



ICAO

International Civil Aviation Organization

Eighth Meeting of the Surveillance Implementation Coordination Group (SURICG/8)

Bangkok, Thailand, 6 – 9 June 2023

Agenda Item 5: Review of regional requirements for Surveillance in the e-ANP, Seamless ANS Plan and the reported implementation status

- a) Outcome for survey on APAC Surveillance and DCPC Coverage

OUTCOME FOR SURVEY ON ATS SURVEILLANCE AND DIRECT CONTROLLER AND PILOT COMMUNICATION (DCPC) VHF COVERAGE CHARTS FOR APAC REGION

(Presented by the Secretariat, Hong Kong China and Thailand)

SUMMARY

The need to enhance the surveillance and Direct Controller and Pilot Communication (DCPC) VHF coverage where gaps exist in APAC Region along some of the busy air traffic routes at boundaries between FIRs has been identified during APANPIRG/29 in 2018. As such, the coverage charts were regularly generated for inclusion in APAC Seamless ANS Plan. The ICAO APAC Regional Office launched a survey in early 2022 to update information concerning existing/planned coverage and reported the outcome from the Survey in CNS SG/26. This Working Paper captures the outcomes from that survey and discussion in CNS SG/26 for information of this meeting.

1. INTRODUCTION

1.1 Identified the need to enhance the surveillance and Direct Controller and Pilot Communication (DCPC) VHF coverage where gaps exist in APAC Region along some of the busy air traffic routes at boundaries between FIRs, the Conclusion APANPIRG/29/22 was endorsed in 2018, where there is a mechanism to produce charts and regularly update them in a sustainable manner to show the latest situation in ATS surveillance and DCPC VHF coverage in the Asia Pacific Seamless ANS Plan, so that resources in enhancing the surveillance and DCPC VHF coverage to address the gaps can be prioritized and optimized in a holistic, collaborative and harmonized manner.

1.2 With the need for a regular update, the ICAO APAC Regional Office issued the State Letter AP027/22 (CNS) in January 2022 for States/Administrations to update their ATS Surveillance and DCPC VHF coverage information. Details of replies from States/Administrations are provided below.

2. DISCUSSION

2.1. As of CNS SG/26 in 2022, there were 16 States/Administrations provided their updated coverages, and all plottable data provided has been applied to the update of coverage maps. Based on the inputs from States/Administrations, the overall pictures of ATS surveillance and DCPC VHF

coverage are given as follows in Figures 1 and 2 respectively. Detailed comparison in each main area of region identified in the APAC Seamless ANS Plan:-

Figure 1: Updated ATS Surveillance Coverage:

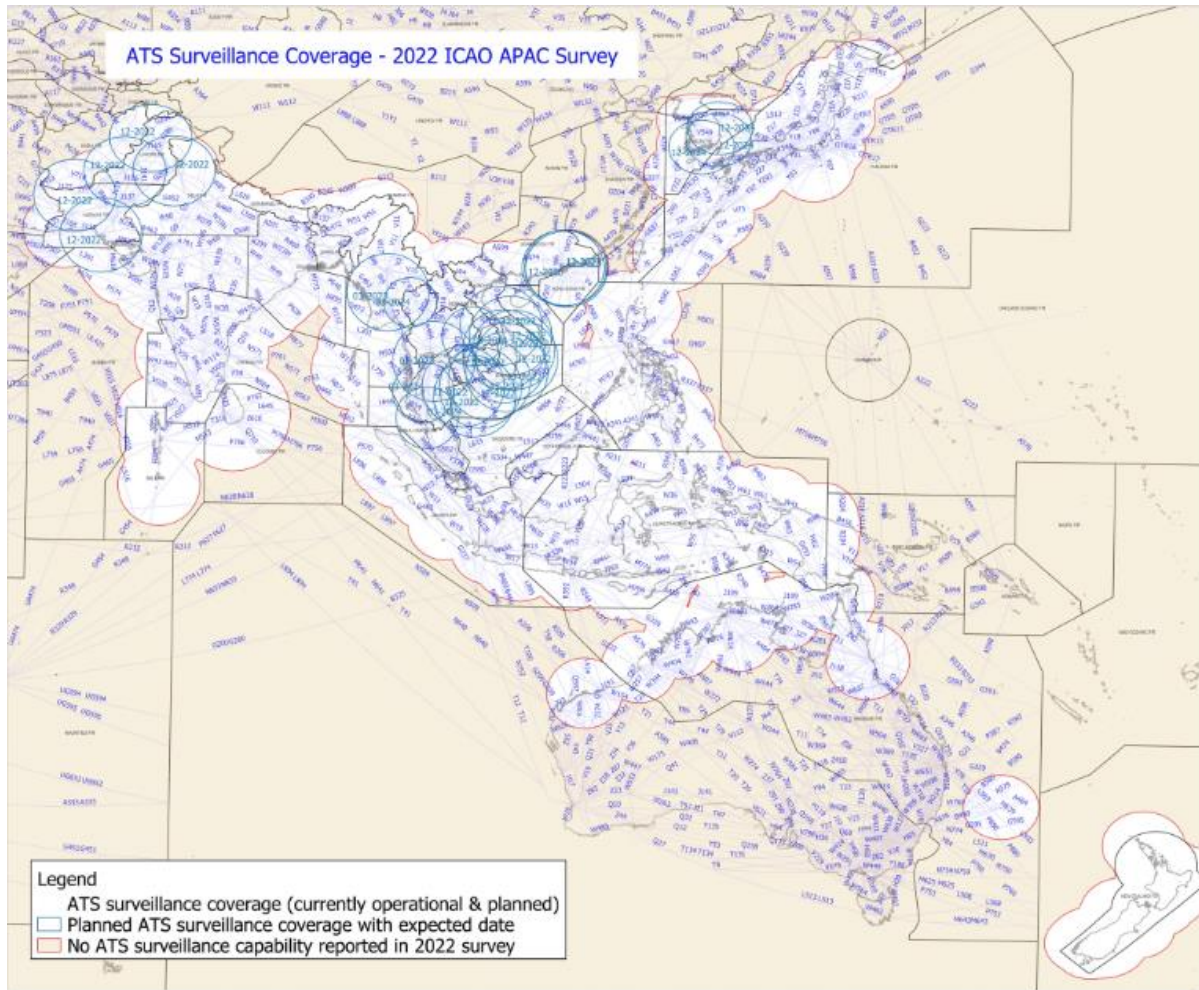
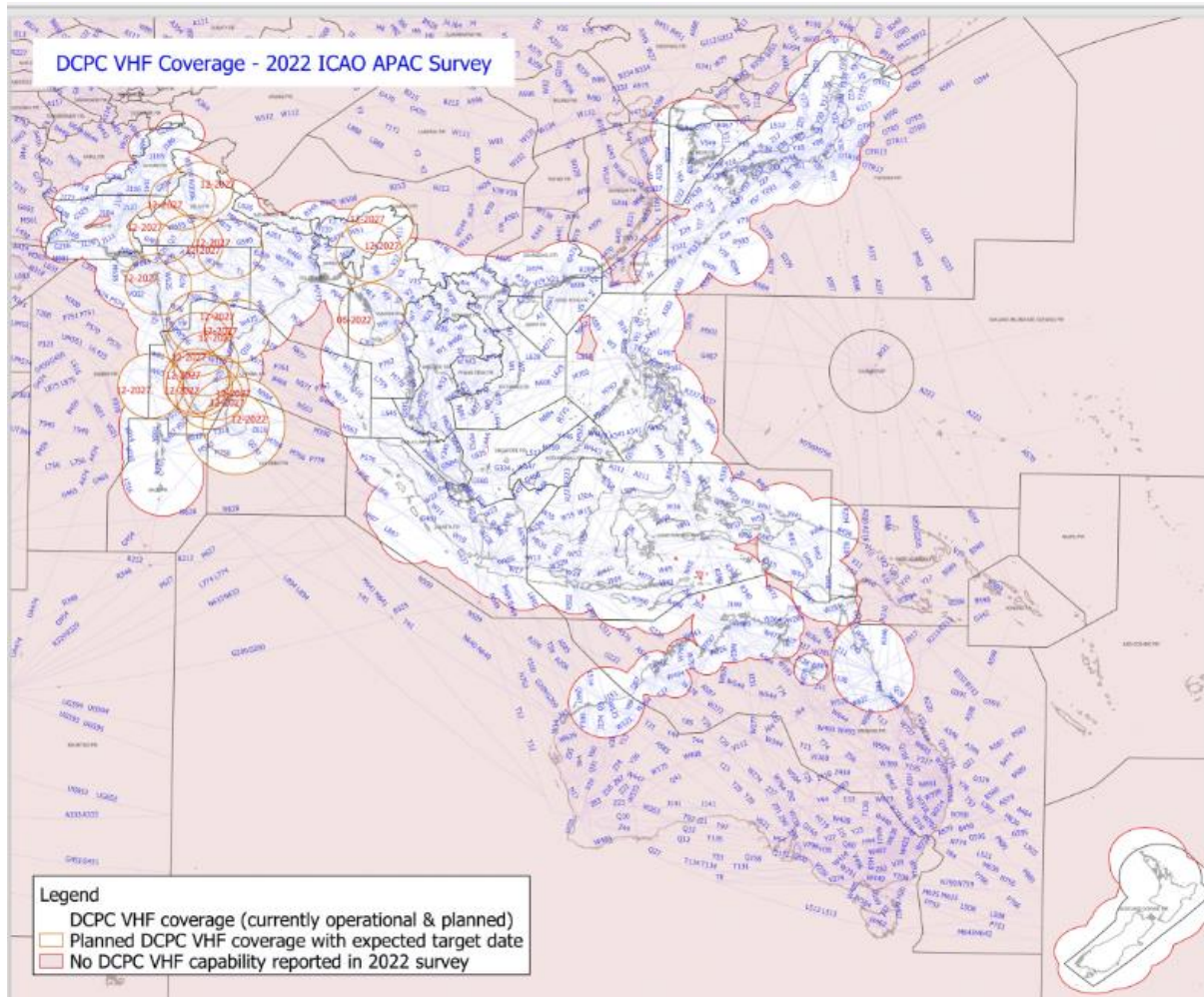


