



ICAO

International Civil Aviation Organization

Fourteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/14) of APANPIRG

Bangkok, Thailand, 3 – 7 August 2026

Agenda Item 5: ATM and CNS Systems Modernization

OUTCOMES OF CNS SG/30

(Presented by the Secretariat)

SUMMARY

This paper presents the latest outcomes of significant discussions held in various CNS contributory bodies' meetings on different matters in the CNS area under the CNS SG umbrella that may interest the ATM Sub-group.

1. INTRODUCTION

1.1 The Thirtieth Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/30) of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) was held from the afternoon of 6 July to 10 July 2026 at the ICAO APAC Regional Office, Bangkok, Thailand. The Meeting was attended by 96 participants from 21 Member States/Administrations, 2 International Organizations and 6 industry partners. The Meeting was chaired by Mr. M H Hui, Assistant Director-General of Civil Aviation, Civil Aviation Department, Hong Kong China. Key documents of the meeting can be accessed at: <https://www.icao.int/APAC/meetingdocs?fid=87956>

1.2 The Eleventh Meeting of the Surveillance Implementation Coordination Group (SURICG/11) was held at the ICAO APAC Regional Office, Bangkok, Thailand, from 25 – 27 March 2026. The Meeting was attended by 58 participants from 18 Member States/Administrations and 1 International Organizations. The Meeting report, working papers, information papers, and other resources can be accessed by the following link: <https://www.icao.int/APAC/meetingdocs?fid=33637>

1.3 The Thirteenth Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/13) was held at Nadi, Fiji, from 20 – 24 April 2026. The ACSICG/13 Meeting was attended by 44 participants from 12 Member States/Administrations, and 1 International Organization. The meeting report, working papers, information papers, and other resources can be accessed by the following link: <https://www.icao.int/APAC/meetingdocs?fid=42537#block-icao-page-title>

1.4 The Eleventh Meeting of the System Wide Information Management Task Force (SWIM TF/11) was held from 25 – 29 May 2026 in the ICAO APAC Regional Office, Bangkok, Thailand. The Meeting was attended by 100 participants from 16 Member States/Administrations and 3 International Organizations. The Meeting report, working papers, information papers, and other resources can be accessed by the following link: <https://www.icao.int/APAC/meetingdocs?fid=60144#block-icao-page-title>

1.5 The Seventh Meeting of the Asia/Pacific Air Traffic Management Automation System Task Force (APAC ATMAS TF/7) was held from 2 – 4 June 2026 in the ICAO APAC Regional Office, Bangkok, Thailand. The Meeting was attended by 50 participants from 14 Member States/Administrations, and 1 International Organization. The Meeting report, working papers, information papers, and other resources can be accessed by the following link: <https://www.icao.int/APAC/meetingdocs?fid=60118>

1.6 This paper summarized relevant information and updates that may be of interest for the ATM/SG meeting.

2. DISCUSSION

Review of Outcomes of the Thirteenth Meeting of the Aeronautical Communications Services Implementation Coordination Group (ACSICG/13) – Sec (WP/09)

2.1 The paper summarized relevant information and updates on the outcomes of the ATN Workshop and the Thirteenth Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/13) held at Nadi, Fiji, from 20 to 24 April 2026, including the Joint Session of ACSICG/13 and MET IE WG/24, organized on 22 April 2026 and the Fourteenth Meeting of the Common aeRonautical Virtual Private Network Operations Group of APANPIRG (CRV OG/14) held from 27 to 31 October 2025.

2.2 It was noted during the Eleventh Meeting of the System Wide Information Management Task Force (SWIM TF/11) held from 25 – 29 May 2026 in the ICAO APAC Regional Office, Bangkok, Thailand, the MET/IE WG Chair shared the concern about the implications of the content of the Minimum Safeguards for AMHS–SWIM Transition document. The SWIM TF/11 Meeting discussed the motivation for developing the document and agreed to recommend that the leadership of contributory bodies related to the use of AMHS and/or SWIM, namely the FF-ICE Ad-Hoc Group, AAITF, and MET/IE WG, review the document and provide their feedback to the ICAO Secretariat for further sharing with the ATSCG Meeting planned on 19 August 2026. Based on feedback, ACSICG may further review the document and propose a revision if required.

2.3 The ACSICG/13 discussed the significance of the information shared in the minimum safeguards and added that these safeguards were essential to maintaining business continuity during the migration from AMHS to SWIM. Accordingly, the following Draft Conclusion was endorsed by the ACSICG/13 for CNS SG/30 and APANPIRG/37 consideration.

2.4 The Meeting noted that the proposed Minimum Safeguards for AMHS–SWIM Transition document may further be modified based on feedback from FF-ICE Ad-Hoc Group, AAITF, and MET/IE WG. However, due to the significance of the document, it was agreed to endorse the proposed draft conclusion by CNS SG/30 for APANPIRG/37 adoption:

Draft Conclusion CNS SG/30/01 (ACSICG/13/01) - Adoption of Minimum Safeguards for AMHS–SWIM Transition		
What:	To adopt the minimum safeguards contained in Appendix A as the basis for regional coordination during the transition from AMHS to SWIM-enabled information exchange.	Expected impact: ☐ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒ Ops/Technical
Why:	ACSICG/ ATSCG recognizes that mixed AMHS–SWIM operations will persist for an extended period	Follow-up: ☒ Required from States

due to uneven readiness across States, service domains, and stakeholders. During this transition, the absence of commonly understood regional coordination principles may increase the risk of fragmented implementation, reduced interoperability, and service continuity issues. The minimum safeguards in Annex A provide a solution-neutral, service-agnostic framework to guide regional coordination, transparency, and risk awareness, while allowing States to retain flexibility in implementation. Their adoption supports consistent expectations across the region and facilitates coordinated, orderly, and safe evolution towards SWIM-based operations.	
When: 10-Jul-26	Status: Draft to be adopted by PIRG
Who: ☒ Sub groups ☒ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☐ Other: XXXX	

2.5 The ACISCG/13 reviewed the [AFTN/AMHS-based Interface Control Document for Air Traffic Flow Management](#) uploaded on the ICAO APAC e-Documents portal, along with proposed changes. However, it was found that most of the content of these documents was not relevant to the Communication Expert. Based on previous information about this document, it was found that the AFTN/AMHS-based Interface Control Document for ATFM (ICD) was originally prepared by the Technical Sub-Group of the Distributed Multi-Nodal ATFM Network Project, on behalf of the ATFM Steering Group (ATFM/SG/9). This document was presented to the ACSICG/09 Meeting for endorsement. Subsequently, the CNS/SG/23 Meeting adopted Conclusion **CNS SG/23/1 (ACSICG/6/1) – ATFM/AMHS-Based Interface Control Document for ATFM**. The ICD was also made available on the APAC Regional Office e-Documents webpage.

2.6 The ACISCG/13 concluded that communication experts were unable to endorse the proposed amendments, as these modifications fall within the ATM domain. It was further agreed that, since ATFM SG is the primary author of this document, it should remain under the ownership of ATM SG, its parent body. ATFM SG may seek ACSICG support whenever proposed changes pertain to the communication domain. ACSICG expressed its commitment to fully support ATFM SG in the future management of this document by providing expertise for the relevant sections. Accordingly, the draft conclusion **ACSICG/13/02– Transfer of ownership of AFTN/AMHS-based Interface Control Document (ICD) for ATFM** was endorsed by ACSICG/13 for CNS SG/30 adoption.

2.7 In response to the proposed draft conclusion ACSICG/13/02, [CNS SG/30 - WP/10](#) was submitted by Thailand to reconsider the ownership of the *AFTN/AMHS-based Interface Control Document (ICD) for ATFM* under CNS SG.

Considerations on Draft Conclusion ACSICG/13/02 – Thailand (WP/10)

2.8 This paper provided feedback on *Draft Conclusion ACSICG/13/02 Transfer of Ownership of AFTN/AMHS-based Interface Control Document (ICD) for ATFM* and shared the approval mechanism for the APAC Regional AFTN/AMHS-based Interface Control Document for Air Traffic Flow Management. Based on the Terms of Reference (ToR) and core technical expertise of the ACSICG, it was proposed to reconsider the approval routing to ensure technical oversight remains under the ACSICG and the CNS SG. It was recommended to amend Draft Conclusion ACSICG/13/02 to reflect that the primary ownership and final approval of the APAC Regional AFTN/AMHS-based ICD for ATFM reside with the ACSICG, with subsequent approval by the CNS SG before regional implementation.

2.9 It was added that an Interface Control Document (ICD) is, by definition, a highly specialized technical document that specifies the architectural, data elements, and protocol specifications required to establish system interoperability. Because the structural integrity, routing rules, addressing plans, and messaging syntax of an AFTN/AMHS network are strictly within the engineering and telecommunications domains, primary document ownership should remain with the technical group rather than the operational group. It was reminded that previous editions (Versions 1.0 and 2.0) of the document were developed by the ATFM SG (at ATFM SG/9 and ATFM SG/10) to accurately capture user requirements, and were subsequently endorsed by the ACSICG and approved by the CNS SG (at CNS SG/23 and CNS SG/24) due to the underlying technical changes required to fulfill the identified operational users' expectations. During those sessions, the ICAO Secretariat for the ATFM SG noted that this approval routing was necessary because the ATFM SG functions as an operational user of AFTN/AMHS, whereas the responsibility for the implementation, development, and maintenance of the AFTN/AMHS infrastructure falls under the purview of the ACSICG.

2.10 The ICAO Secretariat informed the Meeting that the information contained in this paper had been further considered by the ACSICG Co-Chairs in revisiting the decision taken at ACSICG/13. The ACSICG Co-Chair explained that an ICD comprises both operational logic and technical specifications, including interface protocols and message syntax. While ACSICG and CNS SG may review and endorse the technical elements of an ICD, they are not responsible for endorsing or adopting its operational content. As the ATM SG is the APANPIRG contributory body responsible for the ATM portfolio, accountability for regional ATM deliverables, including the operational content of an AFTN/ATFM ICD for ATFM, should reside with the ATM SG. Accordingly, the ACSICG Co-Chairs agreed that changes on the operational content of such regional ATM deliverables should be reviewed and endorsed through the ATM SG to ensure appropriate governance, ownership, and accountability.

2.11 The Meeting deliberated on the views expressed by the ACSICG Secretary, the ATFM SG Secretary, and the Co-Chairs of both groups. It was noted that ACSICG has concerns regarding the review and endorsement of certain proposed content in the AFTN/ATFM ICD for ATFM, as such content relates to operational matters that fall beyond the expertise of communications specialists. At the same time, the Meeting recognized that the current AFTN/ATFM ICD for ATFM contains numerous sections that require communications expertise for technical review and amendment.

2.12 Taking into account the discussions and the respective responsibilities of the groups, the Meeting suggested that ownership of the AFTN/ATFM ICD for ATFM be shared jointly between ATM SG and CNS SG. Under this arrangement, ATM SG, with support from ATFM SG, would be responsible for reviewing and endorsing the operational aspects of the document, while CNS SG, with support from ACSICG, would be responsible for reviewing and adopting its technical and communications-related components.

2.13 To clearly define the division of responsibilities, the Meeting further suggested that ACSICG and ATFM SG jointly review the AFTN/ATFM ICD for ATFM and identify the sections falling within their respective domains. **ACTION ITEM 30-4** The Meeting also noted that future amendments may relate to either operational or technical aspects, and therefore, the established practice should continue whereby changes are reviewed, endorsed, or adopted by the appropriate group according to the nature of the content. In all cases, both groups should be kept informed of proposed changes to ensure transparency, coordination, and common awareness of amendments to the approved document. **ACTION ITEM 30-5**

2.14 Taking into account the discussions outlined above, the draft Conclusion proposed by ACSICG/13 was revised accordingly and endorsed by the Meeting. The Meeting agreed that the revised draft Conclusion should be submitted to ATM SG/14 for endorsement and subsequently to APANPIRG/37 for adoption.

Draft Conclusion CNS SG/30/02 (ACSICG/13/02) – AFTN/AMHS-based Interface Control Document for ATFM (ICD) be jointly owned by ATM SG and CNS SG	
What: Considering that the AFTN/AMHS-based Interface Control Document for ATFM (ICD) used by APAC States/Administrations to implement cross-border ATFM communications in accordance with the Regional Framework for Collaborative ATFM includes both operational and technical content, it is agreed that: 1. ATM SG and CNS SG jointly own the ICD; 2. ACSICG/CNS SG to review and endorse/adopt ATFM SG's proposed amendments concerning the technical aspects of the ICD; 3. ATFM SG/ATM SG to develop, review and endorse/adopt proposed amendments related to the operational aspects of the ICD; and 4. Both groups should be kept informed of all proposed ICD amendments to support coordinated, transparent and consistent maintenance of the ICD.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: The proposed revision and future changes may concern the operational/technical sections of the ICD, which would require endorsement or adoption by the ATM SG/CNS SG as applicable.	Follow-up: ☐ Required from States
When: 10-Jul-26	Status: Draft to be adopted by PIRG
Who: ☒ Sub groups ☐ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☒ Other: ATM SG/14	

2.15 The Meeting reviewed [WP/18 presented to ACSICG/13](#) for proposed amendment to the APAC AFTN/AMHS-based ICD. The Meeting noted that ATFM SG/15 was seeking endorsement of the proposed amendments through Draft Conclusion ACSICG/13-X: Adoption of the AFTN/AMHS-based Interface Control Document (ICD) for the APAC Regional Framework for Collaborative ATFM. Based on the views of the ATFM SG Secretary and the ATFM SG Chair, the Meeting recognized the importance of the proposed amendments to the AFTN/ATFM ICD for ATFM in supporting the timely implementation and application of ATFM within the APAC Region. The Meeting further noted the confirmation from ATFM SG/15 that the proposed amendments would not affect AMHS-related provisions.

