



ICAO

*International Civil Aviation Organization*

**The Twelfth Meeting of the Common aeRonautical  
Virtual Private Network Operations Group (CRV OG/12)**

*Denarau Island, Fiji, 23-26 January 2024*

Agenda Item 6: Review and update the APAC CRV Implementation Table

## **UPDATE THE APAC CRV IMPLEMENTATION TABLE**

(Presented by the Secretariat)

### **SUMMARY**

This paper presents the APAC CRV Implementation 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 Tele-Conferencing (VTC). The meeting was informed that the format of CRV Implementation table updated by CRV OG/8 needs to be modified to accommodate necessary information required by ICAO Secretariat 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 Tenth Meeting of the Aeronautical Communication Services (ACS) Implementation Coordination Group (ACSICG/10) was held at ICAO APAC Regional Office, Bangkok, Thailand, *from 24 to 26 May 2023*. The ACSICG/10 meeting reviewed the CRV Implementation table updated by CRV OG/11 held from *1 to 3 February 2023* in ICAO Asia and Pacific Regional Office, Bangkok, Thailand.

## **2. DISCUSSION**

2.1. The updated CRV implementation table by CRV OG/11 meeting is provided in **Appendix A** to this paper.

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

### **- Under Operation**

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

### **- Under Provisioning**

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French Polynesia, New Caledonia, Myanmar, Vietnam

- **Hot Prospects in 2023**

Bangladesh, Macau China, Cambodia, Sri Lanka

**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) discuss any relevant matter as appropriate.

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**APAC CRV IMPLEMENTATION TABLE**

Please review the following table and share updated information in track mode by email at [vmeeffuengsart@icao.int](mailto:vmeeffuengsart@icao.int) and [snibhani@icao.int](mailto: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 provided)	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>  <b>Fiji</b> March,2019 (AMHS June 2019/AIDC, Voice completed April) <b>New Zealand</b> , February, 2019 (AMHS June 2019, AFTN May 2019/AIDC), March, 2019 (Voice April 2019 completed) <b>Singapore</b> Dec, 2020 (AMHS/AIDC); <b>PNG</b> June 2021 (AFTN) Oct 2021 (Voice)	Staged approach	Termination of current COM contract

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SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates provided)	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
				<b>USA</b> March 2019 (AFTN) March 2019 (Voice)  <u>Pending:</u>  <b>South Africa TBC</b> (AMHS/AIDC, Voice);  <b>Indonesia</b> TBC 2022 (AMHS/AIDC, Voice, ADS-B);		
3	Bangladesh					

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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> <p>CRV cutover between Paro-Mumbai is scheduled on March 2023</p>	AMHS first. Voice and ADS-B – to be decided.	Staged Approach	Dependent on India for full utilization of CRV network.
5	Brunei Darussalam					

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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	<b>Hong Kong, China*</b>	Philippines China Japan Thailand Vietnam	Contract signed on 6 April 2018.  Connection was installed successfully in June 2018.	<b>With Manila</b> CRV-Voice put into operation in August 2018 CRV-AMHS put into operation in May 2019  <b>With Fukuoka</b> CRV-AMHS put into operation in September 2020  <b>With Beijing</b> CRV - AMHS POT in March and operation in April 2021  <b>With Bangkok</b> CRV-AMHS put into operation in August 2022	Staged approach	Need to coordinate with relevant CAAs/ANSPs in joining CRV in a harmonized manner, etc.
9	<b>Macau China</b>		December 2022	To be confirmed	Staged approach	Migration from X.25 to IPS
10	<b>Cook Islands</b>					
11	<b>Democratic People's Republic of Korea</b>		Contract in 3Q2018 and service readiness in 4Q2018	AFTN and VoIP		