Figure 2: Updated DCPC VHF Coverage:



2.2. According to the current APAC Seamless ANS Plan version 3.0, paragraph 6.13 identifies the main areas of the region lacking ATS surveillance and DCPC VHF coverage which need to be addressed with priority. Based on the inputs from States/Administrations (with reply status given at Appendix A to this paper), the details of ATS Surveillance and DCPC VHF coverage in each of these identified areas are given below for review:-

(a) Highest Priority: South China Sea airspace between China, Hong Kong China and the Philippines

Figure 3a: ATS Surveillance coverage in the area of 2019

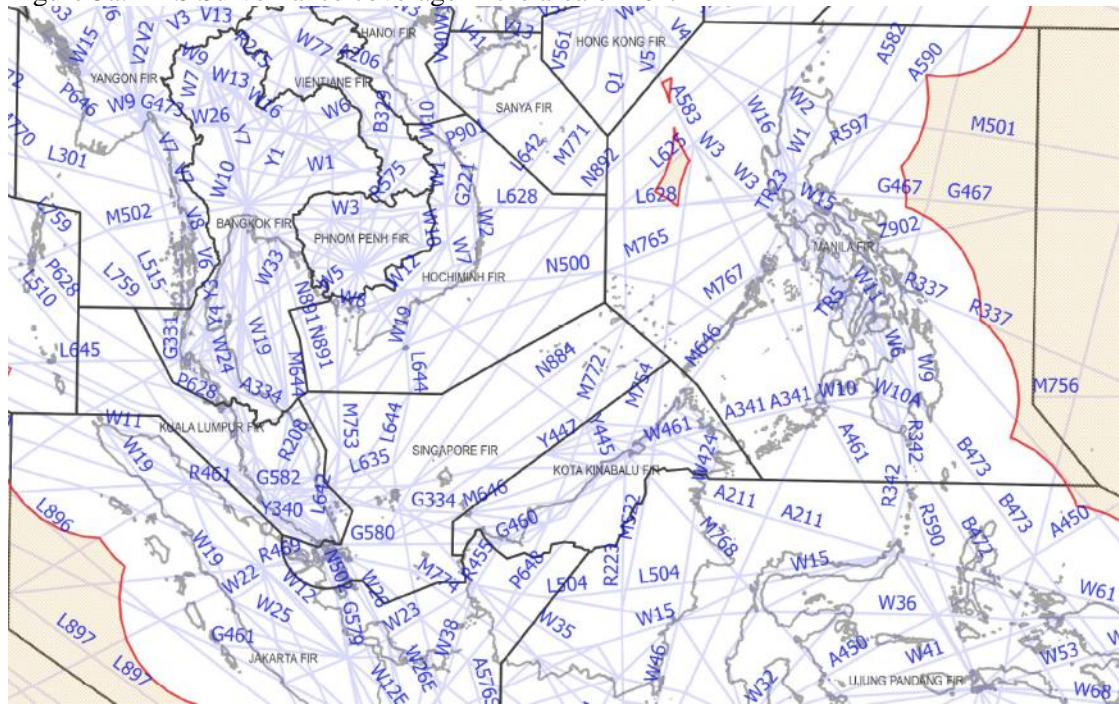
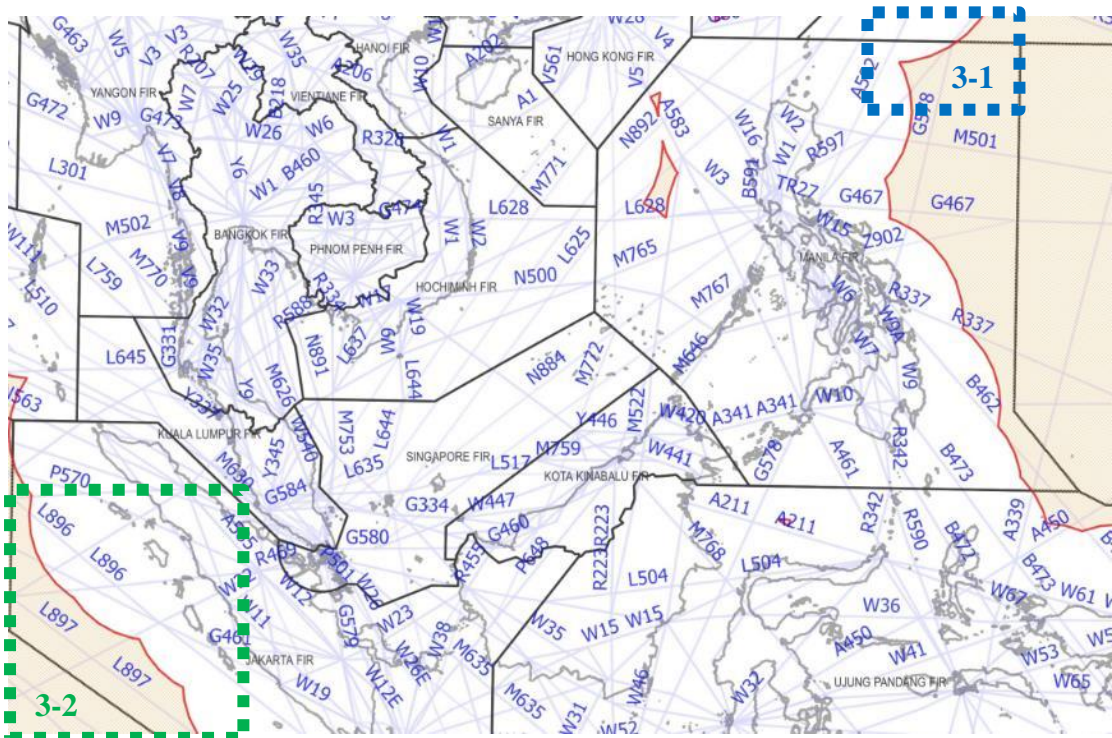


