INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

FINAL REPORT OF

THE ELEVENTH MEETING OF AERONAUTICAL COMMUNICATION SERVICES IMPLEMENTATION COORDINATION GROUP OF APANPIRG (ACSICG/11)

Bangkok, Thailand, 19 – 22 March 2024

The views expressed in this Report should be taken as those of the Meeting and not the Organization.

Approved by the Meeting
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*Agenda Item 7 is operated in a joint session with MET/IE/WG.

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1. The Eleventh Meeting of the Aeronautical Communication Services (ACS) Implementation Coordination Group (ACSICG/11) was held at ICAO APAC Regional Office, Bangkok, Thailand, from *19 to 22 March 2024*.

2. Attendance

2.1 The Meeting was attended by **Eighty-two (82)** participants from **Twenty (20)** States/Administrations, namely Australia, Bhutan, Cambodia, China, Hong Kong China, Macao China, Fiji, Indonesia, Japan, Lao PDR, Malaysia, Pakistan, Philippines, Republic of Korea, Singapore, Spain, Sri Lanka, Thailand, USA, and Viet Nam, **Two (2)** International Organizations namely IATA, and ICAO, and **One (1)** industry partner namely Frequentis. The List of participants is provided in **Attachment 1**.

3. Opening of the Meeting

3.1 The meeting was opened by Mr. Chonlawit Banphawatthanarak, Expert, Director Level, Aeronautical Radio of Thailand Ltd. and Co-Chair of ACSICG. He extended a warm welcome to all participants, underscored the critical role of communication in aviation, and hoped for collaborative efforts with Member States to navigate post-pandemic circumstances. Mr. Kelepi Dainaki, General Manager Assets & Infrastructure, Fiji Airport Limited, Co-Chair (Pacific) of CRV OG and ACSICG welcomed all participants. He encouraged everyone to contribute to the ACSICG and wished a successful meeting.

3.2 Mr. Luo Yi, Regional Officer, CNS, on behalf of the ICAO APAC Regional Director welcomed all participants to the meeting. Mr. Luo Yi highlighted the importance of ACSICG on supporting ANS operations, and introduced the one-day joint session with MET IE WG/22 on the second day of the meeting to further improve the planned implementation of AMHS capability in carrying IWXXM messages with MET experts.

4. Officers and Secretariat

4.1 Mr. Chonlawit Banphawatthanarak, Expert, Director Level, Aeronautical Radio of Thailand Ltd and Mr. Kelepi Dainaki, General Manager Assets & Infrastructure, Fiji Airport Limited co-chaired the meeting. Mr. Luo Yi, Regional Officer CNS and Ms. Soniya Nibhani, Regional Officer ANS (CNS) Implementation, ICAO Asia and Pacific Regional Office, acted as secretary for the meeting with the support of Ms. Zhong Wenhan, Regional Officer CNS, and Ms. Varapan Meefuengsart, Programme Assistant of the same office.

5. Working Arrangements, Language and Documentation

5.1 The ACSICG/11 met as a single body during the meeting, including a one-day joint session with the twenty-second Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/22) on 20 March 2024, which covered Agenda Items 7, 8 and 9 of ACSICG/11, and Agenda Item 4 of MET/IE WG/22, with focus on the support of IWXXM traffic over AMHS. The meeting was conducted as per the Tentative Programme provided at **Attachment 3**.

5.2 The working language for the meeting was English inclusive of all documentation and this Report. The meeting considered **Sixteen** (16) Working Papers, **Seventeen** (17) Information Papers and **Two** (2) Presentations under its **Thirteen** (13) Agenda Items. The list of Papers and Presentations is provided in **Attachment 2**.

6. Conclusions/Decisions - Definition

6.1 The ACSICG of APANPIRG records its actions in the form of Draft Conclusions, Draft Decisions and Decisions with the following significance:

a) **Draft Conclusions** deal with matters which, in accordance with the Sub-Group's Terms of Reference, require the attention of States/Organization or actions by ICAO in accordance with established procedures;

b) **Draft Decisions** relate solely to matters dealing with the internal working arrangements of APANPIRG and its contributory bodies; and

c) **Decisions** relate solely to matters dealing with the internal working arrangement of the ACSICG.

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PART II – REPORT OF AGENDA ITEMS

Agenda Item 1: Adoption of agenda

Adoption of Agenda- Sec (WP/01)

1.1 The tentative agenda items presented in **WP/01** were adopted as agenda for the meeting.

Agenda Item 2: Review of outcomes of relevant meetings

Review of Relevant Meetings - Sec (WP/02)

2.1 The paper summarized relevant information and updates with the highlight on the reviewed outcomes of the CRV OG/11, ACSICG/10, SWIM TF/7, SWIM TF/8, SURSG/3, and relevant discussions of other Meetings, including the CNS SG/27 and the APANPIRG/34.

2.2 The CNS SG/27 Meeting adopted **Eight** (8) Conclusions and **Two** (2) Decisions. In addition, based on the outcome of discussions on various agenda items, the CNS SG/27 Meeting developed **Three** (3) Draft Conclusions for consideration by the APANPIRG/34, which was adopted by the APANPIRG/34 Meeting. The Meeting noted the Conclusions/Decisions adopted by the CNS SG/27 and the APANPIRG/34 and discussed the follow-up.

58th APAC DGCA Conference Action Items on CRV – Sec (WP/07)

2.3 The paper presented the Air Navigation (ANS) related Action Items of the 58th Conference of Directors General of Civil Aviation Asia and Pacific Regions (DGCA/58) for review and action by the Meeting. The DGCA/58, hosted by the Civil Aviation Authority of Bangladesh, was held in Dhaka, Bangladesh from 15 to 19 October 2023. The Meeting noted that the Conference formulated 51 Action Items and one action item, 58/23, related to CRV. By action item 58/23, the Conference urged States/Administrations to implement CRV by December 2023 and encouraged Pacific States to work with their partner States to facilitate CRV connectivity. The Meeting was suggested to review and take proper action on the Action Items related to CRV/Air Navigation derived from the DGCA/58 and identify Air Navigation issues, if any, that need to be brought to the attention of the DGCA/59 in Philippines from 14-18 October 2024.

Agenda Item 3: Review the report of the Twelfth meeting of Common aeRonautical VPN Operations Group (CRV OG/12)

Review the report of the Twelfth Meeting of Common aeRonautical VPN Operations Group (CRV OG/12) - Sec (WP/03)

3.1 The paper summarized the relevant outcomes of the Twelfth Meeting of the Common aeRonautical Virtual Private Network Operations Group of APANPIRG (CRV OG/12) held *from 23 to 26 January 2024* in Denarau Island, Fiji. CRV OG/12 meeting report, working papers, information papers, and other resources can be accessed by following link:
https://www.icao.int/APAC/Meetings/Pages/2024-CRV-Seminar-and-CRV-OG-12.aspx

Outcomes of CRV Seminar for the Pacific States

3.2 The CRV OG/12 Meeting reviewed the outcomes of the CRV Seminar for the Pacific States held on 22 *January 2024* on Denarau Island, Fiji. A total of **Four (4)** presentations and **One (1)** Information Paper were delivered by CRV experts from New Zealand, Fiji, PCCWG, Tonga, and ICAO also presented Information Papers on current connections, servers, issues and desired enhancements, and GANP ASBU implementations respectively. The seminar report, presentations, and other resources can

be accessed by the following link: https://www.icao.int/APAC/Meetings/Pages/2024-CRV-Seminar-and-CRV-OG-12.aspx.

3.3 In the Seminar, PCCWG shared the list of Pacific Islands and PASNET project details. PCCWG presented the price for CRV packages for all Pacific Islands and shared their new offer and technical equipment details to encourage Pacific States to join CRV.

3.4 The CRV OG/12 Meeting noted that, in the new offer, there is a monthly cost reduction of about 50% and in three tiers, the cost will be reduced further based on the number of sites committed to joining CRV and signing service orders before 30 April 2024. PCCWG informed that they require an additional 6-7 months for CRV circuit installation as different sites have different requirements such as import licenses or other regulations to comply.

3.5 The CRV OG/12 Meeting discussed whether the proposed deadline to share the decision with PCCWG and sign the service order before 30 April 2024 is acceptable and achievable by the Pacific States. Cook Island, Samoa, and Tonga shared their strong intention to join CRV and that they should be able to sign service orders with PCCWG before **30 April 2024**. Additionally, ICAO has deployed a PSIDS Liaison officer who can support Pacific States throughout the CRV implementation process.

ICAO ATN/AMHS Guidance Document Tree

3.6 The CRV OG/12 Meeting noted the progress on the update of the ICAO ATN/AMHS Guidance Document Tree. The CRV OG/12 Meeting was informed that the ICAO Secretariat had taken necessary action to update the ATN Documentation Tree on the ICAO APAC Regional Implementation Projects webpage. However, after coordination with the ICAO APAC IT team, it was found that the ICAO IT team can only change the name and version of existing documents in the Tree but cannot add/remove any branches from the Tree. To take necessary action to upload the Tree on the ICAO webpage, the ICAO IT team is working on alternatives with HQ and finding a placeholder to upload the Tree for member states' access.

3.7 The CRV OG/12 Meeting agreed that the CRV OG Ad-hoc Expert group would review and present the revised Tree to the next CRV OG meeting for review and endorsement. The CRV OG/12 Meeting advised sharing the Tree with ACSICG for further review and modifications for AMHS and other relevant AFS sections. Additionally, it was suggested to keep the Tree on the ICAO Secure portal or New Zealand hosted CRV portal.

CRV New Service Implementation Process

3.8 The CRV OG/12 Meeting noted the process for members with CRV services in operation and plans to add more connections/services to other new or existing CRV users. USA informed that as an action item owner for the task resulting from the CRV OG Ad-Hoc Expert Group, USA prepared the list of processes based on its experience in implementing new services with Indonesia and Papua New Guinea. The CRV OG/12 Meeting discussed and reviewed the process for implementing new services in CRV for AMHS and VoIP services, incorporating them in the CRV OG Operations Manual, and developing the process for new service connections in CRV.

3.9 The CRV OG/12 Meeting suggested that the CRV OG Ad-hoc Expert group develop **the process for testing new SWIM services**. Singapore suggested incorporating standard compression methods while adding the process into the CRV OG Operations Manual's design section along with additional guidance for VoIP compression, such as recommended standards by CRV OG.

Outcomes of Ad-hoc Group Meetings

3.10 The CRV OG/12 Meeting noted the outcomes of the three CRV OG Ad-Hoc Expert Group meetings held between CRV OG/11 and CRV OG/12 via Microsoft TEAMS. In addition, the Ad-hoc group also met with SWIM TF TLs quarterly. The CRV OG/12 Meeting noted the work of the Ad Hoc Expert Group continues to be extremely valuable, appreciated the ongoing contribution, and invited participation to the Ad-hoc group meetings.

Adding A New Service to CRV

3.11 The CRV OG/12 Meeting discussed the steps required to add a new service to the CRV Network. The first draft of the procedure prepared by the CRV OG Ad-hoc Expert group was presented to the CRV OG/12 Meeting to review the process of adding a new service to the CRV Network. The CRV OG/12 Meeting deliberated the process and observed that the process required further modifications. The CRV OG/12 Meeting requested that the CRV OG Ad-hoc Expert group modify the process to incorporate various discussions and suggestions shared during the CRV OG/12 Meeting.

CRV OG Operations Manual Status

3.12 New Zealand presented the status of the current draft of the CRV OG Operations Manual. The updates on the Service Design Section and Definition Section were explained in detail. The CRV OG/12 Meeting agreed to publish the CRV OG Operations Manual v1.3 (CRV OG OM v1.3) and adopted the **Decision CRV OG/12/01** - *Publish the updated APAC CRV Operations Manual*. The latest version of the CRV OG Operational Manual will be published on ICAO APAC e-docs under CNS, ICAO APAC CRV Secure portal, and on the CRV portal hosted by Airways New Zealand.

CRV Implementation Plan – IP Address Block Allocated to CRV Users

3.13 Singapore updated the latest status of the Internet Protocol (IP) address block allocated to CRV Users -Industry. The CRV OG/12 Meeting recalled that the CRV OG/8 meeting agreed to use one vacant /19 IP address block from the Asia Pacific region IPv4 addressing scheme to allocate IP addresses to CRV Users - Industries. Each CRV User - Industry can be assigned 254, 510, 764 or 1022 usable network addresses depending on its technical specifications. To date, two (2) CRV Users - Industries are providing services over the CRV, i.e., AIREON LLC and PCCW Global. Each CRV User-Industry was allocated one /24 (i.e., 254 usable network addresses) IP address block. Hence, there are thirty available /24 IP address blocks that CRV OG can assign to CRV Users.

3.14 To better manage and forecast if the existing IP address blocks are sufficient, the CRV OG/12 Meeting was requested to update CRV OG if there are new CRV Users - Industries intending to provide services over the CRV that need to be assigned IP address blocks. The CRV OG/12 Meeting also requested that all Air Navigation Service Providers (ANSPs) monitor and inform if the allocated IP address block is sufficient. The CRV OG/12 Meeting noted that as of today, no additional industries have requested to join CRV and there are no issues with the number of IP addresses in any ANSP.

National and Local CRV Points of Contacts

3.15 The CRV OG/12 Meeting discussed the National and Local Points of contact. The CRV OG/12 Meeting was clarified that the CRV Operations Group meetings should be attended by the National CRV Point of Contact who represents their organization and the State and all CRV users for that State, including CRV User - Industry. Singapore suggested modifying the local and national point of contact responsibilities mentioned in CRV OG OM to accommodate the new CRV user's definition. Accordingly, the CRV Implementation plan may need further modifications to accommodate new CRV users definition. The CRV OG/12 Meeting requested that the CRV OG Ad-hoc Expert group incorporate this task into their agenda items.

Outcomes of Ad-Hoc Governance Meetings

3.16 New Zealand presented outcomes of the CRV OG Ad Hoc Governance meetings, held twice since its creation from the 2023 CRV Governance Workshop held in ICAO APAC Office, Bangkok on 31 January 2023. The CRV OG/12 Meeting noted that in the last two meetings, the Ad Hoc Governance group had adopted its Terms of Reference, discussed the Governance Models of REDDIG II and New PENS to understand other regional network's governance models, and resolved the problem, a problem Statement is being drafted.

Outcomes of Third Ad-Hoc Governance Meetings

3.17 The third Meeting of the CRV OG Ad-hoc governance group was conducted on 24 January 2024. The CRV OG/12 Meeting observed that after the second Ad-hoc Governance meeting, States/Administrations were requested to share a list of daily, weekly, monthly, annual, or any other periodic tasks related to CRV performed in their States/Administrations. In response, only five States/Administrations shared their responses. Based on the response analysis, the problem statement has been revised. However, information from other States/Administrations must be taken into consideration for further analysis.

3.18 The CRV OG/12 Meeting requested that all States/Administrations that have not submitted the response should submit the response on priority. It was agreed that ICAO Secretariat will share the information requested and templates with all CRV National and local Points of contact along with CRV OG/12 participants before **2 February 2024,** which has been completed. All States/Administrations already utilizing CRV will submit the list of tasks in the requested template to the ICAO Secretariat before **31 March 2024**. The fourth Meeting of CRV OG Ad-hoc governance group will be conducted on **3 May 2024** from 0800-1000 AM Bangkok time. The latest draft of the problem statement is provided in **Appendix A** to this Report.

Number of Subscribers to the New Zealand Hosted CRV Portal

3.19 New Zealand shared information about the New Zealand hosted CRV Portal access. During the CRV OG/12 Meeting, it was informed that on June 2023, there were 115 subscribers to the CRV Portal, significantly more than the current members of the CRV OG. An email was sent to all subscribers in June 2023 requesting a maximum of two nominations, and after the response, 47 subscribers were removed from the portal. The CRV OG/12 Meeting noted future access to the portal would be limited to three per State for the National CRV Point of Contact, the Nominated deputy to the National CRV Point of Contact, and the person responsible for updating the Asia-Pac Telecommunication Infrastructure Routing Plan.

3.20 The CRV OG/12 Meeting requested that the States/Administration share information about the latest CRV focal point to access the portal to CRV OG Co-chairs/ICAO Secretariat in a timely manner. It was agreed that ICAO Secretariat will share the list of users having access to the CRV portal with all States/Administrations before **2 February 2024** for updates. All States/Administration will share the **updated list of a maximum of three users** to get access to the portal before **29 February 2024**. Both tasks have been completed.

Update the APAC CRV Implementation Table

3.21 The latest updates presented on the planning and implementation status of CRV were as follows:

- **Under Operation**

  Australia, Bhutan, China, Hong Kong China, Fiji, India, Indonesia, Japan, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Philippines, PNG, Republic of Korea, Singapore, Thailand, the USA and Vietnam.

- **Under Provisioning**

Cambodia, French Polynesia, Macao China, New Caledonia, Myanmar, Sri Lanka,

- **Hot Prospects in 2024**
Bangladesh, Brunei, Lao PDR, and Maldives

- **Not joined yet**
Afghanistan, DPRK, Kiribati, Marshal Islands, Micronesia, Nauru, Palau, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu, Vanuatu, Russia, ICAO MID States

3.22 The CRV OG/12 Meeting reviewed and updated the APAC CRV Implementation Table. The updated CRV Implementation Table is provided in **Appendix B** to this Report.

CRV contract management

3.23 Due to the confidentiality of the CRV contract management process, the report under agenda item 7 is published on the ICAO APAC CRV Secure portal under the CRV group.

CRV Network Yearly Service Review 2023

3.24 PCCWG shared the Latest CRV Updates and CRV Network Yearly Service Review for 2023. The CRV OG/12 Meeting was informed about the 2023 Ticket Summary by Ticket Type and their overview. PCCWG informed that there are 72 circuits in 39 cities with different CRV Packages, A, B+, C+, C, D+, and D. There are two service providers in the CRV network and 12 circuits are under implementation. It was further informed that 4 Member States are joining CRV in 2024: Bangladesh, Brunei, Lao PDR, and Maldives.

Monitoring and Analyzing CRV Network Traffic in Hong Kong, China

3.25 Hong Kong, China introduced the CRV network traffic capturing equipment deployed in Hong Kong, China, and presented the insights and analysis derived from the captured network traffic. Based on the CRV network traffic captured between 8 and 14 January 2024 in Hong Kong China, there is no immediate need to upgrade bandwidth capacity, assuming no significant changes in bandwidth usage patterns in the near future. The CRV OG/12 Meeting agreed that the initiative by Hong Kong China is excellent for understanding and analyzing CRV network traffic and encouraged other States/Administrations using CRV to conduct such experiments and share their similar experience.

Bandwidth Extension of CRV to Meet Future Requirements

3.26 PCCWG shared that various States/Administrations raised concerns to PCCWG on bandwidth capacity limitation to match future SWIM applications that might consume large amounts of data in SWIM TF meetings. PCCWG shared that bandwidth up to 2M has been quoted in the tender in 2015 to suit the initial requirement to build the CRV network. Other than the 2M options mentioned in the PCCWG price book, more pricing and bandwidth options can be provided for States/Administrations' consideration on request. As a rule of thumb, PCCWG further clarified the bandwidth upgrade cost concept. The CRV OG/12 Meeting requested that Member States/Administrations review the CRV bandwidth requirement and estimate the cost based on the conceptual diagram PCCWG shared. States/Administrations may contact PCCWG directly for further commercial discussion as needed.

CRV Bandwidth Utilization Rate

3.27 PCCWG presented the bandwidth utilization of each Member State/Administration in 2023. The CRV OG/12 Meeting reviewed the monthly traffic report and it was observed that the average utilization rate cannot share peak bandwidth utilization. Member States/Administrations were requested to

make additional efforts to measure and monitor CRV network performance and share it with CRV OG regularly.

Progress of CRV Implementation by APAC Member States

3.28 Australia, Hong Kong China, Indonesia, Japan, Pakistan, the Republic of Korea, and Sri Lanka presented the CRV implementation status through different Papers.

Outcomes of Joint CRV OG Experts and SWIM TF TLS Meetings

3.29 New Zealand presented an update on the meetings between the CRV OG Experts and the SWIM Taskforce Team Leads. The outcomes of the discussions regarding the SWIM principally over CRV, PCCWG Console Connect Aviation Platform, CRV OG and SWIM TF Working Together, and CRV Governance were introduced. The CRV OG/12 Meeting requested more States/Administrations to contribute to the CRV OG Ad-hoc Governance/Experts Group. The CRV OG/12 Meeting also discussed the Enterprise Messaging Service hierarchy architecture being used in the joint event.

The Collection of CRV Requirements

3.30 The CRV OG/12 Meeting conferred the expectations of SWIM TF from CRV OG regarding CRV network requirements for providing SWIM services over CRV. The new CRV contract management process also needs CRV requirements to accommodate other future services. To ensure new services and applications provide the CRV OG with sufficient information to decide on any potential changes to the CRV Network, CRV OG needs the application owner to give details. Due to SWIM TF and CRV OG's dependency on each other's information, the discussion is not progressing well.

3.31 To further progress the discussion, CRV OG/12 Meeting developed the first draft of a form, provided to describe the parameters that the CRV Network performs under, validation from the application or service owner that these parameters are acceptable or not and if not acceptable, the application or service owner is to provide in detail what is required.

3.32 As CRV OG/12 Meeting agreed, the first draft of the form has been sent to the Ad Hoc Expert Design Group before 31 January 2024 for comment and feedback. The ICAO Secretariat also shared the draft form with the SWIM Task Force Task Leads for filling in the form and for comment and feedback. CRV OG Ad-hoc Expert Group will review the duly filled form in the 3 May 2024 Meeting.

3.33 Based on the information shared in the form and outcomes of the joint event (trial/demo), **"CRV data requirements for SWIM Workshop"** is planned to be hosted by the USA in late August/September 2024. The workshop was recommended to be attended by CRV OG Experts and SWIM TF Task Leads. The workshop objectives would be to review the outcomes of the joint event, analyze CRV performance and other crucial information to finalize the list of requirements and other technical specifications for the new CRV contract management process. The ICAO Secretariat will share the exact date, venue, and detailed agenda information about the workshop as soon as it is finalized.

3.34 CRV OG Co-Chair (Pacific) suggested sharing the *Proof of Concept test document* of CRV with SWIM TF to understand CRV's performance and capabilities by SWIM TF.

