INTERNATIONAL CIVIL AVIATION ORGANIZATION

FINAL REPORT

REPORT OF THE TWENTY SIXTH MEETING OF THE ASIA/PACIFIC AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (APANPIRG/26)

Bangkok, Thailand, 7 to 10 September 2015

The views expressed in this Report should be taken as those of the APANPIRG and not of the Organization. This Report will be presented to the Air Navigation Commission/Council and any formal action taken will be published in due course as a supplement to the Report.

Approved by the Meeting
and published by the ICAO Asia and Pacific Office

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PART I - HISTORY OF THE MEETING

1.1 Introduction

1.1.1 The Twenty Sixth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/26) was held at ICAO APAC Office, Bangkok, Thailand from 7 to 10 September 2015.

1.2 Attendance

1.2.1 The meeting was attended by 141 participants from 26 Member States, 2 Special Administrative Regions of China and 5 International Organizations (CANSO, IATA, IBAC, ICCAIA and IFALPA).

1.2.2 A list of participants is provided at **Attachment 1** to the Report.

1.3 Opening of the Meeting

Welcome address by Mr. Arun Mishra, Regional Director, ICAO Asia/Pacific Office and Secretary of APANPIRG.

1.3.1 Mr. Mishra welcomed the participants from the Member States, International Organizations and delivered the welcome address. He highlighted the progress achieved on the regional activities by the APAC States since the last meeting.

Opening remarks by Mr. Norman Lo, Director General of Civil Aviation, Civil Aviation Department, Hong Kong, China and Chairman of APANPIRG

1.3.2 Mr. Norman Lo, Director General of Civil Aviation, Department of Civil Aviation Hong Kong, China, and Chairman of APANPIRG welcomed the members and delivered the opening address.

1.4 Officers and Secretariat

1.4.1 Mr. Norman Lo, Director General of Civil Aviation, Civil Aviation Department, Hong Kong, China and Chairman of the APANPIRG, presided over the meeting.

1.4.2 Mr. Arun Mishra, ICAO Regional Director, Asia/Pacific Office, was the Secretary of the meeting.

1.4.3 The meeting was assisted by Mr. Yoshiki Imawaka, Deputy Regional Director, Mr. N. C. Sekhar, Regional Officer/AGA, Mr. Len Wicks & Mr. Shane Sumner, Regional Officers/ATM, Mr. Li Peng & Mr. Frederic Lecat, Regional Officers/CNS, and Mr. Peter Dunda, Regional Officer/MET. The meeting was also supported by Mr. Saulo Da Silva, Chief, Implementation Planning and Support Section–Air Navigation, Air Navigation Bureau, ICAO Headquarters and Mr. Noppadol Pringvanich, Chief/ Regional Sub Office.

1.5 Agenda of the Meeting

1.5.1 The meeting adopted the following Agenda:

Agenda Item 1A: Follow-up on the outcomes of APANPIRG/25 Meeting

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1A.2 Review Status of Implementation of APANPIRG/25 Conclusions and Decisions

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3.1 AOP

3.2 ATM

3.3 RASMAG

3.4 CNS

3.5 MET

3.6 Other Air Navigation Matters

Agenda Item 4: Regional Air Navigation Deficiencies

Agenda Item 5: Future Work Programme

Agenda Item 6: Any other business

1.6 Working Arrangements, Language and Documentation

1.6.1 The working language of the meeting was English inclusive of all documentation and this Report. Information Papers (IP) and Working Papers (WP) considered by the meeting are listed in the **Attachment 2** to this Report and available at APAC web site at http://www.icao.int/APAC/Meetings/Pages/2015-APANPIRG26.aspx

1.7 Conclusions and Decisions - Definition

1.7.1 The APANPIRG records its actions in the form of Conclusions and Decisions with the following significance:

1) Conclusions deal with matters which, in accordance with the Group's Terms of Reference, require the attention of States or actions by ICAO in accordance with established procedures; and

2) Decisions deal with matters of concern only to the APANPIRG and its contributory bodies.

1.7.2 Lists of Conclusions and Decisions are given on pages i-5 to i-7.

1.8 Terms of Reference of APANPIRG

1.8.1 The Terms of Reference of APANPIRG was approved by the Council of ICAO (6th Meeting of its 171st Session on 27 February 2004) and revised consequent to the decision of the Council [C- DEC 183/9, March/April 2008 and C-WP/13558,C 190/4 on 25 May 2010]. The revised Terms of Reference are:

1. Membership

All ICAO Contracting States, who are service providers in an air navigation region and part of that region's ANP, should be included in the membership of that region's PIRG. Furthermore user States are entitled to participate in any other PIRG Meetings as a non member. International Organisations recognised by the Council may be invited as necessary to attend PIRG meetings as observers.

2. The Terms of Reference of the Group are:

a) to ensure continuous and coherent development of the Asia/Pacific Regional Air Navigation Plan and other relevant regional documentation in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs and Global Air Navigation Plan for CNS/ATM Systems (DOC 9750) and reflecting global requirements;

b) to facilitate the implementation of air navigation systems and services as identified in the Asia/Pacific Regional Air Navigation Plan with due observance to the primacy of air safety, regularity and efficiency; and

c) to identify and address specific deficiencies in the air navigation field.

3. In order to meet the Terms of Reference, the Group shall:

a) review, and propose when necessary, the target dates for implementation of facilities, services and procedures to facilitate the coordinated development of the Air Navigation Systems in the Asia/Pacific Region;

b) assist the ICAO Asia/Pacific Regional Office in fostering the implementation of the Asia/Pacific Regional Air Navigation Plan;

c) in line with the Global Aviation Safety Plan (GASP), facilitate the conduct of any necessary systems performance monitoring, identify specific deficiencies in the air navigation field, especially in the context of safety, and propose corrective action;

d) facilitate the development and implementation of action plans by States to resolve identified deficiencies, where necessary;

e) develop amendment proposals to update the Asia/Pacific Regional Air Navigation Plan to reflect changes in the operational requirements;

f) monitor implementation of air navigation facilities and services and where necessary, ensure interregional harmonization, taking due account of organizational aspects, economic issues (including financial aspects, cost/benefit analyses and business case studies) and environmental matters;

g) examine human resource planning and training issues and propose where necessary human resource development capabilities in the region that are compatible with the Asia/Pacific Regional Air Navigation Plan;

h) review the Statement of Basic Operational Requirements and Planning Criteria and recommend to the Air Navigation Commission such changes as may be required in the light of new developments in the air navigation field;

i) request financial institutions, on a consultative basis as appropriate to provide advice in the planning process;

j) maintain close cooperation with relevant organizations and State grouping to optimize the use of available expertise and resources;

k) conduct the above activities in the most efficient manner possible with a minimum of formality and documentation and call meetings of the APANPIRG when deemed necessary to do so; and

l) coordinate with RASG APAC on safety issues.

