International Civil Aviation Organization

THE THIRD MEETING OF DOWNLINKED AIRCRAFT PARAMETERS WORKING GROUP (MODE S DAPs WG/3)

Bangkok, Thailand, 12 – 14 May 2020

Agenda Item 2: Review outcomes of relevant meetings

OUTCOMES OF RELEVANT MEETINGS ON SURVEILLANCE

(Presented by the Secretariat)

SUMMARY

This paper reviews the outcome of APANPIRG/30 on surveillance and works accomplished by the Fourth meeting of Surveillance Implementation Coordination Group (SURICG/4) and the Twenty Third meeting of CNS Sub-group of APANPIRG.

1. INTRODUCTION

1.1 APANPIRG/30 meeting was held from 4 to 6 November 2019 at the ICAO Regional Office in Bangkok, Thailand, the report of APANPIRG/30 is posted at:
https://www.icao.int/APAC/Meetings/Pages/2019-APANPIRG30.aspx

1.2 The Twenty Third Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/23) of APANPIRG held at the ICAO Regional Office, Bangkok, Thailand, from 2 to 6 September 2019. The full report and papers of the CNS SG meeting are available on the following webpage: https://www.icao.int/APAC/Meetings/Pages/2019-CNS-SG23.aspx

1.3 The APANPIRG/30 meeting reviewed the outcomes of the CNS SG/23, noted with appreciation the work done and achievements by the SG and the contributory bodies reporting to APANPIRG through the SG, the meeting discussed CNS related matters and took following actions on the report of CNS SG/23 meeting and other papers presented under Agenda Item 3.4. The CNS SG/23 reviewed the report of the Fourth Meeting of the Surveillance Implementation Coordination Group (SURICG/4), which included the actions taken on the outcome of SEA/BOB ADS-B WG/14 and Mode S DAPS WG/2.

1.4 This paper summarized relevant information and updates with the highlight on the reviewed outcomes of SURICG/4 by CNS SG/23.

2. DISCUSSION

2.1 The actions taken by APANPIRG/30 meeting on surveillance related matters are highlighted below:

Adoption of Direct Controller-Pilot Communication (DCPC) SATVOICE

2.2 Singapore presented to ACSICG/6 meeting on the potential performance of new generation satellite voice communications (SATVOICE) that could achieve better Required Communication Performance (RCP) standards than the current RCP 400/Vro, and highlighted ICAO Communications Panel's (CP) approach to support direct controller-pilot communication (DCPC) SATVOICE.

2.3 With faster and more secured private ground networks available today, ANSPs and airlines can achieve much faster call establishments by having preset identifications (IDs) with automatic authentication process (bypass the need for a manual 2nd authentication stage) through the use of private networks (e.g. IPVPN, VoIP, etc.) between a Communications Service Provider (CSP) and ANSPs/airlines. Singapore commenced DCPC SATVOICE trials in March 2019, by having preset aircraft IDs through the use of private networks. It is anticipated that this trial can achieve much faster RCP standards when compared to existing RCP for SATVOICE and HF voice (RCP 400/V) and/or CPDLC (typically RCP 240/D). The interim results suggest that the 99 percentile call establishment times were 25.96s (Ground-to-Air) and 18.75s (Air-to-Ground) which could potentially support RCP60.

2.4 Considering the on-going ICAO CP's work and Singapore trials on DCPC SATVOICE along with the encouraging trial results thus far which would enhance airspace efficiency, capacity and safety from using DCPC SATVOICE, the meeting adopted the following Conclusion:

<table>
<tr><td colspan="3">Conclusion APANPIRG/30/13 (CNS SG/23/7-ACSICG/6/4) - Direct controller-pilot communication SATVOICE Trials</td></tr>
<tr><td colspan="2">What: That, States who are interested in direct controller-pilot communication (DCPC) SATVOICE services are encouraged to conduct DCPC SATVOICE trials to verify its performance.</td><td>Expected impact:
☒Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: SATVOICE is a potential DCPC over remote/oceanic airspace.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 6-Nov-19</td><td colspan="2">Status: adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☒ICAO HQ ☐Other: XXXX</td></tr>
</table>