MPLS/IP Based Inter-Regional Connection

3.35 The CRV OG/12 Meeting noted the current discussion status for the potential interconnection of CRV and REDDIG II and CRV and New PENS. The CRV OG/12 Meeting recalled the efforts made for CRV and REDDIG II Interconnection and noted that the ICAO APAC Office has requested PCCW Global contact Cirion Technologies to discuss the interconnection proposal. However,

despite several coordination in 2023, no concert technical proposal is ready to work further for CRV and REDDIG II interconnection.

3.36 After analysis of the issues, it seems that in the current CRV/REDDIG II contract, no clause requires PCCW Global/Cirion Technologies to establish interconnection with different regional networks. It was essential to include a requirement in the new service contracting processes to establish interconnections with other ICAO regional networks. Furthermore, the CRV and New PENS interconnection status was the same as shared in CRV OG/11 by WP/12. ICAO Secretariat is coordinating with Eurocontrol for further way forward. However, there were no progress and no outcomes to share. Further discussion of this WP is recorded under WP/06.

Regional IP Network Interconnection Discussion

3.37 PCCWG highlighted the status of the interconnection discussion between the CRV Network provider (PCCW Global) and the REDDIG II Network provider (Cirion, previously Lumen). PCCWG updated that they have offered the other high-level interconnection diagram to Cirion for comment, which is still awaiting Cirion's feedback. Concurrently, the CRV OG/12 Meeting requested that the ICAO Secretariat and PCCWG continue their efforts to reach relevant parties to progress the work on CRV-REDDIG II and CRV-New PENS interconnection. During the new CRV contract management process, CRV OG will incorporate the clause of interconnection with other regional networks into the contract document.

3.38 The CRV OG/12 Meeting suggested that the CRV OG Ad-hoc Expert group prepare use cases for regional interconnection of CRV and continue to work to support and encourage MID states to work with PCCWG to join CRV, with the support of the ICAO APAC Secretariat and the ICAO MID office, to implement CRV in the MID region.

Updates on CRV Pioneer States' Remaining Contribution to the ICAO Managed Service Agreement (MSA)

3.39 The paper shared information about the recent development of using the balance fund of the MSA. The CRV OG/12 Meeting was informed that to follow up on Conclusion ACSICG/10/02 (CRV OG/11/03) – *Selection of Security Review Options 2 and 5 and Develop a ToR,* for utilization of remaining money from CRV Project, the draft ToR was prepared by the CRV OG Ad-hoc Expert Group, which was reviewed by the ACSICG/10 Meeting and endorsed as Conclusion ACSICG/10/03 – *Adoption of ToR for CRV Security Review using Options 2 and/or 5*. Based on the adopted ToR, CRV OG Ad-hoc Expert Group invited quotations from different vendors to prepare cost estimates for the work. Further information about the cost estimate and way forward was shared by CRV OG Co-Chair (Asia) by WP/08.

Cyber Security Review Update

3.40 CRV OG Co-chair (Asia) presented WP/08 on an update on the proposed Cyber Security Review. The CRV OG/12 Meeting noted that the two cybersecurity organizations specializing in cybersecurity, namely Aura Cyber Security Consultant - IT Risk Assessment - New Zealand and ZX Security Full Spectrum Security Services - ZX Security, had provided quotations. The CRV OG/12 Meeting discussed the way forward for generating two work orders for two tasks to Aura and ZX Security and requested the ICAO Secretariat to suggest the process to transfer money to Aura and ZX Security for assigned tasks if agreed to be appointed by the Meeting in the future.

3.41 It was noted that ICAO CDI suggested that as it is a Regional project, the best way to do this would be for the CRV OG to take the resolution to close the project, conclude that all objectives have been reached within this project, and advise the project management of ICAO APAC Regional Office. Then, the ICAO APAC Regional Office can request ICAO CDI to proceed to the closure of the project and will transfer the remaining funds requested to each contributor.

3.42 The CRV OG/12 Meeting acknowledged the significance of CRV's security assessment task, an APAC regional network. However, the process would be very complicated if ICAO CDI carried out the project. CRV OG is already working on a new CRV contractual process, which is a very extensive and exhaustive process and requires significant effort, time, and contributions. Given that the timeline to utilize the remaining funds is five years, from December 2022 to December 2027, the CRV OG/12 Meeting suggested not using MSA's remaining money for security assessment work. As the security assessment of CRV is essential and crucial for determining the security and trust of the APAC regional network, the CRV OG/12 Meeting agreed to incorporate this task in the new CRV contract management process.

Japan Concept of Firewall Installation

3.43 Japan presented the concept of introducing firewalls to systems connected to the CRV in Japan and supported discussions on future mandatory firewalls. Japan introduced the overview of the system in Japan for connecting the CRV to the CRV NID. Japan summarized that a uniform firewall mandate could be excessive, as it would be required even for systems that each Member State/Administration considers less necessary to have a firewall in place.

Review ToR and Action Items

3.44 The CRV OG/12 Meeting reviewed the ToR of CRV OG and further updated the Action Items for CRV OG. The revised ToR of CRV OG was reviewed and adopted by the Meeting through the following Decision:

<table>
<tr><td colspan="3">Decision ACSICG/11/01 – Revised CRV OG Terms of Reference</td></tr>
<tr><td colspan="2">What: That, the revised CRV OG Terms of Reference (ToR) as shown in Appendix C to the Report be adopted.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To align with the scope of work changes as more States/Administrations joined CRV.</td><td colspan="2">Follow-up: ☐Required</td></tr>
<tr><td>When: 22-Mar-24</td><td colspan="2">Status: Adopted by ACSICG</td></tr>
<tr><td colspan="3">Who: ☐Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: ACSICG</td></tr>
</table>

Future of Face-To-Face Meetings

3.45 The paper presented a discussion on the future of face-to-face meetings of the CRV. The CRV OG/12 Meeting acknowledged the concern about the limited budget and the need to reduce carbon footprint. However, the CRV OG/12 Meeting agreed that the work done by CRV OG is essential and provides benefits to all States/Administrations. CRV OG has already created many ad-hoc groups that work only through virtual meetings. In such circumstances, it is imperative to do at least one annual in-person Meeting so critical matters requiring detailed deliberations can be resolved and the decision-making process can be easier. The CRV OG/12 Meeting agreed to continue to meet in person at least once a year.

Date and Venue for the Next Meeting

3.46 The CRV OG/12 Meeting agreed to organize the next CRV OG Meeting as an **In-Person** Meeting to further progress tasks listed in the Terms of Reference, tentatively from **10-14 February 2025**.

3.47 Hong Kong China shared that the Joint Event (SWIM over CRV Demonstration and Surveillance data over SWIM Trial) planned from 28-29 May 2024 would be able to estimate bandwidth utilization information for selected scenarios.

3.48 Pakistan shared information about successful CRV Implementation, ongoing testing with neighboring States, and utilization of Package D as of today. Pakistan informed that it planned to upgrade current CRV Package D to Package C in the near future. To utilize CRV efficiently, Pakistan requested ICAO Secretariat to encourage MID States to join CRV.

Agenda Item 4: AMHS/AFTN routing issues and coordination with ATS Messaging Management Centre (AMC)

Update on AFTN/ATSMHS Routing Directory in APAC – Sec (WP/04)

4.1 The paper presented a brief history of the ICAO APAC AFTN Routing Directory which was based on the existing AFTN circuits in the Asia and Pacific regions. The meeting was reminded again that the region would follow the AFTN/ATSMHS routing directory during transition period, for inter-regional traffic, it is required to follow the existing entry/exit points and procedure. With the proposal from Russia to correct the tables "AFTN/ATSMHS ROUTING DIRECTORY ASIA AND PACIFIC REGIONS" for the UHHH and UUUU centres, ICAO APAC Office incorporated the amendment into the routing table, the updated table is provided in **Appendix D** to this report. Additionally, due to the IT issue of the old computer for Routing Manager failed in January 2024, the new changes to the routing table (page 5-25) may be delayed.

APAC AMHS Implementation Status from AMC - Thailand (WP/12)

4.2 The paper presented the AMHS implementation status information in Asia/Pacific Region updated in ATS Messaging Management Centre (AMC) (OPER 259) on 22 FEB 2024. All revised AFTN/AMHS connections, links, and line speeds will be updated to the Communication Chart in AMC. The meeting was invited to review and update information to AMC via AEROTHAI if necessary, including points of contact.

PCAA Coordination with Eurocontrol AMC – Pakistan (IP/06)

4.3 The paper updated the PCAA's coordination with Eurocontrol ATS Messaging Management Centre (AMC). Pakistan provides AMHS services and is responsible for worldwide distribution/routing of AMHS/AFTN traffic through 06 international circuits as per ICAO APAC Routing Directory. The meeting was updated that in January 2023, Eurocontrol intimated that a new AMC version 5.1 is live on its portal and requested to nominate experts for registration on its portal. Eurocontrol registered three PCAA officers on its portal for getting AMC data. PCAA now can regularly upload AMC data on AMHS as per AIRAC cycle and is not facing any issues with the worldwide routing of AMHS / AFTN traffic.

Agenda Item 5: AMS and Datalink communication

Space-Based Very High Frequency (VHF) Communication Services – Singapore (WP/16)

5.1 The paper summarized the progress of the technical and regulatory studies of space-based VHF communications (voice and data) in the frequency band 117.975-137 MHz in International Telecommunication Union ("ITU"), ICAO Future VHF Subgroup ("FVSG"), and ICAO Frequency

Spectrum Management Panel ("FSMP"). The paper shared that there are two companies working in parallel to the launch prototype satellites with VHF payload for Proof-of-Concept (PoC) Demonstration between 2023 and 2025. To conduct the PoC demonstration, there will be a need for ICAO regional office to assign appropriate VHF frequencies so that verification tests could take place. The meeting was invited to support the ICAO activities on space-based VHF at the FVSG and FSMP, and support the frequency assignments for proof-of-concept demonstration when the need arises.

5.2 Regarding the current plan for the proof-of-concept demonstration, the meeting was informed that any ANSP interested in participating in the demonstration should engage directly with the two service providers, and notify and coordinate with ICAO APAC for the frequency can be used. ICAO Secretariat will maintain communication with the service providers to ensure the region stays updated on developments.

PCAA Acquisition of New HF RT System – Pakistan (IP/07)

5.3 The paper presented a brief overview of Pakistan Civil Aviation Authority (PCAA) progress in the acquisition of the new HF R/T system along with SELCAL system and provision of HF data link. Since the current HF R/T System is being downgraded due to various reasons including obsolete and outdated Technology, PCAA has taken the initiative for the procurement of new HF R/T system at JIAP Karachi and AIIAP Lahore (with remote operations at IIAP Islamabad through VOIP connectivity with AIIAP Lahore) hence increasing the number of Aeronautical Stations from previous two to three. The objectives of the new HF R/T system have been summarized in the paper.

ATMB Carries out Datalink-based All-Phase Datalink ATC Service Validation – China (IP/15)

5.4 The paper presented the progress of flight validation of All-Phase Datalink ATC Service in China. Since 2019, the ATMB has carried out flight validation of All-Phase Datalink ATC Service based on the ACARS ATS protocol. The future plan to carry out all-phase digital and voice hybrid flight validation in Xinjiang based on the ACARS ATS protocol and FANS 1/A protocol in 2024 was introduced.

Agenda Item 6: Review and update the AMHS/ATN/AIDC Implementation Status

6.1 AMHS implementation Status

AMHS Implementation Status in the APAC Region – Sec (WP/13)

6.1 The paper updated the AMHS implementation status for review and action by the meeting. As of CNS SG/27 held from 28 August to 1 September 2023, there were 24 States/Administrations in the APAC Region that put their AMHS into operations per the AMHS Routing Directory Tables from the ATS Messaging Management Centre (AMC) as of February 2024, which was further updated by the meeting as provided in **Appendix E** to the Report. States/Administrations that have no active AMHS in operations per the AMHS Routing Directory Tables are provided in **Appendix F** to the Report. Implementation Status of ATN/AMHS in the APAC Region was updated by the meeting as provided in **Appendix G** to the Report.

Update on AMHS Implementation in Indonesia (IP/02)

6.2 The paper presented an update on the AMHS implementation status in Indonesia. In accordance with the ASIA/PAC routing directory, Indonesia is an alternate for Singapore and Australia concerning the AFTN/AMHS connectivity. Between Q4 2023 and Q1 2024 Indonesia trialed the AMHS

connection without using ATN (AMHS over CRV) with Singapore and Australia. The meeting noted that Jakarta is connected with Singapore and Brisbane through AMHS-AMHS over CRV now.

AMHS Implementation Status from Thailand (IP/10)

6.3 The paper presented information about AMHS implementation status from Thailand as well as the summary of link configuration after the successful implementation of CRV network in May 2022. The meeting noted that Thailand has performed IOT and POT with Vietnam, the commissioning is planned to be completed during Q4 2024. The AFTN/AMHS monthly traffic load report of Bangkok COM Centre from 2019 to 2023, AIDC implementation status over AMHS, and the current status of data connections over CRV have also been listed in detail.

6.4 Referring to the changes of the number in AFTN/AMHS traffic load report on yearly basis, Member States/administrations were reminded to prepare for accelerated recovery of air transportation in post-COVID and to consider the decommissioning of previous links in short period once the migration to CRV is completed.

AMHS and AIDC Implementation Status in Republic of Korea (IP/11)

6.5 The paper presented information about the AMHS and AIDC Implementation Status in the Republic of Korea (ROK). ROK has also been implementing the transition from AFTN to AMHS for domestic clients since 1Q 2024. Currently, about 15% of domestic clients have been converted to AMHS, and all clients are expected to be converted by 2028. Furthermore, the meeting noted that ROK is operating Incheon and Daegu ACCs within Incheon FIR using an AIDC application with Fukuoka ACC and Dalian ACC in China in Japan respectively. The means of transmitting AIDC messages between Korea and Japan were migrated successfully from IPLC(X.25) to CRV in Feb 2024, adding XOT (X.25 over TCP/IP) routers before the CRV CE router in both Incheon and Fukuoka ACCs. ROK further shared its plan to operate AIDC Between Incheon ACC in Korea and Shanghai ACC in China.

Current Status of AMHS Implementation in Japan (IP/12)

6.6 The paper presented the status of the transition from AFTN to AMHS between Fukuoka and Moscow. In February 2024, Russia informed Japan that AFTN circuit would be disbanded after July 31, 2024, because Moscow's equipment supporting the AFTN/X.25 protocol has run out of life this year and the International Private Leased Circuit between Fukuoka and Moscow will be closed. Therefore, Japan and Russia are coordinating the interim action until AMHS connection over CRV.

6.7 An alternate plan has been proposed and considered to be conducted is that AMHS connection over the dedicated IP-VPN provided by a Japanese telecommunication provider and another Russian telecommunication provider to contribute stable and efficient Aeronautical fixed service. However, if it is not practical, Japan will start another alternate plan to progress inter-regional information exchange with Asia Pacific region and Europe region by joining New Pan-European Network Service (NEW PENS) and making AMHS connections with other communication centers in Europe region. Furthermore, if AFTN circuit is disbanded after August 1, 2024, the alternate routing of "U" is needed until the interim connection above mentioned is in operation.

6.8 The meeting noted that Japan is coordinating with Russia to maintain AFTN circuit between Fukuoka and Moscow to the end of 2024, and Japan will keep ICAO Regional Office and concerned COM centres (Beijing and Hong Kong) informed on the update of this issue to ensure the availability of alternate route to support operations. **ACTION ITEM 11-1**

ATN/AMHS Implementation Status of China (IP/13)

6.9 The paper presented information about the ATN/AMHS implementation status and plan in China. The meeting was updated that China has performed Inter-Operability Test (IOT) and Pre-

Operational Test (POT) with Mongolia, which plans to put into operation in 2024. China also planned to conduct IOT with Russia and Nepal in 2024. To solve AFTN circuit interruption problem between China (Beijing) to Pakistan (Karachi) in 2023, China has upgraded the circuit from SDH to IPLC in March 2024, which significantly improved the link quality and the traffic availability. Noting Pakistan has completed the implementation of CRV, China is planning to start AMHS IOT over CRV and hopes to complete the AMHS test with Pakistan in the third quarter of 2024 and cutover in the end of 2024. After the CRV implementation in Macao China, the activity of AMHS connection will be restarted.

AMHS Implementation Status in the Philippines (IP/17)

6.10 The paper presented information on the status of implementation of AMHS/ATN in the Philippines. The Philippines has extended its contract with PCCW with Package A for the use of CRV on international data and voice communications. The issue of outages in the legacy AFTN connection between the Philippines and Vietnam has persisted. With the recent development in the coordination between Manila and Ho Chi Minh, the transition to AMHS is expected to help alleviate the frequent disruptions. The current CRV implementation status in Philippines with the Adjacent FIRs has been listed. Additionally, the meeting noted the current AMHS System in the Philippines is IWXXM ready and can relay these types of messages via CRV.

6.2 AIDC Implementation Status
6.3 AIDC over AMHS

Repository of AIDC Implementation Status in APAC – Sec (WP/10)

6.11 The paper presented the latest repository of AIDC Implementation Status in APAC region and invites States/Administrations to review and continue to update the AIDC implementation status and Focal Point for AIDC Implementation if necessary. Until now, a total of 21 States/Administrations have already implemented AIDC, 3 States/Administrations are still under testing, and 19 States/Administrations have not implemented AIDC yet. The meeting updated the table of AIDC Implementation Status in APAC region, which is provided in **Appendix H**, and the list of focal point for AIDC Implementation, which is provided in **Appendix I** to the Report.

PCAA Upgradation of AMHS and AIDC Implementation Status – Pakistan (IP/08)

6.12 The paper presented a brief overview of PCAA's upgradation of AMHS and the implementation of AIDC. The meeting noted that PCAA procured a new upgraded AMHS during the year 2021, which has extended functionalities to meet future requirements. PCAA is in the process of implementing the AIDC with adjacent ACCs, and the status of AIDC implementation in Pakistan and the progress of AIDC over AMHS have been summarized.

Agenda Item 7*: Readiness of AMHS to support IWXXM (ACSICG/11 & MET/IE/WG/22 joint session on 20th March 2024)

AMHS Readiness Status for Supporting IWXXM Traffic in the APAC Region - Sec (WP/05)

7.1 The paper summarized the AMHS readiness status for supporting IWXXM Traffic of the States/Administrations in APAC Region, including States/Administrations that have no AMHS in operations, to facilitate the relevant Meteorological authorities/organisations with the dissemination of IWXXM messages accordingly. As of CNS SG/27, there were **14** States/Administrations provided their status on AMHS readiness and experience for supporting IWXXM Traffic with details. Although there has been a significant increase in the AMHS readiness for supporting IWXXM Traffic, the reporting gap was still identified, States/Administrations are urged to inform ICAO APAC Regional Office on their readiness and implementation progress/plan of AMHS with FTBP as soon as possible.

7.2 The meeting updated the AMHS Readiness Table for Supporting IWXXM Traffic, which is provided in **Appendix J** to the Report.

Review of Asia and Pacific Region IWXXM Implementation Status/ Readiness – Singapore (WP/11)

7.3 The paper recapitulated the timeline/ roadmap and Air Traffic Service (ATS) Message Handling System (AMHS) requirements for the implementation of ICAO Meteorological Information Exchange Model (IWXXM) for the Asia and Pacific (APAC) Region. Currently, the distribution of TAC data internationally is proposed to be no longer required from 2029. Hence, APAC Region is required for full implementation of IWXXM data exchange by 2029. The paper also presented possible challenges faced by States/Administrations to implement IWXXM and to review IWXXM implementation status to gauge the readiness of APAC Region for full implementation of IWXXM data exchange.

7.4 To review IWXXM implement status and gauge the readiness of APAC Region for full implementation of IWXXM data exchange, the working paper proposed a Draft Conclusion for the Review of APAC Region IWXXM Implementation Status/ Readiness. The participants of the joint session of ACSICG/11 and MET/IE WG/22 deliberated on consistency with ICAO provisions, and the meeting formulated the following Draft Conclusion:

<table>
<tr><td colspan="2">Draft Conclusion ACSICG/11/02 - Review of APAC Region IWXXM Implementation Status/ Readiness</td></tr>
<tr><td>What: States / Administrations provide ICAO an update on the status and readiness dates for the following:
(a) AMHS with FTBP/IHE and configuration for single body part;
(b) AMHS connection(s) will have sufficient capacity to support IWXXM exchange;
(c) when operational IWXXM information will available; and
(d) commencement of operational exchange of IWXXM with their Regional OPMET Centre (ROC), and where applicable their respective Inter-regional OPMET Gateway.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: As per Amendment 79 to Annex 3 (applicable November 2020), States/ Administrations are required to exchange meteorological information in IWXXM form.</td><td>Follow-up: ☒ Required from States</td></tr>
<tr><td>When: 22-Mar-24</td><td>Status: Draft to be adopted by Sub group.</td></tr>
<tr><td colspan="2">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: XX</td></tr>
</table>

Description of FAA AMHS SWIM Gateway and IWXXM Status – USA (IP/04)

7.5 The FAA is currently developing an AMHS SWIM Gateway (ASG) that will be implemented as an enhancement to the FAA's operational AMHS to support international exchange of XML-formatted messages encoded using the ICAO Meteorological Information Exchange Model (IWXXM). The effort and status of the ASG have been summarized in the paper. The meeting noted that it is anticipated that ASG development will be complete by Q3/2024, followed by internal testing and then external test with international partners. Operational implementation is dependent upon data production/consumption by the National Weather Service (NWS).

PCAA Readiness for ICAO IWXXM Implementation and AMHS Transition to SWIM – Pakistan (IP/09)

7.6 The paper presented Pakistan's readiness of AMHS to support IWXXM and AMHS transition to SWIM. The meeting noted that PCAA has initiated the implementation of exchange of data in XML format to support the implementation of SWIM enable data sharing (IWXXM, AIXM and FIXM). The agreement has been reached with OEM of AMHS for the exchange of meteorological data in IWXXM. Furthermore, PCAA has already replaced Karachi-Mumbai AFTN data link with AMHS / X-400 link to support the exchange of IWXXM data. Replacement of Karachi-Beijing AFTN data link over TCP / IP/MPLS circuit link has been completed.

Fiji AMHS & IWXXM Implementation Status (IP/16)

7.7 The paper presented the update for Fiji to implement AMHS system to enable international exchange of the ICAO Meteorological Information Exchange Model (IWXXM) data for ROBEX IWXXM with the five (5) Regional OPMET Data Bank (RODB) in the Asia/Pacific region. The AMHS & IWXXM is expected to be commissioned in December 2024 to enable the Nadi RODB to exchange ROBEX IWXXM format and perform the TAC to IWXXM translation.