2.16 In light of the clarification provided by ATFM SG/15 that the proposed amendments have no impact on AMHS-related provisions, CNS SG/30 agreed to endorse the proposed amendments. The Meeting further agreed that, subject to ATM SG/14 agreement on the proposed joint ownership arrangement between ATM SG and CNS SG, the proposed amendments should be forwarded to ATM SG/14, scheduled from 3 to 7 August 2026, for further consideration and endorsement. **ACTION ITEM 30-6**

Progress of the Procedures for GNSS and Data Link Disruption Ad Hoc Group and Proposed Regional Guidance Material – Singapore (WP/16)

2.17 Singapore, on behalf of the Procedures for GNSS and Data Link Disruption Ad Hoc Group established by ATM/SG/12, provided an update on the Ad Hoc Group's work.

2.18 It was recalled that the key deliverable of the group was to develop harmonized regional procedures for reporting, coordination and information sharing. It was informed that, based on the shared information on current reporting and coordination processes, the Ad Hoc Group consolidated the best practices and lessons learned to develop the draft guidance material with structured procedures encompassing detection, validation, reporting, coordination, mitigation, and post-event review.

2.19 The Meeting noted that the draft *APAC Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures (Version 1.0)* established harmonized regional procedures for the detection, reporting, investigation, and coordinated management of GNSS RFI and its associated data link disruptions and clearly defined the roles and responsibilities of key stakeholders. By enabling timely sharing of information and consistent operational responses across the region, the framework enhanced regional situational awareness, supports safety risks mitigation, and strengthens overall system resilience.

2.20 Given that GNSS interference has direct implications on CNS and data link systems, the draft guidance material includes significant CNS-related operational and technical elements that warrant detailed review by CNS SG. These elements included GNSS interference detection methodologies, investigation and analysis techniques, impacts on system performance, coordination between operational and technical functions, and alignment with regional spectrum management initiatives and ongoing work under the Spectrum Review Working Group. It was added that initial comments were obtained from the SRWG GNSS RFI Ad-Hoc Expert Group and incorporated into the draft guidance material for review by CNS SG.

2.21 The Meeting reviewed the draft guidance material, with particular emphasis on the CNS-related operational and technical elements contained in Chapters 5 and 8. The Meeting expressed concerns regarding Section 8.4 of Chapter 8, which states that ANSP CNS units may explore the deployment of direction-finding equipment to detect and locate sources of GNSS radio frequency interference (RFI). The Meeting noted that in many APAC States/Administrations, the responsibility and capability to locate and eliminate interference sources reside with the national telecommunications authority or spectrum regulator. Many ANSPs may neither possess the necessary technical equipment nor have the mandate to locate interference sources. The common practice is therefore to coordinate with the responsible national authority or organization to identify and address the source of interference.

2.22 In this regard, the Meeting considered that a specific reference to the deployment of direction-finding equipment by ANSPs could create confusion regarding roles, responsibilities, and capabilities. The Procedures for GNSS and Data Link Disruption Ad Hoc Group clarified that the proposed text was intended solely to provide guidance to States. Nevertheless, the Meeting suggested that Section 8.4 be revised to explicitly reflect that the use of direction-finding equipment is dependent on national arrangements, responsibilities, and capabilities, and that coordination with the appropriate national authority may be required for the identification and mitigation of interference sources.

2.23 The Meeting also raised a concern regarding Section 5.9 of Chapter 5. It was noted that the roles and responsibilities of ANSP/CNS units should include a specific provision on coordinating with the appropriate national authority responsible for frequency spectrum management for the detection, location, and elimination of GNSS RFI sources. The Procedures for GNSS and Data Link Disruption Ad Hoc Group clarified that such coordination is already addressed under the roles and responsibilities of the Civil Aviation Authority (CAA) and that the document provided guidance to States/Administrations, which could not prescribe all domestic arrangements — in some States/Administrations, CAAs retained coordination with spectrum regulators, while in others this function might have been delegated to ANSPs. However, the Meeting considered that ANSP/CNS units are often the first entities to identify and report GNSS interference events and therefore have an important role in coordinating with the relevant national authorities. Accordingly, the Meeting suggested that a corresponding provision be incorporated under the roles and responsibilities of

ANSP/CNS units to clearly reflect their role in supporting the detection, localization, and resolution of GNSS RFI events through coordination with the appropriate national spectrum management authority.

2.24 The Meeting further reviewed and refined the draft guidance material, incorporating the agreed amendments and addressing all outstanding concerns. Following these improvements, the Meeting endorsed the *APAC Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures (Version 1.0)*. The Meeting noted that the endorsed draft guidance material would be submitted to ATM/SG/14 (August 2026) for consideration and adoption.

2.25 The Meeting suggested that, following endorsement of the draft guidance material by CNS SG/30, any subsequent amendments should be recorded using track changes. This would enable CNS SG members to clearly identify the additional modifications made after CNS SG/30 and prior to the document's consideration and adoption by ATM SG/14. **ACTION ITEM 30-9**

2.26 The Meeting noted, following adoption of the document, the Procedures for GNSS and Data Link Disruption Ad Hoc Group will be dissolved. The ongoing collection, monitoring and analysis of GNSS RFI events in the APAC Region will thereafter be undertaken by the SRWG through the GNSS RFI Ad-Hoc Expert Group, to continue analyzing GNSS RFI events for trends and to maintain regional situational awareness. **ACTION ITEM 30-10** States and stakeholders were encouraged to apply the guidance material, as appropriate, to support harmonized regional reporting and coordination arrangements relating to GNSS RFI and associated data link disruption events.

2.27 In response to a question regarding the future maintenance of the *APAC Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures* following the dissolution of the Procedures for GNSS and Data Link Disruption Ad Hoc Group, it was clarified that responsibility for maintaining the document would be with the ATM/SG upon its publication. It was further suggested that any proposed amendments to the guidance material should first be considered by the relevant sub-group before being submitted to the ATM/SG for review and adoption.

2.28 The Meeting suggested that, upon adoption by ATM SG/14, the *APAC Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures (Version 1.0)* should be promptly disseminated to APAC States/Administrations for immediate use. The ATM Section advised that the draft guidance material would also be presented to other relevant sub-groups, such as the AOP SG, for further review. Subject to its adoption by ATM/SG/14, the *APAC Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures (Version 1.0)* would be distributed to APAC States/Administrations through a State Letter and made available on the ICAO e-Documents portal for immediate use. **ACTION ITEM 30-11**

Outcomes of the Joint Effort of the GNSS RFI Ad-Hoc Group and the OPS (SEI) WG for GNSS RFI Matters in the APAC Region – Sec (WP/17)

2.29 The paper presented the outcomes of the joint effort by the GNSS RFI Ad hoc Expert Group under SRWG and the OPS WG, previously the Safety Enhancement Initiatives (SEI) WG, under APRAST to address GNSS RFI matters for the Meeting review. It was recalled in APANPIRG/36 that the OPS (SEI) WG proposed to collaborate closely with the CNS SG by WP/21. To operationalize this collaboration, OPS (SEI) WG proposed the following APRAST actions aligned with the AP-RASP 2026–2028 objectives:

- a) in coordination with APANPIRG, identify geographic areas of concern and analyze the underlying factors specific to the APAC region that contribute to GNSS RFI risk.

- b) based on this analysis, prioritize the highest-severity threats and subsequently develop focused regional SEIs and/or RASG-APAC Safety Advisories (RSAs).
- c) develop a comprehensive, holistic understanding of Original Equipment Manufacturer (OEM) guidance and existing regional efforts on managing the risk of GNSS interference.
- d) in coordination with the appropriate APANPIRG contributing bodies, identify and implement additional efforts to mitigate the risk of GNSS interference within the region.

2.30 During SRWG/10, it was agreed that, to identify geographic areas of concern and analyze the underlying factors specific to the APAC region, data shared by States on GNSS RFI occurrences after the Procedures for GNSS and Data Link Disruption Ad-Hoc Group provides guidance will be helpful. The SRWG/10 agreed to form the GNSS RFI Ad-Hoc Expert Group. China, Hong Kong China, India, Indonesia, Japan, Singapore, Thailand, and the United States volunteered to join the group. After SRWG/10, a total of two (2) GNSS RFI Ad-Hoc Expert Group Meetings were conducted on 6 April 2026 and 12 June 2026, discussing how this Ad-Hoc group can help the OPS (SEI) WG provide the necessary information and support for the objectives previously shared.

2.31 The GNSS RFI Ad-Hoc Expert Group noted information about NOTAM codes being developed by the Navigation System Panel (NSP). It was informed that a working paper has been submitted to the Information Management Panel (IMP) Meeting, and it was suggested to create a new NOTAM code for spoofing “LO” through updating PANS-ABC. For the NOTAM text, IMP will complete the review of the NSP proposal in Nov 2026. It was added that the Draft guidance for Pilots on interpreting GNSS RFI-related NOTAMs has been shared with the FLTOPS panel for their feedback. It was also noted that updating the PANS-ABC and AIS Manual will take at least 1-2 years to complete, as per the normal procedure and timeline for ICAO SARPs and Guidance material updates.

2.32 The Meeting noted that from the ICAO Perspective, it was highly recommended that States develop a coordination mechanism with their national radio regulator to identify, locate and eliminate the source of interference. According to the ITU Radio Regulations, the national radio regulator may coordinate with its counterpart to eliminate the source of interference when necessary. If these efforts fail, they can report to the ITU for assistance until the issue is resolved. It was added that States should not report all cases to ICAO. If there were recurring interference from the same source that cannot be resolved, the State should report it to ICAO for assistance.

2.33 The Meeting noted that the ICAO Secretary of the ATM, CNS, and Safety section developed a template to report GNSS RFI Incidents to ICAO, which was reviewed by the GNSS RFI Ad-Hoc Expert group. It was noted that the template would be reviewed and updated through the respective sub-group Meetings, for presentation to APANPIRG/37 for adoption. The intention was to initiate collecting GNSS RFI incident information in the proposed template as soon as possible. The Meeting reviewed and endorsed the template to report GNSS RFI Incidents to ICAO.

2.34 The Meeting requested the APRAST Secretary to share APRAST/25 feedback on the proposed template for reporting GNSS RFI incidents to ICAO. The Meeting was informed that APRAST/25 had deferred finalization of the proposed template pending a review of existing reporting mechanisms and their contents. Recognizing that the proposed template is a simplified reporting table and noting the need to finalize it before APANPIRG/37, the Meeting emphasized the importance of securing APANPIRG/37 endorsement to facilitate the timely initiation of data collection activities. It was agreed that the collected data would support the work of the GNSS RFI Ad Hoc Expert Group, as well as the OPS (SEI) WG, in monitoring and analyzing GNSS RFI events within the region. Accordingly, the Meeting invited APRAST, through the APANPIRG/RASG-APAC coordination mechanism, to further review and finalize the proposed GNSS RFI reporting template and to submit the

finalized template to APANPIRG/37 for adoption. **ACTION ITEM 30-12** The Meeting further recommended that, once adopted by APANPIRG/37, the template be used throughout the APAC Region to support the systematic collection, reporting, and analysis of GNSS RFI incidents.

2.35 The Meeting was informed that, in seeking ITU support for the guidance on resolving GNSS RFI incidents occurring in international airspace or over international waters, ITU had requested specific operational scenarios to assist in clarifying responsibilities for the identification of interference sources in remote oceanic areas, where such responsibilities are often unclear. Based on the scenarios provided, ITU advised that the Administration responsible for the affected GNSS receiver should submit a report to the ITU. The Meeting noted that Member States/Administrations may request ITU assistance in investigating and addressing GNSS RFI incidents by reporting such cases through their national telecommunications or radio spectrum regulator and/or through the relevant ICAO Regional Office. The Meeting further noted that clarifying reporting responsibilities and procedures would facilitate more effective coordination among States, ICAO, and ITU in addressing GNSS RFI events occurring in areas beyond national jurisdiction.

2.36 The GNSS RFI Ad-Hoc Expert Group noted the need for drafting the ToR to understand the task and objectives that this group can perform and requested inputs. In addition, as no State/Administration has volunteered to lead the group, the Meeting encouraged States/Administrations to take responsibility for supporting the region.

Outcomes of APRAST/25 on the Regional Coordination Framework for GNSS-RFI Reporting and Analysis – Sec (WP/06)

2.37 This paper presented the outcomes of the Twenty-Fifth Meeting of the APAC Regional Aviation Safety Team (APRAST/25) regarding the proposed Regional Coordination Framework for GNSS RFI. The Meeting noted that, during APRAST/25 (22–26 June 2026), a regional framework and implementation timeline for the collection, consolidation, and analysis of GNSS RFI occurrence information was proposed through [APRAST/25-WP/05](#), aiming to support the identification of geographical areas of concern and coordinated mitigation measures.