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List of Conclusions

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Conclusion 26/2	**–**	**Adoption of the ASIA/PAC eANP**
Conclusion 26/3	**–**	**Guidance on charting of RESA and/or arresting system in State AIP Aerodrome Chart**
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List of Decisions

Decision 26/24	**–**	**Asia/Pacific SAR Workgroup**
Decision 26/45	**–**	**Surveillance Implementation Coordination Group**
Decision 26/65	**–**	**Revised APANPIRG Structure, Terms of Reference and APANPIRG Sub Group Empowerment**
Decision 26/66	**–**	**Review Terms of Reference of Contributory Bodies under the APANPIRG Sub Groups**
Decision 26/67	–	**Dissolution of ABSRTF**

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Agenda Item 1A: Follow-up on the Outcome of APANPIRG/25 Meeting

1A.1 Review of the ANC Actions on the APANPIRG/25 Report (WP/2)

1A.1.1 The Meeting noted that the Air Navigation Commission (ANC), on 26 February 2015, approved the Report of the APANPIRG/25 (Kuala Lumpur, Malaysia, 8-11 September 2014) Meeting. The Attachment 'A' to the APANPIRG/26 Working Paper/2 presented the action taken by the ANC on the Conclusions and Decisions based on the recommendations of the Working Group of the Whole for Strategic Review and Planning (WG/SRP). The ANC acknowledged with appreciation, the efforts made by APANPIRG to report on their work related to the ASBU structure and modules; the meeting also noted that the Observer of IBAC considered the regional implementation of the ASBU modules to be encouraging and that it serve as an example for the other regions to follow.

1A.1.2 The meeting thanked the ANC for their valuable guidance on various activities of the APANPIRG and the recommendations would be taken into account in the development of on-going work programme of the region.

1A.2 Review of Status of Implementation of APANPIRG/25 Conclusions and Decisions (WP/3)

1A.2.1 The Meeting reviewed the progress made on the APANPIRG/25 Conclusions and Decisions.

1A.2.2 The actions taken by States and ICAO on the above mentioned Conclusions and Decisions were reviewed. The Meeting noted that out of the 41 Conclusions and 10 Decisions action has been taken to close/complete 39 Conclusions and 10 Decisions. Action on the remaining 2 Conclusions is ongoing. Appendix A to APANPIRG/26 Working Paper/3 presented the updated status.

1A.3 Review of Status of Implementation of APANPIRG Outstanding Conclusions and Decisions (WP/4)

1A.3.1 The Meeting reviewed the progress made on the APANPIRG Outstanding Conclusions and Decisions up to its Twenty Fourth Meeting.

1A.3.2 The action taken by States and ICAO on the above mentioned Conclusions and Decisions were reviewed. APANPIRG noted that out of the outstanding 7 Conclusions and 3 Decision, the follow-up actions on 2 Conclusions and 1 Decision have been completed or closed. Actions on the remaining 5 Conclusions and 2 Decision are ongoing.

1A.3.3 On conclusion 23/38 the meeting noted that the proposed Special Implementation Project (SIP) fund to organize the Radio Spectrum Management Workshop was not approved in 2014 and 2015. In view of the necessity of this workshop the meeting invited State/Administrations interested to host the workshop to write to ICAO Regional Office by 30 November 2015.

1A.3.4 To a query from Japan on the progress of Volcanic Ash Regional Contingency Plan (D 21/9) the Secretariat updated the status as below:

> *In accordance with its terms of reference, the APAC volcanic ash exercises steering group (VOLCEX/SG) was established to, inter alia, recommend improvements to the regional volcanic ash ATM contingency plan. The first*

ICAO APAC volcanic ash exercise (VOLPHIN15/01) was conducted on 11 August 2015 to demonstrate exchange of volcanic ash information and operational responses in the Manila FIR; VOLCEX/SG/2 (14-16 September 2015) will address outcomes from VOLPHIN15/01 and plan follow-up volcanic ash exercises to support further development of sub-regional volcanic ash contingencies in the APAC Region.

1A.3.5 The Meeting acknowledged that significant progress had been made in completing required action on the Outstanding APANPIRG Conclusions and Decisions. Appendix A to APANPIRG/26 Working Paper/4 presented the updated status.

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Agenda Item 1B: Flight Safety and RASG APAC Activities

1B.1 Update on RASG APAC Activities (IP/2)

1B.1.1 The meeting noted the activities undertaken by the RASG-APAC, APRAST and its sub-groups in 2015.

1B.2 Report of the Second Coordination Meeting between APANPIRG and RASG-APAC (IP/6)

1B.2.1 APANPIRG/26 noted that the second APANPIRG/RASG-APAC Coordination Meeting was held in APAC Office Bangkok on 21 May 2015. The coordination meeting was attended by Chair APANPIRG, Chair RASG, Vice Chair RASG, Co-Chairs APRAST and Secretariat.

1B.2.2 APANPIRG/26 also noted that the Coordination Meeting has agreed on the lead regional group for the activities as below:

A. Regulatory oversight for the effective implementation of Performance Based Navigation (PBN) - Recommendation 1/1 of HLSC 2015:

RASG-APAC

- RASG to coordinate and provide more guidance materials to States/Administrations regarding any PBN requiring operational approvals and the associated regulatory oversight.

APANPIRG

- Discuss assistance provided to States/Administrations in designing and publishing PBN procedures.

