

**ICAO***International Civil Aviation Organization***Twenty Eighth Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/28)
of APANPIRG***Bangkok, Thailand, 1 July – 5 July 2024***Agenda Item 3:** Aeronautical Fixed Service (AFS)

3.1. Review Report of the Eleventh Meeting of the Aeronautical Communications Services Implementation Coordination Group (ACSICG/11) including:

- Report of the Twelfth Meetings of Common Aeronautical VPN Operations Group (CRV OG/12)
- Report of CRV Seminar for Pacific States

**REVIEW OF OUTCOMES OF THE ELEVENTH MEETING OF THE
AERONAUTICAL COMMUNICATION SERVICES IMPLEMENTATION
COORDINATION GROUP (ACSICG/11)**

(Presented by the Secretariat)

SUMMARY

This paper presents the discussions and relevant outcomes on Eleventh Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/11) of APANPIRG for meeting review.

1. INTRODUCTION

1.1 The Eleventh Meeting of the Aeronautical Communication Services (ACS) Implementation Coordination Group (ACSICG/11) was held at the ICAO APAC Regional Office, Bangkok, Thailand, from 19 to 22 March 2024. The Meeting was attended by 82 participants from 20 States/Administrations, 1 International Organizations and 1 industry. The meeting report, working papers, information papers, and other resources can be accessed by the following link:

<https://www.icao.int/APAC/Meetings/Pages/2024-ACSICG11.aspx>

1.2 The Twelfth Meeting of the Common Aeronautical Virtual Private Network Operations Group of APANPIRG (CRV OG/12) was held from 23 to 26 January 2024 in Denarau Island, Fiji. The Meeting was attended by 66 participants from 18 Member States/Administrations and 1

telecommunication provider. The meeting report, working papers, information papers, 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>

1.3 This paper summarised relevant information and updates with a highlight on the outcomes of ACISCG/11 and CRV OG/12 to be reviewed by the Twenty-Eighth meeting of Communications, Navigation, and Surveillance Sub Group (CNS SG/28) of APANPIRG and the Thirty-Fifth Meeting of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/35).

2. DISCUSSION

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

Review of Relevant Meetings - Sec (WP/02)

2.2 The CRV OG/12 Meeting reviewed the 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.

2.3 The CRV OG/12 Meeting requested that States/Administrations exchanging IWXXM data and/or FIXM data on CRV share their experience with bandwidth utilisation to understand potential bandwidth requirements. Singapore informed that bandwidth utilisation is not high based on their experience sharing IWXXM data on CRV Package A, 2 Mbps. Hong Kong China reported that their bandwidth utilisation for IWXXM data is also moderate. The CRV OG/12 Meeting agreed that PCCWG will provide quarterly bandwidth utilisation reports to the CRV OG Ad-hoc expert group as a periodic update. The CRV OG Ad-hoc expert group will continue to analyse the data, and if any observations are made, they will be brought to the attention of the CRV OG meeting.

58th APAC DGCA Conference Action Items on CRV – Sec (WP/03)

2.4 The CRV OG/12 Meeting noted the Air Navigation (ANS) related Action Items of the 58th Conference of Directors General of Civil Aviation Asia and Pacific Regions (DGCA/58) 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 2024.

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

Outcomes of CRV Seminar for the Pacific States - Sec (WP/25)

2.5 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. The Seminar was attended by 46 participants from 15 States/Administrations and 1 telecommunication provider. 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>.

2.6 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.

2.7 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.

2.8 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. The deadline has been extended till 31 December 2024.

ICAO ATN/AMHS Guidance Document Tree – Sec (WP/04)

2.9 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 to 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.

2.10 The CRV OG/12 Meeting reviewed the Tree and observed that additional improvements are needed under the CRV documents section. The CRV OG/12 Meeting acknowledged the need to maintain and update the Tree in a timely manner as it provides guidance and reference to Member States for applicable documents prepared by ACSICG/CRV OG/ICAO and understand the relationship among them. The CRV OG/12 Meeting shared the concern of keeping the link to some documents provided in the Tree on the public portal because some documents, such as CRV routing policy/address, contain sensitive information. 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 - USA (WP/13)

2.11 The CRV OG/12 Meeting noted the process for members with CRV services in operation and planned 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. USA added that the process will be incorporated into the CRV Operations Manual after agreement on the process. Furthermore, it was recommended that users coordinate with PCCW Global technical staff during the testing and cutover of the new service. 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.