2.38 The Meeting was informed that the proposed Regional Coordination Framework introduced in APRAST/25 [WP/05](#) was designed to establish a systematic, multi-phase workflow for managing GNSS RFI data. It was noted that the framework outlined a structured process consisting of four phases: Data Collection and Processing, Data Analysis and Prioritization, Consultation and Regional Action, and Progress Reporting. Recognizing the need to establish a structured and sustainable approach to data collection, the APRAST/25 Meeting formally adopted **Decision 25/5**, endorsing the proposed Regional Coordination Framework for GNSS RFI outlined in the WP.

2.39 The Meeting noted that APRAST/25 had deferred the finalization of the regional GNSS RFI reporting template in order to undertake a further review of existing reporting mechanisms and their specific data requirements, with the objective of obtaining a clearer understanding of the current status of GNSS RFI data collection across the region. The Meeting emphasized that timely endorsement of the template is essential to enable the structured collection of GNSS RFI occurrence data and to support the work of the GNSS RFI Ad-Hoc Expert Group, as well as the OPS (SEI) WG. In this regard, the Meeting referred to its invitation to APRAST to review and finalize the GNSS RFI reporting template before APANPIRG/37, as reflected in Action Item 30-10. The finalized template would operationalize the data collection phase of the Regional Coordination Framework.

2.40 The Meeting reviewed the proposed Regional Coordination Framework for GNSS RFI Reporting and Analysis. It was clarified that, under the framework, the CNS SG would currently be represented by the GNSS RFI Ad Hoc Group established under the SRWG, as the Ad Hoc Group possesses the necessary expertise to conduct data analysis, assess trends and priorities, and develop recommendations for mitigation actions. **ACTION ITEM 30-13**

2.41 The Meeting further noted that, as the role and structure of groups under CNS SG evolve, CNS SG would designate an appropriate responsible body to collaborate with the OPS (SEI) WG on GNSS RFI-related matters within the framework. **ACTION ITEM 30-14** With regard to the proposed implementation timeline, the Meeting observed that APRAST Meetings are held more frequently than CNS SG Meetings. Accordingly, it was agreed that there was no need to include CNS SG as a specific milestone in the “Timeline” column of the framework. Nevertheless, the Meeting emphasized the importance of close coordination and collaboration between the OPS (SEI) WG and the CNS SG, particularly in analyzing GNSS RFI occurrences and developing operational and technical mitigation measures.

2.42 The Meeting adopted the Regional Coordination Framework for GNSS RFI Reporting and Analysis.

2.43 The Meeting noted that the framework will be further considered by ATM/SG and incorporated into the *APAC Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures*, ensuring harmonized regional implementation.

GNSS Radio Frequency Interference Mitigation and Resilience Readiness – Indonesia (WP/32)

2.44 Indonesia presented its national progress on mitigating GNSS RFI in the Jakarta FIR and beyond. The Meeting noted the significant GNSS jamming event of 8 April 2026, affecting 44 flights operated by seven operators over a period of approximately three hours, along with Indonesia's multi-layered governance framework, national reporting workflow, and the status of Backup Navigation Network (BNN), Minimum Operational Network (MON), and Performance-Based Navigation (PBN) resilience measures. The Meeting was informed that the National ANSP is developing a GNSS RFI monitoring application that will provide autonomous, proactive interference detection and will be integrated into AirNav Indonesia's operational systems, with prototype deployment targeted for Q1 2027.

2.45 The Meeting commended Indonesia for its continued efforts and acknowledged its strong alignment with the Draft APAC Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures (Version 4). The Meeting recognized Indonesia as one of the major contributors to the development of the draft guidance material and noted that the practical experience and lessons learned gained by Indonesia in addressing GNSS RFI events have significantly supported the drafting process. The Meeting further agreed that Indonesia's experience, expertise, and active participation could provide valuable contributions to the work of the GNSS RFI Ad Hoc Group under the SRWG and requested Indonesia to consider leading the GNSS RFI Ad Hoc Group.

2.46 Indonesia encouraged States/Administrations to designate national- and ATS-level points of contact for GNSS RFI coordination, maintain up-to-date regional contact directories, and establish formal cross-border communication protocols to facilitate the timely exchange of information and coordinated responses to GNSS RFI events. Indonesia also suggested exploring the development and deployment of ground-based, autonomous GNSS RFI monitoring systems capable of providing proactive interference detection and monitoring independent of pilot or air traffic controller reports. Such systems could enhance situational awareness, support timely identification of interference events, and improve the collection of objective data for analysis and mitigation purposes.

2.47 Furthermore, Indonesia encouraged States/Administrations to share technical specifications, implementation experiences, and operational best practices related to GNSS RFI monitoring technologies, with a view to establishing a regional GNSS RFI sensor network. The Meeting noted that enhanced collaboration in this area could strengthen regional monitoring capabilities, support

the early detection and assessment of GNSS RFI events, and contribute to a more coordinated and effective regional response.

GNSS-related Events in Australia – Australia (IP/10)

2.48 Australia informed about three recent GNSS RFI related events observed in Australia. The Meeting was informed that in the first event, a defective GNSS tracking device in a vehicle at a major airport interfered with GPS L1 band reception, causing multiple aircraft at specific parking bays to report "ADS-B Out Fail" and "GNSS not available." The issue was resolved after the device was removed.

2.49 The Meeting noted that in the second event, aircraft on their way to Australia experienced GNSS interference in another area of the world. On arrival into Australian airspace, all automated reports from the aircraft showed a five-minute timing error. This was observed in the Controller Pilot Data Link Communications (CPDLC) and Automatic Dependent Surveillance Contract (ADS-C) messages, with some messages appearing to originate in the future. It was noted that this specific event did not result in coordination or separation issues. However, it was important to note that these types of events can affect separation and coordination, particularly in Oceanic Airspace, where most separation standards are based on time.

2.50 In the third event, on 8 and 9 January 2026, both GBAS installations at Sydney and Melbourne airports raised Constellation Alerts after failing to broadcast pseudo-range corrections for several visible satellites, causing the Vertical Protection Level to exceed the Vertical Alert Limit; both systems were removed from service and returned to service on 11 January 2026 after 24 hours without further alerts. The reason the system ceased to broadcast pseudo-range corrections for several satellites is still under investigation with the manufacturer. There was a negligible effect on Service Delivery, as alternative conventional instrument approach procedures remained available. States/Administrations were encouraged to share information related to any GNSS events that may have an effect on ATM.

2.51 The Meeting noted the significance of the three reported incidents and underscored the importance of maintaining a Minimum Operational Network (MON) or Resilient Operational Network (RON) to mitigate the operational impact of GNSS RFI events. The Meeting agreed that such incidents highlight the need for States/Administrations to ensure the continued availability of conventional navigation infrastructure and alternative means of navigation to support safe and efficient air navigation during GNSS disruptions.

2.52 The Meeting further agreed that, in addition to reviewing their navigation infrastructure strategies, States/Administrations should assess their surveillance architectures to avoid overreliance on ADS-B as the sole means of surveillance. It was noted that GNSS RFI can adversely affect both space-based ADS-B and ground-based ADS-B, as both surveillance systems depend on the availability and integrity of GNSS positioning information. Accordingly, the Meeting emphasized the importance of maintaining appropriate surveillance resilience through a balanced mix of surveillance technologies and contingency measures to ensure operational continuity during GNSS interference events.

GNSS RFI Updates - ICAO HQ (SP/02)

2.53 Ms. Muna Alnadaf, Technical Officer, CNS and NSP Secretary, presented the key updates related to GNSS RFI, including the ICAO Roadmap for addressing GNSS RFI. The Meeting was informed that ICAO Roadmap for addressing GNSS RFI is divided into short-term, medium-term, and long-term. Details of short-term, medium-term, and long-term and associated planned activities were shared with the Meeting. Further updates on the GNSS RFI-related NOTAM, the implementation package (iPack) for GNSS RFI mitigation, and the GNSS Manual (Doc 9848) were shared. It was informed that GNSS manual updates are expected to be completed by November 2026; The Meeting noted that medium term (2027 - 2029) aims to enhance the resilience and efficiency of aviation

operations by optimizing ground radio navigation introducing infrastructure, RFI detection capabilities and improving civil military coordination managing GNSS RFI while long term (2030 and beyond) is dedicated to ensure the resilience of air navigation in the presence of GNSS RFI through the development and integration of technological enhancements across GNSS, along with independent timing sources.

Review Report of the Eleventh Meeting of System Wide Information Management Task Force (SWIM TF/11) – Sec (WP/18)

2.54 SWIM TF Co-Chair presented the report of the Eleventh Meeting of the System Wide Information Management Task Force (SWIM TF/11) held from 25 – 29 May 2026 in the ICAO APAC Regional Office, Bangkok, Thailand. It was noted that the SWIM TF/11 Meeting acknowledged the need for interconnection among regional IP networks to support global SWIM implementation and requested that interoperability and interconnection among different regional IP networks be ensured.

2.55 Considering that SWIM serves as a foundation for ANS modernization, and noting the example discussed regarding the challenge in achieving alignment in the implementation of similar information services across regions, the Meeting further agreed to prepare a presentation for the APANPIRG/37 Meeting, apart from regular updates of SWIM TF through the CNS SG Meeting report. This presentation aimed to highlight the challenges related to SWIM implementation and seek consideration for further actions to be taken by ICAO HQ and the relevant Panels.

2.56 The SWIM TF/11 Meeting noted the work on the development of ATFM FIXM message and associated message templates based on FIXM version 4.3 to support cross-border ATFM operations, A-CDM, ATFM/A-CDM integration, and traffic synchronization in the SWIM environment in the APAC region. The following draft conclusion was proposed and endorsed by the CNS SG/30 Meeting for adoption by APANPIRG/37.

Draft Conclusion CNS SG/30/11 (SWIM TF/11/02) – Adoption of ATFM FIXM Message Data Attributes and Associated Message Templates Based on FIXM Version 4.3 as APAC Regional Standard			
What: The ATFM FIXM version 4.3 message templates be: a) adopt the ATFM FIXM message data attributes and associated message templates, based on FIXM Version 4.3, as APAC regional standard templates effective Q1/2027 to support cross-border ATFM information exchange via SWIM b) uploaded to the ICAO APAC Regional Office website for use by APAC Administrations, to support cross-border ATFM operation, A-CDM, ATFM/A-CDM integration, and traffic synchronization.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical	
Why: To support harmonized and automated message validation for cross-border ATFM system-to-system data exchanges, in alignment with Conclusion APANPIRG/35/4 and Draft Conclusion ATFM & A-CDM/SG/16-6.		Follow-up: ☐ Required from States	
When: 10-Jul-26		Status: Draft to be adopted by PIRG	
Who: ATM/SG		☒ Sub groups ☒ APAC States ☒ ICAO APAC RO ☐ ICAO HQ ☒ Other:	

2.57 The SWIM TF/11 Meeting discussed the need for a baseline standardized version of SDS for the APAC region. It was recalled that all APAC States/Administrations intending to implement SWIM registries would need to implement SDS in accordance with the agreements reached at SWIM TF/3 and SWIM TF/8. In this context, the Meeting agreed that it would be prudent to adopt SDS v2.0 as the baseline SDS version for the APAC region.

2.58 Recognizing that SWIM registry interoperability should be ensured at the global level, it was suggested that interregional coordination is essential after the adoption of SDS2.0. Considering the need for interregional impact, the Meeting drafted the following draft Conclusion for endorsement by CNS SG/30 and adoption by APANPIRG/37, which was endorsed by the Meeting.

Draft Conclusion CNS SG/30/12 (SWIM TF/11/03) Adoption of SWIM Discovery Service Baseline Standardized Version for APAC Region – SDS v2.0			
What: To adopt the SWIM Discovery Service version 2.0 (SDS v2.0) as a regional baseline standard for APAC SWIM implementation.		Expected impact: ☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical	
Why: Considering that the target completion of the APAC regional SWIM implementation is 2030, and that many APAC States/Administrations intend to implement SWIM registries, the provision of a baseline SDS version is essential to support harmonized SWIM implementation within the APAC region. SDS v2.0 has been studied and tested by the SWIM TF, and it is aligned with Doc 10199 PANS IM, to support its adoption as the regional baseline standard for SDS.		Follow-up: ☐ Required from States	
When: 10-Jul-26		Status: Draft to be adopted by PIRG	
Who: CNS SG		☒ Sub groups ☒ APAC States ☒ ICAO APAC RO ☐ ICAO HQ ☒ Other:	

2.59 The SWIM TF/11 Meeting recalled that Decision 36/11 from APANPIRG/36 in November 2025, adopted the [First Version of the Business Functionality for APAC Common SWIM Information Services](#). The document was further improved based on suggestions from different expert groups. The Meeting was informed of the detailed coordination process followed in drafting the second version of the APAC Common SWIM Information Services.

2.60 The SWIM TF/11 Meeting reviewed the draft Second Version of the APAC Common SWIM Information Services document and agreed that SWIM TF is best placed to determine the most appropriate Message Exchange Pattern for each defined Information Service proposed in the table of Business Functionalities for APAC Common SWIM Information Services.