APAC Regional Surveillance Strategy

2.5 The meeting noted that the SURICG/4 meeting had reviewed the APAC regional Surveillance Strategy adopted by APANPIRG/27 meeting in 2016 and proposed some changes based on the outcome of AN Conf/13 and latest developments. The meeting endorsed the proposed changes and adopted the following Conclusion:

<table>
<tr><td colspan="3">Conclusion APANPIRG/30/15 (CNS SG/23/14-SURICG/4/6) - Revised Surveillance Strategy for the APAC Region</td></tr>
<tr><td colspan="2">What: That, the Revised Surveillance Strategy for the APAC Region provided in Appendix D to the Report under agenda item 3.4 be adopted.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☒ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To reflect the outcome of ANC13 and the latest development of surveillance technology.</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 6-Nov-19</td><td colspan="2">Status: adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐ Other:</td></tr>
</table>

2.6 The Revised Surveillance Strategy for the APAC Region was circulated to States to note through State Letter Ref.: **T 8/5.1 – AP135/19 (CNS)** on 11 December 2019. It is provided as Appendix A to this paper for reference and also available at:
https://www.icao.int/APAC/Documents/edocs/APX.%20D%20-%20Revised%20Regional%20Surveillance%20Strategy%20-%20clean%20copy.pdf

4th Meeting of the Surveillance Implementation Coordination Group

2.7 The Surveillance Seminar and Fourth Meeting of the Surveillance Implementation Coordination Group (SURICG/4) were held at Marriott Nanjing South Hotel, Nanjing, China from 9 to 12 April 2019. The Seminar and the Meeting were hosted by the Air Traffic Management Bureau of Civil Aviation Administration of China (CAAC ATMB). The SURICG/4 meeting considered 15 working papers, 22 information papers, and formulated 5 Draft Conclusions and 1 Draft Decision for consideration by this meeting and SURICG/4 also made 1 Decision on revised Terms of Reference of Mode S DAPS Working Group. All presentations for the Seminar and papers for the Meeting including meeting report are available at website: https://www.icao.int/APAC/Meetings/Pages/2019-SURICG4.aspx.

2.8 The Fourteenth Meeting of the South-East Asia/Bay of Bengal Sub-Regional ADS-B Implementation Working Group (SEA/BOB ADS-B WG/14) was held in November 2018 in Bangkok, Thailand. The meeting report and papers are available on the following webpage:
https://www.icao.int/APAC/Meetings/Pages/2018-SEA-BOB_ADSB-WG14.aspx

2.9 The first Web conference of the DAPS Working Group was held on 12 October 2018 to progress the development of DAPs IGD. The Second Meeting of the Mode S Downlink Aircraft Parameters working group (Mode S DAPs WG/2) was held in Singapore from 12 to 14 March 2019. The meeting was hosted by the Civil Aviation Authority of Singapore (CAAS). The Minutes of the 1st Web Conference, Meeting Report of DAPS WG/2 and papers considered by the meeting are available at the webpage: https://www.icao.int/APAC/Meetings/Pages/2019-Mode-S-DAPs-WG2.aspx

2.10 The reports of SEA/BOB ADS-B WG/14 and Mode S DAPs WG/2 meetings (including outcome of the first Web Conference of DAPs WG) were reviewed by the SURICG/4 meeting.

Election of Co-chair of SURICG

2.11 Due to resignation of Mr. Alex Milns from the Co-chair role after the third meeting, there is a need to elect a new Co-chair to take up the role. Nominated by China and seconded by New Zealand and Hong Kong China, Mr. Yeo Cheng Nam, Director (Aeronautical Telecommunications & Engineering) of the Civil Aviation Authority of Singapore was unanimously elected as the new Co-chair of the SURICG.