Agenda Item 8: AMHS transition to SWIM

AMHS Operation and Support of XML Based Messages – USA (IP/03)

8.1 The paper presented the current AMHS operation and its capability to support XML based messages. AMHS and its AFTN/AMHS address header based on ASCII is a critical address to allow messages to be distributed globally and compatible with ATC automation systems. The paper analyzed the future of AMHS operational requirements and AMHS to support future data distribution. The meeting was informed that AMHS is a critical element in routing messages to their intended users using globally adopted and ICAO sanctioned AFTN addressing. Any system that plans to succeed/replace AMHS would likely need to support similar elements of AFTN address functionality.

Leveraging TBO through regional SWIM services and AMHS - Frequentis (Presentation 1)

8.2 Frequentis introduced the TBO with regional SWIM services and AMHS. The regional ATM operational SWIM services roadmap for TBO and the TBO mix mode transition were explained in detail. It was concluded that by providing a consistent cloud-based ATM operational infrastructure regional SWIM services will speed up the digital transformation towards TBO. The meeting further discussed the topics interested, including the information loss between FPL2012 and FIXM, meaning of SWIM governance, sunset date of FPL2012, etc. For more information, Member States/Administrations were welcomed to contact Mr. Ulrich Kaage through email: Ulrich.KAAGE@frequentis.com

AMHS/SWIM Gateway Progress & FF-ICE Migration Plans – SWAMWAY (Presentation 2) (WP/15)

8.3 The SWAMWAY Study Group under the cooperation of ICAO EUR NAT/AST TF presented the AMHS/SWIM Gateway Progress & FF-ICE Migration Plans. With the sharing of SWAMWAY SG activities during 2023, the presentation introduced the progress and development of the AMHS/SWIM Gateway specification, identified use cases, next steps for the AMHS/SWIM Gateway, and European strategy towards FF-ICE migration. The meeting was invited to provide comments about the proposed use cases, identify potential synergies with EUR/NAT Region, and promote the exchange of information in terms of activities, projects, and initiatives with a common interest for APAC and EUR/NAT Regions.

Agenda Item 9: Inter-regional AFS connection

AFTN/AMHS Connection between APAC Region and Other Regions – Sec (WP/06)

9.1 The paper summarized the status of AFTN/AMHS connection between APAC region and other regions (Europe, Mideast, Africa, North America, and South America) with reference to the information contained in ASIA/PAC ROUTING DIRECTORY and the COM Charts by EUROCONTROL AMC, which was reproduced from WP/16 of ACSICG/10. The meeting noted that the connection between Beijing and Kuwait, and between Doha and Singapore have been initiated, but suspended for some time due to unexpected factors.

Upgraded U.S. to Europe Connectivity – USA (IP/05)

9.2 The paper presented FAA's efforts, obstacles, and current status of replacing its current Time-Division Multiplexing (TDM) circuits to European partners with an IP network. In recognition of the coming obsolescence of TDM circuits, the FAA worked with its own service provider to procure a Multi-Protocol Label Switching (MPLS) Virtual Private Network (VPN) that would replace the current TDM circuits and shared the current progress. The meeting noted that the implementation of MPLS service between the U.S. and the U.K. will allow for additional alternate routing of the U.K.-Singapore AMHS traffic with sufficient bandwidth to carry XML based messages in the future.

Relevant Discussions on MET/IE WG/22 Papers in Joint Session

Release of IWXXM Guidelines Version 5 - Australia (MET/IE WG/22 WP/27)

9.3 The meeting noted that the METP WG MIE approved the updated ICAO document Guidelines for the Implementation of OPMET data exchange using IWXXM, Version 5, to assist States with implementing IWXXM. The document has been published on the ICAO APAC Office e-Documents web page, https://www.icao.int/APAC/Pages/eDocs.aspx , for at least five years. The meeting requested the Secretariat to consider publishing the Guidelines on the CNS section of the ICAO APAC Office eDocuments webpage to increase awareness of the guidelines and ensuring only the latest version is accessible to the communications experts.

9.4 *Appendix A: AMHS Profile Information to Support IWXXM Exchange and Appendix B: Sample Tests for National OPMET Centres to Conduct when Introducing IWXXM* of the above document should be useful for establishing communication systems when implementing IWXXM.

9.5 A group of operational COMM experts will develop educational material to manage the distribution of IWXXM information when primary AMHS link failure occurs. (AUS, USA, SGP, HKG, FJI) **ACTION ITEM 11-2**

Enabling the Reliable and Global Exchange of IWXXM - Hong Kong, China (MET/IE WG/22 WP/13)

9.6 The meeting noted that intra- and inter-regional IWXXM exchange needed to be increased to support the required global availability of meteorological information in the IWXXM form. As indicated in the ICAO Guidelines for the Implementation of OPMET Data Exchange using IWXXM, IWXXM exchange depends on the availability of AMHS networks with FTBP and IHE.

9.7 **Conclusion APANPIRG/34/13** specified the need to support IWXXM exchange intra-regionally and inter-regionally between IROGs in the ICAO APAC and AFI, MID, NAM and SAM Regions by establishing AMHS circuits with FTBP and IHE, including back-up paths for redundancy purposes.

9.8 The meeting further noted that inter-regional IWXXM exchange requires at least one capable route between two regions, and for a reliable service, at least two routes should be available. The meeting noted that, for the APAC region, inter-regional IWXXM exchange, with back-up procedures in place, is only operational between APAC and EUR, as indicated in the Online Register of APAC IWXXM Exchange Status.

9.9 The meeting also noted that the standard alternate routing applied for primary link failures in COM Centres worldwide will only work for IWXXM messages if the alternate/secondary link is AMHS with FTBP capable.

9.10 To support the expedited implementation of capable primary and, where relevant, secondary networks to support the exchange of IWXXM, the meeting considered the following action.

9.11 A group of COMM and MET experts to develop a checklist of steps required to operational IWXXM exchange. (AUS, SGP, FJI, HKG) **ACTION ITEM 11-3**

Draft Checklist items:

- P1 AMHS connection/s available to States offering neighbouring Regional OPMET Centres (ROCs) and where relevant Inter-regional OPMET Gateways
- P3 to P1 connection at each end of the link to support IWXXM exchange
- FTBP/IHE and configuration for a single body part enabled
- sufficient capacity of the link to support the IWXXM exchange
- IWXXM being generated
- Agreement to operationally exchange IWXXM

9.12 The meeting participants noted the value of conducting the joint session and supported future joint meetings. There was also some discussion over the duration of the joint session and the meeting agreed the Secretariat and Chairs should consider this matter further and possibly prioritize the materials presented and discussed in the joint session.

9.13 For the meeting report, working/information papers, and other documents discussed in MET/IE WG/22, please refer to the following link for detailed information:
https://www.icao.int/APAC/Pages/2024-MET-IE-WG-22.aspx

Agenda Item 10: AFS related cyber-safety/security issues, best practices, and resilience

Proposed Amendment to Annex 10, Volume III and Volume II Related to ATN/IPS – Sec (IP/14)

10.1 The paper presented the main points of State Letter Ref.: AN 7/63.1.3, AN 7/64.1.1 - 23/59 and the action required by the letter regarding the proposed amendment to Annex 10, Volume III related to ATN/IPS and consequential amendment to Annex 10, Volume II, stemming from the sixth meeting of the Data Communications Infrastructure Working Group of the Communications Panel (CPDCIWG/6).

10.2 The meeting noted the three questions by Singapore for the clarification on specific points, and requested ICAO Secretariat to investigate for any relevant regional agreements in APAC on the implementation of aeronautical VoIP communications for ground-ground applications, to facilitate the region to take follow up actions with the 4.1.4 of this amendment to Annex 10. **ACTION ITEM 11-4**

Agenda Item 11: Concept Note for a Seminar on Aeronautical Communication Services

Provisional Concept Note of Seminar on Aeronautical Communication Services in APAC Region – Sec (WP/14)

11.1 The paper presented the background and a provisional concept note of the Seminar on Aeronautical Communication Services for APAC Region in 2025 for review and action by the meeting. To promote a better understanding of the challenges and future development tendency in Aeronautical Communication provisions, the Meeting was invited to discuss how to organize a Seminar to share individual implementation experiences, latest updates at global and regional level, and deliberate on concerned topics/issues among the Asia/Pacific Member States against the revised Terms of Reference (ToR) of ACSICG.

11.2 Some background information, from AN-Conf. 14, outcome of ANW-ATM, Future Connectivity for Aviation White Paper, User Requirements for Air Traffic Services by IATA, Job Cards of CP-DCIWG, and ICNSS project, has been provided in the paper for consideration during the planning process of the Seminar. A provisional Concept Note for the APAC Seminar on Aeronautical Communication Services in 2025 has been proposed for review by the meeting. The meeting was invited to nominate/recommend experts, in particular with working experience in CP to support this Seminar, and engage industry for required expertise by the Seminar.

11.3 The meeting reviewed and appreciated this proposal, and agreed to support ICAO APAC Office to organize a series of webinar to cover the items contained in the Concept Note, which is provided in **Appendix K** to the Report, other than a two-day Seminar. ICAO Secretariat will consult with concerned parties to prepare the webinars with priority for User Requirements for Air Traffic Services by IATA, ICAO Trust Framework, ICNSS project, space-based VHF. **ACTION ITEM 11-5**

11.4 The meeting was informed that the webinars will be organized after AN-Conf. 14, and the outcomes from the webinars will be shared to ACSICG meeting in working papers for further discussion if necessary.

Agenda Item 12: Review and update Subject/Tasks List

Review Work Programme for ACSICG and AMHS Focal Point – Sec (WP/09)

12.1 The work programme for ACSICG was developed by ACSICG/3 meeting based on a project management methodology. The ACSICG/11 meeting further reviewed and updated the work programme of ACSICG from ACSICG/10, which is provided in **Appendix L**. Additionally, the ACSICG/11 meeting also updated the AMHS Focal Contact Point, which is provided in **Appendix M** to the Report.

12.2 With the successful group review of the work programme (Action Item List) from ACSICG/10, the meeting further discussed implementation issue with individual State and noted the issue with the AMHS connection between Brisbane and Johannesburg, the AFTN connection between Fukuoka and Moscow, and invited States to advise ICAO Secretariat in case of new issues identified.

12.3 The Meeting discussed the relationship between the APAC routing directory and the directory service registered in AMC. The ICAO Secretariat informed that the APAC Office will continue the maintenance of the AFTN/ATSMHS Routing Directory for Asia and Pacific Regions during the transition period, States/Administration are invited to advise the regional office for any inconsistency upon the publication of new edition to ensure the currency and accuracy of the directory.

12.4 The meeting noted the identified inconsistency of the data contained in AMC and the various difficulties for States/Administrations in utilizing AMC functionality, the meeting invited Thailand to take the lead of an ad hoc expert group with the support of ICAO Secretariat, to work on a regional procedure in using AMC by States/Administrations, to validate the AMC data against the AFTN/ATSMHS Routing Directory for Asia and Pacific Regions, to organize a refreshment workshop on AMC when appropriate for the region. States/Administrations were encouraged to coordinate with Thailand on any updates/questions to ensure the data integrity. **ACTION ITEM 11-6**

12.5 Considering the lack of information for AMHS to SWIM transition at regional level, the meeting agreed to form a correspondence group (CG) to study the transition strategy for the region by experts from States/Administrations, industry partners and concerned international organizations, on voluntary basis.

12.6 This AMHS to SWIM transition CG (ATSCG) will study relevant issues including the AMHS/SWIM gateway, guidelines, profiles, with focus on the development of use cases for different scenarios. The ATSCG will monitor the progress of SWAMWAY Study Group of ICAO EUR NAT/AST TF.

12.7 Fiji, Hong Kong China, Japan, Singapore (Lead), Thailand, USA agreed to join ATSCG, and Frequentis agreed to provide expert to act as consultant. ICAO Secretariat will consult IATA and CANSO for additional support.

12.8 The meeting was clarified that the ToR of ACSICG covers air to ground (A-G) communication. However, the focus of ANSPs is mainly with the ground segment especially the interface with ATM equipment. In case there will be discussion on A-G communication by ACSICG, expertise of communication service provider may be required.

Agenda Item 13: Next meeting date and any other business

Updates on Next Asia Pacific Ministerial Conference – Sec (WP/08)

13.1 The paper provided information about the current status of the Second Asia Pacific Ministerial Conference on Civil Aviation (APACMC/2) and the work done so far in preparation. Due to unforeseen circumstances, the APACMC/2 was postponed and further confirmed to be held from 11 – 12 September 2024 in New Delhi, India. The drafted the Asia Pacific Ministerial Declaration on Civil Aviation (Delhi) for the APACMC/2 prepared by the Asia Pacific Ministerial Conference Preparation Working Group (MCP WG) was presented for comments by the meeting.

Date and Venue for the Next Meeting

13.2 The meeting discussed to meet Face-to-Face (F2F) with a tentative date in the first half of April 2025 to further progress the tasks listed in the Terms of Reference. However, considering the need to conduct one day joint meeting with MET/IE WG, the ICAO Secretariat will coordinate internally and inform participants in due course for the exact dates and venue.

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Problem Statement

Background

The CRV Network was created out of the need to replace legacy point to point half circuits between states with cost-effective telecommunications IP network connectivity with the aim to achieve ICAO current and future strategies of GANP ASBUs: B0-FICE, B0-NOPS, VoIP and B1-SWIM modules.

The initial focus was on the implementation of the network through a tender process managed by TCB and the CRV Taskforce, then implementation and migration of service via the CRV Operations Group. Some thought was given to the future, mostly ADS-B and Flow Management Data. SWIM was only a vague concept.

Associated documentation was created as part of the Tender or Implementation phases and held in an accessible portal maintained by Airways New Zealand.
Some focus is given to maintaining these documents but is challenging due to CRV OG members also having day jobs with their parent ANSPs.

To aid progress of the documentation four Ad Hoc Expert groups have been stood up representing Strategy, Design, Transition and Operations. The intention was for these groups to meet independently regularly to produce updates to the documentation between CRV OG meetings.
We also meet with other groups such as the SWIM TF regularly.

The Problem

1. The advancement of the CRV is based on the input of a core group of CRV OG members.
2. The list of tasks is increasing the more the network is operated. This requires more effort and faster turnaround on making decisions to make changes to the CRV network configuration and associated documentation.
    a. IP Address management
    b. Incident Management
    c. Testing
    d. Security improvements
    e. Security Review
    f. Operations Manual
    g. Implementation Plan
    h. Common Package update
    i. Portal hosting – change?
    j. Overview drawing updates
    k. Implementation Plan updates
    l. IPV6?
    m. Memberships
    n. TOR update?
    o. Future services – IPVHF, Space Comms and ADSB
    p. Better monitoring

    q. Interconnects
3. We meet once per year to discuss, agree and endorse changes. This is slow.
4. The four Ad Hoc Expert Subgroups have not met separately but met each time as a group for expediency.
5. CRV II is coming soon.
6. Information and documentation need to be accessible by all.
7. As more ANSPs and other organisations join we need to have a RASCI to define our roles, responsibilities and expectations.
    a. OG Members
    b. Co-Chairs
    c. National Contacts
    d. Local Contacts
    e. Service Provider
    f. User- State
    g. User Industry
    h. ICAO Secretariat
    i. ICAO Regional Office
    j. ICAO TCB
8. Budgets are constrained.
9. Sustainability needs to be considered.
10. Some states are not engaging with CRV.
11. Unknown routine activities

We need to change, to allow groups to act autonomously with ownership of actions, make decisions, and regular reporting without having to wait for an annual meeting to make the decisions and reliance on specific members.

The CRV OG uses the Co-Chairs and Secretariat as the points of contacts which can often create confusion from other taskforces and groups regarding who they should be talking to provide potential solutions.

Current State

1. One Meeting per year with the full OG and the Service Provider.
2. Ad Hoc experts four times per year.
3. SWIM TF four times per year.
4. Ad Hoc Governance group four times per year.

Proposed State

1. One Meeting per year with the full OG and the Service Provider.
2. Experts four times per year.
3. Operations twelve times per year.
4. Other TF four times per year.
5. Governance group four times per year.
6. Service Provider four times per year.

List of daily tasks:

List of Weekly Tasks:

List of Monthly Tasks:

Other Routine Tasks and its frequency:

Future Tasks:

UPDATED APAC CRV IMPLEMENTATION TABLE

Please review the following table and share updated information in track mode by email at vmeefuengsart@icao.int and snibhani@icao.int

CRV focal points of States/Administrations are requested to also update the telecommunication infrastructure table on the CRV Portal *(please click at the link to update the table)* hosted by Airways New Zealand.

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
1	**Afghanistan**					
2	**Australia***	Fiji New Zealand USA PNG Singapore	Contract in May2018 and service readiness in 3Q 2018	AFTN, ADS-B, AMHS, Voice With: Completed: **Fiji** March,2019 (AMHS June 2019/AIDC, Voice completed April) **New Zealand,** February, 2019 (AMHS June 2019, AFTN May 2019/AIDC), March, 2019 (Voice April 2019 completed) **Singapore** Dec, 2020 (AMHS/AIDC); **PNG** June 2021 (AFTN) Oct 2021 (Voice) **USA** March 2019 (AFTN)	Staged approach	Termination of current COM contract

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
				March 2019 (Voice) In Progress: **Indonesia** Jan 2024 (AMHS), Voice and ADS-B pending. Pending: **South Africa TBC** (AMHS/AIDC, Voice);		
3	**Bangladesh**					
4	**Bhutan**	Thailand (Bangkok)	Contract signed on Oct 2019. CRV installed successfully in Dec 2021. CRV P2P Test between Paro-Bangkok completed. CRV P2P Test between Paro-Mumbai completed on Jan 2023	AMHS first. Voice and ADS-B – to be decided.	Staged Approach	Dependent on India for full utilization of CRV network.

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
			CRV cutover between Paro-Mumbai is scheduled on March 2023			
5	**Brunei Darussalam**					
6	**Cambodia**		As early as convenient, dependent on neighbouring countries			Internal decision making
7	**China***	Hong Kong China Japan Republic of Korea	Contract signed on 21 June 2020.	Applications targeted: Data(AMHS) With: Hong Kong 3Q2020; Japan 4Q2020; Thailand TBD; India 2022. Republic of Korea 4Q2022 Mongolia 4Q2022 ATFM test with Japan and ROK at Sep 2020 over CRV ADP exchange with Mongolia 4Q2022	Staged approach	

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
8	**Hong Kong, China***	Philippines China Japan Thailand Vietnam	Contract signed on 6 April 2018. Connection was installed successfully in June 2018.	**With Manila** CRV-Voice put into operation in August 2018 CRV-AMHS put into operation in May 2019 **With Fukuoka** CRV-AMHS put into operation in September 2020 **With Beijing** CRV - AMHS POT in March and operation in April 2021 **With Bangkok** CRV-AMHS put into operation in August 2022 **With Hochiminh** Subject to Hochiminh's readiness	Staged approach	Need to coordinate with relevant CAAs/ANSPs in joining CRV in a harmonized manner, etc.
9	**Macau China**		December 2022	To be confirmed	Staged approach	Migration from X.25 to IPS
10	**Cook Islands**					
11	**Democratic People's Republic of Korea**		Contract in 3Q2018 and service readiness in 4Q2018	AFTN and VoIP		

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
12	**Fiji***	Australia New Zealand USA	Contract in May 2018 and service readiness in 3Q 2018.	Data (AMHS) and VoIP With: Australia ATS voice April 2019 completed, AMHS completed in July 2019, NZ ATS voice completed April 2019 and USA ATS voice completed in March 2019 and AMHS completed in April 2019.	Staged approach	CBA, safety case
13	**France:** **-New Caledonia** **-French Polynesia**	 Fiji New-Zealand	 Q3/2023 Q3/2023	 ATS Voice, AMHS AFTN/AMHS with NZ.	Staged approach	Depends on an agreement with peer States on adding a layer of encryption (PSK) over CRV

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
14	**India***	The GRE tunnels has been setup between: Mumbai–Bangkok, Mumbai- Singapore, Mumbai–Beijing and Mumbai-Paro. Mumbai-Kathmandu GRE Tunnel under tests Note: AMHS trails between Mumbai-Bangkok over CRV has been carried out successfully. AMHS trails between Mumbai-Singapore, Mumbai - Bhutan over CRV are presently in progress.	Contract for CRV implementation with M/s PCCW in India Signed on 15th March, 2022. CRV Circuit has been delivered in Dec, 2022. CRV Cutover: End of 1Q2023	AFTN/AMHS, , ATS Voice & ADS-B	Staged approach	Note: On successful trial Operation with BBIS/BIS States, the CRV Cutover will be planned.

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
15	**Indonesia**	Singapore Australia	Contract in 1Q2022 and service readiness in 2023.	Completed: With **SINGAPORE** AMHS – 2024; Voice – 2024; Voice Additional Lines – 2024. With **AUSTRALIA** AMHS – 2024; Operation Trial: With **PAPUA NEW GUNIEA** Voice – 2024. Testing Plan: With **MALAYSIA** Voice – 2024. With **PHILIPPINE** Voice – 2024. With **AUSTRALIA** Voice – 2024. With **USA** Voice – 2024. ~~Australia 2024 (voice & data)~~		

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
16	**Japan***	Hong Kong China USA Singapore China RoK Philippines	Contract signed in Nov.2017	1) AMHS with China Hong Kong China RoK Singapore TaipeiACC USA 2) AIDC with RoK(planned 1Q 2024） Taipei USA 3) VoIP with RoK Philippines TaipeiACC USA	Staged approach	
17	**Kiribati**					
18	**Lao PDR**					
19	**Malaysia**	Thailand Singapore Indonesia India	Contract signed between CAAM and PCCWG in Sept 2022.	**Thailand** 1) Network connectivity testing (AMHS/AIDC) – Oct 2022 2) Completed cut over & migration (AMHS /AIDC) – Jan 2023	Staged approach	

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
			CRV service readiness started in Nov 2021.	3) Voice & ADS-B (testing, migration- TBD **Singapore** 1) Network connectivity testing (AMHS/AIDC) – May 2022 2) Estimate cut over & migration (AMHS/AIDC) – Q1/2023 3) Voice & ADS-B (testing, migration- TBD **India** 1) Estimate network connectivity testing (AMHS/AIDC) – Q1/ 2023 2) Estimate cut over & migration (AMHS/AIDC) – Q1/2023 3) Voice & ADS-B (testing, migration- TBD **Indonesia** 1) Estimate network connectivity testing (AMHS/AIDC) – Q2/2023 2) Estimate cut over & migration (AMHS/AIDC) – Q2/2023 3) Voice & ADS-B (testing, migration- TBD		

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
20	**Maldives**					
21	**Marshall Islands**					
22	**Micronesia (Federated States of)**					
23	**Mongolia**	CAAM and PCCWG made ICMP package test in 2021.	Contract in 1Q2022 and service readiness in 4Q2022	AFTN, ADS-B, AMHS, Voice With: **China** Dec, 2022(AMHS), (ADP) TBD Voice, ADS-B, AFTN **Russia** TBD (AFTN, ADS-B, AMHS, Voice)	staged approach	Negotiations with neighbouring countries and stakeholders on CRVs and its use are critical to implementation.

