International Civil Aviation Organization

THE ELEVENTH MEETING OF SYSTEM WIDE INFORMATION MANAGEMENT TASK FORCE (SWIM TF/11)

Bangkok, Thailand, 25 – 29 May 2026

Agenda Item 3: Outcomes of relevant meetings on SWIM-related matters
- ICAO APAC CNS and other relevant Meetings

OUTCOMES OF ICAO APAC WORKSHOP ON AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) SYSTEMS AND THE THIRTEENTH MEETING OF THE AERONAUTICAL COMMUNICATION SERVICES IMPLEMENTATION COORDINATION GROUP (ACSICG/13)

(Presented by the Secretariat)

SUMMARY

This paper presents the discussions and relevant outcomes on ATN Systems Workshop and the Thirteenth Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/13) of APANPIRG for meeting information.

1. INTRODUCTION

1.1 The one-day ICAO APAC Workshop on Aeronautical Telecommunication Network (ATN) Systems and the Thirteenth Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/13) was held at Nadi, Fiji, from 20 – 24 March 2026. The Joint Session of ACSICG/13 and MET IE WG/24 was organised on 22 April 2026. The Workshop was attended by 39 participants from 11 Member States/Administrations, 1 International Organisation, and 2 Industry Partners. The ACSICG/13 Meeting was attended by 44 participants from 12 Member States/Administrations, and 1 International Organisation; The Joint Session of ACSICG/13 and MET IE WG/24 was attended by 88 participants from 20 Member States/Administrations, and 2 International Organisations. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=42491

1.2 The Special Session - Fourteenth Meeting of the Common aeRonautical Virtual Private Network Operations Group of APANPIRG (CRV OG/14) was held from 27 to 31 October 2025 in Tokyo, Japan. The Meeting was attended by 70 participants from 28 Member States/Administrations, 1 International Organisation and 3 telecommunication providers. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

https://www.icao.int/APAC/meetingdocs?fid=553

1.3 This paper summarised relevant information and updates with a highlight on the outcomes of ACISCG/13 and ATN Workshop for meeting information.

2. DISCUSSION

2.1 The summary of the discussion in the Meeting is given in the following paragraphs.

Outcomes of the ICAO APAC Workshop on Aeronautical Telecommunication Network (ATN) Systems

2.2 A total of nine (9) presentations were conducted. The presentation materials can be accessed on the ATN Systems Workshop webpage.

SP01 - ICAO Provisions for Aeronautical Telecommunication Network (ATN) Systems

2.3 ICAO Secretary outlined ICAO provisions for ATN systems. She introduced the key ICAO SARPs related to communication systems, ICAO Annex 10, Volume III. She also provided information on other key ICAO Documents, including Doc 9705 (obsolete), Doc 9880, Doc 9896, and other existing and planned ICAO documents, as well as new manuals currently under development.

2.4 The Meeting noted the publication of the third edition of Doc 9896, which has provided IPv6 address details. It was recalled that IPv6 address assignment has been part of discussions in CRV OG and ACSICG for a long time. It was noted that the latest edition of the manual has adopted IPv6 for Internet layer interoperability. However, the IPv4-to-IPv6 transition for ground networks is not addressed in this manual. It was shared that, as per the manual, IPv6 is to be implemented in both ground-ground and air-ground networks.

2.5 The Meeting noted that the Communication Panel (CP) initially intended to assign IPv6 address blocks to the various regions; however, it may not be possible based on the current progress of discussions within the CP. It was added that each region may need to independently request allocation of IPv6 addresses from the Internet Assigned Numbers Authority (IANA).

2.6 It was informed that WG-I under DCIWG planned to discuss this matter in the next meeting, which is planned to be held this month. Once recommendations are made, ACSICG/CRV OG may need to discuss the way forward for requesting IPv6 address allocation from IANA.

2.7 In response to a question about proposed timelines by CP for IPv6 implementation, it was informed that currently, there is no defined timeline.

2.8 Mr. Augustine Lau, ACSICG Co-Chair, stated that the Manual on Space-Based VHF Communication Systems, currently under development, has been designated as ICAO Doc 10228.

SP02 – ICAO APAC Regional Network-CRV

2.9 Mr. Kelepi Dainaki, General Manager, Asset and Infrastructure, ACSICG Co-Chair, Fiji Airports, provided an overview of ICAO APAC Regional Network - Common aeRonautical Virtual Private Network (CRV), covering background of CRV, CRV implementation status and governance, CRV packages, CRV services, CRV network supporting SWIM, and CRV and SWIM implementation timeline.

2.10 The presentation explained that CRV is a cross-border, cost-effective telecommunications network for States. It provides a reliable communications infrastructure for aeronautical communications and acts as an enabler for the GANP ASBUs, offering end-to-end services. The presentation also shared the origin of CRV OG, the working methodology of the CRV OG meeting, and the ToR of the CRV OG.

2.11 It was informed that 30-plus States and Administrations have already operational CRV, while several others are in contract negotiations. The workshop noted eight standard service packages (A-D+) offered by PCCW Global. It was added that CRV services include voice, AFTN/AMHS, and Space-Based ADS-B services, and CRV will support SWIM applications.

SP03 - AMHS concepts, usage, challenges and future

2.12 Mr. Augustine Lau presented an overview of the AMHS architecture based on ICAO Doc 9880 Part II - G-G Application ATSMHS, including regional standards, AMHS implementation, and the associated challenges and future.

2.13 He introduced the AMHS concept and usage, the standards hierarchy, and the AMHS standards context, as well as relevant ITU-T Documents. He also shared the role and scope of ICAO Doc 9880, Part II, and explained the relationship between Doc 9880, Part II and the ITU-T X.400 Series Documents. The key principle emphasised was that Doc 9880, Part II, governs AMHS behaviour, while the ITU-T X.400 Series Documents provide the underlying technical definitions.

2.14 The Meeting was briefed on the AMHS functional model, which includes User Agents (UAs), Message Transfer Agents (MTAs), and optional Message Stores (MSs), and the AMHS protocol set (P1, P3, P7, and P2) for message transfer, access, and interpersonal messaging.

2.15 The presentation discussed key challenges, including technical limitations and operational/regional realities. It was noted that AMHS will remain critical in the near to medium term, and that a gradual shift toward SWIM-enabled services is expected to support more flexible data exchange. The presentation also emphasised the importance of coordinating between message-based and service-based systems. Future aviation communications will depend on collaborative planning, and AMHS and SWIM are expected to operate in a mixed-mode environment without compromising safety standards.

2.16 In response to a question about AFTN implementation in the region, the ICAO Secretariat informed that ICAO does not recommend implementing AFTN systems. ACSICG has been promoting the migration of AFTN to AMHS for more than a decade. Installation of the new AFTN system is not recommended.

2.17 In response to a question on whether to procure a new AMHS system or directly transition to SWIM, it was advised that the appropriate approach depends on each State's internal operational usage. It was noted that, at present, no globally agreed exchange format exists for AIDC and Search and Rescue (SAR) messages. Consequently, States that use AMHS to transmit AIDC or SAR messages must continue to maintain AMHS. It was further noted that ICAO HQ has initiated discussions concerning message types carried over SWIM that currently lack a standard global exchange format; however, the development and finalisation of such formats is expected to take time.

SP04 - AeroMACS concepts, usage, challenges and future- China

2.18 Mr. Chen Weiqing, Senior Engineer /Project, ATMB, could not join the workshop due to unforeseen circumstances. However, he kindly provided his speaking notes and presentation file and requested that ICAO Secretary present on his behalf. It was added that Mr. Chen Weiqing has provided contact details for any participants who have queries.

2.19 China provided an overview of AeroMACS 2.0, covering conceptual definition, equipment research and development status, practical application cases, and the challenges and future prospects. It was informed that AeroMACS 2.0 is a next-generation airport mobile communication solution based on 5G communications technology, providing high bandwidth, low latency, strong security and support for high mobility to meet A-SMGCS Level 3/4 and smart airport requirements.

2.20 Equipment and Network of AeroMACS2.0 were introduced in detail. It was informed that the CAAC is actively promoting AeroMACS 2.0 implementation, with pilot projects at Shanghai Hongqiao, Guangzhou Baiyun, Chengdu Shuangliu and Ezhou Huahu Airports, supporting visual taxi guidance, runway incursion prevention, low-visibility operations and wireless airfield lighting control.