Update on Surveillance Implementation Activities

2.12 A number of updates were reviewed by the meeting and recorded in the meeting report including:

IP/2 from USA on ADS-B equipage trends;

IP/3 from USA on the response to B787 issues;

IP/4 from USA on recent avionics issues observed;

IP/5 from the SP chair on the status update about next Mode S ADS-B transponder MOPS;

IP/6 from USA on the ADS-B airspace policy after January 1, 2020;

IP/7 from USA regarding ADS-B qualification for RVSM;

IP/8 from USA on the update of operational approval policy for ADS-B OUT to complete an action for SURICG/3;

IP/10 from India to brief the ADS-B data sharing between India and Myanmar;

IP/11 from China to share the outcome of ADS-B position data analysis;

IP/12 from China regarding validity statistics of Selected Altitude in ADS-B data;

IP/13 from Australia to Update ATC surveillance activities;

IP/15 from China to share the experience on ADS-B data processing center implementation;

IP/16 from Singapore to update available surveillance capabilities and services;

IP/17 from Singapore on establishing exclusive ADS-B airspace to enhance safety, capacity and efficiency on air navigation in the Asia Pacific regions;

IP/18 from ICCAIA to brief ADS-B processing by TCAS and ADS-B products;

IP/19 from China on a case study of departure aircraft system track jumping;

IP/20 from Indonesia to update surveillance activities;

IP/21 from Malaysia to update competency based training for ADS-B; and

IP/22 from China regarding Mode S DAPs Testing Transponder

Mode S Conspicuity Code- PfA to ANP - Asia and Pacific Regions, Vol. II

2.13 SURICG/3 meeting adopted a proposal to use Mode A Code A1000 as the regional Mode S conspicuity code for the future requirements. The meeting noted that the amendment proposal to the ANP – Asia and Pacific Regions, Vol. II was relevant to Part IV – Air Traffic Management (ATM) section. Therefore, the meeting reviewed and endorsed a Working Paper prepared by Australia and Co-chairs of SURICG for consideration by the ATM SG/6 meeting. Japan and Thailand expressed their agreement to the proposed PfA to RANP. SURICG co-chair from Hong Kong China was requested to present the Working Paper as shown in IP/2 in CNS SG/22 to ATM SG. The SURICG co-chair from Hong Kong presented the Working Paper in the ATM SG/6 meeting and ATM SG endorsed a Conclusion to adopt Mode A Code A1000 as the regional Mode S conspicuity code, and it will be reflected in Table ATM II-APAC-2 (SSR Codes Allocation Plan) of RANP which is available at:
https://www.icao.int/APAC/Pages/APAC-eANP.aspx

Slow Progress in Achieving Full ADS-B Equipage after Mandate

2.14 Hong Kong China presented its observation on becoming slow in achieving full ADS-B equipage in its airspace after the issuance of ADS-B avionics equipage mandate for entire Hong Kong FIR since December 2016. The ADS-B avionics equipage was kept at a more or less constant level at about 98%. Such a stop for further progress had hindered use of standalone ADS-B surveillance for air traffic control operation in complex airspace such as approach/departure and terminal airspace. Without full ADS-B equipage, a safety assessment to rely solely on ADS-B to provide a full picture of air traffic situation in such airspace could not be passed. Since ADS-B could not serve as a standalone surveillance means in complex airspace due to incomplete aircraft equipage, the replacement program of SSR needed to take into account such constraints. The effort to make the final residual portion of aircraft equip was a hard work and need cooperation with operators.

ICCAIA updates on Space based ADS-B in operations

2.15 ICCAIA updated that Aireon has commissioned space based ADS-B. UK NATS and Navcanada are using Space based ADS-B to separate traffic in the north Atlantic using agreed "ASEPS" standards. The ICAO SASP has agreed to develop the separation standards for Space based surveillance and RCP 240 communication. These procedures are expected to be published in Doc 4444 in the future. Space based ADS-B allows ANSPs to provide complete surveillance over their FIR and surveillance in the boundary area of adjacent FIRs. It also has the potential to change concepts in the extended flow management beyond FIR boundaries.