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
24	**Myanmar**	China , India, Thailand, Laos, Bangladesh.	Contract will be signed after discussed with PCCW Global. Implementation was targeted in Q4/2023 depends on PCCW's proposal quotation. Already sent to high level questionnaire form V 2.1 in June 2021 and V 2.2 again to PCCWG in Feb 2023 to join the CRV implementation.	AFTN/AMHS, AIDC, ADS-B and Voice	Staged approach	Need to coordinate with relevant CAAs/ANSPs in joining CRV network to be harmonized regionally.
25	**Nauru**					
26	**Nepal**		SO signed with PCCW	AFTN/AMHS	Staged Approach	BBIS-state India joining the CRV network, as most traffic is routed through it

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
27	**New Zealand**	Australia USA Fiji French Polynesia Chile	Contract signed in July 2018 and service implemented December 2018	Australia Voice Completed March 2019 and AMHS June 2019 Completed USA Voice Completed March 2019 and AMHS March 2019 Completed Fiji Voice Completed April 2019 French Polynesia AMHS and Voice Chile AMHS (SAM regional network REDDIG)	Awaiting French Polynesia joining. Awaiting outcome of inter-regional network connectivity discussion. For Chile	CBA attractive if all counterparts join in.
28	**Pakistan**	China India	Duly Signed Service Order Form Submitted on 23rd Jan 2023 for Finalization / Execution of the Contract. As per timeline given by PCCW Global the CRV will be implemented by August / Sept 2023	AMHS /AFTN / VOICE	In progress	Package-D is opted to establish link between China and India. Connectivity with other neighbouring regions / FIRs i.e. Tehran, Kuwait, Kabul & Muscat could be migrated on CRV only if the states join CRV.
29	**Palau**					

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
30	**Papua New Guinea**	Australia USA-Oakland USA-Aireon		Australia: AFTN June 2021, Voice Oct 2021 USA-Oakland Voice November 2021 USA-Aireon Space based ADSB-July 2021	Staged approach	Completed
31	**Philippines**	Hong Kong China Taipe Singapore USA Japan Indonesia Malaysia Vietnam	Contract signed in March 2018 and service readiness in 2Q2018	Completed: With **HONG KONG** AIDC - 2Q2019 AMHS - 2Q2019 VOICE - 3Q2018 With **TAIPE** AIDC - 2Q2019 AMHS - 2Q2019 VOICE - 1Q2019 With **SINGAPORE** AIDC – 4Q2019 AMHS – 4Q2020 VOICE – 1Q2020 With **USA (Oakland)** AMHS - 2Q2021 AIDC - 4Q2022 VOICE - 4Q2019	staged approach	Success transition to the New ATM center in 4Q2018 Dependencies: AIDC with Kota Kinabalu implementation via BBIS Singapore AIDC with Makassar implemented via BBIS Singapore

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
				With **JAPAN** VOICE - 1Q2022 AIDC - Planned 2024 With **INDONESIA (Makassar)** AIDC - 4Q2019 via BBIS VOICE - 4Q2023 Test done With **MALAYSIA (Kota Kinabalu)** **AIDC -** 4Q2023 Test done via BBIS **VOICE -** 2024 With **VIETNAM (Ho Chi Minh)** AMHS - 2024 AIDC - 2024 VOICE - 2024		

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
32	**Republic of Korea**	Japan China	Contract signed for AMHS in 3Q 2019 and service readiness in 4Q 2022 Contract signed for voice, AIDC in 1Q 2021 and service readiness in 1Q 2021	Completed: **With Japan** Voice – Sep 2023 AMHS - December 2022 **With China** AMHS – November 2022 Planned: **With Japan** AIDC – Feb 2024 **With China** AIDC – 2024	staged approach	AMHS POT in 4Q and operation from 4Q 2022
33	**Samoa**					

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
34	**Singapore***	Australia Japan Philippines Thailand	Contract signed in May 2019 and service readiness in Dec 2019	Data (AMHS over IP) with: Australia Dec 2020 (completed); Japan Nov 2020 (completed); Philippines Dec 2020 (completed); Thailand Sep 2022 (completed); India Q1 2023 (in progress, testing completed); and Malaysia Q1 2023 (in progress, testing completed). Voice with: Philippines Mar 2020 (completed).	Staged approach	
35	**Solomon Islands**					
36	**Sri Lanka**	Planned: Australia India Indonesia Maldives Singapore	Nov-Dec 2022	Q1 2023 - AMHS with Singapore TBD - AMHS connectivity with Mumbai, and Male. TBD - Direct Speech facilities with Chennai, Trivandrum, Mumbai, Male, Jakarta, Melbourne, Singapore.	Phased Approach	Package D is planned based on CBA conducted. Comparison of performance of Package D and existing IPLC circuit.

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
37	**Thailand**	Bhutan Hong Kong, China Singapore China Malaysia India	1. Contract in 3Q2021 Status: Completed 2. Service readiness in 2Q2022 **Status: Completed**	Data first Then voice, subject to safety case: **Bhutan** in July 2022 **Hong Kong, China** in August 2022 **Singapore** in September 2022 **China** AMHS POT in July 2022 and operation will be performed after sign TMC. **Malaysia** in January 2023 **India** in February 2023 **Cambodia and Vietnam** Subject to States' readiness	Staged approach	
38	**Timor Leste**					
39	**Tonga**					
40	**Tuvalu**					

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
41	**United States***	Australia Fiji Japan Philippines New Zealand Indonesia	Contract in January 2018	1) AMHS with Australia Fiji Japan Philippines New Zealand 2) AIDC with Fiji Japan New Zealand 3) VoIP with Fiji Japan Philippines New Zealand Papua New Guinea (direct planned 2021) Indonesia (2024) Russia (when join CRV)	Staged approach	

SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
42	**Vanuatu**					
43	**Vietnam**	Hong Kong, China Singapore Philippines	Contract signed in M 4Q/2022, Service readiness in May -2023	AFTN/AMHS connectivity with Hong Kong Voice and AFTN/AMHS with Singapore Voice and AFTN/AMHS with Philippines PCCW is installing equipments and clearing lines But has not yet completed it. Planning: **AFTN/AMHS connectivity with Thailand, China, Cambodia**	staged approach	

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Common aeRonautical Virtual Private Network (VPN) Operations Group (OG) of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) (APANPIRG CRV OG)

TERMS OF REFERENCE

1. Background

The establishment of APANPIRG CRV OG was proposed during the deliberations of the CRV Task Force (TF) as a dedicated group to provide oversight of the CRV operations and the performance of the CRV Service Provider. The APANPIRG CRV OG is formally established by APANPIRG Decision 27/33.

2. Terms of Reference

The Common aeRonautical Virtual Private Network (VPN) Operations Group (OG) will provide oversight of the function and performance of the CRV and the performance of the Service Provider. The following are the activities to be performed:

a) Oversee the implementation of the CRV post Contract Award;

b) ~~Manage issues arising from the transition with CRV TF, if any;~~

c) Co-ordinate and standardize the establishment or upgrade of CRV services as required;

d) Co-ordinate activities with other regions' ICAO CRV OGs, if any, to make sure that decision making and communication with CRV Service Provider is consistent and timely;

e) Oversee the performance of the CRV Service Provider, including customer service;

f) Oversee the performance of the CRV network;

g) Oversee the escalation and solving by the CRV Service Provider of issues associated with the provision of the CRV, including safety and security related issues;

h) Assist with the resolution of issues associated with the provision of the CRV among the CRV Users as required, including safety and security related issues;

i) Assist with the migration of Aeronautical Fixed Services (AFS) onto the CRV, in line with the GANP and ICAO APAC seamless ~~ATM~~ ANS plan;

j) Maintain CRV OG documentation associated with the function, performance and management of the CRV, including the CRV OG Operations Manual, a list of CRV users and a record of variations to the common tender package;

k) Accept deliverables from the CRV Service Provider on behalf of the CRV Users as required;

l) Promote the use of CRV;

m) Undertake continuous service improvements review to ensure CRV meets future needs; and

n) Perform any other activity as required by CRV operations.

3. Reporting

The CRV OG will report to Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) through ACSICG and CNS SG.

4. Participation

The CRV OG will include all APAC Member States/Administrations, and any other organization as needed. Member States and/or inter-regional entry/exit Administrations in other ICAO regions may also be invited or request to participate in the activities of CRV OG.

5. Conduct of the work

It is anticipated that the CRV OG will conduct its work primarily by Web Conferences, teleconferences and other electronic means of communications. Face to Face meetings of CRV OG may be required on an annual basis.

The ICAO APAC Regional Office will provide secretariat support for the CRV OG.

6. Rapporteur

There will be two Co-Chairpersons of the CRV OG, one primarily responsible for Asia coordination and the other for Pacific coordination.

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AFTN/ATSMHS CONNECTIONS- ASIA/PAC ROUTING DIRECTORY

Terminal 1 (^ - BBIS)	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
Apia/Faleolo	Christchurch	AMHS/UA	N
Bangkok^	Beijing	AMHS	N
	Mumbai	AMHS	Y
	Dhaka	AMHS	N
	Ho-Chi-Minh	AFTN	N
	Hong Kong	AMHS	Y
	Kuala Lumpur	AMHS	Y
	Phnom Penh	AMHS	N
	Rome	**AMHS**	N
	Yangon	AMHS	N
	Singapore	AMHS	Y
	Vientiane	AMHS	N
	Paro	AMHS	Y
Beijing^	Bangkok	AMHS	N
	Fukuoka	AMHS	Y
	Guangzhou	AFTN	N
	Hong Kong	AMHS	Y
	Karachi	AFTN	N
	Khabarovsk	**AFTN**	N
	Kathmandu	AFTN	N
	Mumbai	AMHS	~~N~~Y
	Pyongyang	AFTN	N
	Seoul	AMHS	Y~~N~~
	UlaanBaatar	AFTN	N
	Yangon	AFTN	N
Brisbane^	Christchurch	AMHS	Y
	TimorLeste	AFTN/UA	N
	Jakarta	AMHS~~AFTN~~	Y~~N~~
	Johannesburg	**AMHS**	N
	Honiara	AFTN/UA	N
	Nadi	AMHS	Y
	Nauru	AFTN/UA	N
	Port Moresby	AFTN	Y
	Port Vila	AFTN/UA	N
	Singapore	AMHS	Y
	USA	**AMHS**	Y
Brunei	Kuala Lumpur	AFTN	N
	Singapore	AFTN	N
Chennai	Mumbai	AFTN	N
	Kolkata	AFTN	N
	~~Kuala Lumpur~~	~~AFTN~~ Not in Operation	N

Terminal 1 (^ - BBIS)	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
Christchurch	Apia/Faleolo	AMHS/UA	N
	Niue	AMHS/UA	N
	Rarotonga	AMHS/UA	N
	Brisbane	AMHS	Y
	Papeete/Tahiti	AFTN	N
	Tonga/Fua'Amotu	AMHS/UA	N
	USA	**AMHS**	Y
Chuuk	USA	AMHS/UA	N
Colombo	Mumbai	AMHS	N
	Male	AFTN	N
	Singapore	AFTN	N
Delhi	Mumbai	AFTN	N
	Kolkata	AFTN	N
	~~Tashkent~~ Not in Operation	~~AFTN~~	N
Dhaka	Bangkok	AMHS	N
Fukuoka^	Beijing	AMHS	Y
	Hong Kong	AMHS	Y
	Moscow	**AFTN**	N
	Seoul	~~AFTN~~AMHS	Y~~N~~
	Singapore	AMHS	Y
	Taibei	AMHS	Y
	USA	**AMHS**	Y
Guangzhou	Beijing	AFTN	N
	Hong Kong	AFTN	N
	Macau	AFTN	N
	Haikou	AFTN	N
	Hanoi	AFTN	N
Hanoi	Ho-Chi-Minh	AFTN	N
	Vientiane	AFTN	N
	Guangzhou	AFTN	N
Haikou	Guangzhou	AFTN	N
	Hong Kong	AFTN	N
Ho-Chi-Minh	Bangkok	AFTN	N
	Hanoi	AFTN	N
	Hong Kong	AFTN	N
	Singapore	AFTN	N
	Manila	AFTN	N
	Phnom Penh	AFTN	N
Hong Kong^	Bangkok	AMHS	Y
	Beijing	AMHS	Y
	Guangzhou	AFTN	N

Terminal 1 (^ - BBIS)	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
	Ho-Chi-Minh	AFTN	N
	Macau	AMHS	N
	Manila	AMHS	Y
	Haikou	AFTN	N
	Taibei	AMHS	Y
	Fukuoka	AMHS	Y
Honiara	Brisbane	AMHS/UA	N
Jakarta	Brisbane	AMHS~~AFTN~~	Y~~N~~
	Singapore	AMHS	Y~~N~~
Karachi	Beijing	AFTN	N
	Mumbai	AMHS	N
	Kabul	AFTN	N
	Kuwait	AMHS	N
	Tehran*(Not listed in the ANP AFTN Planning Table)*	AFTN	N
	Muscat	AFTN	N
Kathmandu	Beijing	AFTN	N
	Mumbai	AMHS	~~N~~Y
Kolkata	Mumbai	AFTN	N
	Delhi	AFTN	N
	Chennai	AFTN	N
Koro	USA	AMHS/UA	N
Kosrae	USA	AMHS/UA	N
Kuala Lumpur	Bangkok	AFTN	N
	Brunei	AFTN	N
	Singapore	AFTN	N
	~~Chennai Not in operation~~	~~AFTN~~	N
Macau	Guangzhou	AFTN	N
	Hong Kong	AMHS	N
Majuro	USA	AMHS/UA	N
Male	Colombo	AFTN	N
Manila	Hong Kong	AMHS	Y
	Ho Chi Minh	AFTN	N
	Singapore	AMHS	Y
	Taibei	AMHS	Y
	USA	AMHS	Y
Mumbai^	Bangkok	AMHS	~~N~~Y
	Dhaka	AMHS	N

Terminal 1 (^ - BBIS)	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
	Kolkata	AFTN	N
	Colombo	AMHS	N
	Delhi	AFTN	N
	Karachi	AMHS	N
	Kathmandu	AMHS	~~N~~Y
	Beijing	AMHS	~~N~~ Y
	Chennai	AFTN	N
	Muscat/Seeb	AMHS	N
	Nairobi	AFTN	N
	Paro	AMHS	~~N~~Y
	Singapore	AMHS	~~N~~Y
Nadi^	Brisbane	AMHS	Y
	Funafuti	AMHS/UA	N
	Noumea	AMHS	N
	Tarawa	AMHS/UA	N
	USA	AMHS	Y
	Wallis Is.	AMHS/UA	N
Nauru	Brisbane	AMHS/UA	N
Niue	Christchurch	Email	N
Noumea	Nadi	AMHS	N
Pago Pago	USA	AMHS/UA	N
Papeete/Tahiti	Christchurch	AFTN	N
Paro	Mumbai	AMHS	~~NY~~
	Bangkok	AMHS	N
Phnom Penh	Bangkok	AMHS	N
	Ho Chi Minh	AFTN	N
Pohnpei	USA	AMHS/UA	N
Port Moresby	Brisbane	AFTN	Y
Port Vila	Brisbane	AMHS/UA	N
Pyongyang	Beijing	AFTN	N
Rarotonga	Christchurch	AFTN	N
Salt Lake City^	Brisbane	AMHS	Y
	Christchurch	AMHS	Y
	Chuuk	AMHS UA	N
	Fukuoka	AMHS	Y
	Koro	AMHS UA	N
	Kosrae	AMHS UA	N

Terminal 1 (^ - BBIS)	Terminal II	ATSMHS or AFTN	Over CRV (Y/N)
	Majuro	AMHS UA	N
	Manila	AMHS	Y
	Nadi	AMHS	Y
	Pago Pago	AMHS UA	N
	Pohnpei	AMHS UA	N
	Yap	AMHS UA	N
Seoul	Beijing	AMHS	N
	Fukuoka	AFTN	N
Singapore^	Bangkok	AMHS	Y
	Bahrain	**AFTN**	N
	Brisbane	AMHS	Y
	Brunei	AFTN	N
	Colombo	AMHS	N
	Ho-Chi-Minh	AFTN	N
	Jakarta	AMHS	~~N~~Y
	Kuala Lumpur	AMHS	Y
	London	**AMHS**	N
	Manila	AMHS	Y
	Mumbai	AMHS	Y
	Fukuoka	AMHS	Y
Taibei	Hong Kong	AMHS	Y
	Manila	AMHS	Y
	Fukuoka	AMHS	Y
Tarawa	Nadi	AMHS/UA	N
Timor Leste	Brisbane	AMHS	N
Tonga/Fua'Amotu	Christchurch	AMHS/UA	N
UlaanBaatar	Beijing	AFTN	N
	Irkutsk	AFTN	N
Vientiane	Bangkok	AMHS	N
	Hanoi	AFTN	N
Wallist Is.	Nadi	(planning)	-
Yangon	Bangkok	AMHS	N
	Beijing	AFTN	N
Yap	USA	AMHS/UA	N

Note: Interregional connections are highlighted in yellow

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States with AMHS in Operation (Active AMHS Routing Directory found)		
State/Administration	**IWXXM Support**	**COM Centre with AMHS Routing**
Australia	Yes	YBBB - BRISBANE (FIR/FIC/ACC/COM/MET/NOF) - Australia
Bangladesh	-	VGHS - HAZRAT SHAHJALAL INTERNATIONAL AIRPORT, DHAKA - Bangladesh
Bhutan	-	VQPR - PARO, INTL - Bhutan
Cambodia	-	VDPP - PHNOM PENH - Cambodia
China	Yes	ZBBB - BEIJING CITY - China
	-	RCTP - TAIPEI/TAIWAN TAOYUAN INTERNATIONAL - China
Fiji	Yes	NFFN - NADI/INTL - Republic of Fiji
Hong Kong China	Yes	VHHH - HONG KONG/INTERNATIONAL - Hong Kong Special Administrative Region of China
India	Yes	VABB - CHHATRAPATI SHIVAJI INTL AIRPORT, MUMBAI - India
	-	VECC - NETAJI SUBHASH CHANDRA BOSE INTERNATIONAL AIRPORT, KOLKATA - India
Indonesia	-	WIII - JAKARTA/SOEKARNO-HATTA INTL - Indonesia
Japan	Yes	RJJJ - FUKUOKA/JCAB AIR TRAFFIC MANAGEMENT CENTRE, AFTN/AMHS COM CENTER - Japan
Lao PDR	-	VLVT - VIENTIANE(WATTAY) - Lao People's Democratic Republic (the)
Macao China	Yes	VMMC - MACAO/INTL AIRPORT - Macao Special Administrative Region of China
Malaysia	-	WMKK - KL INTERNATIONAL/SEPANG - Malaysia
Mongolia		ZMUB - ULAANBAATAR CHINGGIS KHAAN
Myanmar	-	VYYY - YANGON INTERNATIONAL - Myanmar, the Republic of the Union of
Nepal	-	VNKT - KATHMANDU - Federal Democratic Republic of Nepal
New Zealand	-	NZCH - CHRISTCHURCH INTL - New Zealand
Pakistan	-	OPKC - KARACHI/JIAP INT'L - Pakistan
Philippines	Yes	RPLL - NINOY AQUINO INTERNATIONAL AIRPORT, MANILA - Philippines
ROK	Yes	RKSS - GIMPO - Republic of Korea
Singapore	Yes	WSSS - SINGAPORE/SINGAPORE CHANGI INTL - Singapore
Sri Lanka	-	VCCC - RATMALANA/COLOMBO - Sri Lanka
Thailand	Yes	VTBB - BANGKOK (ACC/FIC/COM CENTRE) - Thailand
United States	Yes	KSLC - SALT LAKE CITY INTL - United States of America KATL - HARTSFIELD - JACKSON ATLANTA INTL - United States of America
Total: 24 States/Admins	*Total: 12 States/Admins*	

Source: ATS Messaging Routing Directory Part II

States without AMHS in Operation (AMHS Routing Not Found)		
Afghanistan		
Brunei Darussalam		
Cook Islands		
Democratic People's Republic of Korea		
Kiribati		
Maldives		
Marshall Islands		
Micronesia (Federated States of)		
~~Mongolia~~	ZMUB-UIII	AFTN
Nauru		
Palau		
Papua New Guinea		
Samoa		
Solomon Islands	AGGG-OOMS	AFTN
Timor Leste		
Tonga		
Tuvalu		
Vanuatu		
Viet Nam		
Total: 19 States		

Source: ATS Messaging Routing Directory Part II

Implementation Status of ATN/AMHS in the APAC Region

Extracted from ATN/AMHS/AIDC Implementation Table

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
AFGHANISTAN			
AUSTRALIA	AMHS over CRV with: Singapore, New Zealand, Fiji and USA AMHS over leased line with: South Africa AFTN over CRV with: PNG AFTN over leased line with: Indonesia Planning to migrate existing AFTN connections with Indonesia and PNG to AMHS over CRV (TBC, pending readiness both ends) Extended AMHS with FTBP in support of IWXXM exchange in operation since Nov. 2020.	Frequentis Comsoft	As per January 2024, Brisbane and Jakarta have updated their old AFTN over leased line, to AMHS over CRV.
BANGLADESH	In Q1/2013, Bangladesh installed ATN/AMHS and BIS Router at Dhaka (VGHS) with User Agents at Chittagong (VGEG) and Sylhet (VGSY).	COMSOFT	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
BHUTAN	ATN/AMHS circuits, using IP over VPN, with Thailand (Bangkok) and India (Mumbai) commissioned in June and July 2017 respectively. IOT and POT with Mumbai completed on 27th June 2017. IOT and POT with Thailand completed on 2nd May 2017. TMC signing with both countries signed.	AEROTHAI'S AMHS System	
BRUNEI DARUSSALAM	ATN BIS Router planned for 2015 and AMHS planned for 2015		
CAMBODIA	BIS Router and AMHS installed. Cambodia (CATS) AMHS connected with Bangkok via VSAT IP link since 10 December 2013	AVITECH	