2.61 It was agreed that the revised version template will incorporate all suggestions provided by different expert groups. In addition, all services containing some fields marked with “TBD” or “?” and not incorporated into the first version will be included in version 2.0 to avoid confusion within expert groups regarding the exclusion of information services for which the groups had previously provided inputs. It was added that new columns for which information is currently unavailable will be left blank, with all possible options available for further selection by relevant expert groups. These

measures were intended to ensure that the APAC Common SWIM Information Services v2.0 document will be used by the relevant expert groups for regular review during their upcoming Meetings.

2.62 The Meeting agreed to publish the document as the second version and present the revised document for consideration by CNS SG/30 through the following Draft Decision and subsequent adoption by APANPIRG/37. This was endorsed by CNS SG/30 Meeting for APANPIRG/37 adoption:

Draft Decision CNS SG/30/13 (SWIM TF/11/04) - Adoption of APAC Common SWIM Information Services, v2.0	
What: The second version of APAC Common SWIM Information Services, provided in Appendix B , be adopted for immediate use by APAC States/Administrations. The set of APAC Common SWIM Information Services, and the associated performance of SWIM Technical Infrastructure underpinning these services, is not specified to support the provision of aircraft separation.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To assist APAC States/Administrations in planning and implementing their SWIM information services.	Follow-up: ☐ Required from States
When: 10-Jul-26	Status: Draft to be adopted by PIRG
Who: ☒ Sub groups ☐ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☐ Other: ATM SG, AOP SG, MET SG	

Organization of SWIM Training cum Workshop in August 2026 – Sec (IP/02)

2.63 The Meeting was informed that the ICAO APAC Office is organizing the ICAO APAC SWIM Training cum Workshop from 25-27 August 2026 in Hanoi, Viet Nam, generously hosted by the Viet Nam Air Traffic Management Corporation (VATM) in response to DGCA/60 Conference Action Item 60/20. The Meeting was informed that State Letter Ref.: T 8/5.3 – AP064/26 (CNS) dated 12 May 2026 has been issued. More information about this event will be published on the event website at: <https://www.icao.int/APAC/Meetingdocs?fid=94781>

2.64 The Meeting was requested to take this opportunity and consider attending the event.

Review Report of the Seventh Meeting of ATM Automation Systems Task Force (ATMAS TF/7) – Sec (WP/20)

2.65 ATMAS TF Co-Chair summarized the discussion of the Seventh Meeting of the APAC Air Traffic Management Automation System Task Force (APAC ATMAS TF/7) held in Bangkok, Thailand, from 2 to 4 June 2026.

2.66 Thailand and Singapore shared the update and the future developments of the Surveillance Performance Requirements Manual (formerly known as RSUR manual). The Meeting was informed that the RSUR Manual has been renamed to the Surveillance Performance Requirements Manual to avoid confusion with PBCS concepts, its scope is currently limited to cooperative surveillance systems (SSR, ADS-B, Multilateration) covering 3 NM TMA, 5 NM en-route, and 2.5 NM final approach separations. The PBSSG will continue work on specifications for 3 NM en-route and 5 NM TMA separations. It was noted that although the Surveillance Performance Requirements Manual is still under ICAO development, its performance benchmarks could have implications for future ATM automation systems and should be considered by States when planning or procuring ATMAS upgrades. A review of the ATMAS IGD document will be required when the Performance-Based Surveillance (PBS) documents have been officially endorsed by the ICAO to effect the necessary changes in ATMAS

surveillance performance requirements. States and Administrations are encouraged to monitor the progress of ICAO work on PBS, assess the implications of surveillance performance requirements on ATM automation systems, particularly in relation to surveillance data processing, and share relevant studies or experiences at the next ATMAS TF Meeting.

2.67 The Meeting noted the latest repository of ATMAS Status and AIDC Implementation Status in the APAC region and invited States/Administrations to review and continue to update the AIDC implementation status and Focal Point for AIDC Implementation if necessary.

2.68 It was recalled that the ATMAS TF/6 Meeting reviewed the ToR and agreed on the need to modify it further to accommodate the latest needs of ATMAS TF, such as accommodating FF-ICE and SWIM requirements. An Ad-Hoc group consisting of China, Hong Kong China, India, New Zealand, Singapore, Thailand, and the USA was formed to review the ToR. The revised draft ToR was presented by the Ad-Hoc group in the ATMAS TF/7 Meeting

2.69 The ATMAS TF/7 Meeting reviewed the revised ToR and deliberated on the future role and structure of the ATMAS Task Force, taking into account the outcomes of previous discussions, the transfer of AIDC-related functions from the APAC ATS Inter-Facility Data-Link Communications Implementation Task Force (APA TF) in 2023, and emerging regional requirements associated with FF-ICE, SWIM and Trajectory-Based Operations (TBO).

2.70 The ATMAS TF/7 Meeting noted that ATM automation systems constitute a fundamental component of ATM infrastructure, providing essential support to air traffic controllers and serving as a key enabler for the progressive realization of SWIM-enabled TBO and other future operational concepts.

2.71 The ATMAS TF/7 Meeting further acknowledged that the activities of the ATMAS Task Force had evolved significantly beyond the development and maintenance of the ATMAS Implementation Guidance Document (IGD). In recent years, the Task Force has increasingly served as a regional platform for coordination and information exchange, including the sharing of implementation experiences and best practices, developments related to next-generation ATM automation technologies, coordination of AIDC and FF-ICE implementation activities, and discussions on SWIM and TBO-related initiatives across the APAC Region. The presentations in this current edition of the ATMAS have highlighted the need for sustained regional coordination to support ATMAS upgrades/implementation.

2.72 The United States observed that, given the evolution of the group's activities towards coordination, harmonization, implementation, monitoring and integration of outputs from multiple expert groups, the region may wish to consider whether a Coordination Group structure would more accurately reflect the current and future role of the group. Singapore expressed support for this direction, noting that the ATMAS Task Force had already convened seven Meetings and continued to undertake an expanding range of activities extending beyond the traditional scope of a task force.

2.73 Following further discussion, the Meeting recognized that the current designation of “ATMAS Task Force” no longer adequately reflected the role, responsibilities and functions of the group. The Meeting also considered that the increasing scope of work related to ATM automation evolution, SWIM, FF-ICE and future operational concepts would be difficult to sustain under a task force structure with a limited lifecycle. In evaluating the best governance structure to undertake these important tasks, the Meeting agreed that a dedicated coordination group will be the best way forward to ensure continuous alignment with flexible collaboration to meet the revised scope of work.

2.74 In view of these considerations, the ATMAS TF/7 Meeting agreed that the future evolution of the ATMAS Task Force into a Coordination Group would better support the continued coordination, harmonization and implementation of ATM automation-related activities in the APAC Region. All

participating States expressed support for this proposal and reached consensus to recommend transitioning the ATMAS Task Force into a Coordination Group for consideration by CNS SG.

2.75 Consequently, the ATMAS TF/7 Meeting developed the following Draft Decision for CNS SG/30 review and consideration, which was adopted by the Meeting:

Decision CNS SG/30/14 (ATMAS TF/7/01) – Formation of ICAO APAC ATM Automation System Coordination Group (ATMAS CG)	
Considering that: 1. The ATMAS TF has successfully provided a valuable regional forum for the development and maintenance of the Air Traffic Management Automation System Implementation and Operations Guidance Document; 2. ATM automation systems in the APAC Region continue to evolve in support of AIDC, FF-ICE, SWIM, TBO, ATFM, DNOTAM, cybersecurity, and other emerging/evolving operational concepts/standards; 3. Sustained regional coordination is required to support ATMAS upgrades/implementation to ensure harmonized implementation, interoperability, transition planning, and information exchange among States and Administrations; 4. ATMAS TF is increasingly serving as a forum for coordination, implementation monitoring, experience sharing, and consolidation of outputs from multiple expert groups rather than the development of new guidance material; 5. Substantial effort has already been invested by the ATMAS TF ad hoc drafting group in updating the Terms of Reference to address SWIM, FF-ICE, TBO, AIDC, and other emerging requirements, providing a mature foundation for a future Coordination Group structure. That: The ATMAS TF/7 Meeting agreed that: a. the current ATM Automation System Task Force (ATMAS TF) should transition to a formal Coordination Group (CG) structure; b. the Coordination Group should provide a sustained regional mechanism for coordination, harmonization, and information sharing related to ATM automation systems and associated enabling technologies in the APAC region; c. the Coordination Group should support regional implementation and interoperability activities related to SWIM, FF-ICE, TBO, AIDC, ATFM, DNOTAM, and other emerging/evolving ATM initiatives; d. the Coordination Group should serve as a focal point for sharing implementation experience, lessons learned, transition considerations, and best practices among States and Administrations; e. the Coordination Group should facilitate coordination with relevant ICAO expert groups and other regional implementation groups to promote harmonized development and	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical

implementation of ATM automation capabilities throughout the APAC Region; f. the revised ATMAS TF Terms of Reference developed by the ATMAS TF ad hoc drafting group should form the basis for the Terms of Reference of the ATM Automation System Coordination Group (ATMAS CG), with only those amendments necessary to reflect the transition from a Task Force to a Coordination Group.		
Why: Continued regional coordination, harmonization, and implementation support are required as ATM automation systems evolve to support future operational concepts and information-sharing environments.	Follow-up: ☐ Required from States	
When: 10-Jul-26	Status: Adopted by Subgroup	
Who: ☒ Sub groups ☐ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☒ Other: ATMAS TF		

Outcomes of GANP Workshop – Sec (WP/23)

2.76 The ICAO Secretariat presented the key outcomes of the Global Air Navigation Plan (GANP) Workshop held in Bangkok, Thailand, on 5–6 March 2026. The Meeting noted that the 42nd ICAO Assembly (A42), held in Montréal, Canada, from 23 September to 3 October 2025, endorsed the GANP (8th Edition) and reviewed an overview of the GANP (9th Edition). The workshop focused on the key elements of the GANP (8th Edition), its relationship with the Regional Air Navigation Plan (ANP) and the Seamless ANS Plan, as well as other information necessary to enhance understanding of the GANP.

Seamless ANS Plan Integration to e-ANP Vol III – Sec (WP/24)

2.77 This paper presented the draft APAC Air Navigation Plan (APAC ANP) Volume III for consideration of the Meeting. The Meeting noted that the proposed draft APAC ANP Volume III incorporated the APAC Seamless ANS Plan (APSAP) performance improvement expectations, related ASBU threads, elements and priorities. In addition, the current version of APAC ANP Vol III only incorporates ASBUs' elements from blocks 0 to 2.

2.78 It was informed that the ASBU threads and elements from the current version of APSAP v4.0 have been reviewed and updated in line with the ASBU elements nomenclature of the 8th edition of GANP. This update of the threads includes additional new elements in Block 3. It also includes delaying some elements to a later Block and changing the maturity level of some elements. Consequently, some of the Block 2 ASBU elements considered in the APSAP have now been moved to Block 3 or Block 4 and are not included in the implementation planning in the updated APAC ANP Vol III.

2.79 The following **Table 1** shows the changes in the ASBU elements compared with the APSAP v4.0 resulting from updates to the GANP 8th edition. The ASBUs highlighted in green were related to CNS.

Table 1. Updated ASBU Elements in APAC ANP Volume III based on GANP 8th Edition

ASBU Thread	APAC Seamless ANS Plan V4.0	GANP 8 th Edition	Priority in APAC Seamless ANS Plan
ACDM	ACDM- B1/1 to B1/2	ACDM- B2/1 to B2/3	2
APTA	APTA – B1/1, B1/2, B1/4, B1/5	APTA – B2/5, B2/6, B2/7, B2/8	3
	APTA-B2/2	Removed	3
	APTA-B2/4	APTA-B3/3	3
CSEP	CSEP-B2/1 to B2/3	CSEP- B3/3, B3/4, B3/5	3
FRTO	FRTO-B1/6	FRTO-B2/5	2
	FRTO-B1/7	Removed	2
	FRTO-B2/1, B2/2	FRTO-B3/1, B3/2	3
NOPS	NOPS-B2/1, B2/2	NOPS-B3/4, B3/5	3
	NOPS-B2/4, B2/5	NOPS-B3/6, B3/7	3
	NOPS-B2/7, B2/8	NOPS-B4/1, B4/2	3
SURF	SURF-B1/5	SURF-B4/1	2
TBO	TBO-B0/1, B1/1, B2/2-B2/2	Removed	2
DAIM	DAIM-B1/2 to B1/5	DAIM-B2/6- B2/9	1
	DAIM- B1/6	DAIM- B3/1	1
	DAIM-B1/7	DAIM-B2/10	2
	DAIM-B2/2	DAIM- B3/2	3
	DAIM-B2/3	DAIM-B4/1	3
	DAIM-B2/4	DAIM-B3/3	3
	DAIM-B2/5	DAIM-B3/4	3
ASUR	ASUR-B2/2	ASUR-B3/2, ASUR-B3/3	3
COMI	COMI-B1/3	COMI-B3/5	2
	COMI-B2/1	COMI-B4/1	3
	COMI-B2/2	COMI-B3/6	3
COMS	COMS-B1/3	COMS-B3/3	2
NAVS	NAVS-B2/1	NAVS-B4/1	3

2.80 The CNS Related ASBU Elements were presented as given in **Table 2**. The CNS SG was requested to review the CNS-related ASBU elements and their priorities from time to time and, when necessary, to process the amendments in accordance with established procedures.