2.21 The presentation outlined four strategic considerations for the next phase of AeroMACS 2.0, including: multi-stakeholder coordination, validation of execution strategies, safety management of onboard systems, and scalability of the ecosystem. It also defined four key pillars to drive global adoption of AeroMACS 2.0: focus on airborne certification, accelerating infrastructure expansion, broadening the application ecosystem and commitment to standardisation, to help refine ICAO global standards.

2.22 Mr. Augustine Lau, ACSICG Co-Chair, shared that the SARPS in Annex 10 Vol. III Chapter 7 AeroMACS and Doc 10044 - Manual on the AeroMACS are being reviewed to incorporate performance-based advanced cellular technologies. It was informed that the expected applicability date for the revised SARPS and Manual for AeroMACS is end-2028.

SP05/SP06/SP/07 - Data Link- VDL M2, CPDLC, ADS-C concepts, usage, challenges and future

2.23 Mr. Sarabjot Singh, Business Development Manager, SITA, provided an overview of ATN/VDL-M2, CPDLC and ADS-C capabilities for aviation digital communications. He outlined SITA experience and introduced SITA operational ecosystem for modern, safe air traffic communications, covering infrastructure, operational enablers and customer support. He shared key details of VDL M2 systems, their coverage and expansion plans. He provided use cases from India and Japan that are using VDL Mode 2 to support growing air traffic demand and enhance operational performance.

2.24 On the request for comparison of VDL Mode 2 and ACARS, a comparison of the specifications of both systems was provided. Several questions about the differences between VDL Mode 2 and ACARS, their implementation status across different regions, and the preferred network were elaborated. The workshop also debated why ACARS is the preferred network in the APAC region and how further evolution can be achieved.

2.25 Mr. Sarabjot Singh also highlighted SITA's ATN network, emphasising the transition from Connectivity to Capability, where digital communications and surveillance are integrated through CPDLC and ADS-C to deliver enhanced operational capability. He presented SITA's Super VGS technology, which can increase capacity, reduce handovers and latency, and extend the service life of existing infrastructure without requiring avionics modifications.

SP08 - Future Communication Infrastructure (FCI)- LDACS

2.26 Dr. Soniya Nibhani shared details of the significant contribution of Mr. Michael Schnell, PT-T Rapporteur, for this presentation, as well as his expertise provided to CP for supporting the standardisation of LDACS. She provided an overview of LDACS, including its motivation, characteristics, and key features and capabilities. LDACS benefits for airlines and ANSPs, along with a valid business case for airlines/airframers and ANSPs, were shared with the participants. The status of LDACS standardisation within ICAO was shared, along with detailed timelines. The workshop noted that the target date for the formal Applicability of LDACS is 2028, assuming things move as planned.

2.27 It was noted that LDACS represents an essential pillar supporting the digital transition of aeronautical communications and is ready to play a main role in the FCI multilink infrastructure in continental airspaces, which is essential to cope with the predicted traffic growth and to achieve carbon-neutrality targets.

The workshop noted that LDACS offers a much higher bandwidth compared to VDL Mode 2 and discussed its advantages relative to VDL Mode 2.

SP09 - Future Communication Infrastructure (FCI)- Space-Based VHF

2.28 Mr. Iwan Morris, Vice President, Business Development, Skycraft, Australia, presented about Space-Based VHF Communications, introducing it to extend Aeronautical Networks beyond line-of-sight. Key design requirements, technical challenges (including RF link, Doppler shift, latency, frequency interference, and ATM integration), and how to address or mitigate them to ensure operational performance were shared. He further shared Skykraft's Space-Based Services and its plan to deploy 70 satellites by mid-2027, with a full constellation of 300, targeting initial operational capability in late 2028 to early 2029.

2.29 It was noted that Space-Based VHF features global applicability supported by regional coordination. As a new global layer for ATM, it delivers continuous global coverage, inherent resilience, GNSS-independent surveillance, seamless system integration, and no aircraft or operational changes required. He outlined the ICAO SARPs adoption path: PfA submission to ANC in mid–late April 2026, State letter to be issued in October 2026, ANC final review in Q4 2027, and Council adoption planned for July 2028. It was emphasized that State support is critical to the adoption of standards.

2.30 The workshop discussed the benefits of implementing space-based VHF in the APAC region and associated challenges, and discussed various proposals being discussed within the region for allocating spectrum for Space-based VHF. The latest discussion on this topic in the SRWG/9 Meeting held in February 2026 in the ICAO APAC Office was shared with participants. It was added that the ICAO APAC Office, in support of the ICAO HQ, will continue to work on supporting Member States in implementing the space-based VHF system.

2.31 Mr. Augustine Lau informed the meeting that the Frequency Spectrum Management Panel (FSMP) has endorsed the final version of the Space-Based VHF SARPs for Annex 10, Volume V. One of the SARPs stipulated that the **identification of Space-based VHF frequencies** be made on the basis of **a regional agreement**. Additionally, the FSMP Secretariat has developed an *initial draft of coordination procedures to update the Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc 9718).* These draft provisions specify that for specific services such as Space-based VHF, prior to regional agreement on frequency assignment, inter-regional coordination is required through ICAO Regional offices. This is also being discussed in FSMP.

Key Takeaways from the Workshop

2.32 Mr Augustine Lau summarised the key takeaways from the workshop, emphasising that ATN modernisation must be managed as a coordinated transition across standards, networks, operations, and cybersecurity. He noted that while ICAO is establishing global direction through an IPS-based ATN with IPv6 and enhanced cybersecurity guidance, the CRV APAC Regional IP Network provides a reliable backbone for current operations and a progressive pathway to enable SWIM and FF-ICE.

2.33 It was agreed that, from an operational perspective, existing systems, e.g. AMHS, ACARS, and VDL Mode 2, must remain resilient, measurable, and fit for purpose, while preparations are made for complementary future technologies. These include AeroMACS 2.0 for airport surface communications, LDACS for terrestrial broadband, and space-based VHF to extend communications beyond line-of-sight.

2.34 Participants agreed that ICAO's primary role is to set the global direction for an IPS-based ATN using IPv6, supported by relevant guidance material and strengthened cybersecurity baselines.

2.35 It was noted that the CRV continues to serve as the practical regional backbone, supporting today's services while progressively enabling SWIM and FF-ICE. Additionally, for ground-to-ground operations, AMHS will remain in use for several years, underscoring the importance of managing coexistence and interoperability during the modernisation phase.

2.36 Air–ground communication networks, including ACARS, VDL Mode 2, CPDLC, and ADS-C, require ongoing performance management and scalability to remain safe and effective. For airport surface communications, AeroMACS 2.0 was identified as a potential solution for high-capacity, low-latency safety services. For terrestrial broadband, LDACS was recognised as a strong future option offering increased capacity with built-in security features. For beyond line-of-sight operations, space-based VHF could provide extended coverage; however, successful implementation will depend on spectrum coordination and system integration.

2.37 The workshop concluded with a recommendation to continue discussions to identify the most significant performance gaps, determine areas requiring regional alignment through ACSICG, and establish clear priorities to deliver measurable operational benefits.

Outcomes of ACSICG/13

Review the report of the Fourteenth Meeting of Common aeRonautical VPN Operations Group (CRV OG/14)

2.38 Due to the confidentiality of the CRV contract management process, the report under this agenda is published on the ICAO APAC CRV Secure portal under the CRV group. The Report was also shared with all ACSICG participants via email to ensure report accessibility, as many of them may not be CRV focal points. It is recommended that the CRV secure portal access be granted only to the CRV focal points of States/Administrations.

Enhancing Resilience of Aeronautical Message Handling Services through Redundant BBIS Connectivity and Implementation in Cambodia (WP/06)

2.39 Cambodia provided its ongoing efforts to enhance the resilience of its aeronautical information services infrastructure, encompassing both BBIS redundancy and the current status of its AMHS implementation.

2.40 The Meeting noted the successful implementation of the AMHS connection between Phnom Penh, Cambodia and Ho Chi Minh, Viet Nam, which will be operational on 22 April 2026. The service utilises the CRV network as the primary communication path, with a VPN link serving as the backup. The Meeting was also informed of Cambodia's initiatives and proposals aimed at strengthening regional AMHS connectivity, improving redundancy, and enhancing operational continuity.