Outcome of the SEA/BOB ADS-B WG/14 meeting

Space Based ADS-B and Flow Management

2.16 ICCAIA presented an update in **SEA/BOB ADS-B WG/14** on the development status of space based ADS-B which could be used to support long range flow management, traffic load calculation and ATC planning and airspace safety. The Aireon system, organization, procedures and capabilities will be examined by the European Safety Agency (EASA) and certified as an ATC surveillance service provider.

2.17 It will be possible for Aireon to provide its registered ANSP users with surveillance for ADS-B equipped aircraft from Departure locations to Destination locations worldwide. An alternate possibility for data sharing is that the adjacent States use space based ADS-B. Aireon registered ANSP users typically are offered with 50 to 100 NM coverage into the adjacent FIR to support FIR boundary

safety. Considering that the proposed application of space-based ADS-B could be used to enhance the accuracy of estimated boundary and runway arrival time, to improve predictability and certainty of Air Traffic Operations in a seamless way especially in South East Asia or Bay of Bengal sub-regions, the CNS SG/23 meeting adopted the following Conclusion:

<table>
<tr><th colspan="3">Conclusion CNS SG/23/10 (SURICG/4/1) - ADS-B and Flow Management</th></tr>
<tr><td colspan="2">What: That, given the need to ensure greater awareness of aircraft progress before FIR and ATC sector boundaries to improve position estimates, States are encouraged to consider the application of new surveillance technologies and/or data sharing which can provide surveillance from “departure to destination”.</td><td>Expected impact:
☐ Political / Global
☐Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To assist states considering how to improve arrival estimates and to counter the lack of DEP messages received in APAC ATC systems</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 6-Sep-19</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ ICAO APAC RO ☐ICAO HQ ☐Other: XXXX</td></tr>
</table>

Aireon ALERT and Globalbeacon

2.18 Aireon ALERT is the first free, global, real-time emergency aircraft location service. Air Navigation Service Providers (ANSPs), aircraft operators, regulators and search and rescue organizations in need of crucial aircraft location data, can rely on Aireon ALERT to help provide an ADS-B OUT 1090MHz equipped aircraft’s most recently known position. Aireon ALERT is a one-time, per event aircraft location service. Aireon ALERT will only be able to provide data in emergency situations to pre-registered stakeholders. Registration and 24/7/365 service is operated by the Irish Aviation Authority (IAA). Registration can be made at the webpage: https://aireonalert.com/ on which, additional information is available. GlobalBeacon is jointly created by Aireon and FlightAware to provide a way to compliance with ICAO’s Global Aeronautical Distress Safety System (GADSS) Standards and Recommended Practices (SARPS) for flight tracking. By combining FlightAware’s web interface and worldwide airline flight tracking information with Aireon’s space-based ADS-B data, GlobalBeacon will provide airlines with a real-time aircraft tracking dashboard that features configurable alerts, providing immediate notification of abnormal events. Should an aircraft deviate from its intended flight path, the airline operations center will be notified. The GlobalBeacon became operational on Monday 5 November 2018. Further details of GlobalBeacon can be obtained from FlightAware.

Report of DAPs WG/2 Meeting

2.19 Under its agenda item 7, the SURICG/4 meeting reviewed outcome of the 1st Web Conference and the Second meeting of the Mode S DAPS Working Group through WP/6 presented by the co-chairs of the WG. The CNS SG/23 meeting noted the information on implementation and planning status of DAPs application, as well as technical issues addressed by States and ICAO SP Panel. The SG meeting encouraged the DAPs WG to further progress the research on Interrogator Identifier (II) Code coordination and interrogation strategy, and invite avionics manufacturers and avionics users to share their knowledge and experiences at the WG meetings.