Figure 3b: ATS Surveillance coverage in the area of 2022, with major changes highlighted



2.3. The reduction in area marked as 3-1 was found to be correcting an incorrect entry back in 2019 of an ADS-B Station. It is noted that an increase in ATS surveillance coverage in the area marked as 3-2.

Figure 4a: DCPC VHF coverage in the area of 2019

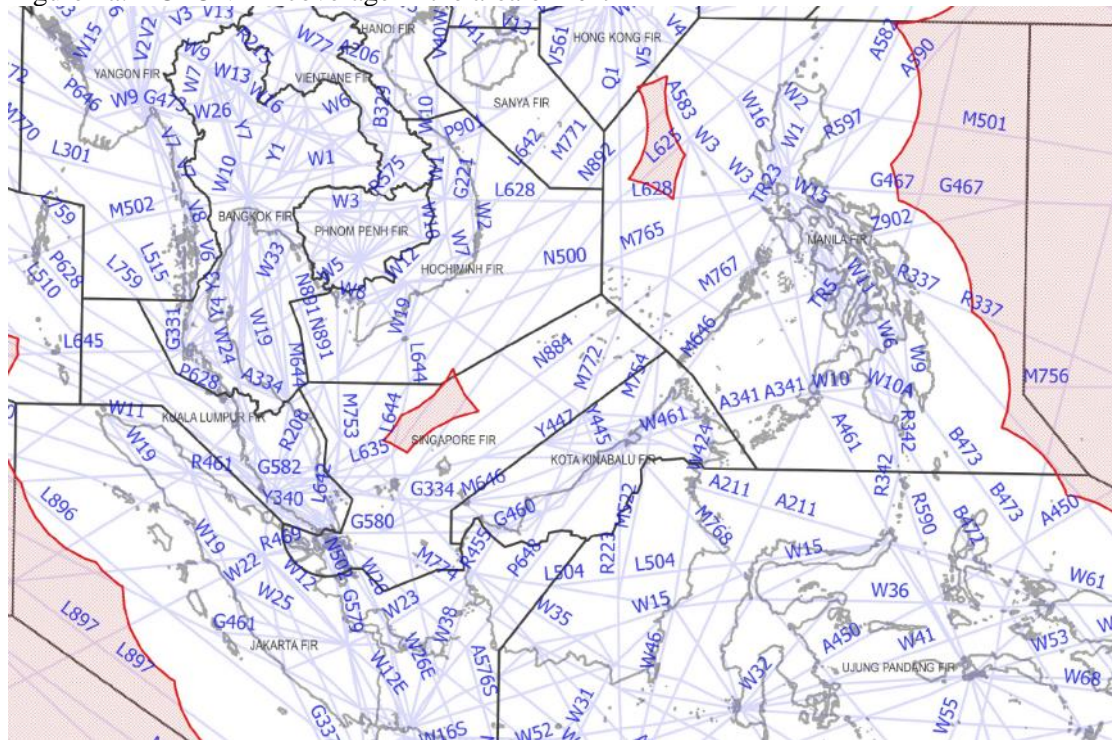
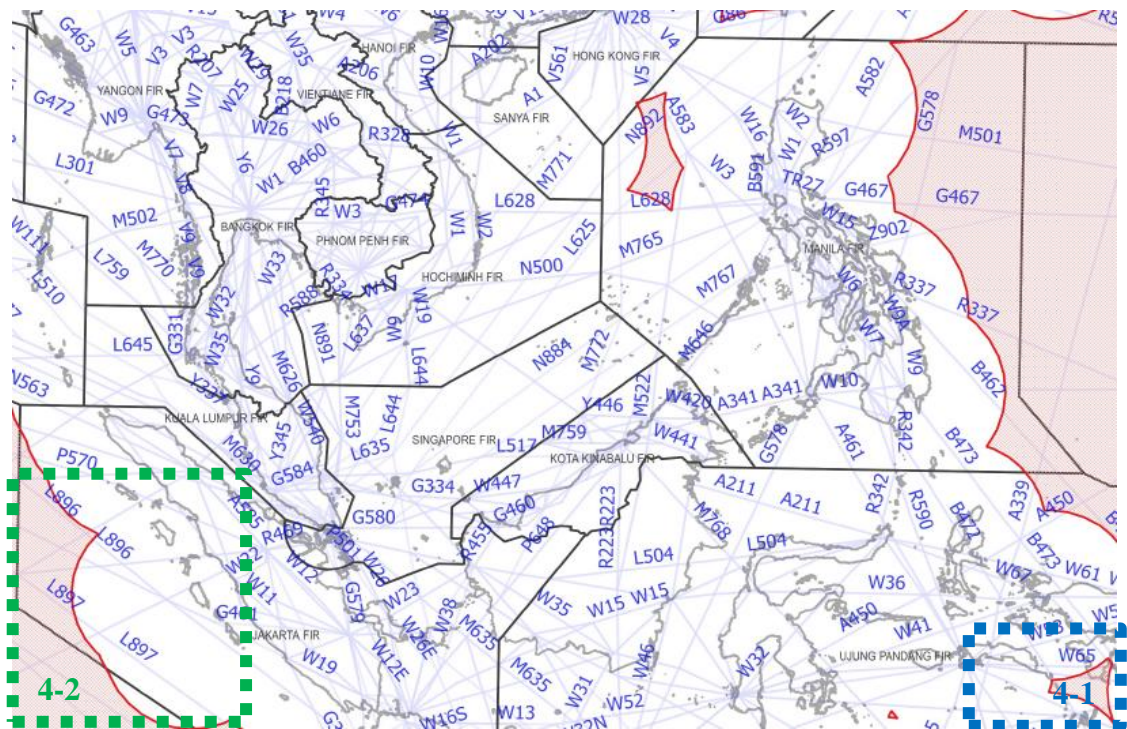