2.12 The CRV OG/12 Meeting mentioned that WP/15 and WP/13 complement each other. The difference is that WP/13 describes the process for existing CRV users. The CRV OG/12 Meeting suggested that the CRV OG Ad-hoc Expert group develop **the process for testing new SWIM services** following the procedure mentioned in [Appendix A to the CRV OG/12 report](#). 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 the standards recommended by CRV OG.

Outcomes of Ad-hoc Group Meetings – New Zealand (WP/14)

2.13 The CRV OG/12 Meeting noted the outcomes of the CRV OG Ad-Hoc Expert Group discussions held in 2023, including joint CRV OG Ad-Hoc Expert and SWIM TF TLs Meetings. The CRV OG/12 Meeting noted that the work of the Ad Hoc Expert Group continues to be extremely valuable, that the ongoing contribution is appreciated, and that participation is invited in the Ad-hoc group meetings.

Adding A New Service to CRV - New Zealand (WP/15)

2.14 The CRV OG/12 Meeting discussed the steps required to add a new service to the CRV Network. Reference was shared from *Section 5.1.1 – Requirements, Section 5.1.2 - Criteria, Section 6.5 - Service Validation and Testing Management, and Section 6.4 - Release and Deployment Management* of the CRV OG Operations Manual. The CRV OG/12 Meeting noted that *Section 6.4 - Release and Deployment Management* needs to be modified to cover how to bring services into operation. The Meeting noted that *Section 5.1.2 Criteria* to add a new service was written from the point of view of adding parties external to the ANSP, but it must be modified to include other services like SWIM. 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 following modifications/additions were suggested by the CRV OG/12 Meeting to improve the drafted process further:

1. To assess the feasibility of a Service Provider / Service Consumer (SPSC) connecting to the CRV, the list of parameters provided in a(ii) of the process needs to be reviewed and amended to accommodate other potential required parameters.
2. A process and procedure to test a new service on the CRV network need to be drafted.
3. Further discussion is needed for the required class of SWIM services.
4. The feasibility of testing a new SWIM service first on the test GRE tunnel and, after successful testing on the test GRE tunnel, its transfer over to the operational GRE tunnel needs further deliberations.
5. The number of GRE tunnels for each SWIM service may not be feasible.
6. Further discussion is required for IP assignments and their grouping.
7. Currently, in the System Design Document (SDD), the QoS of SWIM services is not mentioned, requiring further action.

2.15 The CRV OG/12 Meeting requested that the CRV OG Ad-hoc Expert group modify the process provided in Appendix B to the CRV OG/12 report to incorporate various discussions and suggestions shared during the CRV OG/12 Meeting in the abovementioned section.

CRV OG Operations Manual Status - New Zealand (WP/16)

2.16 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**.

2.17 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 – Singapore (WP/17)

2.18 Singapore updated the latest status of the Internet Protocol (IP) address block allocated to CRV Users -Industry. 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 - New Zealand (WP/18)

2.19 The CRV OG/12 Meeting discussed the National and Local Points of contact. The CRV OG/12 Meeting clarified that the national point of contact should be one from ANSPs, which could potentially increase the workload for national contact. This means that the CRV Operations Group meetings should be attended by the National CRV Point of Contact, which represents the organisation and the State, as well as all CRV users for that State, including the CRV User - Industry.

2.20 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 the definition of new CRV users. 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 - New Zealand (WP/20)

2.21 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

2.22 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. 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. The CRV OG/12 Meeting requested that all States/Administrations that have not submitted the response should submit the response on priority. The fourth CRV OG Ad-hoc governance group meeting conducted on 3 May 2024 further reviewed the responses and the problem statement.

Number of Subscribers to the New Zealand Hosted CRV Portal - New Zealand (WP/19)

2.23 New Zealand shared information about the New Zealand hosted CRV Portal access. 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**. 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.

