



ICAO

International Civil Aviation Organization
**Thirteenth Meeting of the Common aeRonautical
Virtual Private Network Operations Group (CRV
OG/13)**
Wellington, New Zealand, 05-08 March 2025

Agenda Item 7: Review and update the APAC CRV Implementation Table and
Telecommunication Infrastructure Table

**REVIEW AND UPDATE THE APAC CRV IMPLEMENTATION TABLE AND
TELECOMMUNICATION INFRASTRUCTURE TABLE**

(Presented by the Secretariat)

SUMMARY

This paper presents the APAC CRV Implementation Table and Telecommunication Infrastructure Table for review and update by the meeting.

1. INTRODUCTION

1.1 The Ninth Meeting of the Common aeRonautical Virtual Private Network Operations Group of APANPIRG (CRV OG/9) was held from *25 to 27 January 2022* via Video Teleconferencing (VTC). The meeting was informed that the format of the CRV Implementation table updated by CRV OG/8 needs to be modified to accommodate necessary information required by the ICAO Secretariat from time to time for monitoring the progress and implementation status of CRV and connected States by CRV for each Member State. The meeting reviewed and updated the APAC CRV Implementation Table.

1.2 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 ACSICG/11 meeting reviewed the CRV Implementation table updated by CRV OG/12 held from *23 to 26 January 2024* in Denarau Island, Fiji.

1.3 The Twenty Seventh Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/27) of APANPIRG was held at the ICAO APAC Regional Office, Bangkok, Thailand, from *28 August to 1 September 2023*. The **Conclusion CNS SG/27/02 (ACSICG/10/04) - Telecommunication Infrastructure Table** formulated by ACSICG/10 was adopted by CNS SG/27.

1.4 The Twenty-Eighth Meeting of the Communications, Navigation, and Surveillance Sub-group (CNS SG/28) of APANPIRG was held from *1 to 5 July 2024* at the ICAO APAC Regional Office, Bangkok, Thailand. The meeting noted the updated CRV implementation status in the APAC Region.

2. DISCUSSION

2.1 The latest updates from the service provider on the planning and implementation status of CRV are as follows:

- **Under Operation**

Australia, Bhutan, Cambodia, China, Hong Kong China, Fiji, French Polynesia, India, Indonesia, Japan, Macau China, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, PNG, Republic of Korea, Singapore, Sri Lanka, Thailand, USA and Vietnam

- **Under Provisioning**
New Caledonia and Maldives
- **Hot Prospects in 2025**
Bangladesh, Brunei, Cook Island, Lao PDR, **Oman**, Niue, Samoa and Tonga
- **Not joined yet**
Afghanistan, DPRK, Kiribati, Marshal Islands, Micronesia, Nauru, Palau, Solomon Islands, Timor Leste, Tuvalu, Vanuatu, Russia, ICAO MID States

2.2 The updated CRV implementation table by the CRV OG/12 meeting is provided in **Appendix A** of this paper for meeting review and update.

2.3 The Telecommunication Infrastructure Table updated by various States/Administrations in 2024 can be accessed on the [New Zealand-hosted CRV Portal](#) for further review and updates.

2.4 After reviewing the Telecommunication Infrastructure Table, the meeting is requested to assess the need to update the CRV implementation table in future CRV OG meetings.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) review and update the CRV implementation table provided in **Appendix A**; and
- c) review and update the Telecommunication Infrastructure Table on the New Zealand-hosted CRV portal;
- d) assess the need to update the CRV implementation table in the future; and
- e) discuss any relevant matter as appropriate.

UPDATED APAC CRV IMPLEMENTATION TABLE

Please review the following table and share updated information in track mode by email at jixu@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: <u>Completed:</u> 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

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				<p>March 2019 (Voice)</p> <p>In Progress: Indonesia Jan 2024 (AMHS), Voice and ADS-B pending.</p> <p>Pending: South Africa TBC (AMHS/AIDC, Voice);</p>		
3	Bangladesh					
4	Bhutan	Thailand (Bangkok)	<p>Contract signed on Oct 2019.</p> <p>CRV installed successfully in Dec 2021.</p> <p>CRV P2P Test between Paro-Bangkok completed.</p> <p>CRV P2P Test between Paro-Mumbai completed on Jan 2023</p>	AMHS first. Voice and ADS-B – to be decided.	Staged Approach	Dependent on India for full utilization of CRV network.

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			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	

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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		

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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

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14	India*	<p>The GRE tunnels has been setup between:</p> <p>Mumbai–Bangkok, Mumbai- Singapore, Mumbai–Beijing and Mumbai-Paro.</p> <p>Mumbai- Kathmandu GRE Tunnel under tests</p> <p>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.</p>	<p>Contract for CRV implementation with M/s PCCW in India Signed on 15th March, 2022. CRV Circuit has been delivered in Dec, 2022.</p> <p>CRV Cutover: End of 1Q2023</p>	AFTN/AMHS, , ATS Voice & ADS-B	Staged approach	Note: On successful trial Operation with BBIS/BIS States, the CRV Cutover will be planned.

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15	Indonesia		Contract in 1Q2022 and service readiness in 2023.	Australia 2024 (voice & data) Malaysia 2024 (voice) Papua New Guinea 2024 (voice) Philippine 2024 (voice) Singapore 2024 (voice & data) USA 2024 (voice)		
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					

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18	Lao PDR					
19	Malaysia	Thailand Singapore Indonesia India	Contract signed between CAAM and PCCWG in Sept 2022. CRV service readiness started in Nov 2021.	Thailand 1) Network connectivity testing (AMHS/AIDC) – Oct 2022 2) Completed cut over & migration (AMHS /AIDC) – Jan 2023 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	Staged approach	

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				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		
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.

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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

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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 23 rd 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					

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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

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				<p>With JAPAN</p> <p>VOICE - 1Q2022 AIDC - Planned 2024</p> <p>With INDONESIA (Makassar)</p> <p>AIDC - 4Q2019 via BBIS VOICE - 4Q2023 Test done</p> <p>With MALAYSIA (Kota Kinabalu)</p> <p>AIDC - 4Q2023 Test done via BBIS VOICE - 2024</p> <p>With VIETNAM (Ho Chi Minh)</p> <p>AMHS - 2024 AIDC - 2024 VOICE - 2024</p>		

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32	Republic of Korea	Japan China	<p>Contract signed for AMHS in 3Q 2019 and service readiness in 4Q 2022</p> <p>Contract signed for voice, AIDC in 1Q 2021 and service readiness in 1Q 2021</p>	<p>Completed: With Japan Voice – Sep 2023 AMHS - December 2022</p> <p>With China AMHS – November 2022</p> <p>Planned: With Japan AIDC – Feb 2024</p> <p>With China AIDC – 2024</p>	staged approach	AMHS POT in 4Q and operation from 4Q 2022
33	Samoa					

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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.

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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					

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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	

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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	