DAPs Implementation and Operation Guidance Document

2.20 The meeting reviewed the draft Mode S DAPs Implementation and Operation Guidance Document developed by the DAPs WG. The meeting appreciated the efforts made by the working group for the development of the guidance material and adopted the following Conclusion:

<table>
<tr><td colspan="3">Conclusion CNS SG23/12 (SURICG/4/3) - Adoption of Mode S DAPs Implementation and Operation Guidance Document</td></tr>
<tr><td colspan="2">What: That, the Mode S DAPs Implementation and Operation Guidance Document provided in Appendix K to the Report be adopted as Edition 1.0 .</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To provide guidance on implementation and operation of Mode S DAPs to States in the APAC Region</td><td colspan="2">Follow-up: ☒ Required from States</td></tr>
<tr><td>When: 6-Sep-19</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
</table>

2.21 The Mode S DAPs Implementation and Operation Guidance Document is available at: https://www.icao.int/APAC/Documents/edocs/APX.%20K%20%20-%20Mode%20S%20DAPs%20Implementation%20and%20Operation%20Guidance%20Document%20V1.0.pdf

Revised Terms of Reference of DAPs WG

2.22 The SURICG/4 meeting reviewed the proposed amendments to the Terms of Reference of DAPs WG. The SURICG/4 also noted the list of action items updated by the DAPs WG. In view of the foregoing, the meeting made some additional amendment to the proposed changes and adopted the revised ToR of Mode S DAPs Working through the following Decision.

<table>
<tr><td colspan="3">Decision SURICG/4/4 (DAPs WG2/2) - Revised Term of Reference of DAPS WG</td></tr>
<tr><td colspan="2">What: That, the revised Terms of Reference of Mode S DAPs Working Group provided in Appendix F to the Report be adopted.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: Need to refine the scope of related study and include the new members.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 6-Sep-19</td><td colspan="2">Status: Draft to be adopted by CNS Subgroup.</td></tr>
<tr><td colspan="3">Who: ☐Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☒Other: SURICG</td></tr>
</table>

*Note: Revised TOR refers to **WP03** of DAPs WG/3

ATM Automation System Development Issues

2.23 A paper from China to the SURICG/4 meeting highlighted a gap between the capabilities of the automation system and the user expectations. A description of emerging requirements was also provided with suggestion to consider the relevant planning and transition plans for the ATM automation system in the APAC region. The implementation of service and performance based ATM automation system should be in compliant to ASBU framework and GANP roadmap, and meet the operational requirements and future development. China proposed to consider subsequent establishment of a regional task force to conduct research on ATM automation systems, which need to be defined more precisely.

Open Architecture for Air Traffic Management System

2.24 Singapore illustrated the limitations of current ATM systems in which typical key functional modules are packaged into a single system which is highly customized by the original equipment manufacturers (OEMs). There is no established standard for the functions and interfaces of individual functional modules. The disadvantages and limitations of ATMS packaged in this way were discussed and considered as challenges under rapid technology advancement and increased cybersecurity threats. A number of new ATM functionalities is expected to be integrated with the ATM automation system. It is unlikely that a legacy ATM automation system could meet such expectations.

2.25 An open architecture based on Service Oriented Architecture (SOA) concept was proposed for the Air Traffic Management (ATM) automation system. It could be broken down into several modularized services using set of standardized interfaces to communicate across all services. The advantages of this architecture was deliberated as the possibility for ANSP to select the best individual module for their purpose from different OEM, upgrade modules independently, integrate new functionalities into system module by module. Regarding the ambition to implement this architecture, standardization is one of the key challenges. The topics discussed in the paper maybe tasked to the new regional Task Force on ATM automation systems, when established.

Exploration and Application of ATC Handover Technology Between ATC Automation Systems Based on Flight Data Interaction

2.26 China introduced a method of electronic handover between ATC center and regional small airports through CAAC Standard MH/T4029.3 Category C data. Category C data handover replaced the coordination process of AIDC with the synchronization of flight plan. The handover using Category C data made it unnecessary to define a specific waypoint in the process. It has good applicability in handover between ATC center and regional airports with small and lower airspace of responsibility. After the implementation of Category C data handover, the SSR code and release time application process can be simplified for outbound flights of regional airports, and the telephone handover action can be directly replaced by data interaction between systems.