CHINA	ATN Router and AMHS including NCC deployed in 2008 which is being upgraded to support ATN/IPS with target date of completion in December 2013 and upgraded to support IWXXM in 2020. Hong Kong China The Beijing-Hong Kong AMHS link was put into operation in 2018; CRV/AMHS circuit was put into operation in April 2021 Thailand Put into operation on 26th April 2018 protocol IP and plan to transition to CRV in April 2024.~~With Thailand was put into operation in Q12020~~ ~~Plan implement IOT and POT in 2022~~ Macau China AMHS/ATN technical tests with Macau completed in 2009. Plan for restarting ATN/AMHS test with Macao China in 2024.~~Plan for ATN/AMHS implementation with Macao China is TBD.~~ Korea Put into operation in 2010, protocol X.25 and transition to IP in Q4 2022 by CRV.~~ATN/AMHS circuit with ROK has been put into operation since June 2011.~~ ~~Completed CRV/AMHS IOT in 2021~~ ~~Plan implement POT in Q2 2022~~ India Put into operation on 27th June 2016, protocol X.25 and transition to IP in Q2 2023 by CRV.~~ATN/AMHS tests with India has been put into operation since 2016.~~ Mongolia Inter-Operability Test (IOT) and Pre-Operational Test (POT) with Mongolia was completed, plans to put into operation by CRV in 2024.~~ATN and AMHS IOT with Mongolia is completed in May 2018.~~ ~~Plan for commissioning after POT completion in 2021~~	IN-HOUSE (Aero-Info Technologies Co., Ltd)	IN-HOUSE (Aero-Info Technologies Co., Ltd)

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
	Nepal Plan to start test in 2024 by CRV.~~Connection tests with Nepal is TBD.~~ Japan Japan put into operation in 2021 protocol IP by CRV.~~AMHS testing with Japan was completed in March 2021.It will put into operation after TMC is signed.~~ ~~China have completed TMC signed and circuit put into operation in 2021~~ Russia Plan to continue IOT in 2024. Pakistan Plan to start test in 2024 by CRV. Vietnam Plan to start test in 2024 by CRV. ~~AMHS IOT with Russia in 2021.~~		

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
HONG KONG, CHINA	**Manila / Philippines** CRV/AMHS circuit was put into operation in May 2019. **Beijing / China** CRV/AMHS circuit was put into operation in April 2021 Macao / China ATN/AMHS circuit was put into operation in December 2009. Wait for Macao to join CRV. **Bangkok / Thailand** ATN/AMHS circuit was put into operation use in 2014. Wait for Thailand to join CRV. **Fukuoka / Japan** CRV/AMHS circuit was put into operation in September 2020. **HoChiMinh / Vietnam** Currently on AFTN. Simple AMHS IOT was conducted in Dec 2019. Wait for Vietnam to join CRV. **Taibei / China** CRV/AMHS circuit was put into operation in June 2020.	COMSOFT	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
MACAO, CHINA	ATN/AMHS interoperability test with Beijing commenced in March 2009. ATN/AMHS circuit with Hong Kong put into operational use in end Dec 2009. ~~Upgrade of ATN/AMHS to support IPS and IWXXM planned with tentative target date of Q2 2023.~~ Replacement of AMHS to support IPS and FTBP/IHE is in progress and the system installation is targeted to commence in the second half of 2024, in parallel with the CRV implementation of Macau International Airport.	Current System: COMSOFT	
COOK ISLANDS			
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	The ATN BIS Router and AMHS planned for in 2011.		

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
FIJI ISLANDS	ATN BBIS IPS router and AMHS implemented over CRV for connection to USA in April, 2019 with Australia planned for June, 2019. . For connections with sub-regional centers: For New Caledonia using AMHS since 2017; For connection with Kiribati using UA/AMHS implemented in 2015. Upgrade of AMHS to support the Extended ATS service with up to 4.0MB file size including FTBP. and IWXXM planned with tentative target date of Q2 2023.	COMSOFT	B2B connection between Nadi AMHS and Brisbane AMHS planned for Q3, 2022 as backup for CRV.
FRANCE *(French Polynesia Tahiti)*	Planned for implementation of AMHS in 2022 (T2). Using IP with New Zealand since 2017.	COMSOFT	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
INDIA	Dual stack ATN/IP router and AMHS implemented at Mumbai in 2011. Operational AMHS connections with Bangkok, Dhaka, Singapore, Kathmandu, Karachi implemented. With Beijing implemented in 2016; With Colombo implemented in May2017; With Bhutan implemented in July 2017; (IOT/POT) between Mumbai – Muscat is scheduled with mutual agreement between India & Oman between 0600-0900 UTC from 21.06.2021. Technical Memorandum of Cooperation (TMC) between Oman and India has been signed in Feb.-2022. As agreed mutually, Mumbai- Muscat AMHS circuit will be commissioned on 25/04/2022 at 0600UTC. Technical Memorandum of Cooperation (TMC) between Oman and India has been signed in Feb.-2022. As agreed mutually, Mumbai-Muscat AMHS circuit will be commissioned on 25/04/2022 at 0600UTC.	COMSOFT	INDIA
INDONESIA	~~ATN BIS Router and AMHS with Singapore implemented since February 2018;~~ ~~AMHS Trial (IOT) with Brisbane pending for CRV implementation.~~ AMHS between Jakarta with Singapore implemented AMHS to AMHS since mid December 2023 via CRV network AMHS between Jakarta with Brisbane implemented AMHS to AMHS since mid Januari 2024 via CRV network	IDS	~~For CRV, target of contract in 2Q2022 and implementation in 4Q2022.~~

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
JAPAN	ATN BBIS router and AMHS installed at **USA** in 2000. Connection tests with USA in 2000 - 2004 and put into operational use in 2005. ATN BBIS router (to apply to Dual Stack) and AMHS (to upgrade in 2015. The connection test with each country which is not currently connecting is started after update. Hong-Kong AMHS/FTBP over CRV was put into operation in September 2020. **Singapore** AMHS/FTBP over CRV was put into operation in December 2020. **Beijing/China** AMHS/FTBP over CRV was put into operation in March 2021. **Taipei/China** AMHS/FTBP over CRV was put into operation in March 2022. ~~**Incheon**~~**Seoul/Korea** AMHS/FTBP over CRV was put into operation in December 2022.~~Plan for AMHS/FTBP over CRV IOT in 4Q 2022~~	NEC	Japan and USA conducting testing AIDC over AMHS and cutover date is 5 May 2017.
KIRIBATI	Connection with Nadi using UA/AMHS implemented in 2015.		
LAO PDR	- ATN BIS Router and AMHS Implemented with Bangkok and Phnom Penh. - AFTN used with Hanoi and Kunming. - For Yangon we have no direct link the connection is used via Bangkok.	THALES	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
MALAYSIA	ATN BIS Router completed 2007. AMHS for Malaysia – Singapore implemented in March 2020. AMHS for Malaysia – Thailand implemented in Dec 2019.	FREQUENTIS	
MALDIVES	In the process of replacing the existing operational AFTN system by AMHS. It is expected to complete the installation before the end of 2019. With the new AMHS, it is planned to establish a new IP connection between an additional neighboring ATSU as the current link is an X.25 connection between Colombo. Also will look for the possibility of implementing the CRV network to use with AMHS and AIDC during the same phase.		
MARSHALL ISLANDS			
MICRONESIA (EDERATED STATES OF)			
Chuuk			
Kosrae			
Pohnpei			
Yap			

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
MONGOLIA	AMHS/AFTN gateway implemented 2012. ATNBIS router implemented in 2014. ATN and AMHS IOT with China was completed in May 2018. ATN and AMHS POT with China was completed in May 2019. Upgraded the AMHS system and purchased UA terminals in 2020, but it is not yet fully operational due to the Covid-19 pandemic situation. The AMHS system is planned to be fully operational in the fourth quarter of 2022.	COMSOFT	
MYANMAR	AMHS including AFTN/AMHS gateway implemented in Nov 2011. Connection with Thailand implemented in 4Q2016. Planned for AMHS connection with Beijing. Target date TBC.	THALES	AMHS including AFTN/AMHS gateway implemented in Nov 2011. Connection with Thailand implemented in 4Q2016. Planned for AMHS connection with Beijing. Target date TBC.
NAURU			
NEPAL	AFTN/AMHS Gateway implemented in 2012. AMHS implemented with India since June 2014. AFTN connection with China. Plan to test AMHS connection soon.	COMSOFT	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
NEW CALEDONIA	New router and AMHS commissioned December 2016	COMSOFT	
NEW ZEALAND	An AMHS connection with the USA over CRV was implemented in April 2019. The AFTN connection to Australia was moved to CRV in June 2019. The AFTN connection to Australia over CRV was replaced with an AMHS connection over CRV in September 2020 Work to provide an AMHS connection over CRV between Bhutan and New Zealand as a temporary solution for their usage of CRV (pending Thailand and India connecting to CRV) is ongoing (April-2022).	Frequentis Comsoft	
PAKISTAN	ATN/AMHS connections with Mumbai and Kuwait since 2015 and 2018 respectively. AMHS connection with Beijing, Kabul, Tehran and Muscat will be provided after up gradation of existing AMHS at Karachi which is already in progress.	Existing COMSOFT After up gradation ISD	
PAPUA NEW GUINEA	Currently AFTN over IP. AMHS implementation is planned for after successful implementation of CRV this year. AMHS implementation planned for 2020.	COMSOFT is the supplier of PNG AFTN/AMHS system	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
PHILIPPINES	ATN/AMHS Boundary Intermediate System was installed at the new Manila CNS/ATM Center; • Site Acceptance, Oct. 2015 • Commissioned & operational, March 2018 AMHS implementation over CRV with the following adjacent FIR's; • **HONG KONG** - May 2019 • **TAIPEI** - Sept. 2019 • **SINGAPORE** - Dec. 2020 • **OAKLAND** - April 2021	**Frequentis - Comsoft**	The New ATN/AMHS of Manila CNS/ATM center has been in domestic operations since March 2018. And with the implementation of CRV, AMHS connection has been implemented with the following adjacent FIR's; **-HONG KONG** **-TAIPEI** **-SINGAPORE** **-OAKLAND**
REPUBLIC OF KOREA	Plan to upgrade AMHS supporting IWXXM from 2022 over CRV 1) AMHS/CRV IOT with China and Japan in 4Q of 2021 2) AMHS/CRV POT with China on July 2022, and with Japan in 4Q 2022 3) Cutover to CRV with China and Japan in 4Q 2022 4) Implementation of AMHS/CRV with China and Japan in 4Q 2022	FREQUENTIS	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
SINGAPORE	AMHS implemented with: 1) AMHS circuit with India put into operational use in Mar 2011. 2) AMHS circuit with UK put into operational use in Mar 2012. 3) AMHS circuit with Thailand put into operational use in Dec 2014. 4) AMHS circuit with Australia put into operational use in Oct 2016. 5) AMHS circuit with Indonesia put into operational use in Feb 2018. 6) AMHS circuit with Malaysia put into operational in Mar 2020. 7) AMHS circuit with Japan put into operational in Dec 2020. 8) AMHS circuit with Philippines put into operational in Dec 2020 ~~8)~~9) AMHS circuit with Sri Lanka put into operational in May 2022. Inter-Operability Test (IOT) with Vietnam ~~and Sri Lanka~~ started in 2019 ~~and 2022 respectively~~. IOT with Bahrain and Brunei to be confirmed.	FREQUENTIS COMSOFT	
SRI LANKA	ATN BIS Router Planned for 2013. IP based AMHS implemented by Oct. 2017. - Mumbai tested May 2017 operational planned for Q4 2017; - Singapore testing in Q4 2017 operational for 2018; - Male testing and operational date TBD.	IDS	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
THAILAND	~~BBIS/BIS Routers already implemented.~~ AMHS has been implemented since July 2011. Connection with Bangladesh, Cambodia, China, Lao PDR, Myanmar, Italy and SITA AMHS implementation over CRV with the following: Bhutan -July 2022 Hong Kong China -August 2022 Singapore – September 2022 Malaysia - January 2023 India – February 2023 Bangkok - Vietnam Over CRV planned for 4Q2024 ~~Connection with Bangladesh, Bhutan, Cambodia, China, India, Lao PDR, Myanmar, Singapore, Hong Kong China, Malaysia and Rome implemented.~~ ~~Bangkok – Vietnam Circuit~~ ~~Commissioning: Planned for end of 3Q2022~~ ~~Connection with SITA (SITA AMHS Gateway inter-connections) implemented.~~	AEROTHAI's AMHS System	
TONGA	AMHS planned for 2008. The provider is linked to the New Zealand AFTN		CPDLC and ADS-C is not considered for lower airspace

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	Remarks
UNITED STATES	- Australia - Fiji - New Zealand - Japan - Philippines - Indonesia (2023)	IN-HOUSE	
VANUATU			
VIET NAM	AMHS (basic) implemented from 4Q/2018. Plan AMHS extended from Q4 2022 IOT with Singapore from 10/2019 to 8/2020 IOT with Hong Kong 12/2019 IOT with Thailand 6/2020, POT 8/2020.	IN-HOUSE	
Wallis and Futuna (FRANCE)	AMHS implementation planned for end of 2017		

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**TABLE OF ATS INTER-FACILITY DATA COMMUNICATION (AIDC)
IMPLEMENTATION STATUS IN APAC REGION**

Explanation of the Table

Column	Element	Explanation	Reason
1	State/Administration	Name of the State/Administration	
2	AIDC Implementation Status (Implemented or not)	AIDC has been implemented in the State/Administration or not (States have the technical capability implemented and at least one bilateral connection with adjacent ATS units in operational use will be regarded as implemented)	
3	Location of AIDC System ATSU1	the location of the AIDC end system under the supervision of State/Administration identified in column 1	
4	ATM Automation System	Make/Model of the ATM automation system used in this ATSU	
5	ATSU2 /Correspondent State/Administration – the correspondent AIDC System	ATSU2 – location of the correspondent AIDC end system Correspondent State/Administration – the name of the State/Administration responsible for management of the correspondent AIDC end system A "/" is placed between the ATSU2 and State/Administration	
6	Intraregional/Interregional	the connection is intraregional (inside APAC) or interregional	
7	Transmission Means	the transmission means used for the AIDC messages exchanged between the corresponding AIDC pair, AFTN, AMHS, etc.	The carriage of AIDC messages is facilitated through existing communication network (e.g. AFTN, AMHS, etc.). The type of network that will be used for AIDC message exchange will need to be defined, including the appropriate recovery/ contingency actions that will be adopted in abnormal situations
8	Frequency of Use (days in a week)	days of AIDC used in a week	to indicate how frequently the AIDC interface has been used
9	Main/Backup Circuit	the circuit is main or backup AIDC connection	if there is two circuits between the two ATSUs, it's better to identify which is main or backup
10	Communication Signal Speed	the communication signal speed for the AIDC messages exchanged (bps)	According to Pan Regional Interface Control Document (PAN ICD) for ATS Inter-facility Data Communications (AIDC) chapter 3.3.2.3, the communication signal speed between ATS systems using AFTN/AMHS should be greater than 2400 bps
11	Average Transmission Delay (One Trip Time Seconds)	the average transmission delay for exchanging AIDC messages	According to Pan Regional Interface Control Document (PAN ICD) for ATS Inter-facility Data Communications (AIDC), Average Transmission Delay (seconds) will influence the AIDC performance. In order to effectively use the AIDC application for the interchange of ATC coordination data, ATSUs should monitor the performance of the communication links to ensure the required performance is achieved. This monitoring should measure the latency of the AIDC message traffic between ATS systems in terms of the time measured between message transmission at the originating ATS system and receipt of the message at the receiving ATS system. The performance of the communications links should be such that 95% of all messages should be received within 12 seconds of transmission and 99.9% of all messages should be received within 30 seconds of transmission. In bilateral agreements, ATSUs, may agree on different performance requirements
12	Implementation Date or Target Date	date of implementation of the AIDC end system in the form of xQyyyy(quarter year), MON yyyy (Month) or yyyy	
13	Interface Status	the AIDC interface status, including Operational (already implemented), Testing (under progressing), Planned (under plan), No plan	
14	Interface Protocol /Version (OLDI or AIDC Version)	the AIDC service between the corresponding ATSUs	to show which AIDC version used and supported between two ATSUs and refer to Reason under Item 15

TABLE OF ATS INTER-FACILITY DATA COMMUNICATION (AIDC) IMPLEMENTATION STATUS IN APAC REGION			
Explanation of the Table			
15	List of AIDC Messages Applicable between the Two ATSUs	the AIDC messages can be exchanged between the two ATSUs, including ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC; TRU, EMG, MIS, TDM, ASM, FAN, FCN; ADS	According to Asia/Pacific Seamless ANS Plan V3.0, PASL Phase II (expected implementation by 07 November 2019) and APANPIRG/24 CONCLUSION 24/16, ATS systems should enable AIDC (version 3 or later), or an alternative process that achieves at least the same level of performance as AIDC, between en-route ATC units and terminal ATC units where transfers of control are conducted consistent with FICE-B0/1, unless alternate means of automated communication of ATM system track and flight plan data are employed (Priority 1). As far as practicable, the following AIDC messages types should be implemented: • Advanced Boundary Information (ABI); • Coordinate Estimate (EST); • Acceptance (ACP); • TOC; and • Assumption of Control (AOC). Note: States should note the necessity to utilise Logical Acknowledgement Message processing (LAM) when implementing AIDC
16	Coordination by CDN or Voice	the method used in coordination phase	to show if the AIDC process a totally automatic or not
17	Automatic or Manual EST	the EST is sent out automatically or manually	to evaluate the automatic level of AIDC
18	A Warning Message to Controller in Case of AIDC Failure	the warning message for AIDC failure is capable or not	According to Pan Regional Interface Control Document (PAN ICD) for ATS Interfacility Data Communications (AIDC), failure to receive an operational response within timeout period Top should result in a warning message being displayed to the controller. Non receipt of a response to an ASM may indicate either a communication link failure or an ATC system failure. If an ATSU that has sent an ASM message does not receive an application response within a specified time, a warning message should be displayed at an appropriate position so that local contingency procedures can be executed
19	Remarks	any additional information describing the AIDC connection, including issues faced if any, mitigation, and limitation	