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12	<b>Fiji*</b>	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	<b>France:</b>  <b>-New Caledonia</b>  <b>-French Polynesia</b>	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 15<sup>th</sup> 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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SN	State/ Administration (with* is BBIS; marked in blue- not yet join CRV/ no updates provided)	States /Administrations connected	Intended date for CRV cut-over	Applications targeted	Migration scheme	Prerequisites/ dependencies
15	Indonesia		Contract in 1Q2022 and service readiness in 2023.	Australia 2023 (voice & data) Malaysia 2023 (voice) Papua New Guinea 2023 (voice) Philippine 2023 (voice) Singapore 2023(voice & data) USA 2023(voice)		
16	Japan*	Hong Kong China USA Singapore China RoK Philippine	Contract signed in Nov.2017 and service readiness in1Q 2018 for Fukuoka	<b>USA</b> AMHS(1Q 2019) Voice(2Q 2021) <b>Hong Kong, China</b> AMHS(3Q 2020) <b>Singapore</b> AMHS(4Q 2020) <b>China</b> AMHS(1Q 2021) ATFM(1Q 2021) <b>Taipei ACC</b> Voice(1Q 2022) AIDC(planned 1Q 2023) <b>R.O.K</b> AMHS(4Q 2022) Voice(1Q 2021) and additonal line plan in progress AIDC(planned 1Q 2024) <b>Philippine</b> Voice(2Q 2022)	In progress	

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17	Kiribati					
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.	<b>Thailand</b> 1) Network connectivity testing (AMHS/AIDC) – Oct 2022 2) Completed cut over & migration (AMHS /AIDC) – Jan 2023 3) Voice & ADS-B (testing, migration- TBD  <b>Singapore</b> 1) Network connectivity testing (AMHS/AIDC) – May 2022 2) Estimate cut over & migration (AMHS/AIDC) – Q1/2023 3) Voice & ADS-B (testing, migration- TBD  <b>India</b> 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	Staged approach	

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				<b>Indonesia</b> 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: <b>China</b> Dec, 2022(AMHS), (ADP) TBD Voice, ADS-B, AFTN <b>Russia</b> 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	<b>New Zealand</b>	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	<b>Pakistan</b>	China India	Duly Signed Service Order Form Submitted on 23 <sup>rd</sup> 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	<b>Palau</b>					

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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 Singapore USA Japan	Contract signed in March 2018 and service readiness in 2Q2018	Completed: With <b>HONG KONG</b> AIDC - 2Q2019; AMHS - 2Q2019; Voice - 3Q2018.  With <b>SINGAPORE</b> AIDC – 4Q2019; AMHS – 4Q2020; Voice – 1Q2020.  With <b>USA</b> AMHS – 2Q2021; Voice – 4Q2019.  With <b>JAPAN</b> Voice – 1Q2022.	staged approach	Success transition to the New ATM center in 4Q2018  Dependencies: AIDC with Kota Kinabalu implemented via BBIS Singapore  AIDC with Ujung Pandang implemented via BBIS Singapore

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				Operational Trial: With <b>USA</b> AIDC – 4Q2022 Planned: With <b>INDONESIA</b> Ujung Pandang Voice – 1Q2023		
32	<b>Republic of Korea</b>	Japan China	Contract in 3Q 2019 and service readiness in 4Q 2022	Completed: <b>with Japan</b> Voice –March 2021 Data(AMHS) - December 2022  <b>With China</b> Data(AMHS) – November 2022  Planned; <b>With Japan</b> Voice additional lines-from 2022 to 2023	staged approach	Data(AMHS) POT in 4Q and operation from 4Q 2022
33	<b>Samoa</b>					



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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		1. Contract in 3Q2021 Status: Completed 2. Service readiness in 2Q2022 <u>Status:</u> <u>Completed</u>	Data first Then voice, subject to safety case: <u>Bhutan 3Q2022 (Completed)</u> <u>Hong Kong 3Q2022 (Completed);</u> <u>Singapore 3Q2022 (Completed);</u> <u>Malaysia 1Q2023(Completed);</u> India <u>1Q2023;</u> Beijing <u>2Q2023</u>	Staged approach	
38	Timor Leste					
39	Tonga					
40	Tuvalu					

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41	United States*	Australia Fiji Japan Philippines New Zealand Papua New Guinea Tahiti Russia	Contract in January 2018	<p>1) AMHS with Australia Fiji Japan Philippines New Zealand Papua New Guinea (2021) Indonesia (2022)</p> <p>2) AIDC with Fiji Japan New Zealand Papua New Guinea (Direct planned 2021) Tahiti (via New Zealand) Indonesia (Direct planned 2022) Russia (when join CRV)</p> <p>3) VoIP with Fiji Japan Philippines New Zealand Papua New Guinea (direct planned 2021) Indonesia (2022)</p>	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	staged approach	

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