Table 2. CNS-related ASBU Elements in APAC Seamless ANS Plan and GANP 8th Edition

Functional Category	ASBU Element in APSAP V4.0	Description	ASBU Element in GANP 8 th Edition	Priority
Information	FICE-B0/1:	Automated basic AIDC	FICE-B0/1:	1
	FICE-B2/2	Filing Service	FICE-B2/2	2
	FICE-B2/4	Flight data request service	FICE-B2/4	2

Functional Category	ASBU Element in APSAP V4.0	Description	ASBU Element in GANP 8 th Edition	Priority
	SWIM- B2/1 -2	SWIM-B2/1- Information service provision SWIM-B2/2- Information service consumption	SWIM- B2/1 -2	2
Operational	APTA-B0/1 – 2:	Basic PBN SID and STAR procedures, PBN non-precision approaches	APTA-B0/1 – 2:	1
	APTA-B0/3 and 6	SBAS/GBAS CAT I precision approach procedures, and PBN Helicopter PinS Operations	APTA-B0/3 and 6	3
	APTA-B0/4 – 5, 7 – 8:	CDO (Basic) and CCO (Basic), and performance-based aerodrome operating minima for advanced/basic aircraft	APTA-B0/4 – 5, 7 – 8:	2
	APTA-B1/1, B1/2, B1/4 and B1/5:	advanced capability PBN approaches, PBN SID and STAR procedures and performance-based aerodrome operating minima for advanced aircraft with SVGS, CDO and CCO (Advanced)	APTA – B2/5, B2/6, B2/7, B2/8	3
	APTA-B2/1	GBAS CAT II/III precision approach procedures	APTA-B2/1	3
	APTA-B2/2	Simultaneous operations to parallel runways	Removed	3
	APTA-B2/3	PBN Helicopter Steep Approach Operations	APTA-B2/3	3
	APTA-B2/4	Performance based aerodrome operating minima – Advanced aircraft with SVGS	APTA-B3/3	3
	DATS-B1/1	Digital Aerodrome Air Traffic Services	DATS-B1/1	3
	RSEQ-B0/3	Point merge	RSEQ-B0/3	3
	SNET-B0/1 – 4	STCA, MSAW, APW, APM	SNET-B0/1 – 4	1
	SNET-B1/1 – 2:	Enhanced STCA with aircraft parameters and in complex TMAs	SNET-B1/1 – 2:	2
	SURF-B0/1 – 3:	Basic ATC surface operations tools, comprehensive situational awareness, situational awareness, alerting service	SURF-B0/1 – 3:	2
	SURF-B1/1 – 5:	Advanced surface traffic management visual aids, pilot comprehensive awareness and runway alerting, enhanced ATC alerting, routing service to support ATC and EVS for taxiing	SURF-B1/1 – 4: SURF-B4/1	2
	SURF-B2/1 - B2/3	Enhanced surface guidance for pilots and vehicle drivers; Conflict alerting for pilots for runway operations	SURF-B2/1 - B2/3	3
	TBO-B0/1:	Introduction of time-based management within a flow centric approach	Removed	2
	TBO-B1/1	Initial Integration of time-based decision-making processes	Removed	2

Functional Category	ASBU Element in APSAP V4.0	Description	ASBU Element in GANP 8 th Edition	Priority
	TBO-B2/1-B2/2	Pre departure Trajectory synchronization; extended Time based management across multiple FIRs.	Removed	3
Technology	ASUR-B0/1 – 3:	ADS-B, MLAT, SSR-DAPS	ASUR-B0/1 – 3:	1
	ASUR-B1/1	Reception of aircraft ADS-B signals from space (SB ADS-B)	ASUR-B1/1	2
	ASUR-B2/1	Evolution of ADS-B and Mode S	ASUR-B2/1	3
	ASUR-B2/2	Community based surveillance system for airborne aircraft (low and higher airspace)	ASUR-B3/2, ASUR-B3/3	3
	COMI-B0/1 – 2, 4 – 6	ACARS, ATN/OSI, VDL Mode 2 Basic, SATCOM Class C Data, HFDL	COMI-B0/1 – 2, 4 – 6	2
	COMI-B0/3, 7	VDL Mode O/A, AMHS	COMI-B0/3, 7	1
	COMI-B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)	COMI-B1/1	1
	COMI-B1/2 COMI-B1/3 COMI-B1/4	VDL Mode 2 Multi-Frequency, SATCOM Class B (SB-S) Voice and Data, ATN/IPS and AeroMACS Ground-Ground	COMI-B1/2, COMI-B3/5 COMI-B1/4	2
	COMI-B2/1	Air Ground ATN/IPS	COMI-B4/1	3
	COMI-B2/2	Aeronautical Mobile Airport Communication System (AeroMACS) aircraft mobile connection	COMI-B3/6	3
	COMI-B2/3	Links Meeting requirements for non-safety critical communication	COMI-B2/3	3
	COMS-B0/1 – 2	CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace and ADS-C (FANS 1/A) for procedural airspace	COMS-B0/1 – 2	2
	COMS-B1/1 COMS-B1/2 COMS-B1/3	PBCS approved CPDLC (FANS 1/A+), ADS-C and SATVOICE for domestic and procedural airspace	COMS-B1/1 COMS-B1/2 COMS-B3/3	2
	COMS-B2/1-3	PBCS approved CPDLC, ADS-C, SATVOICE	COMS-B2/1-3	3
	NAVS-B0/1 – 2	SBAS, GBAS,	NAVS-B0/1 – 2	2
	NAVS-B0/3 – 4	ABAS, MON	NAVS-B0/3 – 4	1
	NAVS-B1/1	Extended GBAS	NAVS-B1/1	3
	NAVS-B2/1 NAVS-B2/2 NAVS-B2/3	DFMC- GBAS, SBAS, ABAS	NAVS-B4/1 NAVS-B2/2- NAVS-B2/3	3

2.81 The Meeting noted that the ICAO Secretariat circulated the draft ANP Volume III to APAC States and Administrations for their review and feedback in May 2026. ICAO has received

comments so far from Australia, China, Hong Kong China, Japan, Singapore and Sri Lanka. The comments and feedback have been incorporated, as appropriate, into the draft ANP Volume III, except for the comments from Singapore, which will be incorporated in the future version. It was confirmed that the proposal from Singapore will not impact the list of ASBUs in Tables 3 and 4.

2.82 The Meeting reviewed the draft ANP Volume III and endorsed it for further consideration by ATM SG/14. It was requested that further feedback on draft ANP Vol III be provided to the ICAO Secretariat by 31st August 2026. The Meeting was informed that the feedback and comments will be incorporated, as appropriate, by the Secretariat in preparing the final draft for consideration by APANPIRG in November 2026. Following endorsement by APANPIRG/37, the APAC ANP Volume III would be uploaded to the ICAO website.

2.83 The Meeting suggested that, following the endorsement of the draft ANP Volume III by CNS SG/30, **any subsequent amendments should be recorded using track changes** and made available for the information of the Meeting. This would provide a clear record of modifications made after CNS SG/30 and facilitate reference during future reviews and deliberations. **ACTION ITEM 30-17**

2.84 The Meeting noted that the current draft of ANP Volume III incorporates ASBU elements from Blocks 0 to 2. Clarification was sought on the process to follow should a State/Administration propose including ASBU elements from Block 3 or beyond, based on regional needs. The Meeting was informed that the relevant ICAO sub-groups are responsible for the periodic review and update of applicable ASBU elements. Any proposal to incorporate additional ASBU elements into ANP Volume III should therefore be submitted to the appropriate sub-group for consideration. Following endorsement by the relevant sub-group, the ATM Section would make the necessary amendments to ANP Volume III. It was further noted that the ATM Section would continue to maintain and update ANP Volume III in accordance with the established update cycle, as well as process other requests for amendments and address emerging requirements, as appropriate.

CNS Implementation Status from ICAO APAC ANS Reporting Tool – Sec (SP/04)

2.85 The ICAO Secretariat presented the latest status of CNS ASBU implementation reported by APAC States/Administrations through the APAC Seamless ANS Reporting Tool. The Meeting recalled that, in accordance with relevant APANPIRG/34 Conclusions, States/Administrations were expected to submit their annual updates by 28 February. The ICAO Secretariat informed that, as of 30 July 2026, only five States/Administrations had updated their information in the reporting tool. States/Administrations were encouraged to provide the requested updates through the portal in response to the email circulated on 21 May 2026 and to share any challenges encountered, issues identified, or suggestions for improving the reporting process.

2.86 The Meeting requested that consideration be given to renaming the APAC Seamless ANS Reporting Tool/Portal in view of the anticipated supersession of the APAC Seamless ANS Plan by ANP Volume III. The ICAO Secretariat noted the suggestion and advised that the portal's name would be reviewed, subject to the adoption by APANPIRG/37 of ANP Volume III incorporating APSAP Version 4.0, to ensure consistency with the future regional planning framework. **ACTION ITEM 30-18**

CNS Meeting Plan for 2027 – Sec (IP/04)

2.87 ICAO Secretariat shared the tentative schedule for the CNS contributory bodies' Meetings to be held in 2027 for Meeting information and action. It was added that the ICAO Secretariat will inform Member States about the exact dates, mode and venue of the Meeting while issuing invitation letters at least three months before the event.

3. ACTION BY THE MEETING

No.	Name of Meeting	Dates (2027)	Mode of Meeting	Location
1.	PKI Implementation Workshop	25-26 January	In-Person	Bangkok
2.	ANSIA TF/02	27-29 January	In-Person	Bangkok
3.	Webinar on WRC27	February	Online	Bangkok/Online
4.	SRWG/11	24–26 February	In-Person	Bangkok
5.	CRV OG/16	02-05 March	In-Person	Bangkok
6.	SURICG/12	31 March – 2 April	In-Person	Bangkok
7.	SIPG WS/4	05 April – 09 April	In-Person	Singapore/Bangkok
8.	Workshop on new ATN provisions	19 to 20 April	In-Person	Bangkok
9.	ACSICG/14	21-23 April	In-Person	Bangkok
10.	PBNICG/14	May	In-Person	Bangkok
11.	One-day workshop on ATM automation system integration into a SWIM-enabled environment	01 June	In-Person	Bangkok
12.	ATMAS CG /1	02-04 June	In-Person	Bangkok
13.	SWIM TF/12	07-11 June	In-Person	Bangkok
14.	CNS/SG/31	21-25 June	In-Person	Bangkok

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) endorse proposed **Draft Conclusion CNS SG/30/02 (ACSICG/13/02)** – AFTN/AMHS-based Interface Control Document for ATFM (ICD) be jointly owned by ATM SG and CNS SG for APANPIRG/37 adoption;
- c) note the suggestion made by CNS SG/30 for amendments and distribution of the *Asia/Pacific Regional Guidance Material for GNSS RFI and Associated Data Link Disruption Coordination and Reporting Procedures (Version 1.0)*;
- d) endorse proposed **Draft Conclusion CNS SG/30/11 (SWIM TF/11/02)** – Adoption of ATFM FIXM Message Data Attributes and Associated Message Templates Based on FIXM Version 4.3 as APAC Regional Standard for APANPIRG/37 adoption;
- e) review and endorse proposed **Draft Decision CNS SG/30/13 (SWIM TF/11/04)** - Adoption of APAC Common SWIM Information Services, v2.0 for APANPIRG/37 adoption;
- f) review and revise draft ANP Volume III endorsed by CNS SG/30, if necessary;

- g) note the suggestion made by CNS SG/30 for renaming the APAC Seamless ANS Reporting Tool/Portal; and
- h) discuss any relevant matters as appropriate.

— — — — —

APPENDIX A

Minimum Safeguards for AMHS–SWIM Transition

1. **Service Continuity and Interoperability:** All States are expected to ensure that, for each operational domain (ATS, AIM, MET), international message exchange remains uninterrupted and interoperable with both AMHS-only and SWIM-capable partners throughout the transition.
2. **Baseline Operational Performance:** Before any AMHS service (e.g., MET, AIS, ATS) is removed, its SWIM-based replacement must be validated to meet or exceed the current operational baseline for reliability, integrity, availability, and timeliness.
3. **Fallback and Contingency:** AMHS fallback arrangements must remain available and operationally exercised until all relevant partners and services have been safely migrated to SWIM and regional agreement.
4. **Regional Coordination and Transparency:** All planned changes to operational message exchange mechanisms (including migration of services from AMHS to SWIM) must be coordinated and notified, with sufficient lead time for regional review and feedback.
5. **Working Group Alignment:** All working groups must design and document their solutions to explicitly support mixed-mode coexistence, fallback, and safe migration, and must avoid assumptions of homogeneous SWIM uptake or SWIM-only operations.

— — — — —

Business Functionality of APAC Common SWIM Information Services
(Reviewed by FF-ICE/4, SURSG/5, SURICG/11, ATFM & A-CDM/SG/16, MET/IE WG/24, AAITF/21)

Second Version (May 2026)

Purpose.– This list of APAC Common SWIM Information Services, including associated priorities, provides States/Administrations with guidance on anticipated services to support their planning and implementation of SWIM.