2.41 Cambodia added that its airspace handles significant traffic transiting the northern and southern corridors of the Asia/Pacific Region. This reinforces the need for multiple and redundant AMHS connections to ensure continuous and reliable aeronautical communications. Cambodia proposes the following phased approach:

a) Initiate a feasibility study, in coordination with ICAO and ACSICG Co-chair, to assess the technical, operational, testing requirements, and agreement aspects of establishing an additional AMHS connection with Singapore, as a key communication hub within the Asia/Pacific Region, and to enable connection to the BBIS;

b) Propose to Viet Nam to serve as an alternate for Cambodia, following the current primary connection with Bangkok (AEROTHAI), leveraging the

existing CRV-based AMHS link between Phnom Penh and Ho Chi Minh City as the foundation for this arrangement; and

c) Request the support of AEROTHAI and the Aeronautical Message Handling System Management Centre (AMC) in facilitating coordination and updates to the AMHS Message Transfer Agent (MTA) routing directory, if required

2.42 The Meeting acknowledged Cambodia's efforts to enhance resilience and emphasised that all States/Administrations must review their main and alternative links to ensure the resilience of operations. The Meeting discussed the proposals and way forward for the Cambodia proposals.

2.43 Thailand (AMC focal point for APAC Region) shared the routing table in AMC for Cambodia (VDPP), and it was noted that Vietnam (VVTS) is an alternate link for Cambodia, which was already added in the AMC. Therefore, no action was needed to add Vietnam as an alternate for Cambodia.

2.44 It was advised that Cambodia should update AMC following the AMC update process once the AFTN to AMHS migration is completed between Cambodia and Vietnam. **ACTION ITEM 13-8** Since there is an existing AFTN link between Cambodia and Vietnam, changing it to AMHS will not affect the routing table.

2.45 Thailand informed that they have migrated their AFTN system with Vietnam to AMHS. It was added that Thailand will complete the AMC update process within the next AIRAC cycle.

2.46 It was noted that Vietnam is connected to China, Hong Kong China and Singapore in addition to Cambodia. It was deliberated that if Vietnam can also act as BBIS for Cambodia, along with an alternative link for Cambodia, if Vietnam agrees to do so.

2.47 ICAO Secretary informed that in the past, several questions have been asked about the expectation of additional requirements if a BIS State agrees to be a BBIS for a State. It was added that the only anticipated additional requirement expectation from the ICAO Secretary for the current proposed scenario was a sufficient link and system bandwidth to accommodate the traffic from connected BIS. However, other expectations need to be discussed further for this scenario.

2.48 The Meeting agreed to form a study group composed of Cambodia, Thailand, Vietnam, ACSICG OG Co-Chairs and ICAO Secretary. The purpose of this group is to study the feasibility of Cambodia connecting with multiple BBIS and/ or BIS in order to enhance the resilience of its AMHS connection. **ACTION ITEM 13-9**

2.49 As Vietnam could not attend the ACSICG/13 Meeting, the ICAO Secretariat will coordinate with Vietnam, sharing the Cambodia proposal and requesting their participation in the study group. **ACTION ITEM 13-10**

2.50 For Cambodia’s request to initiate a feasibility study to assess the technical, operational, testing requirements, and agreement aspects of establishing an additional AMHS connection with Singapore, Singapore responded that they need to obtain internal approval before commencing the study. It was recommended that, depending on the results from the study group, Singapore would start its internal coordination process if the results are favourable. Therefore, Singapore will begin this task only after the study group indicates that the proposal should move forward. **ACTION ITEM 13-11**

Updates on the progress of the APAC AMHS to SWIM transition Correspondence Group (ATSCG) – ATSCG chair (WP/07)

2.51 ATSCG Chair presented the outcomes of recent ATSCG discussions on the AMHS to SWIM transition in the APAC Region. He summarised observed risks and issues associated with prolonged mixed AMHS–SWIM operations, key conclusions reached by ATSCG, and proposed recommendations and follow-up tasks.

2.52 The paper also presented minimum safeguards in **Appendix A**, intended to support regional coordination, service continuity, and interoperability during the transition period, while recognising that States retain responsibility for national implementation and safety assessments.

2.53 The Meeting discussed the significance of the information shared in Appendix A and added that these safeguards are essential to keep business continuity while migrating from AMHS to SWIM.

2.54 ATSCG recommended that ACSICG/13 adopt the following draft Conclusion. The Meeting reviewed **Appendix A** and endorsed the proposed draft conclusion for adoption at APANPIRG/37 through CNS SG/30.

<table>
<tr><td colspan="3">Draft Conclusion ACSICG/13/01 - Adoption of Minimum Safeguards for AMHS–SWIM Transition</td></tr>
<tr><td colspan="2">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.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☒ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: ACSICG/ ATSCG recognises that mixed AMHS–SWIM operations will persist for an extended period 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.</td><td>Follow-up: ☒Required from States</td></tr>
<tr><td colspan="2">When: 24-Apr-26</td><td>Status: Draft to be adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other: XXXX</td></tr>
</table>

AMHS to SWIM Gateway – Singapore (WP/08)

2.55 Singapore informed that EUR Doc 047 provides a suitable technical baseline for the implementation of an AMHS–SWIM Gateway. It outlined AMHS-SWIM gateway architecture and message flow, including support for aviation message categories (FPL, AIDC, NOTAM, ATFM, MET, and SAR), as well as deployment requirements, coordination, and further work areas.

2.56 Singapore provided its implementation experience as a technical reference, demonstrating how operational requirements significantly influence the structure of SWIM topics and queues. The need to accommodate various message categories, sub-types, source systems, and the

distinction between domestic and international traffic led to the creation of numerous topics and queues. While this approach facilitated precise routing and operational separation throughout the AMHS–SWIM transition, it also increased the complexity of configuration and maintenance. This underscores the importance of considering operational needs early in the design phase.

2.57 Singapore informed that their experience also showed how implementation constraints can affect the practical use of standards. Although EUR Doc 047 permits topic strings up to 250 characters, the gateway implementation limits topic input to 40 characters, requiring compact formats. This meets current needs but limits future flexibility and may require redesign as SWIM usage grows, underscoring the importance of early identification of such constraints.

2.58 The Meeting noted that SWIM queue structures are driven by operational separation needs. While multiple queues increased configuration effort, they enabled clear routing and control during the AMHS–SWIM transition, and reinforced the need for early queue design, stable naming, and strong configuration management. It was emphasised that States should assess their own operational needs and regional characteristics to ensure fitness for purpose during implementation and ongoing operation in the APAC Region.

2.59 It was suggested that each State/Administration assess its internal environment and SWIM implementation plan to estimate the need for AMHS/SWIM Gateway in its State/Administration.

2.60 In response to a question on the supplier of the AMHS/SWIM gateway and whether it is hardware/software, Singapore informed that the supplier of its AMHS/SWIM gateway is Frequentis Comsoft, and it is a software module with no new hardware added.

2.61 It was also clarified that AMHS/SWIM Gateway can perform protocol conversion for multiple aviation messages of basic AMHS.

The Mixed-Mode Concept of AMHS and SWIM – Singapore (WP/09)

2.62 The paper outlined a phase-based AMHS–SWIM mixed-mode transition model for the Asia/Pacific Region, assuming an AMHS operational baseline. It described four stable phases that support the progressive introduction of SWIM while maintaining AMHS for deterministic ATS messaging, including:

- **Phase 0** — AMHS Baseline (Messaging-Only Operational Backbone)
- **Phase 1** — SWIM Introduction (early-adopting States use SWIM; others remain AMHS-only)
- **Phase 2** — Mixed-Mode Operations (most States/Administrations support both AMHS and SWIM)
- **Phase 3** — SWIM-Enabled Predominance (SWIM becomes the primary or exclusive exchange mechanism)

2.63 The Meeting noted the key operational characteristics, readiness considerations, and regional coordination needs for each phase.

2.64 The Meeting noted that, according to a market survey conducted by a State, the cost of implementing an AMHS/SWIM Gateway is approximately equivalent to that of a new AMHS system. This finding has prompted concerns regarding the potentially higher investment required for deploying the AMHS/SWIM Gateway. It was further highlighted that the primary function of the AMHS/SWIM Gateway is limited to protocol conversion. At present, it remains unclear whether there is a necessity to bridge AMHS and SWIM for international message exchange, which would subsequently require the

AMHS/SWIM Gateway. The ability to support concurrent AMHS and SWIM operations would need additional discussion.

2.65 It was agreed that message conversion is beyond the scope of ATSCG. At the same time, due to the unavailability of global exchange message formats for several AMHS services, such as AIDC and SAR, and the lack of sunset dates for most messages other than FPL2012, it was anticipated that AMHS would continue to operate for at least one decade.