B. Recommendation 1/2 – Global flight Tracking:

a) APANPIRG – SAR training exercise;

b) Interaction between Annex 12 – *Search and Rescue* and Annex 13 – *Aircraft Accident and Incident Investigation*: Accident Investigation Group (AIG) of RASG will coordinate with APSAR/TF (APANPIRG's Search and Rescue Task Force) for the necessary works;

c) APANPIRG – Civil Military Cooperation;

d) CAPSCA – current mechanism to continue.

C. RASG Regional priorities and Targets – Jointly develop the proper structures to sustain the collection and sharing of ATM Data;

SRPWG of RASG to coordinate with ATM/SG of APANPIRG to explore the best mechanism/structure to facilitate the collection and sharing of ATM data so that the data could be gainfully used for safety enhancement in the APAC Region, for example – safety data on stabilized approaches (deviation from safety profiles). Such data could also be used for the evaluation on the benefit of APV approaches in improving safety.

D. Outcomes of RASG APAC Meetings – Conclusion 4/4 and 4/23:

i) RASG–APAC to establish the areas of coordination, composition of experts and coordination mechanism for attendance at relevant APANPIRG coordination bodies meetings; this will include endorsement of the APAC seamless ATM Plan by RASG APAC.

ii) RASG–APAC to continue with the lead responsibility for the implementation of TCAS II. APANPIRG will provide results of monitoring collected through the seamless ATM online reporting process to RASG APAC.

iii) RASG–APAC Decision 4/9 – RASG APAC/APRAST to circulate the draft Advisory Circulars developed to improve safety to the relevant APANPIRG Sub Groups for review and comments.

1B.2.3 APANPIRG further noted that the coordination meeting had reviewed the 8 EUR KPIs, 4 KPIs for air navigation and 4 KPIs for safety, presented by ICAO HQ at the 2nd RASG-PIRG Global Coordination Meeting held in Montreal Canada on 5th February 2015 and following observations were noted:

- The KPIs presented are related to performance of operations at Aerodromes and ANSPs only. There are no KPIs showing the performance of ATM operations;
- There could be challenges in collecting data for KPIs from all APAC States/Administrations;
- The need, purpose, relevance and benefits of the KPIs have to be explained clearly to States/Administrations in order that they could give priority and facilitate in providing the necessary data. Each KPI and data to be collected should be well defined, and if necessary explained with examples;
- There was also discussion as whether the KPIs in a region would be used by the ICAO for comparing with KPIs in other regions as they might not be directly comparable due to unique regional operational considerations. A uniform methodology for collecting data should be developed and applied throughout all ICAO Regions. The KPIs for the region should also take into account the regional priorities and plans;
- The APAC could share the good experiences on other regions such as EUR. It is therefore important to know the rationale of how their KPIs were developed;
- While recognizing the challenges in collecting some ATM related data, consideration could be given to start collecting data from major/hub airports. The identification of such airports could be based on the number of aircraft movements;
- Discuss the 4 air navigation related KPIs with respective Sub Groups and submit outcomes to APANPIRG;
- Discuss the 4 safety-related KPIs with APRAST and submit outcomes to RASG–APAC;
- While noting that the submission rate of occurrences/incidents in the region is very low, members considered that reporting rate of such occurrence may not be a good item for the KPI since an increase in such reporting could also be a result of improvement in reporting and safety culture and not necessary a safety concern.

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Agenda Item 2: Global and Inter Regional Activities

2.1 Current and Future Developments at a Global Level that will impact APAC Region

2.1.1 The presentation highlighted some of the major outcomes of the High Level Safety Conference (2015) which included:

- Global Aircraft Tracking Initiatives
- Global Aeronautical Distress and Safety System (GADSS) concept of operations
- Risks to Aviation arising out of conflict zones
- Effective and efficient Regional Collaboration.

2.1.2 New Zealand and Australia informed the meeting about the Remotely Piloted Aircraft Systems (RPAS) activities in their respective countries

2.2 Air Navigation Activities at Global Intra and Inter Regional Level (IP/4)

2.2.1 The meeting noted the update on the activities of the Planning and Implementation Regional Groups (PIRGs) in other regions and a summary of the review of the corresponding PIRG's meeting reports by the Air Navigation Commission.

2.3 Second Planning and Implementation Regional Group (PIRG) – Regional Aviation Safety Group (RASG) – Global Coordination Meeting (PIRG-RASG GCM/2) (IP/12)

2.3.1 The meeting noted the outcomes of the second meeting of PIRG-RASG Global Coordination Meeting (PIRG-RASG GCM/2), held on 5th February 2015 at ICAO Headquarters Montreal, Canada for necessary follow-up action.

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Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.0.1 Regional and National Performance Framework

3.0.1.1 Update on the Seamless ATM Reporting Process and Regional Picture (WP/ 14)

3.0.1.2 APANPIRG/26 reviewed the status of the Seamless ATM Reporting process since November 2014, and the regional picture as of 19 August 2015 which reflected the implementation progress of Air Navigation Improvements in APAC Region against the objectives set forth by the GANP ASBU Block 0 and Seamless ATM plan v1.0 as reported by 19 States/Administrations. The meeting urged States/Administrations that have not yet done so to nominate their points of contact (preferably one CAA contact and one Service Provider contact) and report on their seamless ATM implementation progress at least once a year through the ICAO online reporting process. Recognizing that all the regional targets adopted by APANPIRG would not be met in due time (November 2015), the meeting urged States/Administrations to bridge national implementation gaps as reflected in the picture.