Notes.– “Applicability”: expected to be implemented “region-wide” in order to achieve the anticipated benefits, vs. “as needed” to meet the needs for a subset of the region
– “Desired implementation timeframe”: Immediate (before 2030), Medium-term (2030-2035), Long-term (beyond 2035)
– “Maturity”: “All elements defined” vs. “All elements not defined” (to be further refined)
(“Applicability”, “Desired Implementation Timeframe” and “Maturity” are yet to be reviewed by the Subsidiary Groups)

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
APAC Common SWIM Aeronautical Information Services							
Airspace management service	Exchanges of airspace status information between ASM Support System and Air Traffic Control (ATC) System. The sharing of airspace availability and airspace structure in real-time will contribute to a more efficient execution of the flight as information impacting the trajectory will be exchanged.	Availability or activation/deactivation or temporarily change of airspace, restricted area, danger area, search and rescue regions	AIXM	Pub/Sub or Req Reply			
Airspace feature service	Provides the characteristics of the three-dimensional airspace, described as horizontal projection with vertical limits, and their relevance to air traffic.	FIR/UIR boundaries, waypoints, enroute ATS routes, SIDs and STARs, nav aids, procedures, and other airspace not limited to restricted area, prohibited	AIXM	Pub/Sub or Req Reply			

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
		area, danger area, search and rescue regions (Remarks – Other data published in the AIP may be included)					
Aerodrome feature service	Provides current and/or planned airport layout features, such as aerodrome mapping data, runway, taxiway, passenger facilities.	Runways, movement areas, aerodrome services, nav aids, instrument landing systems, Aerodrome location, communication facilities (frequencies)	AIXM	Pub/Sub or Req Reply			
Runway Condition Report service	Provides runway surface conditions and contaminants (least to most slippery) that are directly correlated to aircraft take-off and landing performance.	Global Reporting Format (GRF) for runway surface conditions	AIXM	Pub/Sub or Req/Reply			
Digital NOTAM distribution service	Provides aeronautical information in accordance with the Digital NOTAM Specification, such as runway closure.	Digital NOTAM (e.g. Special activity airspace (SAA) NOTAMs, or other types of NOTAMs)	AIXM	Pub/Sub or Req Reply			
ATIS distribution service	Provides continuous and automated broadcast of recorded aeronautical information in airport and terminal areas.	Current weather conditions, runway in use, available approaches, and other data relevant to arriving and departing aircraft, specific ATC procedures, and any airport construction activity that could affect taxi planning	TBD	Pub/Sub			
Search and rescue service	Allows Rescue Coordination Centres (RCCs) to exchange information with neighbouring RCCs and ATS units for coordination during SAR operations.	Search and rescue regions, Registered aircraft operator details and contacts, ICAO Autonomous Distress Tracking (ADT) data,	TBD	Pub/Sub			

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
		Location of Aircraft in Distress Repository (LADR) data, ICAO OPS CTRL database contact information, SAR Unit (SRU) location and capability data					
APAC Common SWIM Flight Information Services							
GUFI service	GUFI (Globally Unique Flight Identifier) generation and provision	GUFI	FIXM	Req/Reply			
FF-ICE filing service	Provides a means to submit, update or cancel flight plans through a SWIM-based interface using FIXM. Appendix A: Filing Service Scenarios	Flight plan for registration, update or cancellation	FIXM	Appendix A			
FF-ICE publication service	Provides harmonised sharing of flight plan information in a global standard supporting common situation awareness.	Flight information for publication	FIXM	Pub/Sub			
FF-ICE trial service	Allows operators to test the effect of a potential change in a flight plan prior to committing to the change. Appendix A: Trial Service Scenarios	Proposed changes in a flight plan	FIXM	Appendix A			
FF-ICE flight data request service	Allows an operator to request the current status of a flight plan, or an ANSP can request an operator to submit the latest version of their flight plan.	Current status of a flight plan, a copy of flight plan or supplementary plan	FIXM	Appendix A			

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
	Appendix A: Flight Data Request Service Scenarios						
FF-ICE notification service	Provides notification of a change in flight state, such as Departure (DEP) and Arrival (ARR) Air Traffic Service (ATS) messages. Appendix A: Notification Service Scenarios	ARR, DEP messages	FIXM	Appendix A			
FF-ICE planning service	Allows operators to submit preliminary flight plans for early Air Traffic Flow Management (ATFM) planning and to obtain feedback regarding restrictions/constraints affecting the flight. Appendix A: Planning Service Scenarios	Preliminary flight plan for early ATFM planning	FIXM	Appendix A			
ADP Distribution Service	Supports publication and distribution of ATFM Daily Plan (ADP), based on information included in the APAC ADP Exchange Procedure ¹ . The published ADP is designed to inform for stakeholders on upcoming demand/capacity constraints and possible ATFM measures.	Refer to ADP template	FLXM ² ?	Pub/Sub			
Flight-Specific ATFM Measure Service	Supports notification of information related to “flight-specific” ATFM measures, i.e. measures whose control mechanisms apply to a single flight. An example is the Ground Delay Program (GDP), whose control mechanism is a Calculated	CTOT, CTO, CLDT, and fields currently included in	FIXM	Appendix B			

¹ The ADP template included herein is not updated. The new ADP template had been agreed by the AMNAC group and included into the [AMNAC COP v6.1](#), Appendix D, and was proposed to the ATFM/SG/15 (Apr-May 2025). The meeting agreed that the Secretariat will update the ADP Exchange Procedure to include the new template, which has already been supplied by AMNAC core team post-meeting.

² FLXM: Flow Information Exchange Model

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
	Take-Off Time (CTOT), or an ATFM measure for airborne flight, whose control mechanism is a Calculated Time Over (CTO). Recipients of this information should take actions to comply with the ATFM measure contained herein. Appendix B: ATFM Operational Scenarios	APAC AFTN/AMHS-Based ICD for ATFM³					
Flow-Specific ATFM Measure Service	Supports notification of information related to “flow-specific” ATFM measures, i.e. measures whose control mechanisms apply to a “group of flights” on a particular traffic flow. An example is the Minutes-in-Trail (MINIT) requirement applied on an eastbound traffic using A1 from VT*, VV* to RK*. Recipients of this information should take actions to comply with the ATFM measure contained herein.⁴	Spacing parameters for MINIT, MIT; Departure intervals for MDI; Alternate routes for Re-Routing; Flight level allocation for Level Capping	TBD	Pub/Sub			
ATFM/A-CDM Integration Service	Supports exchanges of flight-specific ATFM measure information and A-CDM milestone parameters among stakeholders, including arrival/departure ATFM units, airspace users, and airport operators, to integrate A-CDM process with ATFM operations.	ATFM measure information: CTOT A-CDM departure planning information: TOBT, TTOT, TSAT	FIXM	Appendix B			

³ Based on the conclusion from ATM/SG/15, an amendment to this ICD will be proposed in which a more structured use of REGUL and REGCAUSE fields will be introduced. This proposal is expected to be tabled at the upcoming CNS/SG meeting.

⁴ Common operating procedure for this group of ATFM measures (e.g., MINIT, MIT, MDI, Re-Route, Level Capping) has not been developed for the APAC region yet, and should be developed before finalizing the information service to support the operations.

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
	Appendix B: ATFM Operational Scenarios						
APAC Common SWIM Meteorological Information Services							
FOR AERODROME							
METAR/SPE CI service	Provides of IWXXM-formatted METAR/SPECI product specified in ICAO Annex 3.	Provision of the existing Annex 3 product via an information service	IWXXM	Pub/Sub Req/Reply			
TAF service	Provides of IWXXM-formatted TAF product specified in ICAO Annex 3.		IWXXM	Pub/Sub Req/Reply			
Aerodrome Meteorological Observation Information Service	Provides continuous observations of weather parameters at an aerodrome. Advanced meteorological SWIM (MET-SWIM) service being developed by MET Panel.	To be introduced as recommended practice in Annex 3 (Amd 84) in Nov 2030 tentatively (Note: Level of standardisation needs to be considered, as different aerodrome information services may be required for different use cases.)	IWXXM	Pub/Sub or Req/Reply			
Aerodrome Meteorological Forecast Information Service	Provides information of the expected meteorological conditions, including probability, at an airport during a specified period. Advanced meteorological SWIM (MET-SWIM) service being developed by MET Panel.		IWXXM	Pub/Sub or Req/Reply			
FOR ENROUTE							
SIGMET service	Provides IWXXM-formatted SIGMET product specified in ICAO Annex 3.	SIGMETs for thunderstorm, tropical cyclone, turbulence, icing, mountain wave, duststorm, sandstorm, volcanic ash and radioactive cloud	IWXXM	Pub/Sub Req/Reply			
AIRMET service	Provides IWXXM-formatted AIRMET product specified in ICAO Annex 3.	Provision of the existing Annex 3 product via an information service	IWXXM	Pub/Sub Req/Reply			

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
Tropical Cyclone Advisory service	Provides IWXXM-formatted Tropical Cyclone Advisory product specified in ICAO Annex 3. (Designated provider: States with Tropical Cyclone Advisory Centre)		IWXXM	Pub/Sub Req/Reply			
Volcanic Ash Advisory service	Provides IWXXM-formatted Volcanic Ash Advisory product specified in ICAO Annex 3. (Designated provider: States with Volcanic Ash Advisory Centre)		IWXXM	Pub/Sub Req/Reply			
Space Weather Advisory service	Provides IWXXM-formatted Space Weather Advisory product specified in ICAO Annex 3. (Designated provider: States with Space Weather Advisory Centre)		IWXXM	Pub/Sub Req/Reply			
Volcano Observatory Notice for Aviation (VONA) service	Provides of IWXXM-formatted VONA specified in ICAO Annex 3. Provision of VONA is a recommended practice in Annex 3 (Amd 82). (Designated provider: States with a designated State Volcano Observatory)		IWXXM	Pub/Sub Req/Reply			
Quantitative volcanic ash concentration information (QVA) service	Provides detailed information of significant volcanic ash in the atmosphere, including probabilities of ash concentration thresholds over space and time. Advanced meteorological SWIM (MET-SWIM) service being developed by MET Panel. (Designated provider: States with Volcanic Ash Advisory Centre (VAAC))	QVA gridded forecasts including probabilities, and IWXXM QVA objects. A recommended practice for significant ash clouds in Annex 3 (Amd 82) for VAACs in a position to do so from Nov 2025, and for all VAACs from Nov 2026.	Gridded data (e.g. NetCDF), IWXXM	Pub/Sub Req/Reply			
WAFC (World Area Forecast	Provides global gridded weather forecasts.	Global gridded forecasts of CB, icing, turbulence, upper	Gridded data in GRIB2	Pub/Sub Req/Reply			

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
Centres) gridded forecast service	(Designated provider: WAFCs (UK and US))	winds, upper-air temperatures and humidity, flight level and temperature of tropopause, and direction, speed and flight level of maximum wind					
WAFC significant weather (SIGWX) forecast service	Provides global WAFC SIGWX data sets with coverage expressed in polygons. (Designated provider: WAFCs (UK and US))	Significant weather forecast such as tropical cyclone, turbulence, icing, etc.	IWXXM	Pub/Sub or Req/Reply			
Special Air Report (ARS) service	Provides reports of special observations made by aircraft when they encounter special weather phenomena, such as moderate/severe turbulence or icing. (Note: Currently there is no plan to implement this information service at MET Panel)	Special aircraft observations of weather phenomena as specified in Annex 3, including turbulence, icing, mountain wave, thunderstorms, duststorm, sandstorm, volcanic cloud, volcanic activity / eruption	TBD	Pub/Sub or Req/Reply			
MET derived from Mode S DAPs service	Provides upper air winds and temperatures derived from Mode S Downlinked Aircraft Parameters (DAPs) (e.g. true airspeed, ground speed, magnetic heading, true track angle) and facilitates exchange of derived winds and temperatures among MET service providers.	Upper air winds and temperatures derived from Mode S DAPS	TBD	Pub/Sub or Req/Reply			
Satellite image service	Provides satellite observational information.	Satellite derived MET information (e.g. significant convection)	Gridded format (e.g. NetCDF) and image format	Req/Reply			
Weather radar image service	Provides two- or three-dimensional radar observational information.	Weather radar reflectivity to visualise the intensity of convection	Gridded format (e.g. NetCDF) and	Req/Reply			

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Applicability	Desired implementation timeframe	Maturity
			image format				
APAC Common SWIM Surveillance Information Services							
Surveillance data only sharing service	Provides surveillance data of aircraft. (Reference: Guidance Material for the Sharing of Surveillance Data in SWIM)	latitude, longitude, flight level, ground speed (optional), magnetic heading (optional), target identification, target address, mode 3/A code (optional), date, time of message reception for position, quality indicators, SAC, SIC	ASTERIX Cat 21 (payload in JSON or RAW format)	Pub/Sub			
Surveillance data with flight plan information sharing service	Provides surveillance data of aircraft with flight plan information. (Reference: Guidance Material for the Sharing of Surveillance Data in SWIM)	globally unique flight identifier, aircraft identification, departure aerodrome, destination aerodrome, aircraft type (optional), wake turbulence category (optional), latitude, longitude, flight level, ground speed (optional), magnetic heading (optional), target identification, target address, mode 3/A code (optional), date, time of message reception for position, quality indicators, SAC, SIC	ASTERIX Cat 21+FPL (payload in JSON format) Or ASTERIX Cat 21+FPL (FPL contained in message header and Cat 21 payload in RAW format)	Pub/Sub			

APPENDICES

Purpose

These appendices provide detailed operational scenarios for SWIM Information Services that require further description than can be achieved in the main Business Functionality for APAC Common SWIM Information Services table. The additional detail may be associated with varying requirements and business completion criteria, or where the behaviour of the service may depend on the operational scenario, therefore requiring a more granular analysis.