2.66 The Meeting requested coordination with the FF-ICE ad hoc group to share information on the references applicable to message conversion from the AMHS domain to SWIM for FPL2012, along with their views on who will be responsible for converting flight plan messages. **ACTION ITEM 13-12**

Message Web Mail Service in Japan (IP/02)

2.67 Japan provided an overview of the Message Web Mail Service. The Meeting noted that the Web Mail service is a part of SWIM Information Services in Japan and enables users to send and receive AFTN messages from personal computers via a web browser without legacy technologies. It was added that by implementing this service, airlines that previously connected via dedicated communication lines can now connect via web-based access, thereby eliminating the need for costly dedicated communication line connections. It was added that more information can be accessible via the JCAB SWIM Portal (https://top.swim.mlit.go.jp/swim/servicedetails/S1003).

Key Outcomes of Joint Session of ACSICG/13 and MET/IE WG/24

Review of Asia and Pacific Region IWXXM Implementation Status/ Readiness – Secretariat (WP/10)

2.68 The paper presented the IWXXM implementation status and the Asia/Pacific Region's readiness to fully implement IWXXM data exchange and encouraged States/Administrations to review and update the IWXXM implementation status as required.

2.69 To provide a clearer overview of the implementation status, the ICAO Secretariat created a new table using data from the previous AMHS Readiness Table for Supporting IWXXM Traffic, information received by email, and AMHS Routing Directory Tables from the ATS Messaging Management Centre (AMC) as of March 2026.

2.70 It was observed that the table contained several columns with information that may not require ongoing monitoring. The MET IE WG/24 Meeting was requested to clarify the terminology within the table and to support its update so that only essential data is collected, a task which was accomplished during the Meeting.

2.71 There was a request to clarify the two sizes referenced in this sentence:

"AMHS with File Transfer Body Part (FTBP) and Interpersonal Messages Heading Extension (IHE), which can support the exchange of AMHS message size of ***a minimum of 2MB and a maximum of 4MB for FTBP****."*

2.72 The MET IE WG chair provided an overview of the historical context behind the introduction of size numbers for IWXXM messages. Additionally, it was shared that the size number of up to 4 MB (including FTBP) can be found in the 'GUIDELINES FOR THE IMPLEMENTATION OF OPMET DATA EXCHANGE USING IWXXM, Fifth EDITION – October 2023'. The following excerpt of the text is provided for reference:

*The number of FTBPs and the **maximum message size are subject to the AMHS specifications and recipients User Capabilities.** It would be highly desirable to have **a common agreed maximum limit size for AMHS messages between all ICAO Regions**. A total size of AMHS message (including FTBP) **up to 4MB should be considered**, as already defined in some Regions. The available network path between the Originator and Recipient must be completely AMHS with FTBP support for successful message delivery. **It does not necessarily require each COM Centre in the path to operate AMHS in Extended Services to relay an AMHS message with FTBP**. To ensure that delivery is within the capabilities of the recipient, **it is advised that the User Capabilities are coordinated before the establishment of regular communications**. In some Regions, this information may be available through Directory Services (X.500/EDS). The available bandwidth for each 'hop' in the network should be considered by COM Centres when switching to AMHS FTBP operations.*

2.73 Based on this additional information, the Meeting modified the format of the table and reviewed and updated the new Table.

MET IE WG clarification for SWIM related to IWXXM messages– ATSCG chair (WP/11)

2.74 This paper consolidated ATSCG observations, questions raised during ATSCG Meetings, and the agreed Phase-based AMHS–SWIM transition model, with the objective of facilitating focused discussion with MET IE on MET-specific transition considerations.

2.75 It was noted that ATSCG has proposed a four-phase transition model (Phase 0 to Phase 3) to guide the gradual coexistence of AMHS and SWIM. Phase 0 is AMHS baseline; Phase 1 introduces early SWIM adoption; Phase 2 involves mixed-mode operations; and Phase 3 is SWIM-Enable predominance. Given that MET messages, especially IWXXM, are expected to be early adopters of SWIM, ATSCG raises key clarifications for the ICAO MET IE community:

- The need for IWXXM bridging between AMHS and SWIM
- Differences between IWXXM in AMHS and IWXXM in SWIM
- Timeline and transition planning for MET Messages

2.76 The Meeting noted ATSCG observes that mixed-mode operations for MET exchange are anticipated to persist for a considerable period in the APAC Region due to asynchronous readiness. Differences in current interpretations and expectations regarding MET bridging and exchange arrangements may increase the risk of fragmented implementation, inconsistent operational behaviours, and interoperability challenges at international boundaries. ATSCG emphasised that its role is not to mandate solutions, but to facilitate shared understanding, minimum safeguards, and regional coordination during the transition period.

2.77 Owing to time constraints, this paper could not be discussed in detail. Nevertheless, MET IE WG/24 clarified that IWXXM content over SWIM and AMHS will be similar. SWIM will exchange individual messages, whereas AMHS exchange will exchange bulletins. It is expected that AMHS and SWIM services will operate in parallel for many years. Additionally, it was reported that some States are already transmitting IWXXM messages via the internet.

2.78 The Meeting referred to WP/21 of MET IE WG/24, which specified that to support expedited exchange of IWXXM, alternate secure protocols have been agreed by METP WG-MIE where bilateral agreements are reached. The ACSICG/13 Meeting was informed about **Decision MIE/13-04**: **Enabling IWXXM Exchange via Secure Communications**. The ACSICG/13 Meeting requested clarification on the communication medium suggested to be used for the secure transfer of IWXXM and associated guidelines. It was informed that more details will be shared in future Meetings. **ACTION ITEM 13-13**

2.79 The ACISCG/13 Meeting highlighted the importance of determining which MET messages are recommended for exchange via CRV and which should be transmitted over the internet. It was clarified that the exchange of MET messages over AFS has already been specified in the ROBEX handbook, whereas MET-SWIM exchange will primarily occur over the internet. This will not preclude States from exchanging MET information over the CRV where mutually agreed.

2.80 The meeting was informed that, from the METP perspective, future MET/SWIM services are expected to be predominantly exchanged over the Internet, reflecting the very large number of anticipated users and the limitations of managing user addressing via the CRV. The MET/SWIM Roadmap was recalled as providing guidance on the timeline for transition from AMHS to SWIM. The MET/IE WG Chair noted that the timeline for AMHS readiness for IWXXM exchange was 2020, aligned with ICAO Annex 3 IWXXM standard, and expedited implementation is required. The meeting also noted that the current regional and global availability of IWXXM-formatted MET information remains insufficient for many users, and that more rapid implementation by States is needed for the aviation system to realise the benefits of digital MET information exchange.

2.81 After detailed deliberations, it was concluded that AMHS is expected to be used for MET message transmission for at least one decade.

Indonesia AMHS upgrade to support IWXXM – Indonesia (IP/04)

2.82 Indonesia presented the progress of Indonesia in upgrading its AMHS to support the ROC Jakarta in exchanging IWXXM with RODBs and designated ROCs.

2.83 The Meeting was informed that Indonesia has developed an in-house IWXXM 2025-2 generator but cannot disseminate products to RODBs due to the current AMHS size limitations. To resolve this, Indonesia is upgrading the AMHS system as part of the modernisation of the ATM Automation System to support files up to 4.0 MB (including FTBP). During the ICAO monitoring period in November 2025, Indonesia mitigated the issue by collaborating with the Hong Kong Observatory (HKO) to successfully route data submissions via HKO's AMHS network. The Meeting was informed that the AMHS upgrade is underway and targeted for full implementation in June 2026, with a structured trial and testing plan scheduled through Q3–Q4 2026 involving AirNav Indonesia and BMKG.

Updates on Fiji's AMHS System upgrade – Fiji (IP/07)

2.84 Fiji presented the progress of upgrading its AMHS to support both the Basic ATS services and the Extended ATS services in the exchange of file attachment using File Transfer Body Parts (FTBP) to support the exchange of IWXXM messages. The Meeting noted that Fiji Airports hosted the Nadi RODB, one of the 5 RODB in the APAC region, and that AMHS was required to support the exchange of the ROBEX IWXXM bulletin with other RODB, as mandated by ICAO in 2020. To support this requirement, the new AMHS can handle files up to 4.0 MB, including FTBP.

2.85 The Meeting was informed that Fiji's new AMHS & IWXXM system is currently undergoing its commissioning process and plans to commission the new system in May 2026. With the commissioning of the new system, the Nadi RODB will be capable of supporting the exchange of the IWXXM ROBEX bulletin with the 4 other RODBs in the APAC region and of complying with the ICAO mandate.