Figure 4b: DCPC VHF coverage in the area of 2022



- (c) Priority 3: airspace between Indonesia and Australia (between Java and West Australia), and airspace between the Philippines and Indonesia

Figure 7a : ATS Surveillance coverage in the area in 2019

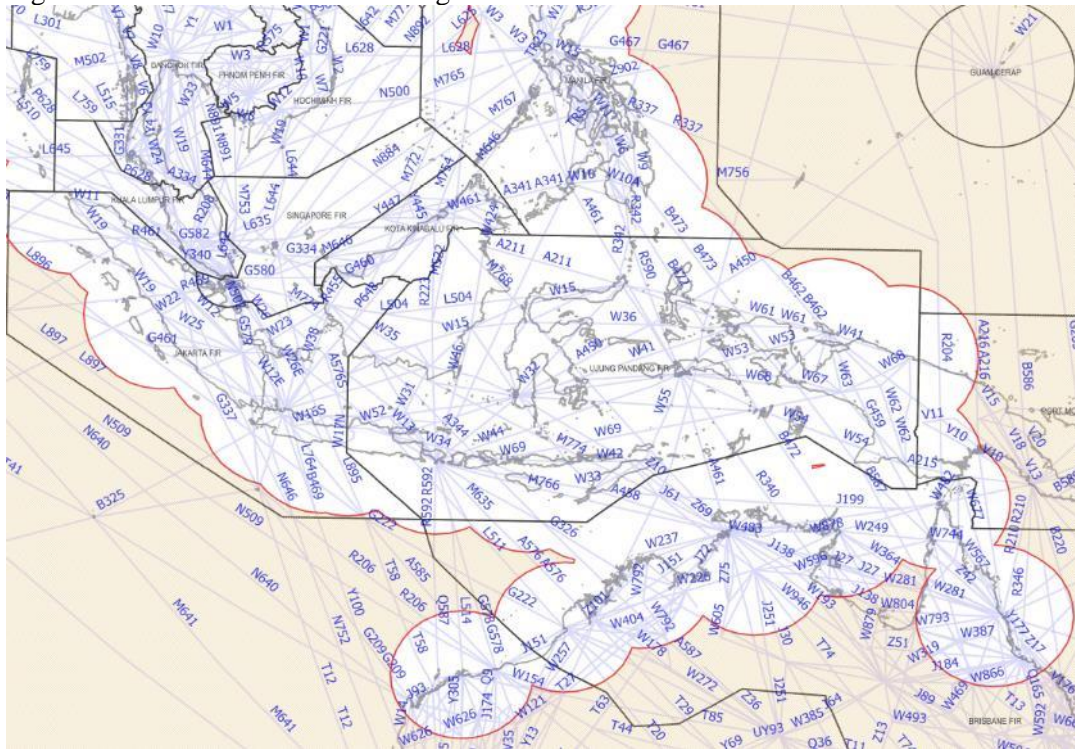
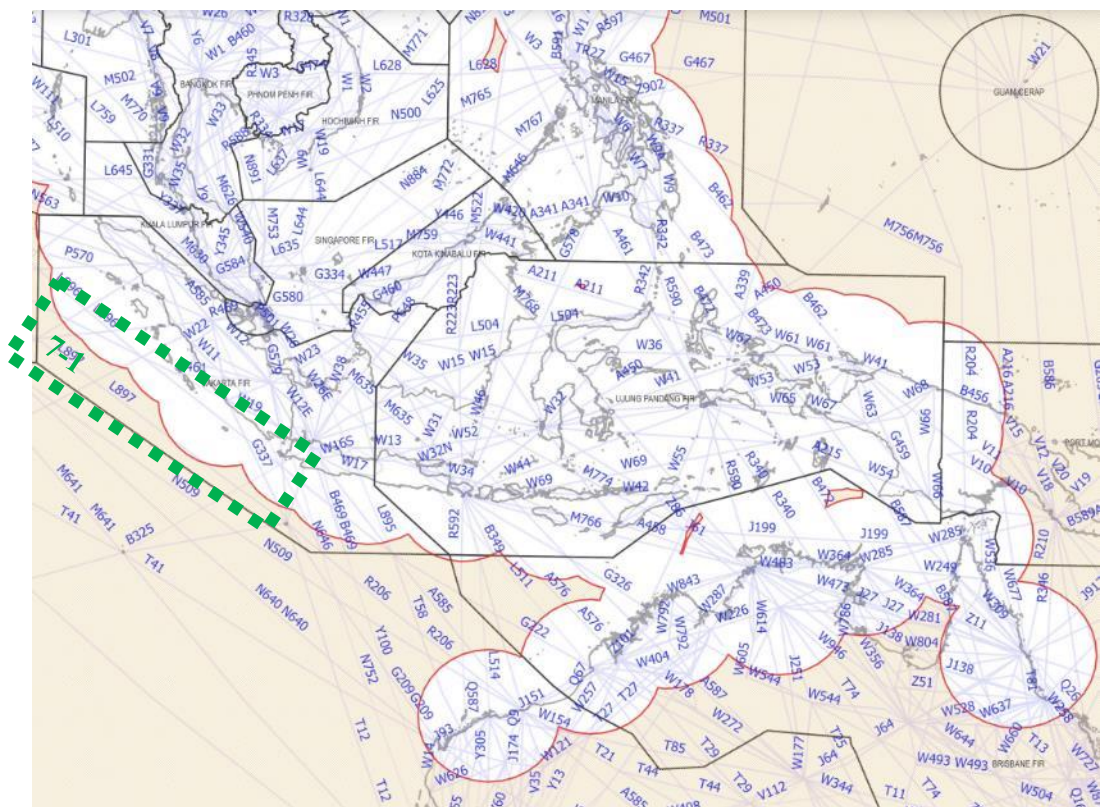