Scenario Steps Table

Operational scenarios detailed in the appendices should follow the format of a Scenario Steps table. The table below specifies and elaborates the fields in the Scenarios Steps table, as well as indicates who is responsible for completing each field.

Fields	Description	Responsibility
Step	Sequential identifier for each message exchange within the scenario	Domain Expert Group
Message	Specific message type, e.g. FF-ICE message type, with sender and recipient identification (e.g., "eAU sends Filed Flight Plan to eASP", "eASP returns Submission Response to eAU")	Domain Expert Group
Message Requirements	Message requirement classification and prerequisite conditions that must be satisfied prior to message transmission • Mandatory - Message must be sent/received in all instances of the scenario without exception • Conditional - Message must be sent/received when specific triggering conditions are met, but is not required when those conditions do not occur	Domain Expert Group
Business Timeout	Maximum acceptable time duration for message response from an operational perspective. The message originator is expected to contact the recipient if no response is received within the timeout period.	Domain Expert Group
Comments	Additional operational context, processing requirements, or business rule specifications that inform technical implementation	Domain Expert Group
Message Exchange Pattern	A template that describes relationships of multiple messages exchanged between interacting components to accomplish a single complete information exchange.	SWIM TF

APPENDIX A

Purpose

This appendix provides detailed operational scenarios for FF-ICE Flight Information Services, with the corresponding recommended MEP by the SWIM Task Force. Each FF-ICE service could contain multiple operational scenarios that have varying requirements and business completion criteria. Hence, technical specifications cannot be defined at the FF-ICE service level. They require more granular scenario-based analysis.

Scope and Application

Five of the six FF-ICE/R1 services are covered. Publication Service is not included as it requires a straightforward Pub/Sub MEP. For each of the 5 FF-ICE/R1 services, the possible operational scenarios were identified. Within each operational scenario, the business completion criteria and a table containing the scenario steps, message exchanges, actors involved, message requirements and business timeouts were detailed. With this information, the SWIM TF recommended the corresponding MEP.

Role Delineation

- Domain Expert Groups: The FF-ICE Ad-Hoc Group defined the operational scenarios and business completion criteria based on operational requirements
- SWIM Task Force: Determined appropriate technical specifications and Message Exchange Patterns based on the clearly defined business requirements provided

Business Completion Criteria Definition

- **Business Completion Criteria** — The point at which the relevant actor can consider their operational procedure for the specific flight to be complete and proceed with subsequent flight operations for that specific flight. This is defined by specific message receipts by the relevant actor.
 - *Format: [Actor] receives/sends [Message Type] [with specific status/condition when applicable]*

FILING SERVICE SCENARIOS

Scenario 1: Submission of Filed Flight Plan (eFPL) by eAU

Business Completion Criteria:

- eAU receives Filing Status with ACCEPTABLE or NOT ACCEPTABLE status indication; or
- eAU receives Submission Response with REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU sends Filed Flight Plan (eFPL) to eASP	Mandatory	N/A	Initial flight plan submission	
2	eASP returns Submission Response (SR) to eAU	Mandatory (following reception) eFPL	1 minute following eFPL submission	Message format validation and basic rule compliance check ACK : Flight plan received and stored on file REJ : Flight plan rejected and not stored on file MAN : Manual intervention required	
3	eASP returns subsequent Submission Response(s) to eAU	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be • MAN (manual processing ongoing); • ACK (manual processing resolved and proceed to Filing Status); or • REJ (manual processing failed)	

4	eASP returns Filing Status (FS) to eAU	Conditional (when SR = ACK)	1 minute following SR "ACK"	Operational evaluation against ATM configuration and applicable restrictions/constraints	
---	--	-----------------------------	-----------------------------	--	--

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
				ACCEPTABLE: Complies with requirements NOT ACCEPTABLE: Does not comply with requirements PENDING: Not yet evaluated	
5	eASP returns Filing Status(es) to eAU	Conditional (when previous FS = PENDING or triggered by re-evaluation process)	Variable	Additional Filing Status messages sent when: 1) Initial status was PENDING and eASP subsequently completed flight plan evaluation, or 2) Re-evaluation of eFPL detects changes in ATM restrictions/constraints affecting flight plan acceptability	

Scenario 2: Submission of Flight Plan Update (FPU) by eAU

Business Completion Criteria:

- eAU receives Filing Status with ACCEPTABLE or NOT ACCEPTABLE status indication; or
- eAU receives Submission Response with REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU sends Flight Plan Update (FPU)	Mandatory	N/A	Modification to existing flight plan data via update message	

2	eASP returns Submission Response (SR) to eAU	Mandatory (following reception)	FPU	1 minute following FPU submission	Message format validation and basic rule compliance check ACK: Update processed successfully, flight plan modified	
---	--	---------------------------------	-----	-----------------------------------	---	--

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
				REJ: Update failed, flight plan unchanged MAN: Manual intervention required	
3	eASP returns subsequent Submission Response(s) to eAU	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be • MAN (manual processing ongoing): • ACK (manual processing resolved and proceed to Filing Status); or • REJ (manual processing failed)	
4	eASP returns Filing Status (FS) to eAU	Conditional (when SR = ACK)	1 minute following SR "ACK"	Operational evaluation against ATM configuration and applicable restrictions/constraints ACCEPTABLE: Complies with requirements NOT ACCEPTABLE: Does not comply with requirements PENDING: Not yet evaluated	
5	eASP returns Filing Status(es) to eAU	Conditional (when previous FS = PENDING or triggered by re-evaluation process)	Variable	Additional Filing Status messages sent when: 1) Initial status was PENDING and eASP subsequently completed flight plan evaluation, or 2) Re-evaluation of FPU detects changes in ATM restrictions/constraints affecting flight plan acceptability	

Scenario 3: Submission of Flight Cancellation (FC) by eAU

Business Completion Criteria:

- eAU receives Submission Response with ACK or REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU sends Flight Cancellation (FC) to eASP	Mandatory	N/A	Termination of flight plan and associated GUFU operational use	
2	eASP returns Submission Response (SR) to eAU	Mandatory (following Flight Cancellation message reception)	1 minute following FC submission	Message format validation and basic rule compliance check ACK: Cancellation processed successfully, flight plan cancelled REJ: Cancellation failed, flight plan remains active MAN: Manual intervention required, flight plan remains active	
3	eASP returns subsequent Submission Response(s) to eAU	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be - MAN (manual processing ongoing); - ACK (manual processing resolved, cancellation successful); or - REJ (manual processing and cancellation failed)	

PLANNING SERVICE SCENARIOS

Scenario 1: Submission of Preliminary Flight Plan (PFP) by eAU

Business Completion Criteria:

- eAU receives Planning Status with CONCUR, NEGOTIATE, OR NON-CONCUR status indication; or
- eAU receives Submission Response with REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU sends Preliminary Flight Plan (PFP) to eASP	Mandatory	N/A	Initial preliminary flight plan submission for collaborative decision making	
2	eASP returns Submission Response (SR) to eAU	Mandatory (following reception) PFP	1 minute following PFP submission	Message format validation and basic rule compliance check ACK: Preliminary Flight plan received and stored on file REJ: Preliminary Flight plan rejected and not stored on file MAN: Manual intervention required	
3	eASP returns subsequent Submission Response(s) to eAU	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be - MAN (manual processing ongoing); - ACK (manual processing resolved and proceed to Planning Status); or - REJ (manual processing failed)	

4	eASP returns Planning Status (PS) to eAU	Conditional (when SR = ACK)	1 minute following SR "ACK" if re-	Planning evaluation against ATM configuration and applicable restrictions/constraints.	
---	--	-----------------------------	------------------------------------	--	--

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
			evaluation process is provided	CONCUR: Complies with requirements NEGOTIATE: Would be accepted if filed, but eASP proposes modifications/constraints or identifies differences from desired route/trajectory NON-CONCUR: Does not comply with requirements	
5	eASP returns Planning Status(es) to eAU	Conditional (when re-evaluation process detects changes)	Variable	Additional Planning Status messages sent when re-evaluation detects changes in ATM restrictions/constraints affecting preliminary flight plan acceptability	

Scenario 2: Submission of Flight Plan Update (FPU) by eAU

Business Completion Criteria:

- eAU receives Planning Status with CONCUR, NEGOTIATE, OR NON-CONCUR status indication; or
- eAU receives Submission Response with REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU sends Flight Plan Update (FPU) for PFP to eASP	Mandatory	N/A	Modification to existing preliminary flight plan data via update message	
2	eASP returns Submission Response (SR) to eAU	Mandatory (following reception) FPU	1 minute following FPU submission	Message format validation and basic rule compliance check ACK: Update processed successfully, preliminary flight plan modified	

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
				REJ: Update failed, preliminary flight plan unchanged MAN: Manual intervention required	
3	eASP returns subsequent Submission Response(s) to eAU	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be • MAN (manual processing ongoing); • ACK (manual processing resolved and proceed to Planning Status); or • REJ (manual processing failed)	
4	eASP returns Planning Status (PS) to eAU	Conditional (when SR = ACK)	1 minute following SR "ACK"	Planning evaluation against ATM configuration and applicable restrictions/constraints. CONCUR: Complies with requirements NEGOTIATE: Would be accepted if filed, but eASP proposes modifications/constraints or identifies differences from desired route/trajectory NON-CONCUR: Does not comply with requirements	
5	eASP returns Planning Status(es) to eAU	Conditional (when re-evaluation process detects changes)	Variable	Additional Planning Status messages sent when re-evaluation detects changes in ATM restrictions/constraints affecting preliminary flight plan acceptability	

Scenario 3: Submission of Flight Cancellation (FC) by eAU

Business Completion Criteria:

- eAU receives Submission Response with ACK or REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU sends Flight Cancellation (FC) to eASP	Mandatory	N/A	Termination of preliminary flight plan and associated GUFU operational use	
2	eASP returns Submission Response (SR) to eAU	Mandatory (following Flight Cancellation message reception)	1 minute following FC submission	Message format validation and basic rule compliance check ACK: Cancellation processed successfully, preliminary flight plan cancelled REJ: Cancellation failed, preliminary flight plan remains active MAN: Manual intervention required, preliminary flight plan remains active	
3	eASP returns subsequent Submission Response(s) to eAU	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be - MAN (manual processing ongoing); - ACK (manual processing resolved, cancellation successful); or - REJ (manual processing and cancellation failed)	

NOTIFICATION SERVICE SCENARIOS

Scenario 1: Dissemination of Flight Departure (FD) Notification by Departure eASP

Business Completion Criteria:

- Departure eASPs receives Submission Response with ACK or REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	Departure eASP sends Flight Departure (FD) to relevant eASP(s)	Mandatory	N/A	Notification of actual departure event (equivalent to DEP message)	
2	Receiving eASP returns Submission Response (SR) to departure eASP	Mandatory (following departure message reception)	1 minute following dissemination of FD	Message format validation and basic rule compliance check ACK: Departure notification successful REJ: Departure notification failed MAN: Manual intervention required	
3	Receiving eASP returns subsequent Submission Response(s) to departure eASP	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be - MAN (manual processing ongoing); - ACK (departure notification successful); or - REJ (departure notification failed)	

Scenario 2: Dissemination of Flight Arrival (FA) Notification by Arrival eASP

Business Completion Criteria:

- Arrival eASPs receives Submission Response with ACK or REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	Arrival eASP sends Flight Arrival (FA) to relevant eASP(s)	Mandatory	N/A	Notification of actual arrival event (equivalent to ARR message)	
2	Receiving eASP returns Submission Response (SR) to arrival eASP	Mandatory (following arrival message reception)	1 minute following dissemination of FA	Message format validation and basic rule compliance check ACK: Arrival notification successful REJ: Arrival notification failed MAN: Manual intervention required	
3	Receiving eASP returns subsequent Submission Response(s) to arrival eASP	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual processing. Response can be • MAN (manual processing ongoing); • ACK (arrival notification successful); or • REJ (arrival notification failed)	

TRIAL SERVICE SCENARIOS

Scenario 1: Submission of Trial Request (TRQ) by eAU

Business Completion Criteria:

- eAU receives Trial Response with CONCUR, NEGOTIATE, or NON-CONCUR; or
- eAU receives Submission Response with REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU sends Trial Request(s) (TRQ) to eASP	Mandatory	N/A	Multiple independent requests can be sent simultaneously without waiting for responses. These "what-if" requests allow evaluation of flight plan alternatives without creating new flight plans or modifying existing flight plans. eASPs may limit number/frequency of requests.	
2	eASP returns Submission Response (SR) to eAU	Mandatory (following each trial request reception)	1 minute following TRQ submission	Message format validation and basic rule compliance check ACK: Trial request processed and will be evaluated REJ: Trial request rejected MAN: Manual intervention required	