Table of AIDC Implementation Status in APAC

State/Administration	AIDC Implementation Status(Implemented or not)	Location of AIDC System ATSU1	ATM Automation System (Make/Model)	ATSU2 /Correspondent State – Administration	Intraregional/Interregional	Transmission Means	Frequency of Use(days in a week)	Main/Back up Circuit	Communication Signal Speed (bps)	Average Transimission Delay (One Trip Time in Seconds)	Implementation Date or Target Date as MON yyyy or xQyyyy	Interface Status (Operational, Testing, Planned, No plan)	Interface Protocol / Version (OLDI or AIDC Version)	List of AIDC Messages Applicable between the Two ATSUs (ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC; TRU, EMG, MIS, TDM, ASM, FAN, FCN; ADS)	Coordination by CDN or Voice	Automatic or Manual EST	A Warning Message to Controller in Case of AIDC Failure	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
AFGHANISTAN	**non-implemented**	Kabul ACC		Kabul ACC /Afghanistan	Intraregional	AMHS												
				Karachi ACC/Pakistan	Intraregional	AFTN												
AUSTRALIA	**Implemented**	Brisbane ACC	Thales ATM system	Oakland ARTCC /USA	Interregional	AFTN	7					Operational	ICD V.X.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, CDN, REJ, MAC, CPL	CDN	Automatic	yes	Up- and down conversion of AMHS and AFTN required as connection between Australian ATM system and national Message Transfer Agent is X25/AFTN.
				Auckland ACC /New Zealand	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, CDN, REJ, MAC, CPL, PAC	CDN	Automatic	yes	
				Melbourne ACC /Australia	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, ACP, AOC, EST, LAM, LRM, MAC, PAC, TOC	Voice	Automatic	yes	
				Ujung Pandang ACC /Indonesia	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, ACP, AOC, EST, LAM, LRM, MAC, TOC	Voice	Automatic	yes	
				Nadi ACC /Fiji	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, CDN, REJ, MAC, CPL, PAC	CDN	Automatic		
				Port Moresby/PNG	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
		Melbourne ACC	Thales ATM system	Brisbane ACC /Australia	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, ACP, AOC, EST, LAM, LRM, MAC, PAC, TOC	Voice	Automatic	yes	
				Colombo ACC / Sri Lanka	Intraregional	AFTN	N/A					No plan		N/A				
				Jakarta ACC /Indonesia	Intraregional	AFTN	N/A					No plan		N/A				
				Johannesburg ACC / South Africa	Interregional	AFTN	7					Operational	ICD V.X.0	EST, ACP, LAM, LRM	Voice	Automatic	yes	
				Male ACC / Maldives	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, ACP, EST, LAM, LRM	Voice	Automatic	yes	
				Mauritius ACC /Mauritius	Interregional	AFTN	7					Operational	ICD V.X.0	ABI, ACP, AOC, CPL, EST, LAM, PAC, TOC, LRM	Voice	Automatic	yes	
				Auckland ACC /New Zealand	Intraregional	AFTN	7					Operational	ICD V.X.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
BANGLADESH	non-implemented	Dhaka ACC		Kolkata ACC /India	Intraregional	AMHS					4Q2023							Implementation of AIDC is included in the "Modernization of CNS-ATM System of CAAB" project which is going on G2G agreement with French Government and likely to be implemented by the end of 2023.
				Yangon ACC /Myanmar	Intraregional	AMHS					4Q2023		ICD V.2.0					
BHUTAN	non-implemented											No plan						Currently not applicable. If required in the future, will decide after CRV implementation.
BRUNEI DARUSSALAM	non-implemented																	
CAMBODIA	Implemented	Phnom Penh ACC	THALES	Bangkok ACC /Thailand	Intraregional	AMHS	7	Main	64000		Oct 2020	Operational	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Vientiane ACC/Laos PDR	Intraregional	AMHS	7	Main	5Mbps		Jan 2020	Operational	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Ho Chi Minh ACC/Viet Nam	Intraregional	AFTN						Testing	ICD V.1.0	EST, ACP, TOC, AOC, LRM, LAM				Technical Trial was completed
		Beijing ACC	THALES	Ulaanbaatar ACC/Mongolia	Interregional	AFTN					Dec 2023	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	
		Harbin ACC	AirNet	Khabarovsk/Russia	Intraregional						Dec 2024	Planned						
		Sanya ACC	NUMEN	Hong Kong ACC / Hong Kong, China	Intraregional	AFTN					Dec 2007	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	
				Hanoi ACC/Vietnam	Intraregional	AFTN					Jun 2024	Testing		EST, ACP, TOC, AOC, LRM, LAM				
				Ho Chi Minh ACC /Vietnam	Intraregional	AFTN					Dec 2023	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	
		Kunming ACC	NUMEN	Vientiane ACC/Laos PDR	Interregional						Jan 2021	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	
				Yangon ACC /Myanmar	Intraregional	AFTN						Testing		EST, ACP, TOC, AOC, LRM, LAM				
		Lanzhou ACC	NUMEN	Ulaanbaatar ACC/Mongolia	Intraregional	AFTN					Dec 2023	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
CHINA	Implemented	Lhasa ACC		Kathmandu ACC/Nepal	Interregional	AFTN												
		Guangzhou ACC	THALES	Taibei ACC /China	Intraregional						Jan 2013	Cancel	ICD V.3.0	EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	
				Hong Kong ACC / Hong Kong, China	Intraregional	AFTN					May 2018	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	
		Taibei ACC		Hong Kong ACC / Hong Kong, China	Intraregional	AFTN						Operational	ICD V.3.0					
				Fukuoka ATMC/Japan	Interregional	AFTN						Operational						
				Manila ACC/Philippines	Interregional	AFTN												
		Shenyang ACC	NUMEN	Khabarovsk/Russia	Interregional						Oct 2019	Operational	OLDI	ABI, ACT, MAC, HOP, ACP, LAM, and LRM		Automatic	yes	
		Urumqi ACC	NUMEN	Lahore ACC /Pakistan	Intraregional	AMHS					Jun 2024	Testing						
			NUMEN	Bishkek ACC/Kyrgyzstan	Intraregional						Dec 2024	Planned						
		Nanning ACC	NUMEN	Hanoi ACC/Vietnam	Intraregional	AMHS					Dec 2023	Operational						
		Dalian ACC	NUMEN	Incheon ACC /Republic of Korea	Interregional						Oct 2016	Operational	ICD V.3.0 (trial opera	ABI, EST, ACP, TOC, AOC, LRM, LAM		Automatic	yes	
			NUMEN	Khabarovsk/Russia	Intraregional						Dec 2024	Planned						
		Shanghai ACC	NUMEN	Taibei ACC /China	Intraregional						Jan 2013	Operational	ICD V.3.0	LAM		Automatic	yes	
HONG KONG, CHINA	Implemented	Hong Kong ACC	Raytheon ATM system	Guangzhou ACC /China	Intraregional	AFTN	7	Main	2400	4	May 2018	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Sanya ACC /China	Intraregional	AFTN	7	Main	2400	4	Feb 2007	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Manila ACC /Philippines	Intraregional	AMHS	7	Main	up to 2M on C	1	May 2019	Operational	ICD V.3.0	EST, ACP, LAM, LRM	Voice	Automatic	yes	
				Taibei ACC /China	Intraregional	AMHS	7	Main	up to 2M on C	1	Nov 2012	Operational	ICD V.3.0	EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
MACAO, CHINA	non-implemented	Macao ATZ										No plan						
COOK ISLANDS	non-implemented																	
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	non-implemented											Planned						
FIJI	Implemented	Nadi ACC	Adacel ATM system	Auckland ACC /New Zealand	Intraregional	AFTN						Operational	ICD V. 2.0	ABI, EST, ACP, TOC, AOC, CDN, CPL				
				Brisbane ACC /Australia	Intraregional	AFTN						Operational	ICD V.1.0	ABI, EST, ACP, TOC, AOC, CDN, CPL				
				Oakland ARTCC /USA	Intraregional	AFTN						Operational	ICD V. 2.0	ABI, EST, ACP, TOC, AOC, CDN, CPL				
FRANCE FRENCH POLYNESIA, NEW CALEDONIA	Implemented	Papeete ACC	THALES EUROCAT	Auckland ACC /New Zealand	Intraregional	AFTN					2009	Operational	ICD V.3.0					
				Oakland ARTCC /USA	Intraregional	AFTN					2009	Operational	ICD V.3.0					
INDIA	Implemented	Ahmedabad ACC	INDRA Aircon 2100	Karachi ACC /Pakistan	Intraregional	AFTN						Testing		ABI, EST				
		Chennai ACC	Raytheon Auto track-III +	Colombo ACC / Sri Lanka	Intraregional	AMHS					4Q2018	Planned						
				Jakarta ACC /Indonesia	Intraregional	AFTN					4Q2019	Planned						
				Kuala Lumpur ACC / Malaysia	Intraregional	AFTN					Jan 2021	Operational	ICD V.3.0	ABI, EST, TOC, AOC	Voice			
				Male ACC /Maldives	Intraregional	AFTN					Sep 2021	Operational						
				Yangon ACC /Myanmar	Intraregional	AFTN						Testing	ICD V.2.0					
		Delhi ACC	INDRA Aircon	Karachi ACC /Pakistan	Intraregional	AFTN					1Q2019	No plan						
				Lahore ACC /Pakistan	Intraregional	AFTN						Testing						
		Kolkata ACC	INDRA Aircon	Dhaka ACC /Bangladesh	Intraregional	AMHS					4Q2018	Planned						
				Yangon ACC /Myanmar	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Kathmandu ACC /Nepal	Intraregional	AFTN												
		Mumbai ACC	Raytheon Auto track-III	Karachi ACC /Pakistan	Intraregional	AMHS					1Q2019	Planned						
				Male ACC /Maldives	Intraregional	AFTN					Nov 2021	Operational						
				Mogadishu ACC/Somalia	Interregional							Testing						
				Muscat ACC /Oman	Interregional	AFTN						Testing						

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
				Seychelles ACC / Mauritius	Interregional	AFTN												
		Trivandrum ACC	INDRA Aircon 2100	Male ACC/Maldives	Intraregional	AFTN					3Q2018							
		Varanasi ACC	INDRA Aircon 2100	Kathmandu ACC /Nepal	Intraregional	AFTN						Planned						
INDONESIA	Implemented	Jakarta ACC		Melbourne/Australia	Intraregional	AFTN					2025	Testing						
				Colombo ACC/Srilanka	Intraregional	AFTN					2024	Testing						
				SingaporeACC/Singapore	Intraregional	AFTN					2025	Testing	ICD V.3.0					
				Kuala Lumpur ACC/Malaysia	Intraregional	AFTN					2026	Testing	ICD V.3.0					
				Kota Kinabalu ACC/Malaysia	Intraregional	AFTN					2026	Testing						
		Ujung Pandang ACC		Brisbane ACC/ Australia	Intraregional	AMHS	7	Main	9600		Jul-27	Operational	ICD V.3.0	ABI,EST,ACP,TOC,AOC,LAM,LRM	Voice	Automatic	Yes	
				Oakland ARTCC/USA	Intraregional	AMHS	7	Main	9600		2Q 2023	Planned	ICD V.3.0	ABI,EST,ACP,TOC,AOC,LAM,LRM	CDN	Automatic	Yes	
				Por Moresby ACC/PNG	Intraregional	AFTN	7	Main	9600		2Q 2021		ICD V.3.0	ABI,EST,ACP,TOC,AOC,LAM,LRM	Voice	Automatic	Yes	
				Kota Kinabalu ACC/Malaysia	Intraregional	AFTN	7	Main	9600			Operational	ICD V.3.0	ABI,EST,ACP,TOC,AOC,LAM,LRM	Voice	Automatic	Yes	
				Jakarta ACC/Indonesia	Intraregional	AFTN	7	Main	19200		3Q 2022	Testing	ICD V.3.0	ABI,EST,ACP,TOC,AOC,LAM,LRM	Voice	Automatic	Yes	
				Manila ACC/Philippines	Intraregional	AMHS	7	Main	9600		4Q 2020	Testing	ICD V.3.0	ABI,EST,ACP,TOC,AOC,LAM,LRM	Voice	Automatic	Yes	
JAPAN	Implemented	Fukuoka ATMC	JCAB/ADEX-19	Manila ACC /Philippines	Intraregional							Planned						
				Anchorage ACC /USA	Intraregional	AMHS	7	Main	64000		2005	Operational	ICD V.2.0		CDN	Automatic	yes	
				Incheon ACC /Republic of Korea	Intraregional		7	Main	64000		Jun 2009	Operational	ICD V.1.0	EST,ACP,TOC,AOC,LAM,LRM,CPL	CDN	Automatic	yes	
				Oakland ARTCC /USA	Intraregional	AMHS	7	Main	64000		May 2017	Operational	ICD V.2.0		CDN	Automatic	yes	
				Shanghai ACC /China	Intraregional	AFTN						Planned						
				Taibei ACC / China	Intraregional		7	Main	64000		2012	Operational	ICD V.3.0	ABI,EST,ACP,LAM,LRM,MAC	CDN	Automatic	yes	
		Tokyo ACC	JCAB/ADEX-19	Incheon ACC /Republic of Korea	Intraregional		7	Main	64000		2010	Operational	ICD V1.0	EST,ACP,TOC,AOC,LAM,LRM,CPL	CDN	Automatic	yes	
		Kobe ACC	JCAB/ADEX-19	Incheon ACC /Republic of Korea	Intraregional	AFTN	7	Main	64000		2012	Operational	ICD V.3.0					
JAPAN	Implemented	Fukuoka ATMC	NEC	Manila ACC /Philippines	Intraregional	AFTN						Planned						
				Anchorage ACC /USA	Intraregional	AMHS	7	Main	64000		2005	Operational	ICD V.2.0		CDN	Automatic	yes	
				Incheon ACC /Republic of Korea	Intraregional	AFTN	7	Main	64000		Jun 2009	Operational	ICD V.1.0	EST,ACP,TOC,AOC,LAM,LRM,CPL	CDN	Automatic	yes	
				Oakland ARTCC /USA	Intraregional	AMHS	7	Main	64000		May 2017	Operational	ICD V.2.0		CDN	Automatic	yes	
				Taibei ACC / China	Intraregional	AFTN	7	Main	64000		2012	Operational	ICD V.3.0	ABI,EST,ACP,LAM,LRM,MAC	CDN	Automatic	yes	
		Tokyo ACC	NEC	Incheon ACC /Republic of Korea	Intraregional		7	Main	64000		2010	Operational	ICD V1.0	EST,ACP,TOC,AOC,LAM,LRM,CPL	CDN	Automatic	yes	
		Kobe ACC	NEC	Incheon ACC /Republic of Korea	Intraregional	AFTN	7	Main	64000		2012	Operational	ICD V.3.0					
KIRIBATI	non-implemented																	
LAO PEOPLE'S DEMOCRATIC REPUBLIC	Implemented	Vientiane ACC	THALES TOPSKY (EUROCAT-C)	Bangkok ACC /Thailand	Intraregional	AMHS	7	Main	9600		14-Jul-20	Operational	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	CDN	Automatic	no	
				Hanoi ACC /Veitnam	Intraregional	AFTN	7	Main	9600		2Q2023	Planned	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM				
				Phnom Penh ACC /Cambodia	Intraregional	AFTN	7	Main	9600		2-Jan-20	Operational	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	CDN	Automatic	no	
				Yangoon/ Myanmar	Intraregional	AFTN	7	Main	9600		4Q2023	Planned	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM				
				Kunming ACC /China	Intraregional	AFTN	7	Main	9600		1Q2023	Testing	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	CDN	Automatic	no	
				Ho Chi Minh/ Vietnam	Intraregional	AFTN	7	Main	9600		3Q2023	Planned	ICD V.2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM				
		Kuala Lumpur ACC	LEONARDO	Bangkok ACC /Thailand	Intraregional	AMHS	7	Main	9600	7	Mar 2020	Operational	ICD V.3.0	EST, ACP, LAM, LRM	Voice	Automatic	yes	
				Singapore ACC /Singapore	Intraregional	AMHS	7	Main	9600	7	Nov 2019	Operational	ICD V.3.0	EST, ACP, LAM, LRM	Voice	Automatic	yes	
				Chennai ACC /India	Intraregional	AMHS	7	Main	9600	7	Apr 2020	Operational	ICD V.3.0	ABI, EST, ACP, LAM, LRM, CDN, REJ,MAC,TOC,AOC	CDN	Automatic	yes	
				Ho Chi Minh ACC /Vietnam	Intraregional	AMHS	7	Main	TBA	TBA	3Q2024	Planned	ICD V.3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
MALAYSIA	Implemented			Jakarta ACC /Indonesia	Intraregional	AMHS	7	Main	TBA	TBA	3Q2024	Planned	ICD V.3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	
		Kota Kinabalu ACC	THALES	Ujung Pandang ACC /Indonesia	Intraregional	AMHS	7	Main	TBA	TBA	2Q2024	Planned	ICD V.3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	
				Manila ACC /Philippines	Intraregional	AMHS	7	Main	TBA	TBA	3Q2024	Planned	ICD V.3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	
				Singapore ACC /Singapore	Intraregional	AMHS	7	Main	9600	1	Jul 2021	Operational	ICD V.3.0	EST, ACP, LAM, LRM	Voice	Automatic	yes	
											2Q2024	Planned	ICD V.3.0	TOC, AOC	Voice	Automatic	yes	
				Jakarta ACC /Indonesia	Intraregional	AMHS	7	Main	TBA	TBA	3Q2024	Planned	ICD V.3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	
		Kuching ACC	THALES	Singapore ACC /Singapore	Intraregional	AMHS	7	Main	9600	1	Feb 2021	Operational	ICD V.3.0	EST, ACP, LAM, LRM	Voice	Automatic	yes	
											2Q2024	Planned	ICD V.3.0	TOC, AOC	Voice	Automatic	yes	
				Jakarta ACC /Indonesia	Intraregional	AMHS	7	Main	TBA	TBA	3Q2024	Planned	ICD V.3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	
MALDIVES	Implemented	Male ACC	LEONARDO	Mumbai ACC / India	Intraregional	AFTN	7	Main			3Q2021	Operational	ICD V.3.0	ABI, EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	
				Chennai ACC /India	Intraregional	AFTN	7	Main			3Q2021	Operational	ICD V.3.0	ABI, EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic		
				Mauritius ACC/Mauritius	Interregional	AFTN						No plan						
				Melbourne ACC /Australia	Intraregional	AFTN	7	Main			TBA	Testing	ICD V.3.0		Voice			
				Colombo ACC/Sri Lanka	Intraregional	AFTN		Main	64K		TBA	Testing	ICD V.3.0		Voice			Colombo AIDC connection temporarily disabled due to request from VCCC
				Trivandrum ACC/India	Intraregional	AFTN	7	Main			3Q2021	Operational	ICD V.3.0	ABI, EST, ACP, LAM, LRM, TOC, AOC	Voice			
MARSHALL ISLANDS	non-implemented																	
MICRONESIA (FEDERATED STATE OF)	non-implemented																	
MONGOLIA	Implemented	Ulaanbaatar ACC	INDRA Aircon-2100	Irkutsk ACC/Russia	Interregional	FMTP	7	Main/Backup	4800	Less than a second	2Q2017	Operational	OLDI Ver. 4.2	ABI, ACT, LAM, REV, PAC, MAC		Auto		
				Krasnoyarsk ACC/Russia	Interregional	FMTP	7	Main/Backup	4800	Less than a second	4Q2018	Operational	OLDI Ver. 4.3	ABI, ACT, LAM, REV, PAC, MAC		Auto		
				Beijing ACC/China	Intraregional	Dedicated line	7	Main/Backup	4800	6	4Q2023	Testing	ICD V.3.0	EST, ACP, TOC, AOC, LAM, LRM, PAC, MAC		Auto		
				Lanzhou ACC/China	Intraregional	Dedicated line	7	Main/Backup	4800	7.4	4Q2023	Testing	ICD V.3.0	EST, ACP, TOC, AOC, LAM, LRM, PAC, MAC		Auto		
MYANMAR	Testing	Yangon ACC	THALES Automation system (Topsky ATC)	Bangkok ACC /Thailand	Intraregional	AMHS					4Q2020	Testing	ICD V.2.0					
				Kolkata ACC /India	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					Existing ATM system are likely to be upgraded in Lahore and Karachi ACC.
				Chennai ACC /India	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Kunming ACC /China	Intraregional	AFTN						Testing	ICD V.2.0					
				Vientianne ACC /Lao PDR	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Dhaka ACC /Bangladesh	Intraregional	AFTN					4Q2018		ICD V.2.0					
NAURU	non-implemented																	
NEPAL	non-implemented	Kathmandu ACC	ATM system from NEC	Kolkata ACC /India	Intraregional	AFTN												
				Varanasi ACC/India	Intraregional	AFTN												
				Lhasa ACC /China	Intraregional	AFTN												
				Brisbane ACC /Australia	Intraregional	AFTN	7	Backup				Operational		ABI, CDN, EST, PAC, ACP, REJ, MAC, MIS, TOC, AOC, LAM, LRM	CDN	Automatic		
						AMHS	7	Main	IP?	1.5		Operational		ABI, CDN, EST, PAC, ACP, REJ, MAC, MIS, TOC, AOC, LAM, LRM	CDN	Automatic		
				Nadi ACC /Fiji	Intraregional	AFTN	7	Backup				Operational		ABI, CPL, CDN, PAC, ACP, REJ, MAC, MIS, TOC, AOC, LAM, LRM	CDN	Automatic		

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NEW ZEALAND	Implemented	Auckland ACC	ADACEL OCS (Oceanic Control System)	Nadi ACC /Fiji	Intraregional	AMHS	7	Main	IP?	1		Operational		ABI, CPL, CDN, PAC, ACP, REJ, MAC, MIS, TOC, AOC, LAM, LRM	CDN	Automatic		
				Oakland ARTCC /USA	Intraregional	AFTN	7	Backup				Operational		ABI, CPL, CDN, PAC, ACP, REJ, MAC, MIS, LAM, LRM	CDN	Automatic		
						AMHS	7	Main	IP?	1		Operational		ABI, CPL, CDN, PAC, ACP, REJ, MAC, MIS, LAM, LRM	CDN	Automatic		
				Papeete ACC /French Polynesia	Intraregional	AFTN	7	Main	64k	5		Operational		ABI, CPL, CDN, PAC, ACP, REJ, MAC, MIS, TOC, AOC, LAM, LRM	CDN	Automatic		
				Chile	Interregional	AFTN	7	Backup				Operational		EST, ACP	Voice	Automatic		
						AMHS	7	Main	IP/??			Operational		EST, ACP	Voice	Automatic		
PAKISTAN	Testing	Karachi ACC	Indra AIRCON 2100	Mumbai ACC /India	Intraregional	AMHS	7	Main	128 & 64Kbps		Jun 2025	Testing	ICD Version 2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	*Trial run carried out between Karachi and Ahmedabad. Partial connectivity between both systems is observed and Some issues regarding the auto acceptance of EST messages in Karachi ATM need to be addressed *Trial run between Karachi and Mumbai was remained unsuccessful due to integration problems. * Trial run carried out between Lahore and Delhi ACCs in March 2021. Delhi ATM system rejects the ABI messages due to adding double space in FPL by Lahore ATM system (East bound Flights). Lahore ATM does not genenerate ACP message in responce to ABI message sent by Delhi ATM system (West Bound) Note :- Due to restructuring of Karachi ACC and Lahore ACC no need to AIDC testing /requirement between Karachi ACC and Delhi ACC. .*AIDC is not fully functional with neighbouring FIRs due to difference in AIDC version. AIDC will be fully functional up to June, 2025 after replacement of ATM System at Karachi & Lahore ACCs.
				Muscat ACC /Oman	Interregional	AFTN	7	Main	64Kbps		Jun 2025	No Plan	ICD Version 2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
				Tehran ACC /Iran	Interregional	AFTN	7	Main	1 Mbps		Jun 2025	No Plan	ICD Version 2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
				Ahmadabad ACC /India	Intraregional	AMHS	7	Main	Via Mumbai AMHS		Jun 2025	Testing	ICD Version 2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
				Kabul ACC /Afghanistan	Intraregional	AFTN	7	Main	1Mbps		Jun 2025	No Plan	ICD Version 2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
		Lahore ACC	Indra AIRCON 2100	Delhi ACC /India	Intraregional	AMHS	7	Main	VIA Mumbai AHMS		Jun 2025	Testing	ICD Version 2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
				Kabul ACC /Afghanistan	Intraregional	AFTN	7	Main	1 Mbps via Karachi AMHS		Jun 2025	No Plan	ICD Version 2.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
		Islamabad ACC	Si ATM	Kabul ACC /Afghanistan	Intraregional	AFTN	7	Main	1 Mbps via Karachi AMHS			No Plan	ICD Version 3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
				Urumqui ACC /China	Intraregional	AFTN	7	Main	Via Beijing AFTN			No Plan	ICD Version 3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
				Tajakistan ACC /Tajakistan	Interregional	AFTN	7	Main	Via Tehran AFTN			No Plan	ICD Version 3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	Voice	Automatic	Yes	
PALAU	non-implemented																	
PAPUA NEW GUINEA	Implemented	Port Moresby	Thales (TopSky-ATC)	Brisbane ACC/Australia	Intraregional	AMHS						Operational	ICD V.3.0					
				Ujung Pandang ACC/Indonesia	Intraregional	AFTN						Planned	ICD V.3.0					
				Oakland ARTCC /USA	Intraregional	AFTN						Testing	ICD V.3.0					
PHILIPPINES	Implemented	Manila ACC	THALES	Hong Kong ACC / Hong Kong, China	Intraregional	AFTN												
					Intraregional	AMHS					May 2019	Operational						
				Singapore ACC /Singapore	Intraregional	AMHS					Dec 2020	Operational						
				Taibei ACC/China	Intraregional	AFTN												
					Intraregional	AMHS					Dec 2019	Operational						
				Kota Kinabalu ACC /Malaysia	Intraregional	AMHS						Testing						
				Ho Chi Minh ACC /Viet Nam	Intraregional	AMHS						Testing						
				Oakland ARTCC /USA	Intraregional	AMHS						Planned						