3.0.1.3 APANPIRG/26 noted that following the reassignment of lead responsibility by the first APAC Regional RASG–APANPIRG Coordination meeting to avoid duplication of efforts, RASG is assigned to be lead group for Airborne Collision Avoidance System (ACAS). The meeting also noted that responsibility matrix adopted by APANPIRG/25 needed to be amended and adopted the following Conclusion:

Conclusion APANPIRG/26/1 – Seamless ATM Plan Reporting Process- Amended Responsibility Matrix

That, on reassignment of lead responsibility by the Regional RASG-APANPIRG Coordination Meeting the endorsing body for Airborne Collision Avoidance System (ASBU B0-ACAS, Seamless ATM item 170 - Airborne Safety Systems) is transferred from CNS/SG to RASG APAC. The amended APANPIRG matrix of responsibilities placed at Appendix B to WP/14 is adopted for the APAC Region;

3.0.2 APAC e ANP (WP/ 5)

3.0.2.1 APANPIRG/26 noted that AOP WG/3, CNS SG/19, MET SG/19 and ATM SG/3 have reviewed the relevant parts of draft APAC eANP in their relevant fields and that the updated contents and tables for APAC eANP are provided in Appendices to WP/6 (AOP), WP/7 (ATM), WP/9 (CNS) and WP/10 (MET).

3.0.2.2 APANPIRG/26 also noted that most information contained in the text part of Volume I and Volume II in the draft APAC eANP are harmonized and approved by the ICAO Council in the templates. Some regional specific requirements were kept with texts extracted from the current Asia and Pacific Regions ANP Volume I and Volume II (Doc 9673).

3.0.2.3 APANPIRG/26 further noted that after the adoption of the eANP by APANPIRG/26 it will be processed in accordance with the new amendment procedures as approved by Council.

3.0.2.4 APANPIRG/26 reviewed the draft e ANP and adopted the following Conclusion:

Conclusion APANPIRG/26/2 — Adoption of the ASIA/PAC eANP

That, the following text parts and tables for Volume I and Volume II of the APAC e-ANP is endorsed and Volume III is adopted and invite ICAO to process the PfAs (Proposal for amendments) for Volume I and Volume II of e ANP in accordance with the established procedures:

a) In AOP field: Appendices A and B to WP/6;

b) In ATM field: Appendices E, G, H, K, L and P to WP/7;

c) In CNS field: Appendices R1, R2, R3, S1, S2, S3, S4, S5, S6 and S7 to WP/9;

d) In MET field: Appendices B & C to WP/10 plus updates provided in Flimsy no 1.

3.0.3 Performance-Based Approach to ASBUs Implementation (IP/14)

3.0.3.1 APANPIRG/26 in IP/14 noted the advantages of acquiring a Performance-Based Approach (PBA) when planning the implementation of new operational improvements in the air navigation system and the ICAO initiatives at global, regional and national levels, focused on the Aviation System Block Upgrades (ASBUs), to support this approach**.**

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Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.1 Review of the Third Meeting of Aerodrome Operations and Planning (AOP) Working Group

3.1.1 History of the meeting

3.1.1.1 The Third Meeting of the AOP Working-Group was held from 2 to 4 June 2015 in Malaysia. A Seminar on Aerodrome related Elements of the Seamless ATM Plan was held in conjunction with the meeting on 1 June 2015. AOPWG/3 was attended by 63 participants from 12 Administrations, 2 Special Administrative Regions of China and 2 International Organizations. The meeting documentation including papers reviewed and the final Report of the Working-Group is available at webpage*:*
http://www.icao.int/APAC/Meetings/2015%20AOPWG3/!Final%20Report%20rev%201.pdf

3.1.1.2 A total of 23 Working Papers, 7 Information Papers and 3 presentations covering its 8 Agenda Items was considered by the AOPWG Meeting. Based on the outcome of discussions on various Agenda Items, the meeting formulated 5 Draft Conclusions which were endorsed by ATM/SG/3 for further consideration by APANPIRG/26.

3.1.1.3 The ATMSG/3 meeting held from 3 to 7 August 2015 in Bangkok reviewed the outcomes of the AOPWG/3 Meeting.

3.1.2 Air Traffic Flow Management Steering Group outcomes on Airport Collaborative Decision-Making

3.1.2.1 APANPIRG/26 noted that AOPWG had reviewed the ATFMSG outcomes. AOPWG/3 had noted that the ATFM Framework included a number of items of interest to AOP/WG; most importantly those related to the harmonized, interoperable exchange of ATFM and related A-CDM information. The AOPWG/3 also noted that A-CDM aimed to improve the sharing of information between A-CDM partners and was an enabler of Air Traffic Flow Management (ATFM) at airports, reducing delays, improving the predictability of events and optimizing the utilization of resources.

3.1.2.2 AOPWG/3 further noted that A-CDM was being progressively implemented in some Asia/Pacific Region airports and that the ICAO Aerodrome Design and Operations Panel (ADOP, formerly the Aerodromes Panel), was developing a ICAO A-CDM guidance material. The AOPWG/3 encouraged States to implement ACDM considering the benefits it provided to all airport stakeholders and supported promoting the terminology and FIXM version 3.0 or later as the standard for use in A CDM interfaces with ATFM, AMAN, and DMAN systems.

3.1.3 Progress on the Alignment of Air Navigation Plans with the Global Air Navigation Plan

3.1.3.1 APANPIRG/26 noted that the ICAO Regional Office had populated the eANP Volume I and II with existing data taken from Doc 9673 Volume I (Basic) and Volume II (FASID) and also noted that the AOPWG/3 had agreed with the AOP contents of the eANP in Volume I and volume II respectively. AOP Volume I and AOP Volume II attached at **Appendix A** and **B** to APANPIRG Working Paper WP/6.

3.1.4 Reporting on the Progress of Seamless ATM Implementation

3.1.4.1 APANPIRG/26 noted that AOPWG had reviewed the items of interest to AOP in the APAC Seamless ATM Plan which were in the first group named 1) Optimal capacity – Apron Management, Aerodrome Capacity, Safety and Efficiency of Aerodrome Operations, and 2) ATM – Aerodrome Coordination and Aerodrome collaborative Decision Making. AOPWG/3 encouraged States to review the outcomes of the first cycle of reporting, nominate their point of contact if not yet done and to submit their first report online.