ICAO Asia Pacific Regional ATM Automation System Symposium

2.27 Under this agenda, the meeting reviewed and discussed the outcome of the ICAO APAC Regional ATM Automation System Symposium (APAC RATMS) held in Nanjing, China, from 22 to 23 November 2018. The symposium was organized in response to Action Item 54/13 of the 54th DGCA Conference on ATM automation system and the requirement resulted from discussions at CNS SG/21 meeting. It was deemed important to establish a dedicated Task Force in order to study the operational and technical experience, and shape the future development roadmap and performance-based guidance for the ATM automation system. The report of the symposium with a summary of presentations, programme, and

the presentations are provided on the following APAC webpage: https://www.icao.int/APAC/Meetings/Pages/2018-ATM-ASS.aspx

2.28 The meeting noted that a briefing on the above proposal was also provided to ATM SG/7 meeting. A number of States/Administration expressed their willingness to support the work of the Task Force including: China, Hong Kong China, India, Indonesia, Nepal, Singapore, Thailand and USA. In view of the foregoing, the meeting adopted the following Decision.

<table>
<tr><td colspan="2">Decision CNS SG/23/13 (SURICG/4/5) - Establishment of ATM Automation System Task Force (ATMAS/TF)</td></tr>
<tr><td>What: That, the ATM Automation System Task Force (ATMAS/TF) with TOR provided in Appendix L to the Report be established.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To take forward all matters arising the ATM Automaton System Symposium and to address the regional needs, such as developing regional guidance to facilitate the implementation, enhancements, operation and maintenance of ATM automation systems and services in the Region</td><td>Follow-up: ☒ Required from States</td></tr>
<tr><td>When: 6-Sep-19</td><td>Status: Adopted by Subgroup</td></tr>
<tr><td colspan="2">Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐ Other:</td></tr>
</table>

Suggestions on the Development of ATM Automation System

2.29 In this connection, the CNS SG/23 meeting also considered WP/16 from China further support the establishment of the ATM Automation System Task Force. The paper highlighted the need to develop service-based and performance-based ATM automation system. China also shared with the meeting about its practice in ATM automation system management covering the entire life cycle of the system. Some issues and difficulties encountered for ATM automation system development were highlighted such as core support for safe operation, insufficient system standard and specifications, explosive growth of functional requirements and ATS operations' growing dependence on ATM automation systems. It was clarified that ADS-B IN is one of the items under research and study for inclusion into the future ATM system. China suggested to consider to adopt expandable architecture with backup system for the challenging upgrade with typical life of automation system for about 15 years.

ADS-B Implementation and Operations Guidance Document (AIGD)

2.30 The meeting noted that SURICG/6 meeting had updated AIGD based on the contributions from States and developments on ADS-B in the APAC Region. The proposed changes to AIGD are summarized as below:

- Added procedures on handling GPS time and week counters rollover (Section 9.13)
- Added two new problem types and updated the status of known ADS-B avionics problems to Attachment A of Appendix 2 “List of known ADS-B avionics problems”,

2.21 The meeting noted the proposed changes and adopted the following Conclusion.

<table>
<tr><td colspan="3">Conclusion CNS SG/23/15 (SURICG/4/7) - Revised ADS-B Implementation and Operations Guidance Document (AIGD)</td></tr>
<tr><td colspan="2">What: That, the revised ADS-B Implementation and Operations Guidance Document (AIGD) provided in Appendix N to the Report, which consolidated all change proposals during SURICG/4, be adopted as Version 12.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why:</td><td>Editorial correction and updates</td><td>Follow-up: ☐Required from States</td></tr>
<tr><td>When:</td><td>6 Sep 2019</td><td>Status: Adopted by Subgroup</td></tr>
<tr><td>Who:</td><td colspan="2">☒CNS Sub group ☐APAC States ☒ICAO APAC RO ☐ICAO HQ</td></tr>
</table>

2.32 CANSO made reference to an action item of DGCA Conf/56 resulted from a DP presented by India on data sharing between India and Myanmar (CNS SG/23 - WP/23 refers). CANSO encouraged States/Administrations and ANSPs to put more efforts for ADS-B implementation and ADS-B data sharing between States to achieve more flight safety and efficiency benefits.