Figure 7b : ATS Surveillance coverage in the area in 2022



2.7. It is noted that an improved ATS surveillance coverage in the area marked as 7-1.

(d) Priority 4: Coral Sea between Papua New Guinea and Australia

Figure 9a : ATS Surveillance coverage in the area in 2019

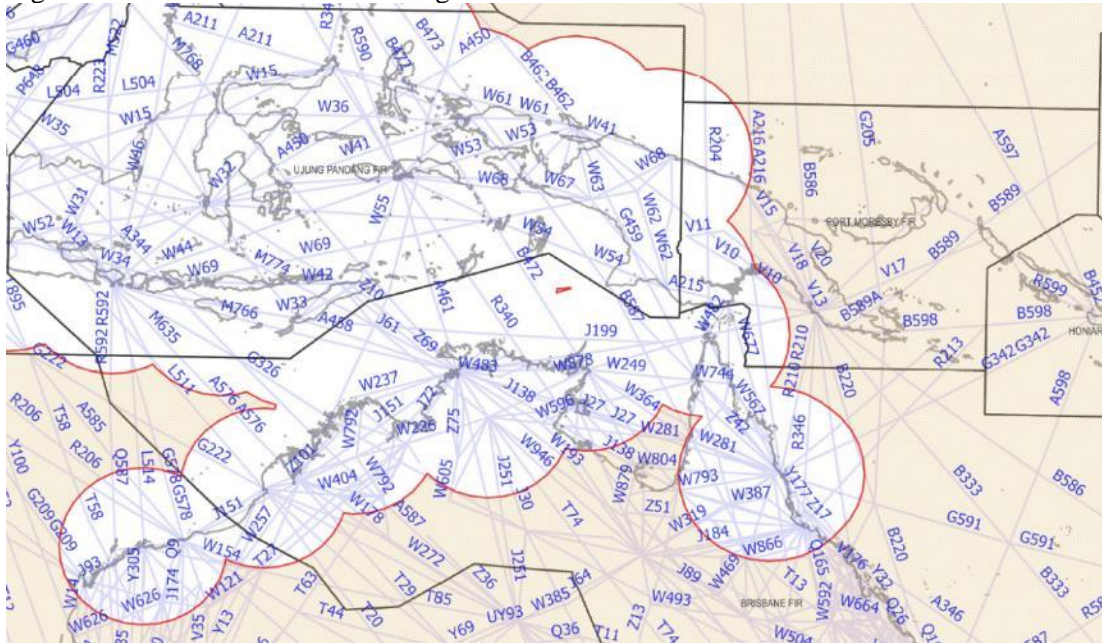
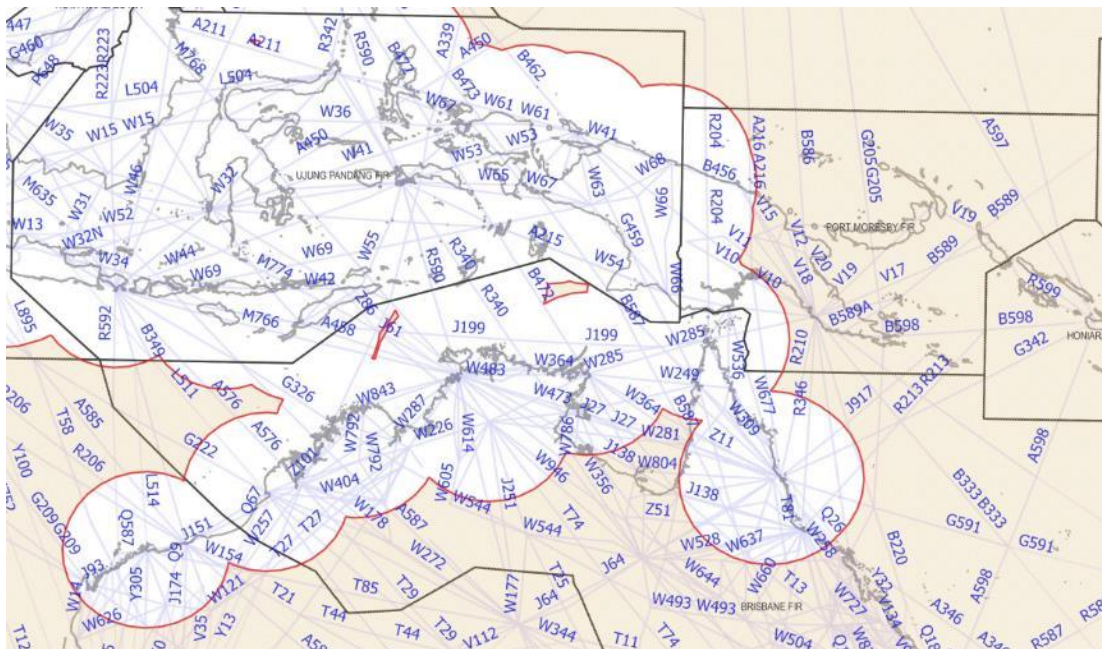