Additional relevant information from the Joint Meeting from the discussion of MET IE WG/24 Papers

2.86 WP/23 of MET IE WG/24 highlighted the latest status of the ICAO Meteorological Information Exchange Model (IWXXM) and related decision of ICAO METP WG-MIE regarding the versions of IWXXM to be used for operational exchange to ensure interoperability among producers

and consumers. The Meeting noted that following the official release of version 2025-2 in November 2025, only versions 2023-1 and later should be exchanged operationally.

2.87 The Meeting discussed the implications of the WG-MIE decision on the operational use of IWXXM versions. It was noted that the METP decision will be contained in guidance and therefore represents a recommendation to regions and States and does not have the status of an international mandate; Within States, responsibility for compliance with ICAO IWXXM version recommendations rests with designated regulators. The meeting further noted that, while Annex 3 requires States to disseminate MET information in IWXXM form, it does not currently specify IWXXM versions, whereas IWXXM implementation guidance provides information on version compatibility.

2.88 It was clarified that AMHS with FTBP can support any version of IWXXM messages, as messages are sent as attachments.

2.89 It was shared that ATM/MET systems may need to be upgraded to ingest the new version of IWXXM messages if ATM/MET systems are currently ingesting messages lower than version 2023-1.

2.90 It was clarified that Annex 3 and PANS MET do not specify the version of IWXXM messages. In addition, the World Meteorological Organisation (WMO) maintains the version of IWXXM messages.

2.91 The Meeting noted that IWXXM messages were recommended practices in Annex 3 from 2013, which were changed to a standard in November 2020.

2.92 It was noted that Annex 3 is under revision process. The next version is expected to be applicable from 2027.

2.93 In response to a question from Cambodia regarding feasible solutions in the absence of suitable AMHS, the meeting reviewed the existing ROBEX Scheme and discussed the need to consider alternative pathways to improve redundancy and mitigate operational risks. In this context, the meeting shared that CRV could provide an effective alternative virtual pathway as part of a business continuity approach. The meeting noted that the ROBEX Handbook currently references the IWXXM Guidelines and agreed that this was sufficient at present. Further to the issue raised by Cambodia for the need for an alternate ROC and RODB, the meeting requested the MET/IE WG Chair and the Secretariat to coordinate the recruitment of a suitable MET expert to support the ACSICG small task group in investigating the feasibility of alternative pathways for MET information exchange within the context of the ROBEX Scheme. This item will be merged into the ToR of the newly formed ad-hoc Study Group arising from WP/06 of ACSICG/13. **ACTION ITEM 13-14**

Updates on Space-based VHF – Sec (WP/14)

2.94 The ICAO Secretariat provided an update on the development and implementation of Space-based VHF.

2.95 The Meeting was informed of the ongoing development of Standards and Recommended Practices (SARPs) in Annex 10 to support Space-based VHF. It was added that the amendment of Annex 10 Volume III — Communication Systems and Volume V — Aeronautical Radio Frequency Spectrum Utilization for Space-Based VHF is being progressed as a joint work package under both the Frequency Spectrum Management Panel (FSMP) and the Communications Panel - Data Communications Infrastructure Working Group (CP-DCIWG), with shared validation reports and impact assessments to be approved by both groups.

2.96 According to the agreed work plan:

- FSMP WG Meeting held in March 2026 finalised the Annex 10 Volume V Proposal for Amendment (PfA) and agreed to submit it to CP-DCIWG for their approval as a single package.
- The 8th Meeting of CP-DCIWG, held from 13-17 April 2026, completed the development of the PfA and recommended it to the ANC for preliminary review. The corresponding PfA package comprises Annex 10 Volume III PfA and Annex Volume V PfA.
- Following the panel recommendation, the Secretariat will initiate internal coordination and prepare the draft WP for submission to the Air Navigation Commission (ANC) preliminary review.
- The ANC preliminary review of the joint PfA package is expected in September 2026, after which the amendment will be circulated to States and international organisations for comments.

2.97 Based on this schedule, the target applicability date for the amendment to Annex 10 Volume III and Volume V related to Space-Based VHF is November 2028.

2.98 It was informed that recent statistical analyses performed by the FSMP concluded that it is more practical to define a frequency coordination **process on a regional basis rather than globally**. Consequently, the FSMP has endorsed a proposal for amendment to Annex 10, Volume V, requiring that the identification of Space-based VHF frequencies be made on the basis of a regional agreement.

2.99 However, given that the coverage of Space-based VHF is expected to be significantly larger than that of terrestrial systems, potentially impacting areas across several regions, extensive regional and inter-regional coordination mechanisms involving ICAO Regional Offices (ROs) must be carefully defined. The introduction of Space-based VHF may require a shift toward a more integrated worldwide approach for inter-regional frequency assignment coordination.

2.100 To address this, ICAO Headquarters held coordination Meetings with relevant CNS ROs on 18 August 2025 and 16 January 2026. The Meetings discussed methods **for regional and inter-regional coordination and the use of the Frequency Finder tool**. It is to be noted that the current Frequency Finder tool is undergoing a modernisation project, with Phase 4 specifically dedicated to **improvements that include Space-based VHF**. The planning criteria to be developed by the FSMP will be implemented in this new tool to assist ROs and States in identifying candidate frequencies and conducting necessary coordination to ensure protection from harmful interference.

2.101 Draft flowcharts for regional and inter-regional coordination mechanisms were discussed and refined by the ROs, with the expectation that these will be integrated into the modernised Frequency Finder. Additionally, the FSMP Secretariat has developed an **initial draft of coordination procedures to update the Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc 9718).** These draft provisions specify that for specific services such as Space-based VHF, prior to regional agreement on frequency assignment, inter-regional coordination is required through ICAO ROs. A working paper presenting this key information in FSMP-WG/22 is provided in **Appendix A** for advanced review.

2.102 A critical prerequisite identified by the ROs was the need to validate existing data within the Frequency Finder. To this end, ICAO Headquarters is working with ROs to **conduct data validation activities to ensure the database is accurate** before migrating to the new tool.

2.103 It was added that recently, coordination activities have been initiated to support trials for Space-based VHF in the region. For instance, the Civil Aviation Authority of Singapore (CAAS) has requested assistance from the ICAO APAC Office **to identify suitable VHF frequencies for trial,** necessitating verification against existing assignments in Singapore and its surrounding

States/Administrations. During this process of identifying candidate frequencies, it was observed that the ICAO Frequency Finder database may not fully reflect the current operational status of frequency assignments, as updates by States and Administrations are not performed in real time. As a result, the database alone cannot be relied upon for trial coordination.

2.104 It was noted that, under the current interim procedure, ICAO Headquarters has identified two potential candidate frequencies, i.e. 135.975 and 135.950 MHz, which will require coordination with the affected States to ensure they are not currently in operational use, regardless of database indications. This case underscores the significance of ongoing data validation activities conducted by ICAO Headquarters and Regional Offices to support future implementation of Space-based VHF.

2.105 The Meeting acknowledged the need to further advance the space-based VHF trial in the APAC region. Accordingly, Singapore has been tasked with preparing a comprehensive document detailing the trial's objectives, technical details, schedule, duration, and other pertinent information, including points of contact for interference issues. Upon receipt of this document, a follow-up meeting will be scheduled.

2.106 The Meeting recognised the importance of Space-based VHF and referenced the discussions held during the ATN Workshop prior to the ACSICG/13 Meeting. The Meeting expressed its appreciation for the efforts of the various APAC States in conducting Space-based VHF trial.

Space-Based VHF in Singapore – Singapore (IP/03)

2.107 Singapore updated progress on its Space-based VHF trial. The Meeting was informed of progress at DCIWG/PT-SBV, which was tasked with developing the necessary provisions to support the introduction of space-based VHF communications. Key proposals were developed for amendment to SARPs in Annex 10 Volume III to address interoperability, safety, and compatibility considerations for Space-Based VHF operations. Subject to ICAO and State review processes, the plan was to achieve applicability of the relevant provisions by November 2028.

2.108 It was added that a Space-based VHF trial is planned from 1 July 2026 to 30 June 2027 in Singapore's FIR, using LEO satellites from the ECHOES consortium. During the trial, Singapore will validate VHF voice quality and collect supporting data to assess availability, continuity and speech intelligibility under planned scenarios.

2.109 It was informed that a key focus will be the validation of VHF signal performance under ionospheric scintillation conditions prevalent in the equatorial region. The evaluation will involve monitoring signal integrity and reliability during periods of heightened scintillation, which has been known to affect radio wave propagation near the geomagnetic equator. This assessment aims to ensure that Space-based VHF communication remains robust and effective even in challenging atmospheric environments typical of the equatorial region.