Table of AIDC Implementation Status in APAC

State/Administration	AIDC Implementation Status(Implemented or not)	Location of AIDC System ATSU1	ATM Automation System (Make/Model)	ATSU2 /Correspondent State – Administration	Intraregional/Interregional	Transmission Means	Frequency of Use(days in a week)	Main/Back up Circuit	Communication Signal Speed (bps)	Average Transimission Delay (One Trip Time in Seconds)	Implementation Date or Target Date as MON yyyy or xQyyyy	Interface Status (Operational, Testing, Planned, No plan)	Interface Protocol / Version (OLDI or AIDC Version)	List of AIDC Messages Applicable between the Two ATSUs (ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC; TRU, EMG, MIS, TDM, ASM, FAN, FCN; ADS)	Coordination by CDN or Voice	Automatic or Manual EST	A Warning Message to Controller in Case of AIDC Failure	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
				Fukoka ATMC /Japan	Intraregional	AMHS					1Q2019							
				Ujung Pandang ACC /Indonesia	Intraregional	AMHS					Dec 2020	Operational						
REPUBLIC OF KOREA	Implemented	Incheon ACC	Leidos System	Fukuoka ATMC /Japan	Intraregional	Dedicated L	7	Main	64000	1	2010	Operational	ICD V.1.0	CPL, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Shanghai ACC/China	Intraregional						3Q2023	Planned						
				Dalian ACC /China	Intraregional	Dedicated L	7	Backup	64000	1	Nov 2016	Operational	ICD V.3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
		Daegu ACC	Leidos System	Fukuoka ATMC /Japan	Intraregional	Dedicated L	7	Backup	64000	1	2010	Operational	ICD V.1.0	CPL, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Shanghai ACC/China	Intraregional						3Q2023	Planned						
				Dalian ACC /China	Intraregional	Dedicated L	7	Main	64000	1	Nov 2016	Operational	ICD V.3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
SAMOA	non-implemented																	
SINGAPORE	Implemented	Singapore ACC	THALES	Ho Chi Minh ACC /Vietnam	Intraregional	AMHS	7	Main	64k	80ms	Jul 2014	Operational	ICD V.1.0	EST,ACP,LAM,LRM	Voice	Automatic	yes	
				Manila ACC /Philippines	Intraregional	AMHS	7	Main	64k	45ms	Nov 2019	Operational	ICD V.3.0	EST,ACP,LAM,LRM,TOC,AOC	Voice	Automatic	yes	
				Jakarta ACC /Indonesia	Intraregional	AMHS	0	Main	64k	60ms		Planned	ICD V.3.0					
				Kuala Lumpur ACC /Malaysia	Intraregional	AMHS	7	Main	64k	20ms	Nov 2019	Operational	ICD V.3.0	EST,ACP,LAM,LRM	Voice	Automatic	yes	
				Kota Kinabalu ACC /Malaysia	Intraregional	AMHS	7	Main	64k	55ms	Jul 2021	Operational	ICD V.3.0	EST,ACP,LAM,LRM,TOC,AOC	Voice	Automatic	yes	
				Kuching ACC /Malaysia	Intraregional	AMHS	7	Main	64k	50ms	Feb 2021	Operational	ICD V.3.0	EST,ACP,LAM,LRM,TOC,AOC	Voice	Automatic	yes	
SOLOMON ISLANDS	non-implemented			Nadi ACC /Fiji	Intraregional													
				Port Moresby ACC/PNG	Intraregional													
				Brisbane ATSC /Australia	Intraregional													
SRI LANKA	Testing	Colombo ACC	INTELCAN	Male ACC /Maldives	Intraregional	AFTN			64000		SEP 2023	Testing	ICD V.3.0		Voice	Manual	no	ABI message is not working during trials.
				Jakarta ACC / Indonesia	Intraregional	AMHS			2048000		SEP 2023	Planned	ICD V.3.0		Voice	Manual	no	
				Melbourne ACC /Australia	Intraregional	AMHS			2048000		SEP 2023	Planned	ICD V.3.0		Voice	Manual	no	
				Chennai ACC /India	Intraregional	AMHS			2048000		SEP 2023	Testing	ICD V.3.0		Voice	Manual	no	ABI message is not working during trials.
THAILAND	Implemented	Bangkok ACC	THALES	Kuala Lumpur ACC /Malaysia	Intraregional	AMHS					Mar 2020	Operational	ICD V.3.0	EST, ACP, LAM, LRM	Voice	Automatic	yes	
				Phnom Penh ACC /Cambodia	Intraregional	AMHS					Feb 2021	Operational	ICD V.3.0	ABI, EST, ACP, LAM, LRM	Voice	Automatic	yes	
				Vientiane ACC /Lao PDR	Intraregional	AMHS					Jul 2020	Operational	ICD V.3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Yangon ACC /Myanmar	Intraregional	AMHS						Testing						Continuous operational use still not possible due to system limitation at Yangon ACC
TIMOR LESTE	non-implemented																	
TONGA	non-implemented																	
TUVALU	non-implemented																	
VANUATU	non-implemented																	
UNITED STATES	Implemented	Oakland ARTCC	Liedos, ATOP System	Anchorage ARTCC /United States	Intraregional	AMHS	7	Main	64,000	3	Oct 2005	Operational	ICD V.2.0	ABI, CPL, EST, MAC, CDN, ACP, REJ, EMG, MIS, LAM, LRM, PAC	CDN	Automatic	yes	
				Auckland OAC /New Zealand	Intraregional	AMHS	7	Main	64,000	4	Oct 2005	Operational	ICD V.2.0	ABI, CPL, MAC, CDN, ACP, REJ, LAM, LRM, PAC	CDN	Automatic	yes	
				Fukuoka ATMC /Japan	Intraregional	AMHS	7	Main	64,000	4	Oct 2005	Operational	ICD V.2.0	ABI, ACP, CDN, CPL, LAM, LRM, MAC	CDN	Automatic	yes	
				Nadi ATMC /Fiji	Intraregional	AMHS	7	Main	64,000	5	Oct 2005	Operational	ICD V.2.0	ABI, CPL, CDN, PAC, ACP, MAC, REJ, LAM, LRM	CDN	Automatic	yes	
				Brisbane ACC /Australia	Intraregional	AMHS	7	Main	64,000	1	Oct 2005	Operational	ICD V.2.0	ABI, EST, ACP, MAC, CDN, LAM, LRM	CDN	Automatic	yes	Full CDN functionality proposed 1-30-2023 via LOA.
				Tahiti ACC /French Polynesia	Intraregional	AMHS	7	Main	64,000	10	Dec 2014	Operational	ICD V 2.0	ABI, CPL, CDN, PAC, ACP, MAC, LAM, LRM	CDN	Automatic	yes	
				Port Moresby/PNG	Intraregional	AMHS	7	Main	64,000	6	Dec 2021	Operational	ICD V 2.0	ABI, EST, ACP, LAM, LRM	Voice	Automatic	yes	
				Manila /Philippines	Intraregional	AMHS	7	Main	64,000	5	Dec 2022	Planned	ICD V.2.0	ABI, EST, ACP, LAM, LRM	Voice	Automatic	yes	AIDC testing implemented via MOU with verbal verification for 30 days. Pending test results AIDC incorporation permanently via LOA.
				Mazatlan ACC	Interregional	AMHS	7	Main	64,000	4	Mar 2015	Operational	ICD V.2.0	ABI, ACP, EST, LAM, LRM	Voice	Automatic	yes	

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
				Ujung Padang/Indonesia	Intraregional	AMHS		Main	64,000		Mar 2023	Planned	ICD V 2.0	TBD-ABI, EST, ACP, LAM, LRM	Voice	Automatic	yes	Pending meeting to determine implementation dates in Jan 2023. Initial testing completed, propose additional live testing phase followed by revised LOA.
		Anchorage ARTCC	Liedos, ATOP System	Magadan ACC	Interregional	AMHS	7	Main	64,000	7	Jun 2018	Operational	ICD V.2.0	ABI, CPL, ACP, LAM, LRM	Voice	Automatic	yes	
				Fukuoka ATMC /Japan	Intraregional	AMHS	7	Main	64,000	4	Mar 2007	Operational	ICD V.2.0	ABI, ACP, CDN, CPL, LAM, LRM, MAC	CDN	Automatic	yes	
				Oakland ARTCC /United States	Intraregional	AMHS	7	Main	64,000	1	Mar 2007	Operational	ICD V.2.0	ABI, CPL, EST, MAC, CDN, ACP, REJ, EMG, MIS, LAM, LRM, PAC	CDN	Automatic	yes	
VIET NAM	Implemented	Ho Chi Minh ACC	THALES	Sanya ACC /China	Intraregional	AFTN						Testing	ICD V.1.0	EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Phnom Penh ACC /Cambodia	Intraregional	AFTN						Testing	ICD V.1.0	EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Vientiane ACC /Lao PDR	Intraregional	AFTN					3Q2025	Planned						
				Singapore ACC /Singapore	Intraregional	AFTN	7	Main	9600		Jul 2014	Operational	ICD V.1.0	EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Manila /Philippines	Intraregional	AFTN						Testing	ICD V.1.0	EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Kuala Lumpur /Malaysia	Intraregional	AFTN					3Q2025	Planned						
		Ha Noi ACC	Selex	Vientiane ACC/Lao PDR	Intraregional	AFTN						Testing	ICD V3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	yes	
				Sanya ACC /China	Intraregional	AFTN	7	Main	9600		Dec 2023	Operational	ICD V3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	
				Naning ACC	Intraregional	AFTN	7	Main	9600		Dec 2023	Operational	ICD V.3.0	EST, ACP, LAM, LRM, TOC, AOC	Voice	Automatic	yes	

State/Administration	Last updated	Meeting	History
Afghanistan			
Australia	1/30/2023	AP135/22(CNS)	
Bangladesh			
Brunei Darussalam			
Bhutan			
Cambodia	6/29/2023	ATMAS TF/4	
China	3/21/2024	ACSICG/11	12/6/2022
Hong Kong, China	1/30/2023	AP135/22(CNS)	
Macau China			
Cook Islands			
Democratic People's Republic of Korea			
France (New Caledonia, French Polynesia, and Wallis & Futuna)			
Fiji			
India			
Indonesia	3/21/2024	ACSICG/11	
Lao PDR	1/24/2023	AP135/22(CNS)	
Japan	3/29/2024	ACSICG/11	1/16/2023 8/25/2023
Kiribati			
Malaysia	6/29/2023	ATMAS TF/4	1/9/2023 4/3/2023 4/13/2023
Maldives	5/24/2023	AP135/22(CNS)	
Marshall Islands			
Micronesia (Federated States of)			
Mongolia	8/31/2023	CNS SG/27	
Myanmar			
Nauru			
Nepal			
New Zealand	8/25/2023	CNS SG/27	12/21/2022
Pakistan	11/29/2022	AP135/22(CNS)	
Papua New Guinea			
Palau			
Philippines			
Republic of Korea	1/31/2023	AP135/22(CNS)	
Samoa			
Solomon Islands			
Singapore	1/6/2023	AP135/22(CNS)	
Sri Lanka	2/14/2023	AP135/22(CNS)	
Tonga			
Thailand	1/16/2023	AP135/22(CNS)	
Tuvalu			
Timor LESTE			
United States	12/21/2022	AP135/22(CNS)	
Vanuatu			
Viet Nam	3/21/2024	ACSICG/11	

LIST OF FOCAL POINT FOR AIDC IMPLEMENTATION

No.	States	Name/Title/Address	Tel/Fax/E-mail
1.	**Afghanistan**		
2.	**Australia**	Mr. Adam Watkin	Tel: Fax: E-mail: Adam.Watkin@AirservicesAustralia.com
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4.	**Bhutan**	Mr. Pema Tashi Superintendent of ANS Bhutan Civil Aviation Authority Paro International Airport Paro	Tel: +975 (8) 271 347 Ext. 107 Mobile: +975 1 762 2702 Fax: +975 (8) 271 944
5.	**Brunei Darussalam**		
6.	**Cambodia**	Ms. Heng Sovannrath Dy. Chief Bureau (CNS) Air Navigation Standard and Safety Department 44, Phnom Penh International Airport, Russian Federation Blvd., Phum Ta Ngoun, Sangkat Kakab, Khan Porsenchey, Phnom Penh	Tel: +855 (78) 961616 Mobile: +855 (23) 890102; 890108 E-mail: sovannrathheng@gmail.com
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8.	**Hong Kong, China**	Mr. Michael Chu Senior Electronics Engineer (Technical Support) Civil Aviation Department of Hong Kong, China	Tel: +852 2910 6528 Fax: +852 2845 7160 E-mail: mmhchu@cad.gov.hk
9.	**Macau China**		

No.	States	Name/Title/Address	Tel/Fax/E-mail
10	**Cook Islands**		
11	**Democratic People's Republic of Korea**		
12	**Fiji**		
13	**France:** **-New Caledonia** **-French Polynesia**		
14	**India**	Mr. Ritesh Kumar Gupta, Joint General Manager (CNS) Airports Authority of India CHQ Rajiv Gandhi Bhawan, New Delhi	Tel: Fax: E-mail: g.ritesh@aai.aero
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18	**Lao PDR**	Mr. Maity Sylithammavoing Dy. Director of ATS Division Lao Air Navigation Services P.O. Box 2985 Wattay International Airport Vientiane	Tel: +856 (21) 512006 Mobile: +8562055414040 Fax: +856(21) 512216 E-mail: maitymt1975@gmail.com

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19	**Malaysia**	Mior Adli Bin Mior Sallehhuddin Acting Deputy Director CNS Civil Aviation Authority of Malaysia Air Navigation Services Technical Division Address: Kuala Lumpur Air Traffic Control Centre Complex Aras 1 West Wing Terminal North Jalan CTA3 (KLIA) Kuala Lumpur International Airport 64000 KLIA, Sepang Selangor, Malaysia	Tel : +603 8529 1213 Fax : +603 8529 1210 E-mail: mior.adli@caam.gov.my
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20	**Maldives**	Mr. Ishag Abdulla Associate General Manager Maldives Airports Co., Ltd Velana International Airport Hulhule 22000	Tel: +960 795 7235 Fax: E-mail: ishag@macl.aero
21	**Marshall Islands**		
22	**Micronesia (Federated States of)**		
23	**Mongolia**	Mr. Khatanbold Jargalsaikhan CNS Officer of ATM Civil Aviation Authority of Mongolia	Tel: +976 (11) 283 069 Mobile: +976 8802 4499 Fax: +976 (11) 285 021 E-mail: khatanbold.j@mcaa.gov.mn

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		Mr. Aung Zaw Thein Assistant General Manager (ATM) Department of Civil Aviation, Myanmar	Tel: +95 (1) 533 268 Fax: +95 (1) 533 016 E-mail: azawthein@gmail.com
25	**Nauru**		
26	**Nepal**	Mr. Hansha Raj Pandey Director, CNS Planning & Development Department Head Office, Babarmahal Kathmandu	Tel: +977 (1) 424 9379 Fax: +977 (1) 426 2516 E-mail: hrp@caanepal.org.np cnsatm@mos.com.np
27	**New Zealand**	Mr. Paul Radford Oceanic Systems Manager Airways New Zealand P.O. Box 53093 Auckland Airport, Auckland 2150	Tel: +64 (9) 257 7508 Mobile: +64 21 334 2150 E-mail: Paul.Radford@airways.co.nz
28	**Pakistan**	Mr. Muhammad Imran Sr. Joint Director (ATS) Ops. Directorate HQCAA, Karachi	Tel: +92-21-99072282 Mobile +92-3002278641 Email Muhammad_imran@caapakistan.com.pk
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		Mr. Gilmar D Tiro CNS Systems Officer IV Air Navigation Service/ATM Centre Civil Aviation Authority of the Philippines	Tel: +63 (2) 672 7729 Fax: E-mail: gilmar.tiro@gmail.com

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33	**Samoa**		
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35	**Solomon Islands**		
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AMHS Readiness Report for Supporting IWXXM Traffic

No.	States/Administration	Name of State (Administration)/name of BBIS/BIS location where AMHS is installed:	AFTN/AMHS transition date/schedule	Readiness Status of AMHS for supporting File Transfer Body Part (FTBP), the Interpersonal Message (IPM) Heading Extension (IHE) to support for exchanging IWXXM reports of a maximum size of 4MB and FTBP of maximum 2MB:	Capacity status of the operational AFS links to support the exchange of the required meteorological information in both IWXXM GML form and TAC form:
1	Australia	Airservices - Brisbane	Completed. AMHS exchange in place with USA, Fiji, New Zealand, Singapore and South Africa. AFTN still in place with Indonesia and PNG, migration to AMHS based on pending readiness both partners Several Pacific island nations connecting via FCO CADAS ATS Terminal, currently over AFTN. Airservices plans to migrate to AMHS P3 CADAS but will need to provide user training. All domestic users and data originators still on AFTN, no desire by external partners to migrate to AMHS, awaiting SWIM instead.	Full compliance and support since Nov 2020	Airservices has contracted a 2.0Mbps bandwidth using CRV Package C+ for Voice & AMHS services. Bandwidth on the leased line with South Africa / Johannesburg is also 2Mbps.
2	China	Beijing	AMHS deployed in 2008 which was upgraded to support ATN/IPS in 2013 and upgraded to support exchanging IWXXM in 2020.	support	CRV bandwidth is 3M. Minimally 64kbps for each AMHS connection..
3	Hong Kong China	Hong Kong China	December 2009	Support	2MB for CRV and 64kbps for IPLCs

AMHS Readiness Report for Supporting IWXXM Traffic

No.	States/Administration	Name of State (Administration)/name of BBIS/BIS location where AMHS is installed:	AFTN/AMHS transition date/schedule	Readiness Status of AMHS for supporting File Transfer Body Part (FTBP), the Interpersonal Message (IPM) Heading Extension (IHE) to support for exchanging IWXXM reports of a maximum size of 4MB and FTBP of maximum 2MB:	Capacity status of the operational AFS links to support the exchange of the required meteorological information in both IWXXM GML form and TAC form:
4	Fiji	Fiji Airport/Air Traffic Management Centre	Completed. In June 2019, Fiji completed the transition of ATN BBIS to IPS for the AMHS service from Nadi to Salt Lake, USA & Brisbane, Australia over the CRV network. The local end User still operates on AFTN terminal and is converted to AMHS over the AFTN/AMHS Gateway.	The Comsoft AMHS System supports File Transfer Body Part (FTBP). Our system has the capability of exchanging IWXXM reports of a maximum size of 4MB and FTBP of maximum.	Nadi has contracted a 1.0Mbps bandwidth using CRV Package C+ for Voice & AMHS services. The total bandwidth usage for voice and data is 768K from the total 1.0Mbps. The bandwidth for AMHS is 64Kbps each to Brisbane & Salt Lake Center. It is noted in the ACSICG/7 WP04 presented by USA that 64Kbps is the minimum recommended required bandwidth for AMHS to exchange FTBP for IWXXM.
5	India	AAI/Mumbai Airport	AMHS is in operation since 2011.		

AMHS Readiness Report for Supporting IWXXM Traffic

No.	States/Administration	Name of State (Administration)/name of BBIS/BIS location where AMHS is installed:	AFTN/AMHS transition date/schedule	Readiness Status of AMHS for supporting File Transfer Body Part (FTBP), the Interpersonal Message (IPM) Heading Extension (IHE) to support for exchanging IWXXM reports of a maximum size of 4MB and FTBP of maximum 2MB:	Capacity status of the operational AFS links to support the exchange of the required meteorological information in both IWXXM GML form and TAC form:
			Note: 1. PO was awarded to Frequentis Comsoft on Jan-2023 for the replacement of existing AMHS System at Mumbai. 2. New AMHS System will be having DC at Mumbai & DR at Delhi. Subsequently second CRV connection will be implemented with at Delhi for DR AMHS Operation. 3. SDR (System Design Review) meeting with Frequentis Comsoft is planned in May 2023 4. Tentative timeline for commissioning of new AMHS System is Dec 2024.	Presently India is not able to exchange the required 4 MB messages and 2 MB FTBP attachments.	Indian Meteorological Department is in the process of upgradation of HPC & DB to support IWXXM.
6	Japan	Japan/Fukuoka	ATN BBIS router and AMHS installed at 2000. Connection tests with USA 2000 - 2004 and put into operational use in 2005 and over CRV in February 2019. Put into AMHS operation with Hong- Kong and Singapore in 2021. AMHS implementation with China in 2021 , Korea and Taipei in 2022.	Already support exchange of IWXXM messages based on FTBP in August 2015. It is possible to send , receive and transfer up to 2GB for the contents such as FTBP,IPM and IHE in AMHS,and the size of IWXXM suported system by Japan Meteorological Agency is 2MB	AFS links over CRV is a Package A, Bandwidth 2M.

AMHS Readiness Report for Supporting IWXXM Traffic

No.	States/Administration	Name of State (Administration)/name of BBIS/BIS location where AMHS is installed:	AFTN/AMHS transition date/schedule	Readiness Status of AMHS for supporting File Transfer Body Part (FTBP), the Interpersonal Message (IPM) Heading Extension (IHE) to support for exchanging IWXXM reports of a maximum size of 4MB and FTBP of maximum 2MB:	Capacity status of the operational AFS links to support the exchange of the required meteorological information in both IWXXM GML form and TAC form:
7	Macao China	Macao China	Q4/2009	Support exchange of IWXXM messages based on FTBP.	To be determined
8	Maldives	Maldives / Velana International Airport (VRMM)	Contract awarded to replace existing AFTN system to an AMHS in 1Q2023. Installation and commissioning of AMHS to be completed by 3Q2023	AMHS supports FTBP	Discussion with PCCW for 128k bandwidth CRV package D
9	New Zealand	Airways – Christchurch	AMHS connections are in place with Australia, USA and the New Z	Support	Airways New Zealand has contracted a 1.0Mbps bandwidth using CRV Package C+ for Voice and AMHS services from Auckland and Christchurch.
10	Philippines	Philippines/ATMC Manila	Completed March 2018	Can support IHE and FTBP maximum 1MB (tested with Taipei on 13-May-20)	1MB Philippines has contracted 2Mbps bandwidth using CRV package “A” voice and data services.
11	Republic of Korea	Gimpo international airport	ATN/AMHS with China put into operational use in June, 2011. AMHS implementation with China and Japan over CRV will be in 4Q, 2022.	AMHS implementation for supporting FTBP and IHE will be in 4Q, 2022.	AFS links over CRV is a Package A, Bandwidth 2M.
12	Singapore	Singapore	March 2011	Yes	2MB for CRV and minimally 64kbps for IPLCs
13	Thailand	Thailand	BBIS/BIS Routers already implemented. AMHS has been implemented since July 2011. Connection with Bangladesh, Bhutan, Cambodia, China, India, Lao PDR, Myanmar, Singapore, Hong Kong China, and Malaysia implemented.	Completed, the IWXXM exchange has been implemented since November 2020.	The capacity of links readied to support in both form.