Update the APAC CRV Implementation Table - Sec (WP/10)

2.24 The latest updates presented on the planning and implementation status of CRV in the ACSICG/11 meeting 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

CRV contract management

2.25 Due to the confidentiality of the CRV contract management process, the report under agenda item 7 was published on the [ICAO APAC CRV Secure portal](#) under the CRV group.

CRV Network Yearly Service Review 2023 - PCCWG (Presentation/02)

2.26 PCCWG shared the Latest CRV Updates and CRV Network Yearly Service Review for 2023.

Monitoring and Analysing CRV Network Traffic in Hong Kong, China (WP/21)

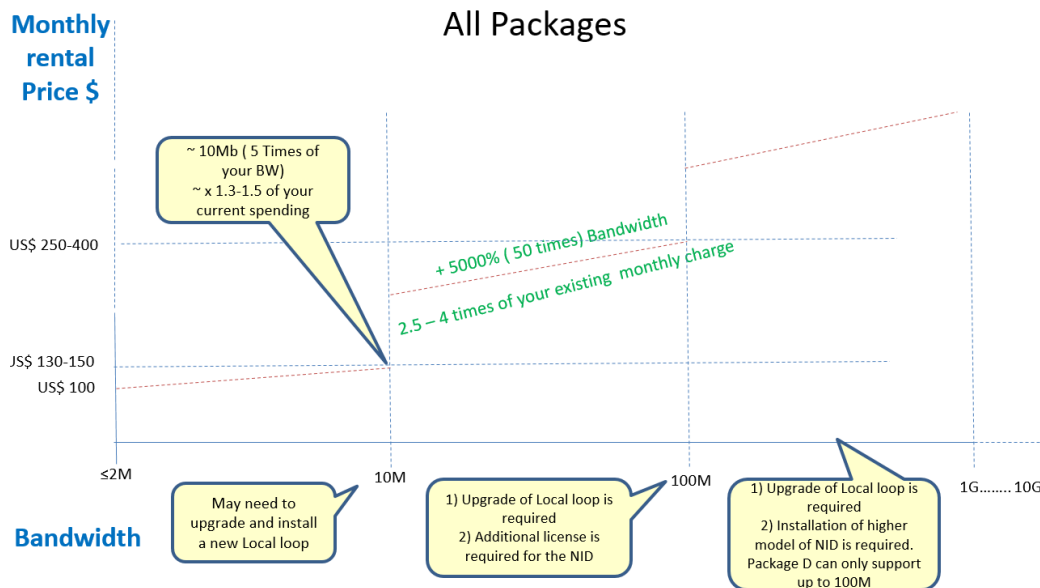
2.27 Hong Kong, China introduced the CRV network traffic capturing equipment deployed in Hong Kong, China, and presented the insights and analysis derived from the captured network traffic. Based on the CRV network traffic captured between 8 and 14 January 2024 in Hong Kong China, there

is no immediate need to upgrade bandwidth capacity, assuming no significant changes in bandwidth usage patterns in the near future. Hong Kong, China, informed that they will maintain the capturing equipment to monitor CRV network traffic and conduct further analysis, mainly as more high-volume applications are gradually brought into CRV.

2.28 The CRV OG/12 Meeting noted that in WP/27, the bandwidth utilisation report shared by PCCWG is an average bandwidth, which is not accurate in analysing the sufficiency of CRV bandwidth contracted by each Member State. PCCWG informed that their platform cannot share information about peak bandwidth. The CRV OG/12 Meeting agreed that the initiative by Hong Kong China is excellent for understanding and analysing CRV network traffic. The CRV OG/12 Meeting encouraged other States/Administrations using CRV to conduct such experiments and share their experience in conducting similar CRV network traffic monitoring and analysis.

Bandwidth Extension of CRV to Meet Future Requirements - PCCWG (WP/23)

2.29 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. The SWIM TF meeting has requested that CRV OG consider deliberating the possibility of enhancing CRV bandwidth and the associated cost optimisation to support operational SWIM implementation over CRV. 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 presented the following diagram, clarifying the bandwidth upgrade cost concept.



2.30 The CRV OG/12 Meeting requested that Member States/Administrations review the CRV bandwidth requirement and estimate the cost based on the conceptual diagram provided in the figure. States/Administrations may contact PCCWG directly for further commercial discussion as needed.