2.110 The satellites operate in receive-only mode by default and will only transmit when specifically commanded through pre-loaded sequential flight plans or real-time ground commands. This command can immediately disable transmission functions and cancel any ongoing transmissions should interference with existing ground stations be reported. The ground command operates through a separate TMTC (Telemetry, Tracking and Command) link channel to ensure reliable execution regardless of the satellite's current operational state. The system's flight plans, which contain time-tagged commands controlling transmission locations and power levels, can be updated from ground stations as needed.

2.111 To mitigate potential interference with existing VHF services, several safeguards have been implemented in the satellite system design to ensure that transmission activities can be halted promptly and effectively in response to any interference concerns. Notification on the exact trial period

will be made through NOTAM and Singapore will provide a point of contact for coordination with the affected ANSPs to quickly address any potential issues/queries from stakeholders.

2.112 It was noted that there is a need for the ICAO APAC Regional Office (APRO), in coordination with ICAO Headquarters, to assign appropriate VHF frequencies for the trial so that verification tests can take place. Accordingly, Singapore will develop and provide a document describing the details of the proof-of-concept to ICAO. Based on the information contained in the document, ICAO APRO can initiate coordination of the trial frequency with relevant APAC States.

2.113 ICAO Secretary informed that it has received a list of States/Administrations from ICAO HQ, which may be potentially impacted by the Singapore Space-based VHF trial. The plan is to initiate coordination for two frequencies assigned as candidate frequencies for this trial in Singapore. Meanwhile, it is expected to receive the document from Singapore, sharing further information about the trial.

2.114 In response to an inquiry, Singapore confirmed its collaboration with industry partners on this trial. It was further stated that comprehensive measures are being taken to analyse the footprint area to determine which States may fall within the coverage during a potential trial. This information will facilitate effective coordination with affected States. Additionally, it was observed that Singapore's proximity to the equator could result in notable amplitude and phase shifts in the VHF signal, necessitating detailed analysis.

2.115 A question was raised about whether more candidate frequencies should be identified if additional APAC States want to participate in the trial. While the two identified frequencies can be used by Singapore, other States may also require test frequencies in the future. The ICAO Secretariat explained that the purpose of the data validation process in the frequency finder tool is to keep the database current and make it easier to find candidate frequencies. If any State needs a frequency to start the trial, they can contact the ICAO APAC Office. Singapore also offered to work with other States interested in joining the trial with them.

MPLS/IP Based Inter-Regional Connection- Sec (WP/19)

2.116 This paper provided an update on the discussion on the potential interconnection of CRV and REDDIG III, and CRV and New PENS. The Meeting recalled the past discussion, including the final technical proposal from 2022 for the interconnection of CRV and REDDIG II, along with various business models for the way forward, discussed in past ACSICG Meetings. The Meeting was requested to discuss important aspects of the interconnection of CRV with other regional networks. APAC member states were requested to deliberate on the way forward for the interconnection of the CRV with other regional networks, such as REDDIG II / New PENS.

2.117 The Meeting appreciated CRV OG to continue taking necessary efforts to interconnect different regional networks and encouraged CRV OG to continue progressing and share updates in future ACSICG Meetings. **ACTION ITEM 13-15**

Inter-Regional AMHS Connection Between Com Centers of the Russian Federation and APAC States- Russian Federation (IP/06)

2.118 Russia could not join the Meeting due to some unexpected circumstances. ICAO Secretariat presented the paper. The paper provided information on the status of transition to AMHS between the communication Centres of the Russian Federation and ICAO Asia and Pacific States.

2.119 The Meeting was recalled at CRV OG/11 in February 2023, the Russian Federation proposed temporary L2 VPN connections for AMHS transition ahead of CRV deployment. The Meeting was informed such links have now been established with Irkutsk–Ulaanbaatar (512 kbit/s),

Khabarovsk–Beijing (2 Mbit/s), and Moscow–Fukuoka (1 Mbit/s). It was noted that AMHS live traffic exchange started with Ulaanbaatar in late 2023 and with Beijing in March 2026. Testing with Fukuoka is ongoing, with system interoperability tests between Moscow and Osaka completed and pre-operational tests pending. It was noted that full transition to AMHS may cause asymmetric routing and potential message delivery issues. The Russian Federation will submit routing adjustment proposals to ICAO APAC AMC for regional coordination before live AMHS exchange with Fukuoka.

2.120 The Meeting requested that Japan provide updates on the progress of AMHS implementation between Japan and Russia. Japan reported that testing of the AMHS is currently underway and is anticipated to be completed by April 2026. It was noted that full implementation of AHMS is expected by the end of 2026. The Meeting requested Japan to share any further updates at the ACSICG/14 Meeting. **ACTION ITEM 13-16**

2.121 Following discussions regarding potential routing changes after the completion of AMHS implementation, it was agreed that no modifications to routing are required. The only action necessary is updating the status from AFTN to AMHS within AMC after AMHS implementation. It was recommended that Japan take appropriate steps to update AMC accordingly once AMHS implementation is finalised. **ACTION ITEM 13-17**

Updates on Fiji HF Radio Services- Fiji (IP/08)

2.122 Fiji presented HF Radio upgrade to VoIP and SELCAL 32 for air-to-ground voice communication services in the Nadi Flight Information Region (FIR). The Meeting noted that the upgraded Nadi VoIP HF Radio and SELCAL 32 are planned to be commissioned in Q4 of 2026, with improved voice communication clarity, and comply with the implementation of the SELCAL 32 services in the Nadi FIR. It was informed that Fiji plans to test SELCAL 32 with airlines in the Nadi FIR.

2.123 The Meeting congratulated Fiji on upgrading its HF System. It was noted that SELCAL 32 upgrades will require updates to related systems like AMHS and the ATM Automation system.

AMHS Implementation Status in the APAC Region – Sec (WP/15)

2.124 The paper requested the Meeting to review and update AMHS implementation status. The implementation status of ATN/AMHS in the APAC Region was updated by the Meeting.

Amendment to Asia/Pacific AFTN/AMHS -Based Interface Control Document for ATFM V2.0 – Thailand (WP/18)

2.125 The Meeting was informed that the Asia/Pacific Region AFTN/AMHS-based Interface Control Document (ICD) for ATFM, version 2.0, was developed by the Asia/Pacific ATFM Steering Group (ATFM/SG) and approved by the Asia/Pacific Communications, Navigation, and Surveillance Sub-Group (CNS SG) in 2020. It provides a baseline standard for interface requirements that ATFM support systems of each ATFM node – operating in accordance with the Asia/Pacific Regional ATFM Concept of Operations – must meet to enable communication with other ATFM support systems of other ATFM nodes in cross-border ATFM operations.

2.126 On behalf of ATFM SG Secretariat, Thailand presented the proposed amendments to the Asia/Pacific Region AFTN/AMHS-based Interface Control Document (ICD) for ATFM, version 2.0, aimed at harmonising the use of fields for indicating the designation and the reason for the ATFM measure, in support of enhanced post-operations analysis.

2.127 APAC Air Traffic Flow Management Steering Group (ATFM/SG) in its 15th Meeting in April 2025, discussed the proposed amendment to the Asia/Pacific Regional AFTN/AMHS-based

Interface Control Document (ICD) for ATFM version 2.0. aimed at harmonising the use of fields for indicating the designation and the reason for the ATFM measure, in support of enhanced post-operations analysis. Discussion of that WP at ATFM/SG/15 **resulted in Draft Conclusion ATFM/SG/15-2** adopting the proposed nomenclatures.

2.128 The Meeting was informed that at the ATFM/SG/15 Meeting in April 2025, ATFM/SG agreed to amend the **REGUL** and **REGCAUSE** fields to harmonise coding formats, supporting improved post-operations analysis and automated data processing for SAM/SRM/SLC messages, with revised structures defined for both fields, including standardised codes for constraint location, effective date, version, cause, flight phase, and IATA delay codes.

2.129 The Meeting noted that this adoption provides the basis for ATFM system upgrades by participating ANSPs to ensure their AFTN/AMHS-based ATFM messages are distributed with harmonised REGUL and REGCAUSE formats, thereby paving the way for improved identification of locations and causes of ATFM delays in the network. ANSPs of other regional States/Administrations are also invited to consider adopting the nomenclatures attached to this paper if their ATFM messages are distributed via AFTN/AMHS in accordance with the regional ICD. **Draft Conclusion ACSICG/13/xx - Adoption of AFTN/AMHS-based Interface Control Document (ICD) to the Asia/Pacific Regional Framework for Collaborative ATFM** was proposed for adoption by the ACSICG/13 Meeting.