3.1.5 Proposals for the Amendment to Annex 14, Volume I and Volume II

3.1.5.1 APANPIRG/26 noted that the information on the availability of RESAs was published by States/Administrations in their State AIP and also discussed the proposal by AOPWG/3 to make available this information on Aerodrome Charts considering that most Pilots refer to Aerodrome Charts for aeronautical information. APANPIRG/26 reviewed the draft Conclusion proposed by AOPWG/3 and adopted the following Conclusion:

Conclusion APANPIRG/26/3 – Guidance on charting of RESA and/or arresting system in State AIP Aerodrome Chart

Recognizing that most pilots refer to Aerodrome Charts for aeronautical information even though the information is published in State AIP, ICAO be invited to:

i) Study the feasibility for the publication of RESA and/or arresting system data in Aerodrome Chart: and

ii) Consider amendments, if necessary to Annex 4 to include provisions to standardise charting of RESA and /or arresting system.

3.1.6 Sample APAC Regulations for Water Aerodromes

3.1.6.1 AOPWG/3 reviewed the draft sample regulations developed by the Water Aerodromes Small Working Group. APANPIRG/26 noted that the sample water aerodrome regulations could be used as a reference document in the region and adopted the following Conclusion

Conclusion APANPIRG/26/4 – Sample Regulations for Water Aerodromes

That, in accordance with Decision ATMSG/2-7, the sample regulations for water aerodromes is adopted for use as a reference document in the Asia/Pacific Region.

3.1.6.2 ATM/SG/3 noted the AOP/WG's Decision to amend the Water Aerodromes Small Working Group's (WASWG) TOR.

3.1.7 First Edition of the Procedures for Air Navigation Services – Aerodromes (PANS–Aerodromes, Doc 9981)

3.1.7.1 APANPIRG/26 noted that AOPWG/3 had urged States to implement the provisions of the PANS–Aerodromes and to publish up to date lists of significant differences from this document in their AIP by 10 November 2016. APANPIRG/26 recognized the importance of familiarization of PANS Aerodromes by the users in APAC Region and adopted the following Conclusion:

Conclusion APANPIRG/26/5 – Roll out of PANS–Aerodromes

That, ICAO be invited to organize a seminar/workshop in the Asia/Pacific Region to roll out the first edition of PANS Aerodromes (Doc 9981) during first quarter of 2016.

3.1.8 Airport Airside Land Master Plan

3.1.8.1 AOPWG/3 recognized the need for the development of Airport Master Plans to support the modernisation of existing airports and creation of new airports, regardless of size, complexity, and role. APANPIRG/26 supported the view expressed above and adopted the following Conclusion:

Conclusion APANPIRG/26/6 – Airport Master Plans

That, recognizing the importance of long term development of an airport to cater to the growing traffic, States should encourage airport operators to develop long term airport master plan to assist in the timely phased airport expansions, thereby increasing capacity and enhancing the safety and regularity of aircraft operations, and report progress to AOPWG/4.

3.1.9 Airport Carbon Emissions Management

3.1.9.1 AOPWG/3 noted the benefits of the products and services provided by ACI in respect of guidance materials, training, measuring tool and accreditation service to help airports reduce greenhouse gas emissions and urged APAC States to encourage their airports to use them. The AOPWG/3 invited States to include Airport Carbon Accreditation, in their State Action Plans on Climate Change. APANPIRG/26 recognized the importance of carbon reduction at airports and adopted the following Conclusion:

Conclusion APANPIRG/26/7 – Aerodrome Carbon Emissions Management

That States:

a) Support the inclusion of Aerodrome Carbon Accreditation into their State Action Plans for CO_2 Reduction; and

b) Encourage aerodrome operators to consider adopting the ACERT (Airport Carbon and Emission Reporting Tool), and to participate in the ACI Airport Carbon Accreditation Programme.

3.1.10 APANPIRG/26 noted that AOPWG/3 had reviewed the list of Air Navigation Deficiencies noted by APANPIRG/25 in the AOP field and urged concerned States to provide the necessary resources for the elimination of deficiencies and submit the update to ICAO.

3.1.11 APANPIRG/26 also noted that AOPWG/3 had reviewed the results taken from the USOAP CMA online framework in the compliance with ICAO SARPs and the common findings identified in the APAC Region.

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Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.2: ATM

ATM/SG/3 Outcomes

3.2.1 The ATM/SG/3 meeting (Bangkok, 3-7 August 2015) was attended by 94 participants from 24 States, two Special Administrative Regions of China and four International Organizations. A total of 35 Working Papers (WP), 20 Information Papers (IP) and nine flimsies were considered by the meeting. The ATM/SG/3 meeting developed 23 Draft Conclusions, and three Decisions.

Human Performance Mini-Seminar- Human Factors in System Development

3.2.2 In accordance with APANPIRG/25 Conclusion 25/11 *Human Performance Initiatives*, the opportunity was taken at the ATM/SG to conduct a mini-seminar to meet this requirement. The United States kindly provided a presentation on human factors to be considered in ATM system development. India also kindly provided a presentation on Human-in-the-Loop Planning (HILP). The United States thanked India for the presentation, and commented positively on India's work in this area.

Second APANPIRG - RASG Coordination Meeting Outcomes

3.2.3 The ATM/SG meeting was informed about the outcomes of the Second APANPIRG-Regional Aviation Safety Group (RASG–APAC Coordination Meeting (Bangkok, Thailand, 11 May 2015). Of principle interest to the ATM/SG was coordination in fields of interests to both bodies that supported Control Flight into Terrain (CFIT), Runway Safety (RS) and Loss of Control (LOC) safety initiatives.

3.2.4 The ATM/SG's proposed correlation between the identified RASG study and the associated Aviation Safety Block Upgrades (ASBUs), was presented as a combined response with the CNS/SG outcomes on the subject to the Seventh Meeting of the Asia Pacific Regional Aviation Safety Team (APRAST/7, Bangkok, Thailand, 31 August to 4 September 2015).

Air Traffic Flow Management Steering Group Outcomes

3.2.5 The ATM/SG/3 was briefed on outcomes from the Fourth Meeting of the Asia/Pacific Air Traffic Flow Management (ATFM) Steering Group (ATFM/SG/4, Bangkok, Thailand, 01-05 December 2014), and ATFM/SG/5, (Bangkok, Thailand, 30 March-03 April 2015).

3.2.6 In accordance with *Decision ATFM/SG 3/1: Distributed Multi-Nodal Networked ATFM Concept*, the ATFM/SG had reviewed a draft Regional ATFM Concept of Operations (CONOPS) based on the CONOPS proposed by Singapore for inclusion in the draft ATFM Framework.