Dealing with the Impact of Unmanned Aerial Systems (UAS)

2.33 New Zealand provided updates to SURICG/4 meeting on UAS issues. In the period March 2018 to March 2019 there have been 126 reported incidents from the public, Crew of airborne aircraft, other UAS operators and ATC related to the unauthorized UAS operating in controlled airspace, usually in close proximity to aircraft or airports, a 100% increase over the previous 12-month. In most cases there is no clear evidence that the object was a UAS. The UAV portal Airshare has proved useful, however, it required advanced notification of the operation and created additional workload for ATC. Airshare could be enhanced to increase participation from cooperative UAS, identify non-cooperative UAS, provide mobile app for UAS users. The potential to use tracking data with Airshare was also discussed to support automatic approvals. New types of surveillance systems need to be identified, and tested on target with the size 0.01m2 radar cross section, while understanding the limitation.

ATS Surveillance and DCPC VHF Coverage Charts for APAC Region

2.34 According to the Conclusion APANPIRG/29/22, a mechanism to produce charts with regular updates in a sustainable manner was put in place to show the latest situation of ATS surveillance and DCPC VHF coverage in the Asia Pacific Seamless ANS Plan for the region. 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.

2.35 The ICAO APAC Regional Office issued the State Letter AP012/19 (CNS) on 6 February 2019 with a target date by 8 March 2019 for States/Administrations to respond to the survey. WP/09 on "Progress in Response to the Survey on ATS Surveillance and DCPC VHF Coverage" was presented to SURICG/4 in April 2019 to update the progress and urge States/Administrations to respond the survey. After receiving response from 15 States in accordance with the format of the survey while 2 States provided descriptive / pictorial coverage without details of coordinates, the initial ATS Surveillance DCPC VHF

Charts were produced for review by the meeting. The meeting appreciated the joint efforts made by Hong Kong China and Thailand in producing the initial charts with support by various States/Administrations. ATM SG/7 meeting was also informed of the latest developments. The meeting reviewed and considered the initial charts were in good shape for being published in the latest version of Seamless Air Navigation Service Plan. Accordingly, the CNS SG/23 meeting endorsed the following Draft Conclusion:

Draft Conclusion CNS SG/23/16 – Initial ATS Surveillance and DCPC VHF Coverage Charts for inclusion in Version 3.0 of the Asia Pacific Seamless Air Navigation Service Plan	
What: That, the initial version of the charts as the outcome of the survey on Surveillance and Direct Control and Pilot Communication (DCPC) VHF Coverage be endorsed and incorporated into the Version 3.0 of the Asia Pacific Seamless Air Navigation Service Plan.	Expected impact: ☐ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒ Ops/Technical
Why: To analyse the gaps of surveillance and DCPC VHF coverage for remedial action plans to be taken by States/Administrations to provide seamless air navigation service in APAC Region	Follow-up: ☒Required from States
When: 6-Nov-19	Status:Draft to be adopted by PIRG
Who:☐Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other: XXXX	

2.36 Australia asked that the chart be labelled with coverage depicted at FL290. Australia will coordinate with the study authors to depict ADS-B and VHF communication coverage over continental Australia. The meeting was invited to note that surveillance and CPDLC is provided in oceanic area using FANS 1/A technology and this satisfied the required PBCS for DCPC for separation standards being applied. The meeting encouraged States/Administrations to work with appropriate parties and/or other States/Administrations to derive plans in addressing the coverage gaps identified in the charts, and reminded States/Administrations (Group 2 in Appendix 1 to WP/22 of CNS SG/23) which had not yet responded to the survey to contribute relevant information to complete the coverage charts. Through **Conclusion APANPIRG/30-5**: **Asia/Pacific Seamless ANS Plan**, the present version of ATS Surveillance and DCPC VHF Coverage Charts was consolidated into the *ASIA/PACIFIC SEAMLESS ANS PLAN* Version 3.0, November 2019.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) review the outcome of the APANPIRG/30 and take any necessary follow-up actions; and

b) discuss any matters as appropriate.

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