Figure 9a : ATS Surveillance coverage in the area in 2022



2.9. It is noted that no major changes in ATS surveillance coverage in the area.

Figure 10a : DCPC VHF coverage in the area in 2019

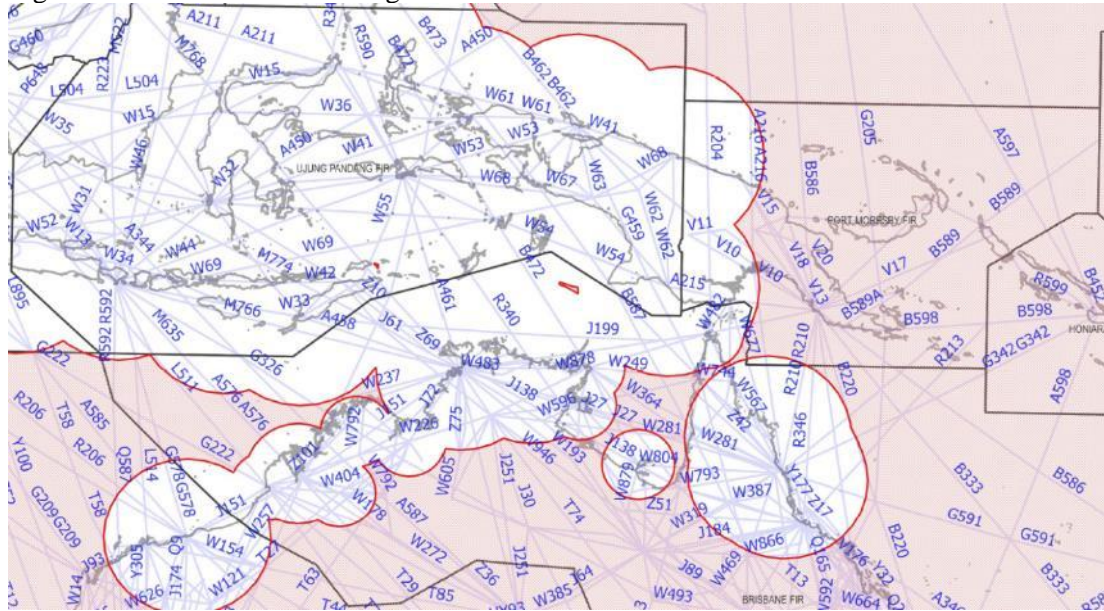
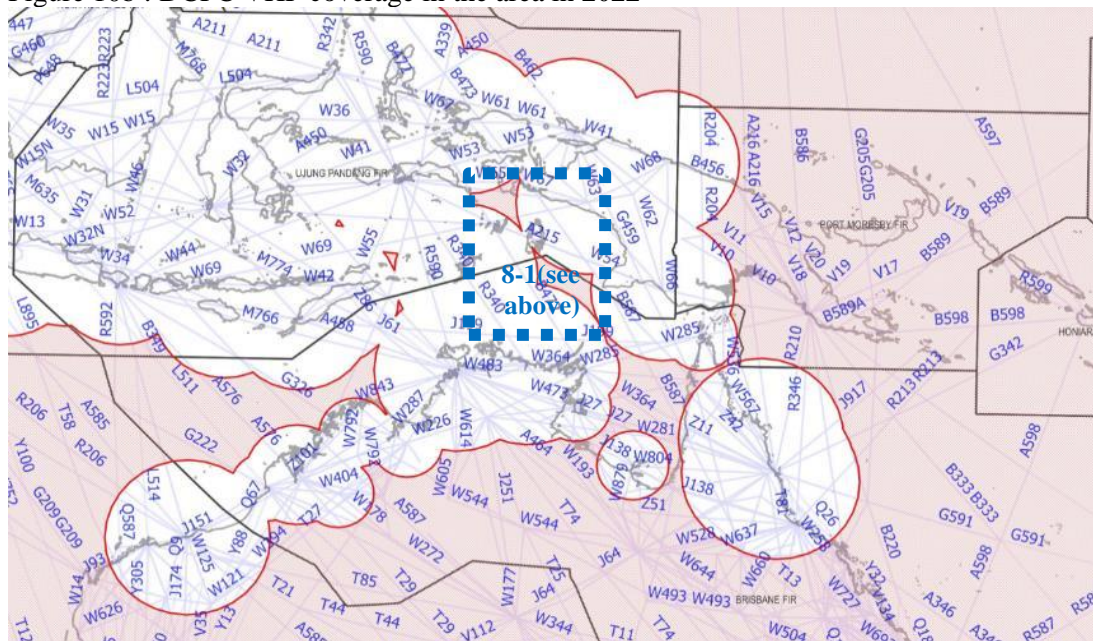