2.130 The Meeting requested clarification from Thailand about the impact of the proposed changes on the AMHS system. It was clarified that the proposed changes will not impact the AMHS system and no actions are expected from the Communication Experts of APAC States/Administrations.

2.131 The Meeting 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 is not relevant to the Communication Expert. A question was raised about the document's ownership and why this document is being presented to ACSICG/CNS SG for adoption.

2.132 Based on previous information about this document, it was found that the AFTN/AMHS-based Interface Control Document (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,*** drafted by ATFM/SG/9, and uploaded the ATFM/AMHS-based Interface Control Document (ICD) for use by APAC Administrations in implementing cross-border ATFM communications. The ICD was also made available on the APAC Regional Office e-Documents webpage.

2.133 The Meeting concluded that communication experts are 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 following draft conclusion was proposed to transfer ownership of the document to ATM SG, which received endorsement from the Meeting for subsequent adoption by CNS SG/30.

Draft Conclusion ACSICG/13/02 – Transfer of ownership of *AFTN/AMHS-based Interface Control Document (ICD)*	
What: Considering that the ATFM Steering Group (ATFM SG) is the primary author and maintainer of the AFTN/AMHS-based	Expected impact: ☐ Political / Global

<table>
<tr><td colspan="2">Interface Control Document used by Asia/Pacific States/Administrations for the implementation of cross-border ATFM communications in accordance with the Regional Framework for Collaborative ATFM, it is proposed that:
1. Ownership of the document be transferred to the ATM Sub Group (ATM SG).
2. The ACSICG/CNS will provide full support for updates to sections relevant to CNS.
3. Following acceptance of document ownership by ATM SG (subject to ATM SG's agreement), ATM SG may consider the proposed revision.
4. The CNS Sub Group (CNS SG) will support the endorsement of any future proposed changes relevant to CNS, if applicable.</td><td>☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: The proposed revision and most content of the document are to enhance ATFM post-operations analysis and to improve regional interoperability by broadening the technical applicability of the ICD to conform with the system requirements of all Asia/Pacific States/Administrations. These changes are not within the scope of ACSICG.</td><td>Follow-up: ☐Required from States</td></tr>
<tr><td>When: 10-Jul-26</td><td>Status: Draft to be adopted by Subgroup</td></tr>
<tr><td colspan="2">Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: ATM SG/14</td></tr>
</table>

Repository of AIDC Implementation Status in APAC – Sec (WP/16)

2.134 The paper presented the latest repository of AIDC Implementation Status in the APAC region, the preliminary analysis of the current status, and encouraged States/Administrations to review and continue to update the AIDC implementation status.

AMHS and AIDC Implementation Status in Indonesia – Indonesia (IP/05)

2.135 Indonesia presented the current status of AMHS and AIDC implementation in Indonesia. The Meeting was informed Indonesia has run Jakarta–Singapore AMHS since 2018 and is upgrading its AMHS system from Q4 2025 at Jakarta and Ujung Pandang to meet ICAO standards supporting IWXXM, FIXM and AIXM, with connections to Singapore, Melbourne and Brisbane planned for Q2/Q3 2026. AIDC's current operational status (Ujung Pandang ACC), testing and planned implementations were also shared in detail.

2.136 The Meeting was reminded that, as shared earlier, AMHS with FTBP would not be able to support FF-ICE and FIXM data. In addition, to date, no plan has been shared to transfer AIXM over AMHS with FTBP.

2.137 In response to a question, Indonesia informed that currently there is no plan for AMHS connection with the United States.

AMHS and AIDC Implementation Status in Thailand – Thailand (IP/09)

2.138 The paper presented information about AMHS and AIDC implementation status in Thailand. The Meeting noted that Thailand conducted IOT on 1-2 April 2025 and POT on 3-14

November 2025 with Vietnam, and that commissioning was completed on 2nd April 2026. The implementation status of AIDC over AMHS and the current status of data connections over CRV were shared with the Meeting.

2.139 In response to a question, Thailand clarified that it is not sending IWXXM messages to Rome.

2.140 The Meeting appreciated the detailed updates shared by Thailand and encouraged it to share further information in the next Meeting.

Manila-Ho Chi Minh AMHS Implementation and routing- Philippines and Vietnam (IP/10)

2.141 Philippines, on behalf of the Philippines and Vietnam, presented the routing changes associated with the AMHS service between the Civil Aviation Authority of the Philippines and the Civil Aviation Authority of Vietnam. The Meeting was informed that this AMHS connection is a new service between the two states in the region. Therefore, AMHS routing changes are required. It was informed that Vietnam and the Philippines conducted the activities in February 2025, though intermittently, until April 2026, to establish AMHS services between the two states based on IPS using the CRV network. It was noted that the previous AFTN connection between the two states had been disconnected for a long time prior to the direct AMHS connection between Manila and Ho Chi Minh. It was added that the Pre–Operational Trial (POT) was successfully completed on April 20, 2026. The target for the cut-over will be in Q3 of 2026. The proposed routing changes were shared with the Meeting.

2.142 The Meeting discussed the current routing configuration and advised following the AMC procedure to initiate routing changes. It was also advised that Hong Kong, China, is involved in the discussion during the change process.

Additional Guidelines for ICAO Doc 9855 - Guidelines on the Use of the Public Internet for Aeronautical Applications – Singapore (WP/12)

2.143 This paper highlighted the growing use of Internet-based connectivity for inter-State aeronautical coordination in the Asia/Pacific region. The Meeting was informed that while ICAO Doc 9855 provides general guidance on Internet use, it does not fully address current cybersecurity risks.

2.144 The paper proposed supplementary controls based on the CIA triad (Confidentiality, Integrity, Availability) and supported by Public Key Infrastructure (PKI), covering measures such as mutually authenticated encryption (e.g., TLS with mutual authentication and/or IPsec), least-privilege access and strong remote access controls, PKI-supported authentication with digital signatures and anti-replay protections, resilient design against disruption (including DDoS preparedness and tested contingency procedures), and PKI trust interoperability through common policies and certificate lifecycle management. It also recommended assurance and cross-border coordination activities (e.g., baseline control validation, vulnerability testing, incident-response exercises, and agreed points of contact)

2.145 The Meeting noted the increasing reliance on Internet-based connectivity to support inter-state aeronautical communication within the APAC region and the cybersecurity gaps identified in existing guidance, and the proposed enhancements structured around the CIA triad and PKI. States/Administrations were encouraged to consider the supplementary cybersecurity information provided in this Working Paper when applying ICAO Doc 9855 in the context of Internet-based inter-State aeronautical communication.

2.146 It was added that Doc 9855 was published in 2005. Although this document is still applicable, it should be used in conjunction with Doc 10169 – Aviation Common Certificate Policy (ACCP) and Doc 10204 – Manual on Aviation Information Security (MAIS).

2.147 The Meeting discussed proposed contingency and degraded mode operations, including documented fallback procedures and periodic testing. It was recommended that every State/Administration test its operational systems for disaster recovery to ensure advanced preparedness for contingencies.

Doc 9896 Edition 3 – Manual on the Aeronautical Telecommunication Network (ATN) using Internet Protocol Suite (IPS) Standards and Protocol and its Associated Documents – Singapore (WP/13)

2.148 This paper provided an overview of ICAO Doc 9896 Edition 3, which defines the technical architecture, specifications and guidance for the ATN using the Internet Protocol Suite (ATN/IPS). It outlined the scope, structure and its relationship with Annex 10 and other relevant ICAO publications and highlighted how cybersecurity, PKI and risk assessment aspects are addressed through complementary ICAO documentation supporting ATN/IPS implementation.

2.149 The Meeting noted that Doc 9896 Edition 3 defines the ATN/IPS technical architecture, covering networking, transport, security, dialogue services, applications and supporting management functions. It supports the evolution from ATN/OSI-based systems toward an IP-based aeronautical communication environment consistent with current and future ICAO provisions. It was clarified that ICAO Doc 9896, Edition 3, is guidance material and that these provisions apply to both air–ground and ground–ground communications, depending on the application and operational context. It was added that Doc 9896 Edition 3 is structured into four parts and it complements Annex 10, Volume III by providing the technical architecture, protocol specifications and implementation guidance necessary to realize those system provisions.

