International Civil Aviation Organization

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

Denarau Island, Fiji, 23-26 January 2024

Agenda Item 9: States CRV Implementation

FURTHER ENHANCING AERONAUTICAL NETWORK CONNECTIVITIES IN HONG KONG, CHINA VIA CRV IMPLEMENTATION

(Presented by Hong Kong, China)

SUMMARY

Hong Kong, China has been proactively transitioning its aeronautical network connectivity to CRV operations, progressively replacing legacy connections with other aeronautical network centers. This paper highlights the upcoming plan for Hong Kong, China to further enhance aeronautical network connectivity. The paper also highlights the need for contingency measures to cope with the unlikely event of a complete CRV outage.

1. INTRODUCTION

1.1 In August 2018, Hong Kong and Manila became the first city-pair in the region to transition from conventional Inter Area Speech Circuit (IASC) to CRV, signifying the commencement of CRV operations in Hong Kong, China. Since then, Hong Kong, China has proactively and progressively replaced five legacy AFTN/ATN connections by CRV in conjunction with neighbouring aeronautical network centers. The most recent transition occurred in August 2022 with Bangkok. At present, only two legacy connections remain in use: Hochiminh, Vietnam, and Macao, China.

1.2 Hong Kong, China aims to present its upcoming implementation plan for further enhancing aeronautical network connectivity and the relevant considerations to the OG members.

2. DISCUSSION

CRV Implementation with Hochiminh, Vietnam

2.1 Currently, there is only one AFTN connection between Hong Kong and Hochiminh, operating on a 2.4K International Private Leased Circuit (IPLC) connection for Aeronautical Message Handling System (AMHS). According to the latest update, CRV's Network Interface Device (NID) has already been installed in Hochiminh in December 2023, and is presently awaiting configuration by PCCW Global. Both Hong Kong, China and Vietnam are targeting completion of the transition in 2024, while in progress of finalizing the arrangements for testing and transitioning.

CRV Implementation with Macao, China

2.2 The current services between Hong Kong and Macao encompass AMHS/ATN, three IASCs, and radar data exchange. The AMHS/ATN service operates on an independent 64K point-to-point IPLC, while the other services are integrated into a multiplexer relying on two 2M point-to-point IPLCs. These services have been operational since 2014.

2.3 Through tripartite collaborative effort, namely Macao, Hong Kong and PCCW Global, Macao and PCCW Global announced signing of CRV service order during the Asia and Pacific Region Innovation & Capacity Building Symposium 2023 held in Hong Kong, China in December 2023. The installation is scheduled for completion by March 2024, with transition targeted for Q3 2024.

2.4 The radar data source utilizes a serial interface. As serial interface is not included in the CRV common provisions, Hong Kong and Macao have proactively implemented a serial-to-LAN converter to facilitate the exchange of radar data between the two locations.

2.5 Standard CRV common package provision will be adopted for AMHS and three IASCs.

Catering for Aeronautical Network Connectivity Enhancement

2.6 To accommodate the new service requirements with Macao, Hong Kong has procured an extra 2M CRV connection and NID for voice interfaces. These new resources will adequately cater for the capacity needs of the three IASCs with Macao, utilizing approximately 360K bandwidth. The remaining bandwidth will be allocated to support the anticipated System Wide Information Management (SWIM) trial.

2.7 Macao and Vietnam are planning to operationalize the AMHS/CRV this year, signifying the full migration of all the aeronautical network centers connected with Hong Kong to AMHS/CRV. Acknowledging the pivotal role of AMHS/CRV in supporting normal ATC operations, Hong Kong upgraded the CRV main site from Package C to C+ by installing an additional standby CRV router in December 2023, enhancing its resilience, while retaining Package C at the fallback site.

Contingency Measures

2.8 While the upgrade to Package C+ in December 2023 significantly bolstered resilience, the necessity of contingency measures to sustain ATC operations in the unlikely event of a complete CRV outage should be considered. To this end, Hong Kong, China has implemented an AFTN to email gateway, enabling the transmission of AFTN messages to other overseas aeronautical network centers via email. This measure ensures that minimal operations can be sustained even during a CRV outage.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the support from Hong Kong China for CRV implementation in the region by proactively transitioning its aeronautical network connectivities to CRV operations with neighboring aeronautical network centers;

b) consider contingency measures in the unlikely event of CRV total outage; and

c) discuss any relevant matter as appropriate.

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