AMHS Readiness Report for Supporting IWXXM Traffic

No.	States/Administration	Name of State (Administration)/name of BBIS/BIS location where AMHS is installed:	AFTN/AMHS transition date/schedule	Readiness Status of AMHS for supporting File Transfer Body Part (FTBP), the Interpersonal Message (IPM) Heading Extension (IHE) to support for exchanging IWXXM reports of a maximum size of 4MB and FTBP of maximum 2MB:	Capacity status of the operational AFS links to support the exchange of the required meteorological information in both IWXXM GML form and TAC form:
			Connection with SITA (SITA AMHS Gateway inter-connections) implemented. **Bangkok - Vietnam Circuit** IOT Test : Done POT Test: Planned for end of 3Q2021 **Bangkok - Rome Circuit** IOT Test: Planned for 3Q2021 POT Test: Planned for 4Q2021		
14	USA	Federal Aviation Administration	Q4, 2020	Yes. FAA AMHS has FTBP capability. National Weather Service (NWS) projected to implement IWXXM by Q3, 2021	Yes. 2MB bandwidth over CRV

Seminar on Aeronautical Communication Services for APAC

Hosted by ICAO Asia and Pacific Office

Title:

Advancements and Challenges in Aeronautical Communication Services: Navigating the Future

Date: 2 Days in Q3 2025 or back-to-back with ACSICG/12

Location: Bangkok or TBD

1. **Background**

Aeronautical communication services constitute a critical component of global air traffic management, ensuring the safety and efficiency of air operations. With rapid technological advancements and increasing air traffic complexity, these services face new challenges and opportunities. This seminar aims to bring together experts, industry leaders, regulators, and academia to discuss the latest developments, address challenges, and explore the future landscape of aeronautical communication services.

2. **Objective**

The Seminar is intended to:

- provide a comprehensive overview of the current state of aeronautical communication systems globally.
- discuss the latest technological advancements and their implications for the future of aeronautical communications.
- explore challenges, including spectrum management, cybersecurity threats, and the integration of new technologies into existing frameworks.
- facilitate knowledge sharing and best practices among different stakeholders.

- develop a forward-looking perspective on the role of aeronautical communication in enhancing air traffic management efficiency and safety.

3. **Target Audience:**

- ACSICG members
- Representatives from ICAO and other international bodies
- Communication technology providers and innovators

4. **Agenda Highlights:**

Session 1: Setting the Scene

- Opening Remarks - Regional Director of ICAO APAC Office

- Keynote Address: The Evolving Landscape of Global Aeronautical Communication - Challenges and Opportunities. – speaker: TBD

Session 2: Implementation Expectations and Challenges

- Aeronautical Communication Implementation in APAC – speaker: ICAO APAC RO
- Airspace users' perspective - speaker: IATA
- ICNSS update – ANB CNSS
- MPLS/IP based inter-regional connection –

Session 3: Technological Innovations in Aeronautical Communication

- Satellite Communications, Data Link Services, L-DACS and Beyond.
- Future Connectivity for Aviation – FAA/EASA
- Space-based VHF – TBD
- Industry presenters (e.g. SITA, PCCWG, Frequentis,…)

Session 4: Cybersecurity in Aeronautical Communications

- Addressing the Vulnerabilities.

- Trust Framework

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Session 5: Case Studies

- Lessons Learned and Best Practices.

- FAA

- Thailand

-Singapore

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Session 6: Nvigating in the transition

- Networking Event: Opportunity for attendees to network and discuss potential collaborations and innovations.

- Wrap up and closing

5. **Expected Outcomes:**

- Enhanced understanding of the current and future technologies in aeronautical communications.

- Identification of key challenges and potential solutions in implementing advanced communication systems.

- Strengthened collaboration among industry stakeholders for the development of secure, efficient, and sustainable communication services.

- Actionable insights for policymakers and regulatory bodies to adapt to the evolving needs of aeronautical communication.

- Publication of a post-seminar report summarizing key findings and recommendations.

Updated Work Programme of ACSICG

Reference	Title of Work	Task	Planned Start	Planned completion	Status	Action Parties	Comment
2-3	AMHS Implementation Registration	Continue coordination with members and other regions to maintain the AMC	On-Going	On-Going	On-going	Thailand	
2-4	Support AIDC implementation	Support Implementation of AIDC including PAN Regional AIDC ICD	2015	2021	On-going		
2-7	CRV-OG	Oversight CRV operations and migration of applications	2016	2021	On-going		
4-2	AMHS Support IWXXM requirement 2020	Implement AMHS FTBP to meet the requirement of IWXXM including the basic AMHS plus FTBP sub-set of extended AMHS as defined in Doc9880. (Requirements for implementation is 5 November 2020) and monitor the possible compression solution following the ICAO guidelines for IWXXM implementation	2017	2020	On-going	All States/Administrations	
6-1	AMHS direct routing requirement	Develop AMHS routing policy to gain the benefits of implementation of AMHS over CRV.	2019	NA	On-going		ACSICG/11: Discussed in ACSICG/11 Discussion session
7-1	Monitoring the SWIM implementation and work of APAC SWIM Task Force	Demonstrate capability of CRV to support SWIM and evaluate the impacts on network bandwidth to incorporate AMHS service.	2016	2021	Close	Hong Kong China, Singapore and Thailand, IATA as reporter to SWIM TF	ACSICG/11: SWIM TF reports to CNS SG directly and the outcomes of SWIM TF will be reviewed by ACSICG under agenda item: review of the outcomes of the relevant meetings
9-1	Update ICAO APAC ATN/AMHS Guidance Document Tree	Ad-Hoc Group will update ICAO APAC ATN/AMHS Guidance Document Tree	2022	2025	Open	ICAO Secretariat, China, Fiji, New Zealand (Tentative), Singapore, USA	
9-2	Traffic Loading of CRV connection	States implemented CRV should note the Bandwidth Utilization rate and may present this data in upcoming CRV OG meetings.	2022	CRV OG/11	On-going	ICAO Secretariat, Member States	
9-3	A common template to report the monitoring of connection loading	ICAO Secretariat will consult with experts to propose a common template to report on the monitoring of connection loading	2022	ACSICG/10	Close	ICAO Secretariat	To support Action Item 7-3 ACSICG/11: Monitored by CRV OG

Reference	Title of Work	Task	Planned Start	Planned completion	Status	Action Parties	Comment
9-4	MPLS/IP Based Inter-Regional Connection	To discuss the potential options for business cases to move forward with the proposal in MPLS/IP Based Inter-Regional Connection between CRV and REDDIG II.	2022	ACSICG/10	Withdrawn	ICAO Secretariat under CRV OG, APAC Member States having interregional connections, CRV OG Chairs, CRV and REDDIG II service providers, and interested states of SAM region	ACSICG/11: Technical service provider has been changed, action has been taken to reach the new service provider, any update will be shared with the meeting
9-5	Nomination of SAM Member States to ad-hoc group under action item 9-4	ICAO Secretariat will coordinate with ICAO SAM Office to get nomination from interested SAM Member states for joining the Ad-Hoc Group in Action Item 9-4	2022	Jul-22	Withdrawn	ICAO Secretariat	
9-6	New Agenda Item to discuss Cybersecurity issues in Aeronautical Communications	Create a regular Agenda Item from ACSICG/10 and invite States and Organizations concerned to continue the discussion on improving in the cybersecurity ideas presented in various cybersecurity-related meetings and webinars.	2022	ACSICG/10	Close	ICAO Secretariat, CANSO, IATA	ACSICG/11: Regular Agenda item under ACSICG
10-1	Consider convening a conjoint meeting session of the ACSICG in 2024 in conjunction with MET/IE WG	The meeting supported the proposal to conduct a conjoint meeting session of the MET/IE WG and ACSICG in 2024. Therefore, the meeting requested the Co-Chairs and Secretariat to consider convening a conjoint meeting session of the ACSICG in 2024 in conjunction with MET/IE WG.	2023	2024	Close	ICAO Secretariat, ACSICG chairs	ACSICG/11: The conjoint meeting session of the ACSICG and MET/IE WG has been held on 20 March in 2024.
10-2	Enhance the coordination between APAC and MID regions to support the AMHS implementation	The meeting was informed the Mumbai-Muscat AMHS connection has been implemented, and ICAO APAC Office is requested to coordinate with MID Office to push forward the AMHS implementation between Beijing and Kuwait.	2023	ACSICG/11	Open	ICAO Secretariat	ACSICG/11: The Secretariat will follow up with MID region
10-3	Recommended that CRV OG coordinate with CRV vendor, PCCW Global, and SWIM Task Force to set priority of the traffic types.	it's recommended that CRV OG coordinate with CRV vendor, PCCW Global, and SWIM Task Force to set priority of the traffic types: voice service, time-sensitive message, and advisory message, etc.	2023	2024	Close	ICAO Secretariat	ACSICG/11: Discussed in CRV OG

Reference	Title of Work	Task	Planned Start	Planned completion	Status	Action Parties	Comment
11-1	Fukuoka and Moscow AFTN connection	Japan is coordinating with Russia to maintain AFTN circuit between Fukuoka and Moscow until the end of 2024, and Japan will keep ICAO Regional Office and concerned COM centres (Beijing and Hong Kong) informed on the update of this issue to ensure the availability of alternate route to support operations.	2024		Open	Japan	
11-2	Educational material to manage the distribution of IWXXM information for COMM experts	A group of operational comms experts will develop educational material to manage the distribution of IWXXM information when primary AMHS link failure occurs.	2024		Open	AUS (lead), USA, SGP, HKG, FJI	
11-3	Checklist of steps required to operational IWXXM exchange	A group of COMM and MET experts to develop a checklist of steps required to operational IWXXM exchange.	2024		Open	A group of COMM and MET experts (AUS, SGP (lead from COM side), FJI, HKG)	
11-4	Regional agreements on the implementation of aeronautical VoIP communications for ground-ground applications	Investigate for any relevant regional agreements in APAC on the implementation of aeronautical VoIP communications for ground-ground applications, to facilitate the region to take follow up actions with the 4.1.4 of the Proposed Amendment to Annex 10, Volume III and Volume II Related to ATN/IPS . (4.1.4 Implementation of aeronautical VoIP communications for ground-ground applications shall be made on the basis of a regional agreement.)	2024	ACSICG/12	Open	ICAO Secretariat	
11-5	Webinars for COMM experts	ICAO APAC Office to organize a series of webinars by consulting concerned parties with priority for User Requirements for Air Traffic Services by IATA, ICAO Trust Framework, ICNSS project, space-based VHF.	2024		Open	ICAO Secretariat	
11-6	Utilization of AMC by APAC	Noting the identified inconsistency of the data contained in AMC and the various difficulties for States/Administrations in utilizing AMC functionality, Thailand to lead of an ad hoc expert group with the support of ICAO Secretariat, to work on a regional procedure in using AMC by States/Administrations, to validate the AMC data against the AFTN/ATSMHS Routing Directory for Asia and Pacific Regions, to organize a refreshment workshop on AMC when appropriate for the region.	2024		Open	Thailand, ICAO Secretariat	

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Note: Info in yellow extracted from https://applications.icao.int/atn_chart/atn_chart.asp

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- Virtual attendance

LIST OF WORKING/ INFORMATION PAPERS

WP/IP No.	Agenda Item	Subject	Presented by
		WORKING PAPERS	
WP/01	1	Provisional Agenda	Secretariat
WP/02	2	Review of Relevant Meetings	Secretariat
WP/03	3	Outcomes of the Twelfth Meeting of Common Aeronautical Virtual Private Network Operations Group (CRV OG/12)	Secretariat
WP/04	4	Update on AFTN/ATSMHS Routing Directory in APAC	Secretariat
WP/05	7	AMHS Readiness Status for Supporting IWXXM Traffic in the APAC Region	Secretariat
WP/06	9	AFTN/AMHS Connection Between APAC Region and Other Regions	Secretariat
WP/07	2	58th APAC DGCA Conference Action Items on CRV	Secretariat
WP/08	13	Updates on Next Asia Pacific Ministerial Conference	Secretariat
WP/09	12	Review Work Programme for ACSICG and AMHS Focal Point	Secretariat
WP/10	6	Repository of AIDC Implementation Status in APAC	Secretariat
WP/11	7	Review of Asia and Pacific Region IWXXM Implementation Status/ Readiness	Singapore
WP/12	4	APAC AMHS Implementation Status From AMC	Thailand
WP/13	6	AMHS Implementation Status in the APAC Region	Secretariat
WP/14	11	Provisional Concept Note of Seminar on Aeronautical Communication Services in APAC Region	Secretariat
WP/16	5	Space-Based Very High Frequency (VHF) Communication Services	Singapore
		INFORMATION PAPERS	
IP/01	-	Meeting Bulletin	Secretariat
IP/02	6	Update on AMHS Implementation in Indonesia	Indonesia
IP/03	8	AMHS Operation and Support of XML Based Messages	USA
IP/04	7	Description of FAA AMHS SWIM Gateway and IWXXM Status	USA

WP/IP No.	Agenda Item	Subject	Presented by
IP/05	9	Upgraded U.S. to Europe Connectivity	USA
IP/06	4	PCAA Coordination with Eurocontrol AMC	Pakistan
IP/07	5	PCAA Acquisition of New HF RT System	Pakistan
IP/08	6	PCAA Upgradation of AMHS and AIDC Implementation Status	Pakistan
IP/09	7&8	PCAA Readiness for ICAO IWXXM Implementation and AMHS Transition to SWIM	Pakistan
IP/10	6	AMHS Implementation Status from Thailand	Thailand
IP/11	6	AMHS and AIDC Implementation Status in Republic of Korea	ROK
IP/12	6	Current Status of AMHS Implementation in Japan	Japan
IP/13	6	ATN/AMHS Implementation Status of China	China
IP/14	10	Proposed Amendment to Annex 10, Volume III and Volume II Related to ATN/IPS	Secretariat
IP/15	5	ATMB Carries Out Datalink-Based All-Phase Datalink ATC Service Validation	China
IP./16	7	Fiji AMHS & IWXXM Implementation Status	Fiji
IP/17	6	AMHS Implementation Status in the Philippines	Philippines
PRESENTATIONS			
SP/01	8	TBO with regional SWIM Services and AMHS	Frequentis
SP/02	8	AMHS/SWIM Gateway Progress & FF-ICAE Migration Plans	SWAMWAY Study Group
SP/03	4	ATMB Carries out Datalinkbased All-Phase Datalink ATC Service Validation	China

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Time	Schedule	*Duration*
	Day-1: 19 March (Tuesday)	
09:00-10:00	**Session 1** • Opening Remarks by Mr. Chonlawit, co-chair of ACSICG • Opening Remarks by Mr. Kelepi Dainaki, co-chair of ACSICG • Opening Remarks by Mr. Luo Yi, ICAO Secretary of Meeting • Introduction of Participants • Administrative Information **Agenda Item 1: Adoption of the Agenda** *WP/01 – Provisional Agenda – Sec* **Agenda Item 2: Review of the outcomes of relevant meetings** *WP/02-– Review of Relevant ICAO Meetings – Sec* *WP/07 - DGCA Conf. 58 Action Item - Sec* • *Group Photo* **Note:** *1) Please use IP/01- Meeting Bulletin for guidance to join the meeting.* 2) *Download meeting documents before meeting start.*	**60 mins**
10:00-10:30	**Coffee Break**	**30 mins**
10:30-11:30	**Session 2** **Agenda Item 3: Review the report of the Eleventh meeting of Common aeRonautical VPN Operations Group (CRV OG/11) and CRV OG Ad-Hoc Governance Group** *WP/03 - Outcome of CRV OG/12 - Sec* **Agenda Item 5: AMS and Datalink communication** *WP/16 - Space based VHF – SGP* *IP/07 - PCAA Acquisition of New HF RT System – Pakistan* *IP/15 - ATMB Carries out Datalink-based All-Phase Datalink ATC Service Validation - China*	**60 mins**
11:30-12:30	**Lunch Break**	**60 mins**
12:30-13:30	**Session 3** **Agenda Item 4: AMHS/AFTN routing issues and coordination with ATS Messaging Management Centre (AMC)** *WP/04 – Update on AFTN ATSMHS Routing Directory – Sec* *WP/12 - APAC AMHS Implementation Status on AMC – THA* *IP/06 - PCAA coordination with AMC - Pakistan* **Agenda Item 6: Review and update the AMHS/ATN/AIDC Implementation Status** **6.1 AMHS implementation Status** **6.2 AIDC Implementation Status** **6.3 AIDC over AMHS** *WP/13 - AMHS Implementation status in APAC - Sec* *IP/02 – AMHS Implementation – Indonesia* *IP/10 - AMHS Implementation Status from Thailand* *IP/11 - AMHS and AIDC inplementation status - ROK*	**60 mins**

13:30-14:00	**Coffee Break**	**30 mins**
14:00-15:30	**<u>Session 4</u>** **Agenda Item 8: AMHS transition to SWIM** ***Presentatiion 1****- Leveraging TBO through regional SWIM services and AMHS* *- Frequentis*	**90 mins**

Time	Schedule	*Duration*
Day-2: 20 March (Wednesday) Joint Sessions with MET/IE/WG		
09:00-10:00	**Joint Sessions can be joined online at >> Click here to join the meeting** **Session 5** • Opening Remarks by co-chairs of ACSICG • Opening Remarks by chair of MET/IE WG • Opening Remarks by ICAO Secretariat • Introduction of Participants ACSICG-**Agenda Item 9: Inter-regional AFS connection** *WP/06 - AFTN/AMHS Connection between APAC Region and Other Regions - Sec* *IP/05 - Upgraded US to Europe Connectivity - USA* • ***Group Photo***	**60 mins**
10:00-10:30	**Coffee Break**	**30 mins**
10:30-11:30	**Session 6** ACSICG-**Agenda Item 7: Readiness of AMHS to support IWXXM** *IP/04 - FAA IWXXM Implementation Status – USA* *IP/16 - AMHS & IWXXM_Implementation Status - Fiji* *WP/05 - AMHS readiness status for supporting IWXXM Traffic -Sec* *WP/11- Review of APAC IWXXM Implementation Status - SGP* ACSICG-**Agenda Item 8: AMHS transition to SWIM** *IP/03 - AMHS Operation and Support of XML Based Messages - USA* *IP/09 - PCAA Readiness for IWXXM Implementation and AMHS Transition to SWIM - Pakistan* MET/IE WG-**Agenda Item 4: Meteorological information exchange in IWXXM form** *WP/12 – LATEST DEVELOPMENT OF IWXXM AND PUBLICATION PLAN – Hong Kong, China* *WP/27-– RELEASE OF IWXXM GUIDELINES VERSION 5 – Australia* *WP/13 – ENABLING THE RELIABLE AND GLOBAL EXCHANGE OF IWXXM – Australia and Hong Kong, China* *IP/03 – STATUS AND PLANS FOR IWXXM IMPLEMENTATION IN THE REPUBLIC OF KOREA – Republic of Korea* *IP/04 – STATUS AND PLANS FOR IMPLEMENTATION OF IWXXM IN THAILAND – Thailand* *IP/05 – PROGRESS AND PLANS OF IWXXM IMPLEMENTATION AND APPLICATION IN CHINA – China*	**60 mins**
11:30-12:30	**Lunch Break**	**60 mins**
12:30-13:30	**Session 7** MET/IE WG-**Agenda Item 4: Meteorological information exchange in IWXXM form (continued)**	
13:30-14:00	**Coffee Break**	**30 mins**
14:00-15:30	**Session 8** ACSICG-**Agenda Item 8: AMHS transition to SWIM** ***Presentation 2****(WP/15): AMHS/SWIM Gateway PROGRESS & FF-ICE MIGRATION PLANS – SWAMWAY* • ***Summary of discussion*** **End of joint session**	**90 mins**

Time	Schedule	*Duration*
	Day-3: 21 March (Thursday)	
09:00-10:00	**Session 9** **Agenda Item 6: Review and update the AMHS/ATN/AIDC Implementation Status (continued)** *WP/10 - Review AIDC repository - Sec* *IP/08 - PCAA Upgradation of AMHS and AIDC Implementation – Pakistan* *IP/12 - AMHS Implementation Status - JPN* *IP/13 - ATN/AMHS Implementation Status of China* *IP/17 - AMHS Implementation Status in the Philippines*	**60 mins**
10:00-10:30	**Coffee Break**	**30 mins**
10:30-11:30	**Session 10** **Agenda Item 10: AFS related cyber-safety/security issues, best practices, and resilience** *IP/14 - Proposed Amendment to Annex 10 Vol III &Vol II Related to ATN/IPS - Sec* **Agenda Item 11: Concept Note for a Seminar on Aeronautical Communication Services** *WP/14 - Provisional Concept Note of Seminar on Aeronautical Communication Services in APAC Region-Sec* **Agenda Item 12: Review and update Subject/Tasks List** *WP/09- Action Itemd & POC - Sec*	
11:30-13:00	**Lunch Break**	**90 mins**
13:00-15:00	**Session 11** ***Discussion:*** *1) Implementation issue with individual State* *2) Relationship between the APAC routing directory and the directory service registered in AMC. With reference to:* **Agenda item 4: AMHS/AFTN routing issues and coordination with ATS Messaging Management Centre (AMC)** *WP/04 – Update on AFTN ATSMHS Routing Directory – Sec* *WP/12 - APAC AMHS Implementation Status on AMC – THA* **Agenda Item 6: Review and update the AMHS/ATN/AIDC Implementation Status** **6.1 AMHS implementation Status** *WP/13 - AMHS Implementation status in APAC – Sec* **Agenda Item 13: Next Meeting date and any other business** *WP/08 - Second APAC Ministrial Conference - Sec*	**120 mins**

Time	Schedule	*Duration*
Day-4: 22 March (Friday)		
10:00-11:00	**Session 12** - *Updated Action Items - Sec* - *Meeting Report*	**60 mins**