3.2.7 The Regional ATFM Concept of Operations would be made available on the ICAO Asia/Pacific Regional Office website, with a hyperlink to the document included in the ATFM Framework. The two documents would replace the earlier APAC ATFM Regional Concept of Operations (2011), and the ATFM Communications Handbook for the Asia/Pacific Region, the contents of which had been subsumed into ICAO Doc 9971 – *Manual on Collaborative ATFM* and the draft ATFM Framework.

3.2.8 APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/8 – Regional Cross-border ATFM Implementation Support

That, to support regional cross-border Air Traffic Flow Management (ATFM) progress and implementation, States are urged to:

- support the multi-nodal ATFM operational trial program commencing June 2015;
- ensure timely completion of planning, procurement and resource allocation to enable participation in the multi-nodal ATFM operational trial program; and
- implement cross-border ATFM in accordance with the performance objectives of the Regional Framework for Collaborative ATFM.

3.2.9 ATFM/SG had agreed to the following Decision establishing a Small Working Group to draft an Operational Requirements document for the exchange of and interaction with ATFM information and a technical Interface Control Document (ICD): *Decision ATFM/SG/5-1 – ATFM Information Requirements Small Working Group (ATFM/IR/SWG).*

3.2.10 Having considered the short time frame between the anticipated endorsement of the ATFM Framework by APANPIRG and the Phase I expectations of the Seamless ATM Plan, Regional ATFM Capability was expected to be implemented in accordance with the Asia/Pacific Regional Framework for Collaborative ATFM (**WP07/Appendix A**) and the Regional ATFM Concept of Operations (**WP07/Appendix B**) in the following phases:

- Phase IA, expected implementation by 12 November 2015;
- Phase IB, expected implementation by 25 May 2017; and
- Phase II, expected implementation by 08 November 2018.

3.2.11 APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/9 – Asia/Pacific Regional Framework for Collaborative ATFM

That, regarding the Asia/Pacific Regional Framework for Collaborative ATFM Version 1.0 (**APANPIRG/26/WP07/Appendix A**), and the Regional ATFM Concept of Operations Version 1.0 (**APANPIRG/26/WP07/Appendix B**), ICAO be requested to:

a) make the Framework and the Concept of Operations available on the ICAO Asia/Pacific Regional Office web site, replacing the earlier APAC ATFM Regional Concept of Operations and ATFM Communications Handbook for the Asia Pacific Region; and

b) reference the Framework within the Asia/Pacific Seamless ATM Plan.

Conclusion APANPIRG/26/10 – ATFM Seminars/Workshops

That, ICAO be urged to facilitate Asia/Pacific ATFM Seminars/Workshops for Asia/Pacific and trans-regional States, to:

a) familiarize stakeholders with the Asia/Pacific Regional Framework for Collaborative ATFM;

b) assist implementation of ATFM; and

c) act as a forum for further development of the Asia/Pacific Regional Framework for Collaborative ATFM, and the associated ATFM Information Requirements document and Interface Control Document (ICD).

3.2.12 The ATM/SG/3 meeting had discussed the continuance of the ATFM/SG, noting the developmental nature of the concept of operations and the iterative nature of the ATFM Framework. A statement in support of the continuation of the group was provided by IATA and the ATFM/SG Co-Chairs. The ATM/SG/3 meeting agreed to the continuation of the ATFM/SG, as it was considered critical that ATFM/SG continued to oversee and guide regional ATFM development and implementation.

Flight Plan 2012 Functional Implementation Survey

3.2.13 ICAO provided the results of a survey of functional implementation status of Amendment 1 to PANS-ATM, which became effective in November 2012. The purpose of the amendment, generally known as *FPL 2012*, was to update the ICAO model flight plan form in order to meet the needs of aircraft with advanced capabilities and the evolving requirements of automated Air Traffic Management (ATM) systems.

3.2.14 APANPIRG/24 had adopted the following Conclusion: *Conclusion 24/11: Reliance on FPL and ATS Message Converters.* APANPIRG/25 had noted IATA's presentation of the results of a CANSO post-implementation survey of FPL 2012. It was agreed that the ICAO Asia/Pacific Regional Office would conduct a follow-up survey of implementation status (ATM/SG/3/WP/15/Attachment A).

3.2.15 A summary of the status of key items in the survey was provided to the ATM/SG/3 meeting, with information on lateral separation standards defined in PANS-ATM and supporting Performance-based Navigation (PBN) specifications, related performance objectives of the Asia/Pacific Seamless ATM Plan, and a PANS-ATM incongruity between the definition of Required Navigation Performance 2 (RNP-2) for separation and the flight planning provisions limited to RNAV 2.

3.2.16 The survey also included questions on the acceptance and processing of non-PANS-ATM items including wake turbulence category 'J', Runway Visual Range (RVR), and FPL Item 19 information.

3.2.17 IATA advised that some airspace users were including Item 19 in transmitted FPL due to one State's AIP requirement. This matter would be further addressed by ICAO. The use of Mode S SSR Downlinked Aircraft Parameters (DAPs) in ATM systems was also assessed, noting draft proposals to include the expectation of this capability in the 2016 update of the Seamless ATM Plan.

3.2.18 APANPIRG/26 agreed to the following Conclusions:

Conclusion APANPIRG/26/11 – Implementation of FPL 2012 Capability

That, noting the relevant aircraft separation and track spacing minima specified in ICAO Doc 4444 PANS-ATM, and the performance objectives of the Asia/Pacific Seamless ATM Plan;

States are urged to include in ATM automation system specifications the processing and presentation in ATC human-machine interfaces and decision support and alerting tools, the communications, navigation and approach aid indicators received in items 10 and 18 of FPL and ATS messages, where applicable, and the following Mode S SSR or Automatic Dependent Surveillance – Broadcast (ADS-B) downlinked aircraft parameters as a minimum:

- Aircraft Identification, magnetic heading and indicated airspeed or Mach Number; and
- Pilot selected altitude.