3	eASP returns subsequent Submission Response(s) to eAU	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual intervention. Response can be	
---	---	---	--	--	--

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
				• MAN (manual processing ongoing); • ACK (manual processing resolved and proceed to Trial Response); or • REJ (manual processing failed)	
4	eASP returns Trial Response (TRP) to eAU	Conditional (when SR = ACK)	1 minute following SR "ACK"	Evaluation against ATM configuration and applicable restrictions/constraints. . CONCUR: Complies with requirements NEGOTIATE: Would be accepted if submitted as eFPL or PFPs, but eASP proposes modifications/constraints or identifies differences from desired route/trajectory NON-CONCUR: Does not comply with requirements	

FLIGHT DATA REQUEST SERVICE SCENARIOS

Scenario 1: Submission of Flight Data Request (FDRQ) by eAU/eASP

Business Completion Criteria:

- Requestor (eAU/eASP) receives Flight Data Response; or
- Requestor (eAU/eASP) receives Submission Response with REJ status indication

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	eAU or eASP sends Flight Data Request (FDRQ) to eASP or eAU	Mandatory	N/A	Request for flight plan data, supplementary data, or flight status. Additional flight information may be provided, subjected to eAUs/eASPs implementation	
2	Receiving party returns Submission Response (SR) to message originator	Mandatory (following each flight data request reception)	1 minute from submission of FDRQ	Message format validation and basic rule compliance check ACK: Flight data request processed and flight information will be provided REJ: Flight data request rejected (invalid format, unauthorized access, or data not found etc.) MAN: Manual intervention required	

3	Receiving party returns subsequent Submission Response(s)	Conditional (only when previous SR = MAN)	Variable (dependent on manual processing duration)	Additional Submission Responses will be sent after manual intervention. Response can be • MAN (manual processing ongoing); • ACK (manual processing resolved and proceed to Flight Data Response); or	
---	---	---	--	--	--

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
				REJ (manual processing failed)	
4	Receiving party returns Flight Data Response (FDRP)	Conditional (when SR = ACK)	1 minute following SR "ACK"	Requested flight information provided. No response expected from recipient of Flight Data Response	

APPENDIX B

ATFM Operational Scenarios for APAC Common SWIM Information Services

1. Background

- 1.1. As the aviation community moves away from legacy point-to-point teletype messaging, System-Wide Information Management (SWIM) serves as the primary enabler for the digital exchange of aeronautical, flight, and meteorological information.
- 1.2. The exchange of tactical ATFM requirements, specifically **Calculated Take-Off Time (CTOT)**, and **Calculated Time Over (CTO)**, and one of the key A-CDM data elements supporting demand prediction, the **Target Take-Off Time (TTOT)**, is currently managed through a mix of legacy message formats and systems and emerging digital services. To ensure global interoperability and seamless transition to FF-ICE operating environment, these exchanges must be mapped to clear operational use cases within ICAO guidance materials and regionally operating procedures.
- 1.3. The exchange of CTO, CTOT, and TTOT is critical for the following operational reasons:
- 1.4. Enabling Flexible Trajectory-Based Demand-Capacity Balancing (CTO): The exchange of CTO allows an ANSP to balance demand and capacity within their area of responsibility by metering traffic through a specific waypoint in their airspace or at the boundary of their Flight Information Region (FIR) rather than imposing ATFM control mechanism at the departure airport which may be outside their FIRs. This approach aligns with the spirit of FF-ICE, in which FF-ICE capable ATM service provider (eASP) provides ATM restriction/constraint impacting trajectory within their area to the FF-ICE capable airspace user (eAU), and the eAU is responsible for managing their trajectory to comply with the requirements. This approach provides greater flexibility for the AUs to determine how best to meet the DCB requirement while still honouring their business objectives.
- 1.5. Balancing Demand and Capacity through an ATFM Measure Imposed at Departure Aerodrome (CTOT): While the move toward CTO is foreseeable in the future FF-ICE environment, there will be cases where a conventional Ground Delay Program (GDP) with the assignment of CTOT will still be used, e.g., in the case of domestic

ATFM operations or in specific areas of cross-border ATFM operations with special arrangements among the ANSPs involved. In a GDP, CTOT is the primary constraint time issued to regulate departures of flights destined for congested or constrained airspace or arrival aerodrome. The sharing of CTOT with ANSP managing the

departure aerodrome ensures that the departure aerodrome holds the aircraft on the ground to smooth out traffic peaks before they enter the airborne network or going to the arrival aerodrome.

- 1.6. Enhancing Predictability via Airport Collaboration (TTOT): TTOT is derived from Airport-Collaborative Decision Making (A-CDM) processes and provides a more accurate picture of when an aircraft is expected to be ready for departure compared to the filed flight plan. Integrating A-CDM derived times such as TTOT into ATFM assists in enhancing ATFM's demand prediction, resulting in a more accurate, dynamic, and effective demand-capacity balancing initiatives.
- 1.7. The transition from legacy messages (such as Slot Allocation Messages - SAM) transmitted via AFTN/AMHS to modern Flight Information Exchange Model (FIXM) messages is driven by the need for global interoperability, data richness, and the implementation of SWIM.
- 1.8. There is a need to shift from existing SAM and related messages to ATFM FIXM messages due to the following reasons below:
 - 1.8.1. Limitations of legacy AFTN/AMHS formats: Legacy teletype-based formats are rigid and often lack the flexibility to carry complex trajectory data required for modern ATFM.
 - 1.8.2. Support for FF-ICE and global standardization (which FIXM will be used for exchanging flight-related information): Shifting ATFM and A-CDM information exchange to FIXM-based message formats ensures that APAC ATFM and A-CDM operations are aligned with global ICAO standards and are ready to support the operations in FF-ICE environment, as well as facilitating "global interoperability.
 - 1.8.3. Handling of region-specific requirements via extensions: Shifting to FIXM allows the region to define specific data elements (such as those found in the APAC Regional FIXM Extension) in a structured, machine-readable format (XML/GML) that legacy teletype-based messages cannot easily support.

2. Operational Scenarios

- 2.1. The three parameters cited represent different phases within a flight trajectory:

- 2.1.1. TTOT (Target Take-Off Time): Generated by A-CDM system, representing the expected time a flight is expected to depart from the departure aerodrome considering factors including the airspace user's TOBT (Target Off-Block Time) and departure sequencing requirements.
- 2.1.2. CTOT (Calculated Take-Off Time): Generated by the ATFM system to manage traffic into constrained or congested airspace or arrival aerodrome by controlling the departure (take-off) time of the flight from the departure aerodrome.
- 2.1.3. CTO (Calculated Time Over): Generated by the ATFM system to manage traffic into constrained or congested airspace by controlling the time the flight is expected to cross a specific waypoint in an airspace.
- 2.2. Operational Use Cases for ATFM FIXM messages to be exchanged using Flight-Specific ATFM Measure Service and ATFM/A-CDM Integration Service (ref. Business Functionality of APAC Common SWIM Information Services, version 1.0) are elaborated below:
 - 2.2.1. Cross-Border A-CDM data exchange: Using SWIM to provide timely cross-border TTOT updates from A-CDM airports to airport operators or ANSP. This enables more accurate demand prediction, allowing for more optimised CTOT/CTO allocation and more appropriate delay assignment, reducing unnecessary buffering and ground delay.
 - 2.2.2. Cross-Border Metering between Adjacent ANSPs: Sharing a CTO, especially between two adjacent Air Navigation Service Providers (ANSPs) enables traffic metering through early speed adjustments in the cruise phase, rather than ad-hoc holding by the downstream ANSP which are more costly, less environmentally friendly, and introduces additional workload on ATCOs.
 - 2.2.3. Expanding the scope of ATFM measure: Conventional ATFM measure such as a GDP targets management of pre-departure flights. With the inclusion of CTO issuance, the scope of ATFM measure could be expanded to include airborne flights. AUs could contribute to overall traffic management through trajectory adjustments during cruise phase to meet with the required CTO. This could reduce ground delays as ATFM delays are spread across a wider flight profile range.

2.2.4. Dynamic Collaborative-Decision Making Process: Enabling ANSPs and AUs to view ATFM information in real-time and perform timely negotiations as information are exchanged.

3. ATFM FIXM Messages Identified

- 3.1. In order to achieve the above ops scenarios, five different messages were identified, namely (1) FIXM TTOT Allocation, (2) FIXM CTOT Allocation, (3) FIXM CTOT Cancellation, (4) FIXM CTO Allocation and (5) FIXM CTO Cancellation.
- 3.2. The FIXM TTOT, CTOT and CTO Allocation messages allow the system to exchange TTOT, CTOT or CTO values (respectively) when made available as well as providing the revision to them. Note that the revision to TTOT, CTOT, and CTO can be distributed using the “Allocation” messages by replacing the existing time values. Recipient systems should be able to differentiate between an initial allocation and a revision.
- 3.3. The FIXM CTOT and CTO Cancellation messages allow the system to remove the CTOT or CTO values usually sent after an ATFM program is cancelled.

Step	Message	Details	Business Timeout	Comments	Message Exchange Pattern
1	FIXM TTOT Allocation	Mandatory (when TTOT is available)	N/A	For all departure flights with TTOT, ANSPs will publish.	
2	FIXM CTOT Allocation	Mandatory (after ATFM program ran)	N/A	After a GDP is run or revised, dependent on individual configuration condition set on when to be sent out, this message has to be published.	
3	FIXM CTOT Cancellation	Mandatory (after ATFM program is canceled)	N/A	After GDP is canceled, or the assigned CTOT no longer applies to the flight, this message has to be published.	

4	FIXM CTO Allocation	Mandatory (after ATFM program ran)	N/A	After the ATFM measure is run or revised, dependent on individual configuration condition	
---	---------------------	------------------------------------	-----	---	--

				set on when to be sent out, this message has to be published.	
5	FIXM CTO Cancellation	Mandatory (after ATFM program is canceled)	N/A	After the ATFM measure is canceled, or the assigned CTO no longer applies to the flight, this message has to be published.	

4. Mapping of ATFM FIXM Messages to APAC Common SWIM Information Service

4.1. Business functionality of the information service: **Flight-Specific ATFM Measure Service**

4.1.1. Scenario: Dissemination of CTOT Allocation by Initiating ATFMU to Facilitating ATFMU, AU, and other relevant stakeholders

4.1.1.1. Business Completion Criteria: Initiating ATFMU disseminates FIXM CTOT Allocation Message to Facilitating ATFMU, AU, and other relevant stakeholders. No business confirmation needed.

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	Initiating ATFMU sends FIXM CTOT Allocation to Facilitating ATFMUs, AUs, and other relevant stakeholders	Mandatory (after ATFM program ran)	N/A	After a GDP is run or revised, dependent on individual configuration condition set on when to be sent out, this message has to be published.	

4.1.2. Scenario: Dissemination of CTOT Cancellation by Initiating ATFMU to Facilitating ATFMU, AU, and other relevant stakeholders

- 4.1.2.1. Business Completion Criteria: Initiating ATFMU disseminates FIXM CTOT Cancellation Message to Facilitating ATFMU, AU, and other relevant stakeholders. No business confirmation needed.

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	Initiating ATFMU sends FIXM CTOT Cancellation to Facilitating ATFMUs, AUs, and other relevant stakeholders	Mandatory (after ATFM program is cancelled)	N/A	After GDP is cancelled, or the assigned CTOT no longer applies to the flight, this message has to be published.	

- 4.1.3. Scenario: **Dissemination of CTO Allocation** by Initiating ATFMU to Facilitating ATFMU and AU

- 4.1.3.1. Business Completion Criteria: Initiating ATFMU disseminates FIXM CTO Allocation Message to Facilitating ATFMU and AU. No business confirmation needed.

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	Initiating ATFMU sends FIXM CTO Allocation to Facilitating ATFMU and AU	Mandatory (after ATFM measure ran)	N/A	After ATFM measure is run or revised, dependent on individual configuration condition set on when to be sent out, this message has to be published.	

- 4.1.4. Scenario: Dissemination of CTO Cancellation by Initiating ATFMU to Facilitating

ATFMU and Facilitating ATFMU and AU

- 4.1.4.1. Business Completion Criteria: Initiating ATFMU disseminates FIXM CTO Cancellation Message to Facilitating ATFMU and AU. No business confirmation needed.

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	Initiating ATFMU sends FIXM CTO Cancellation to Facilitating ATFMU and AU	Mandatory (after ATFM measure cancelled)	N/A	After ATFM measure is cancelled, or the assigned CTO no longer applies to the flight, this message has to be published.	

- 4.2. Business functionality of the information service: **ATFM/A-CDM Integration Service**

- 4.2.1. Scenario: Dissemination of TTOT Allocation by departure eASP/ATFMU

- 4.2.1.1. Business Completion Criteria: Departure eASP/ATFMU disseminates FIXM TTOT Allocation to relevant eASPs/ATFMU. No business confirmation needed.

Step	Message	Message Requirements	Business Timeout	Comments	Message Exchange Pattern
1	Departure eASP/ATFMU sends FIXM TTOT Allocation to relevant eASPs/ATFMUs	Mandatory (when TTOT is available)	N/A	For all departure flights with TTOT, ANSPs will publish.	