional Data Consolidation	ICAO Secretariat	Consolidation of regional data and dissemination to relevant working groups	Within 30 days following data submission
2. Data Analysis and Prioritization	2.1 Safety Risk Assessment	OPS WG	Assessment of operational safety impacts, identification of areas of concern, and prioritization of associated regional safety risks	Conducted through intersessional coordination activities and APRAST meetings
3. Consultation and Regional Action	3.1 Joint Review and Action Planning	OPS WG and CNS SG	Joint review of findings and agreement on appropriate regional actions	Following APRAST meetings
	3.2 Mitigation Measures	OPS WG and CNS SG	Development of operational guidance material, including RASG-APAC Safety Advisories (RSAs), as appropriate	Prior to RASG-APAC meetings
		OPS WG and CNS SG	Consideration of immediate mitigation measures, including State Letters or other urgent coordination actions, where necessary	As required
4. Progress Reporting	4.1 Outcome Reporting	CNS SG and OPS WG	Reporting of progress, analysis outcomes, and mitigation activities to APANPIRG and RASG-APAC	Through appropriate APANPIRG/RASG-APAC meetings

Table A: Proposed Regional Coordination Framework for GNSS RFI Reporting and Analysis

2.4 The proposed framework includes a reporting mechanism through the ICAO APAC Regional Office for the submission of aggregated GNSS interference occurrence data from States. This requires a consolidated reporting template to support standardized regional reporting.

2.5 To facilitate initial implementation, a reporting template is provided as Attachment A. The draft template is preliminary and simplified, and is intended to capture reported operational effects from existing reporting channels, where available. It does not require States, operators, pilots, or ANSPs to confirm the technical cause or source of interference. The OPS WG / CFIT TF is invited to further review and refine the draft template during the APRAST/25 breakout sessions, including recommendations on the reporting fields and associated data element.

2.6 The framework is intended to support the collection and analysis of aggregated operational occurrence information at the regional level for safety analysis and mitigation purposes, taking into account information available through existing State, operator, industry, and other relevant sources, as appropriate. Reports may be based on operational observations, and technical validation may not always be available. It does not require the submission of detailed investigation reports for individual occurrences and is not intended to attribute responsibility or identify the source of interference.

2.7 Subject to endorsement by APRAST/25, the proposed regional coordination framework and draft reporting template, including any refinements arising from APRAST/25, will be incorporated, as appropriate, into the Asia/Pacific Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures, for further coordination through CNS SG/30 and subsequent consideration by ATM/SG/14, to support harmonized regional implementation.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) note the continuing operational and safety challenges associated with GNSS RFI occurrences within the region and the need for structured information sharing;

b) review and endorse the proposed regional coordination framework and associated implementation timeline outlined in Table A; and

c) endorse, in principle, the draft reporting template contained in Attachment A as the initial basis for regional GNSS RFI occurrence reporting; and

d) invite the OPS WG to further review and refine, as appropriate, the draft reporting template contained in Attachment A during the breakout sessions of APRAST/25.

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Draft Regional GNSS-RFI Reporting Template

No.	Number of GNSS RFI Occurrences	Geographical Area of Concern			Primary Operational Effect *(as reported / observed)*	Additional Details (Optional)		
		Location (Coordinates)	Altitude / Flight Level	Phase of Flight		Additional Operational Information	Number of Accidents/Serious Incidents	Additional Remarks
1	15	13.8000° N, 100.5503° E.	FL300	En-route	GNSS fault	N/A	0	Effect reported by two aircraft
2	20	13.8000° N, 100.5503° E.	FL250	En-route	TAWS/EGPWS warning	Map shift also reported	0	Repeated warnings reported in the same area
3	4	5.0000° N, 89.0000° E	2000 ft	Approach	Loss of communication	Alternative communication procedures used	0	N/A
4	3	1.2000° S, 82.3000° E		Terminal	Other	N/A	0	Insufficient information available

Drop down list

Phase of Flight	Primary Operational Effect
En-route	Total loss of navigation capabilities
Approach	Need to change the navigation procedure
Terminal	Inability to fly RNP and request for radar vectoring
Ground	Inability to fly a GNSS-based approach (GLS, SLS)
	GNSS fault (1 or 2)
	TAWS/EGPWS warnings or loss of terrain and surface functionalities
	Loss of ADS-B
	Wind and ground speed wrong presentations
	Aircraft clock anomaly
	Loss of situational awareness (SVS, flight deck display of traffic information)
	Loss of communication functions (CPDLC, ACARS)
	AHRS failure
	Map shift
	Other
	N/A

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