Conclusion APANPIRG/26/12 – Flight Plan Item 19 Information

That, States are urged to ensure that item 19 information contained in submitted flight plans is not included in Flight Plan (FPL) messages.

Conclusion APANPIRG/26/13 - Consistent PANS-ATM Provisions for RNP 2/RNAV 2

That, ICAO be requested to take action to provide consistency in ICAO Doc 4444 – PANS-ATM, noting the specification of RNP 2-based separation while RNAV 2 is specified for entry in the flight plan.

Rocket Launch Airspace Closures

3.2.19 IATA had presented an overview of issues faced by airlines due to the frequent closure of large portions of airspace for major rocket launches and space re-entry activity, and proposed certain measures to reduce the consequences for civil flights. To facilitate rocket launches, Air Navigation Service Providers (ANSPs) were required to create temporary danger areas that could affect several Flight Information Regions (FIRs). Airline experience indicated an urgent need to improve coordination among ANSPs, as well as airlines, which addresses the following areas:

a) appropriate advance notice;

b) accuracy and minimisation of launch windows;

c) timely NOTAM information from all affected States concerned about launch cancellations; and

d) launch timing windows not set during busy traffic hours.

3.2.20 Noting that reports from airlines that costs to airlines can exceed USD250,000 for each launch, IATA urged States involved to improve coordination and consideration of measures to minimise the negative effects on civil aviation. The ATM/SG/3 meeting agreed that the work of developing guidance material would be undertaken out of the ICAO Regional Office, in consultation with relevant stakeholders, for inclusion in the 2016 update of the Asia/Pacific Seamless ATM Plan.

Regional ATM Contingency Plan Task Force Outcomes

3.2.21 The 4th Meeting of the Regional ATM contingency Plan Task Force (RACP/TF/4) was held in Bangkok, Thailand, from 26 to 30 January 2015.

3.2.22 The draft Regional ATM Contingency Plan in its current form included key information for the guidance of States, and the agreed performance improvement plan with an expected implementation date of 10 November 2016. It was proposed that the Plan in its current form should be uploaded to the ICAO Asia/Pacific Regional Office website for immediate use by States in planning their development of ATM contingency plans. APANPIRG/26 agreed to the following Draft Conclusion:

Conclusion APANPIRG/26/14 – Draft Regional ATM Contingency Plan

That, regarding the Draft Asia/Pacific Regional ATM Contingency Plan version 0.2 attached as **APANPIRG/26/WP07/Appendix C**:

1. ICAO be requested to make the Draft Regional ATM Contingency Plan available on the Asia/Pacific Regional Office website; and

2. States are urged to consider the following sections of the Draft Regional ATM Contingency Plan in the planning and development of State contingency plans and inter-State contingency agreements, pending finalization of the Regional ATM

Contingency Plan:

a) Section 7 – Performance Improvement Plan;

b) Appendix A – ATM Contingency Planning Principles;

c) Appendix B – Basic Plan Elements; and

d) Other relevant information and guidance provided in the document.

AHACG Outcomes

3.2.23 The outcomes of the Second Meeting of the Ad Hoc Afghanistan Contingency Group (AHACG/2, Istanbul, Turkey, 17-19 November 2014) and Third Meeting AHACG/3, Muscat, Sultanate of Oman, 11-14 May 2015) had been reviewed by the ATM/SG/3.

3.2.24 Regarding capacity building, Afghanistan, India and Pakistan all confirmed to the AHACG/3 meeting that they were ready to implement 50NM separation. The blockage of FL300 within the Kabul FIR was discussed at AHACG/3 with a view to using Flexible Use of Airspace (FUA) principles, and has since been implemented with the enactment of a civil/military agreement between the Afghanistan government and military agencies.

3.2.25 The AHACG/3 meeting had extensively reviewed the draft Afghanistan ATM Contingency Plan, so that comments and suggestions could be made to improve the plan. Afghanistan agreed to incorporate all comments, and ensure close consultation with stakeholders such as IATA, airlines and the military to ensure the finalisation of the plan by mid-June, but not later than 30 June 2015. However, as at 06 September, the Contingency Plan had still not been presented to the ICAO Regional Office.

3.2.26 The ATM/SG/3 were informed that a new ANS contract had been agreed to by Afghanistan, and that funding arrangements were in place for between one and two years. Notwithstanding this, the ATM/SG/3 agreed to the Inter-regional Afghanistan ATM Contingency Arrangements, and urged States to continue necessary preparations in the event of any ANS issues.

3.2.27 Pakistan and India had agreed upon a contingency route structure that effectively extended the Organised Track System (OTS) within the Tehran FIR, providing a bypass south of the FIR. Pakistan had also recently optimized the route structure by providing an efficient connectivity from ATS Route L509 (SAMAR-LAJAK) north of the Kabul FIR through Tajikistan and Central Asia. A side meeting between Pakistan and India was held with ICAO at APANPIRG/26 to discuss current readiness for contingency operations.

3.2.28 The AHACG/3 had agreed to the contingency scheme in the Inter-regional Afghanistan ATM Contingency Arrangements document, which would be provided to the key States involved (Iran, Pakistan and Afghanistan), and monitored by the ICAO MID and APAC Offices. A Contingency Coordination Team (CCT) and the Notification Procedures were established for the Afghanistan contingency arrangements.