2.31 With this proposal, the request shared by SWIM TF/8 to CRV OG for considering deliberation on enhancement CRV bandwidth and the associated cost optimisation to support operational SWIM implementation over is completed.

CRV Bandwidth Utilization Rate – PCCWG (WP/27)

2.32 PCCWG presented the bandwidth utilisation of each Member State/Administration in 2023. PCCWG informed that the reporting tool captured and recorded the average traffic value from the NID interface at 5-minute intervals and averaged the collected data to generate the monthly traffic report. The CRV OG/12 Meeting reviewed the monthly traffic report and it was observed that the average utilisation rate cannot share peak bandwidth utilisation. Member States/Administrations were requested to make additional efforts to measure and monitor CRV network performance and share it with CRV OG regularly.

The collection of CRV Requirements- New Zealand (WP/25)

2.33 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. The CRV Operations Manual has specific parameters for the CRV network performance, such as bandwidth, latency, jitter, packet loss, QoS and connectivity. 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.

2.34 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.

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

2.36 Based on the information shared in the form and outcomes of the joint event (trial/demo), **“CRV data requirements for SWIM Workshop”** was 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 joint event's outcomes and analyse CRV performance and other crucial information to finalise the requirements and technical specifications for the new CRV contract management process. The workshop is being organised in Guam, USA, from 17-20 September 2024. 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, which was completed.

MPLS/IP Based Inter-Regional Connection – Sec (WP/05)

2.37 The CRV OG/12 Meeting noted the current discussion status for the potential interconnection of CRV and REDDIG II and CRV and New PENS.

2.38 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 coordinations in 2023, no concert technical proposal is ready to work further for CRV and REDDIG II interconnection.

2.39 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. Including a requirement in the new service contracting processes was essential 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 to find a 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 – PCCWG (WP/06)

2.40 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. As such, the CRV OG/12 Meeting was requested to provide assistance to proceed further.

2.41 The CRV OG/12 Meeting agreed that based on the situation's urgency, States/Administrations of the APAC region needed interconnection with the SAM region may join REDDIG II or implement a dedicated line based on cost-benefit analysis. Similarly, in case of the need to interconnect with European States, New PENS can be joined by the interested States. PCCWG informed that they could support connection to CRV if other regions' States/Administrations wish to join CRV under CRV OG instructions/guidance. 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.

2.42 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) – Sec (WP/07)

2.43 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 utilisation 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 – New Zealand (WP/08)

2.44 CRV OG Co-chair (Asia) presented an update on the proposed Cyber Security Review. The CRV OG/12 Meeting noted that the two cybersecurity organisations specialising 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.

2.45 ICAO Secretariat informed that it has coordinated with ICAO HQ CDI to share the formal process to transfer the 16 pioneer States' money to the third-party supplier. However, this could be seen as a way to use funds from an ICAO project to solo-source, thus circumventing ICAO regulations on procuring goods and services. ICAO CDI cannot proceed this way, and the funds must agree with ICAO provisions, as described in the MSA/Project Document. 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.

2.46 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 utilise 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 (WP/09)

2.47 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 summarised 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 - Sec (WP/24)

2.48 The CRV OG/12 Meeting reviewed the ToR of CRV OG and further updated the Action Items for CRV OG. The revised ToR was adopted by ACSICG by **Decision ACSICG/11/01**.

Future of Face-To-Face Meetings - New Zealand (WP/26)

2.49 The paper presented a discussion on the future of face-to-face meetings of the CRV. The CRV OG/12 Meeting noted that since the organisations continue to face budgetary pressure post-pandemic and the need to reduce greenhouse gas emissions, attending the annual face-to-face meetings for some CRV OG key members has become difficult. 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 have 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

2.50 The CRV OG/12 Meeting agreed to organise 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**. It was advised that if any State/Administration is interested in hosting the Meeting, they should inform the ICAO secretariat at least 4-6 months before. The dates and venue of the Meeting will be shared with APAC Member States after finalisation.