Figure 10b : DCPC VHF coverage in the area in 2022



2.10. It is noted that no major changes in DCPC VHF coverage in the area in general, except the area marked as 8-1 as identified in paragraph 2.8.

Observation and Conclusion

2.11. During plotting of coverage map, it is observed that data could be incorrect, causing the change in coverage area, including following causes:

- Previously planned base stations were no longer in plan nor implemented. Some may be relocated, while others could be change in plan.
- Typo in lat-longs
 - e.g. xx° N mistyped as xx° S, or xxx° E mistyped as xxx° W
 - e.g. missing digits, found while cross-checking with online maps
- Misunderstood of lat-long formats e.g. xx° yy' zz" (degree-minute-second) does not equal to xx.yyzz°

2.12. Based on the coverage charts as shown, relevant States/Administrations are encouraged to work with appropriate parties to derive plans in addressing the coverage gaps identified above, such as surveillance data sharing between FIRs or adoption of space based surveillance as appropriate. For States/Administrations which have not yet responded to the survey, they are reminded to contribute relevant information to complete the charts.

2.13. It is proposed that the updated coverage charts of the ATS surveillance and DCPC VHF coverage to be reviewed by States via CNS Sub-group and incorporated into the next update of the Asia Pacific Seamless ANS Plan.

2.14. In CNS SG/26, Australia noticed that the coverage only includes ground-based surveillance while States like Papua New Guinea which have already implemented space-based ADS-B in their airspace should also be considered. Despite not receiving input related to space-based ADS-B in this round of input/update, the Secretariat noted the comment and agreed to consider also the space-based ADS-B in future. The Secretariat also thanked Thailand for the meticulous work done and human resources paid to complete this task.

3. ACTION BY THE MEETING

3.1. The meeting is invited to:

- a) note the information contained in this paper;
- b) encourage relevant States/Administrations to work with appropriate parties and/or other States/Administrations to derive plans in addressing the coverage gaps identified in the coverage charts; and
- c) discuss any relevant matter as appropriate.

Appendix 1 – Summary of Response to the Survey

States	Data Received 2022	Plotted on Map
Group 1 APAC Contracting States with RVSM Airspace		
Afghanistan		
Australia	YES	YES
Bangladesh		
Cambodia		
China	GRAPHICS ONLY	YES
China - Hong Kong	YES	YES
China - Macao	YES	YES
Democratic People's Republic of Korea		
Fiji		
India	YES	YES
Indonesia	YES	YES
Japan	YES	YES
Lao People's Democratic Republic		
Malaysia		YES (2019s data)
Maldives		YES (2019s data)
Mongolia		
Myanmar	YES	YES
Nauru		
Nepal		
New Zealand	YES	YES
Pakistan	YES	YES
Papua New Guinea		
Philippines Yes Yes	YES	YES
Republic of Korea	YES	YES
Singapore Yes Yes	YES	YES
Solomon Islands		
Sri Lanka	YES	YES
Thailand	YES	YES
Viet Nam	YES	YES
Group 2 APAC Contracting States with no RVSM Airspace		
Bhutan		
Brunei Darussalam		
Macao, China		
Cook Islands		
Kiribati		
Marshall Islands		
Micronesia		
Palau		
Samoa		
Timor Leste		
Tonga		
Tuvalu		
Vanuatu		
COUNT	16	18