2.150 The Meeting noted that ICAO Doc 9896 is supported by and aligned with several complementary ICAO documents, including:

(a) Doc 10090 — ATN/IPS Security Services, defining security services applicable to ATN/IPS;

(b) Doc 10095 — IPS Public Key Infrastructure (PKI) Certificate Policy, defining certificate usage and trust relationships for IPS;

(c) Doc 10145 — IPS Risk Assessment, used for risk assessment in the context of ATN/IPS

(d) Doc 10169 — Aviation Common Certificate Policy (ACCP), establishing aviation-wide PKI governance and trust; and

(e) Doc 10204 — Information Security Management, providing information security management frameworks and principles

2.151 The Meeting concluded that all these documents form a coherent ICAO framework covering ATN/IPS architecture, security services, trust governance and operational application.

Brainstorming Session

2.152 During this session, the following items were discussed.

1. New AMHS security provisions
2. Doc 9896 (Third edition in 2026)
   - IPv6 address assignment and access

2.153 The Meeting recalled that Doc 10090 — ATN/IPS Security Services, defining security services applicable to ATN/IPS; Doc 10095 — IPS Public Key Infrastructure (PKI) Certificate Policy, defining certificate usage and trust relationships for IPS; and Doc 10145 — IPS Risk Assessment, used for risk assessment in the context of ATN/IPS are three key documents which can help States/Administrations understanding and defining implementation plan for AMHS Security provision.

2.154 It was clarified that all three of these documents come with a disclaimer from ICAO that they are an unedited version of an ICAO publication and have not yet been approved in final form; their content may still be supplemented, removed, or otherwise modified during the editing process.

2.155 It was supplemented that the *Unedited Version* disclaimer is used for documents that have been technically finalised and approved for release but have not yet undergone the formal ICAO editorial process (professional copyediting, formatting, and translation into all six official languages).

2.156 However, as the version is published, it will be prudent to start studying these documents, understanding their content, their impact on current AMHS systems, and the associated changes and challenges required in the APAC region by all APAC States/Administrations.

2.157 The agreed way forward was to divide the work among designated leads, each responsible for coordinating the study of one document—namely Doc 10095, Doc 10090, Doc 10145, and Doc 9896 (Edition 3: IPv6 provisions only). While individual States may assume the lead role for each document, they may be supported by other volunteer States acting as contributors to advance the work. Once an initial outline of each document is prepared by the respective lead, contributors may support a more detailed review of specific chapters. It was further agreed that, although each document lead may work independently with their contributors, joint progress Meetings for all four documents should be held via teleconference to facilitate the sharing of lessons learned and to identify interrelationships among the documents. The suggested Meeting frequency was monthly or quarterly. In the interim, progress may continue through email-based discussions.

2.158 The ACSICG Co-Chairs invited States/Administrations participating in the Meeting to indicate their willingness to assume the lead role for one of the four documents. It was further noted that, should no volunteers be forthcoming, the Co-Chairs may exercise their discretion to assign the work to individual States/Administrations. The floor was then opened for States/Administrations to express their interest in leading the documents of their choice.

2.159 The United States expressed its willingness to serve as the lead for Doc 10095. As no other States volunteered to lead the remaining documents, the ACSICG Co-Chairs requested Thailand to assume the lead for Doc 10090, India for Doc 10145, and Japan for Doc 9896 (Edition 3: IPv6 provisions only). India and Japan requested additional time to confirm their availability.

2.160 The Meeting agreed that Thailand and India would be considered tentative leads for their respective documents. It was further agreed that, should any lead be unable to continue in this role at a later stage, they may inform the ICAO Secretariat and the ACSICG Co-Chairs accordingly.

2.161 The Meeting also invited States/Administrations to volunteer as contributors for each document study. The following States/Administrations expressed their willingness to contribute.

SN	Document	Lead	Contributors
1.	Doc 10090 — ATN/IPS Security Services, defining security services applicable to ATN/IPS	Thailand	Fiji, Macao China, , Singapore, Tonga
2.	Doc 10095 — IPS Public Key Infrastructure (PKI) Certificate	United States	Cambodia (Observer), , Fiji, Philippines, Singapore, Tonga

	Policy, defining certificate usage and trust relationships for IPS		
3.	Doc 10145 — IPS Risk Assessment, used for risk assessment in the context of ATN/IPS	India (Tentative)	Cambodia (Observer), Fiji, Indonesia, Singapore, Tonga
4.	Doc 9896 (Edition 3: IPv6 provisions only)	Japan (Tentative)	Fiji, Singapore, Sri Lanka, Tonga

2.162 The Meeting agreed that the ICAO Secretariat will coordinate with all leads and contributors to share the expert nomination. **ACTION ITEM 13-18**

ACSICG ToR and Action Items Updates– Sec (WP/17)

2.163 The ACSICG/13 Meeting reviewed the current Terms of Reference (ToR) of ACSICG and agreed that there was no need to modify it.

2.164 The ACSICG/13 Meeting also updated the Action Items from the last Meeting and identified some key actions needed for selective action items.

2.165 For action item 11-4, it was noted that section 4.1.4 of PfA to Annex 10, Volume III and Volume II related to ATN/IPS, stated that ***implementation of aeronautical VoIP communications for ground-ground applications shall be made on the basis of a regional agreement***. It has raised questions about whether all regions need a regional agreement for VoIP. Another important aspect to consider was whether the regional agreement could be as simple as adopting existing VoIP standards, or whether it would require radio experts to come together to discuss APAC VoIP requirements and draft a common agreement for the APAC region.

2.166 ICAO Secretary informed that recently in the SAM region, the CNS/VoIP Subgroup (SG/1) was established under the CNS Coordination Group (CNS/CG) to support the regional implementation of VoIP in accordance with ICAO standards (mainly ED-137 and related SARPs). Its Terms of Reference include:

- coordinating VoIP implementation activities among States and ANSPs in the SAM Region;
- sharing technical experiences, testing procedures, and interoperability cases;
- supporting the development and maintenance of regional guidance material; and
- providing progress reports and recommendations to the CNS/CG

2.167 The Meeting noted that the Europe region also has a dedicated group for VoIP. The Meeting agreed that the ICAO Secretary will coordinate with all regions and the Communication Panel Secretary to understand the expectations from PfA and share an analysis of the current situation with a proposed way forward in the next ACSICG Meeting. **ACTION ITEM 13-19**

2.168 For Action Item 12-7 and 12-9 to update *the educational material to manage the distribution of IWXXM information for COMM experts in the event of primary link failure* and a *checklist of steps required to operational IWXXM exchange*, respectively, it was agreed that it will be further reviewed throughout the year based on comments from COM and MET Experts. Further progress will be shared in the next Meeting. **ACTION ITEM 13-20**

The alignment of the MET-SWIM Roadmap and APAC AMHS to the SWIM Transition Roadmap- ICAO Secretariat (SP/01)

2.169 The presentation file SP01 was prepared for the brainstorming session planned for the last session of the joint Meeting. In presentation file SP01, the ICAO Secretariat shared key timelines

from the *Roadmap for Aeronautical Meteorological (MET) Information in SWIM* and compared them with the ICAO APAC SWIM Implementation timelines of 2024-2030. However, due to time constraints in the joint session of ACSICG/13 and MET IE WG/24, the presentation was moved to agenda item 12 under any other business.

2.170 An issue raised by the ICAO Secretariat in this presentation was the ACSICG's request for States/Administrations to upgrade AMHS to support IWXXM messages before transitioning to SWIM. It was further noted that upgrading AMHS to support IWXXM was recommended before the implementation of SWIM.

2.171 The ICAO Presentation emphasised that implementing AMHS with FTBP does not align with the concept of FF-ICE and FIXM data. Given that APAC States and Administrations are expected to proceed with SWIM implementation according to the FPL2012 sunset date and the established SWIM timeline, the ICAO Secretariat asked States to do an internal assessment and bilateral agreement to enable IWXXM exchanges.

Date and Venue for the Next Meeting

2.172 The Meeting decided that the ACSICG/14 Meeting will be conducted as an in-person Meeting, tentatively scheduled for **21 to 23 April 2027**, to further advance the tasks outlined in the Terms of Reference. It was also proposed to explore the possibility of holding **a workshop on new ATN provisions** in conjunction with the Meeting from **19 to 20 April 2027**. It was further noted that any State/Administration interested in hosting the Meeting should inform the ICAO Secretariat at least four to six months in advance.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate

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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.