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

2.51 The paper presented the AMHS implementation status information in the Asia/Pacific Region updated in the ATS Messaging Management Centre (AMC) (OPER 259) on 22 FEB 2024. All revised AFTN/AMHS connections, links, and line speeds will be updated on 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)

2.52 The paper updated the PCAA's coordination with Eurocontrol ATS Messaging Management Centre (AMC). Pakistan provides AMHS services and is responsible for the worldwide distribution/routing of AMHS/AFTN traffic through 06 international circuits as per the 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 to get AMC data. PCAA can now regularly upload AMC data on AMHS as per the AIRAC cycle and is not facing any issues with the worldwide routing of AMHS / AFTN traffic.

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

2.53 The paper summarised 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 the 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 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.

2.54 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 to be used. ICAO Secretariat will maintain communication with the service providers to ensure the region stays updated on developments.

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

2.55 The paper summarised the AMHS readiness status for supporting IWXXM Traffic of the States/Administrations in the 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, 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 were urged to inform the ICAO APAC Regional Office on their readiness and implementation progress/plan of AMHS with FTBP as soon as possible. The Meeting updated the AMHS Readiness Table for Supporting IWXXM Traffic.

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

2.56 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.

2.57 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 for CNS SG/MET SG adoption:

Draft Conclusion ACSICG/11/02 - Review of APAC Region IWXXM Implementation Status/ Readiness	
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.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: As per Amendment 79 to Annex 3 (applicable November 2020), States/ Administrations are required to exchange meteorological information in IWXXM form.	Follow-up: <input checked="" type="checkbox"/> Required from States
When: 22-Mar-24	Status: Draft to be adopted by Sub group.
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: XX	

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

2.58 The FAA informed that it is currently developing an AMHS SWIM Gateway (ASG) that will be implemented as an enhancement to the FAA's operational AMHS to support the international exchange of XML-formatted messages encoded using the ICAO Meteorological Information Exchange Model (IWXXM). The effort and status of the ASG were summarised in the

paper. The Meeting noted that it was anticipated that ASG development would 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)

2.59 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 the 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 the OEM of AMHS for the exchange of meteorological data in IWXXM. Furthermore, PCAA has already replaced the Karachi-Mumbai AFTN data link with the AMHS / X-400 link to support the exchange of IWXXM data. Replacement of the Karachi-Beijing AFTN data link over TCP / IP/MPLS circuit link has been completed.

Fiji AMHS & IWXXM Implementation Status (IP/16)

2.60 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.

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

2.61 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 that allows messages to be distributed globally and is compatible with ATC automation systems. The paper analysed 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)

2.62 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, the meaning of SWIM governance, the sunset date of FPL2012, etc. For more information, Member States/Administrations were welcome to contact Mr. Ulrich Kaage through email: Ulrich.KAAGE@frequentis.com

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

2.63 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.

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

2.64 The paper summarised 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)

2.65 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.

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

2.66 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.

2.67 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.

2.68 A group of operational COM experts will develop educational material to manage the distribution of IWXXM information when primary AMHS link failure occurs. (AUS, USA, SGP, HKG, FJI).

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

2.69 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.

2.70 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.

2.71 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.

2.72 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.

2.73 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.

2.74 A group of COMM and MET experts to develop a checklist of steps required to operational IWXXM exchange. (AUS, SGP, FJI, HKG).

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

2.75 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 prioritise the materials presented and discussed in the joint session.

2.76 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>

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

2.77 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).

2.78 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.

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

2.79. The ACSICG/11 meeting further reviewed and updated the work programme of ACSICG from ACSICG/10. Additionally, the ACSICG/11 meeting also updated the AMHS Focal Contact Point.

2.80. 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.

2.81. 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.

2.82. The Meeting noted the identified inconsistency of the data contained in AMC and the various difficulties for States/Administrations in utilising 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 organise 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.

2.83. 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 organisations, on voluntary basis.

2.84. 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.

2.85. 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.

2.86. 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.

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

2.87. 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

2.88 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 a one-day joint meeting with MET/IE WG, the ICAO Secretariat will coordinate internally and inform participants of the exact dates and venue in due course.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

- a) review the outcome of the ACSICG/11 and CRV OG/12 and take any necessary follow-up actions;
- b) adopt the draft conclusion provided in section 2.57; and
- c) discuss any matters as appropriate.