3.2.29 In case of degradation or potential disruption of ATS or related services within the Kabul FIR, the AHACG/3 recognised that the provisions of the Afghanistan State Contingency Plan applied, but if these were not available, the meeting agreed on possible temporary provisions. The agreed contingency route system is illustrated in **Figure 1**:

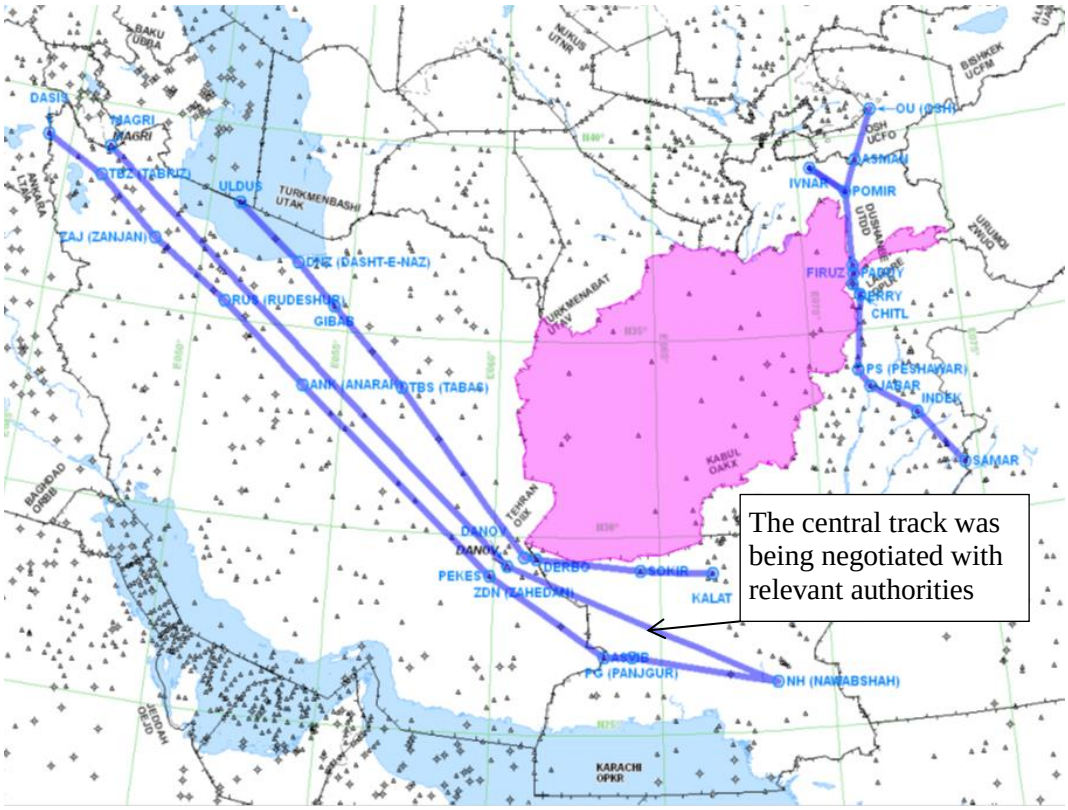

Figure 1: Circumnavigation Routes (Extended Royal Road OTS)

SAIOACG/4 and SEACG/21 Meeting Outcomes

3.2.30 The ATM/SG/3 were briefed about the outcomes of the Fifth Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/5, Bangkok, Thailand, 03-05 March 2015), and the Twenty-Second Meeting of the South East Asia ATS Coordination Group (SEACG/22, Bangkok, Thailand, 09-12 March 2015).

3.2.31 The ATS interface issues in the Bay of Bengal and South China Sea (SCS) that had been analysed by the Nineteenth Meeting of the RASMAG/19 were highlighted. SAIOACG/5 and SEACG/22 States were urged to support the ATS Inter-facility Data Communications (AIDC) Task Force and other measures to improve safety.

3.2.32 Participants at both the SAIOACG/5 and SEACG/22 were urged to review the draft material provided by ICAO on the new Asia/Pacific electronic Regional Air Navigation Plan (eANP). The ATM/SG/3 meeting agreed that the FIR Descriptions (and later, the Search and Rescue Region Descriptions - SRR) were not sufficiently mature and required further verification and quality checking, and thus were expected to be endorsed by APANPIRG/27.

3.2.33 The following eANP ATM-related drafts were reviewed by the SAIOACG/4, SEACG/21 and ATM/SG/3:

- **WP07 Appendix D**: eANP Excerpts;
- **WP07 Appendix E**: Volume I, Part I Table Gen I-1 FIRS;
- **WP07 Appendix F**: Table ATM I-1 Draft FIR Descriptions;
- **WP07 Appendix G**: Volume II, Part IV Table ATM II-1 SSR Codes; and
- **WP07 Appendix H**: Volume II, Part IV, Table ATM II-ASIAPAC-2 ATS Routes.

3.2.34 ICAO presented draft Version 14 of the *Asia and Pacific Region ATS Route Catalogue* for review and update by the ATM/SG. The meetings noted the transition of Chapter A (ATS routes that had been designated by the Council) was being moved into the eANP, and that the remaining proposals within the ATS Route Catalogue could be updated by the Regional Office without reference to an APANPIRG Conclusion in future (**WP07/Appendix I**).

3.2.35 APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/15 – ATS Route Catalogue Version 14

That Version 14 of the *Asia and Pacific Region ATS Route Catalogue* **at APANPIRG/26/WP07/Appendix I** replaces Version 13 on the Asia/Pacific Regional Office's web site, noting that:

- Chapter A had been transitioned to the electronic Air Navigation Plan (eANP); and
- the remaining ATS route proposals in the ATS Route Catalogue may be amended by the ICAO Regional Office without reference to an APANPIRG Conclusion in future.

Side Meeting between Mekong/SEACG States on Traffic Delays

3.2.36 An ATM/SG/3 side meeting consisting of China, Hong Kong China, Republic of Korea, Viet Nam, IATA and ICAO discussed the issue of major traffic delays related to Chinese airspace. IATA presented the airline industry's concerns regarding severe flight delays in China, requesting that China pay urgent attention to flight delay reduction by focusing on increasing airspace/airport capacity, permitting operational flexibility, improving ATFM predictability, strengthening civil-military ATM cooperation and adopting international best practice where appropriate.

AOP Working Group Outcomes

3.2.37 The outcomes of the Third Meeting of the AOP Working-Group (AOPWG/3, Putrajaya, Malaysia, 02-04 June 2015) were presented to the ATM/SG. The ATM/SG agreed to the AOP/WG Draft Conclusions as amended (detailed under Agenda Item 3.1 of this Report).

Aeronautical Information Service (AIS) – Aeronautical Information Management (AIM) Implementation Task Force Outcomes

3.2.38 The 10th Meeting of the AIS – AIM Implementation Task Force (AAITF/10) was held in Bangkok, Thailand, from 27 – 30 April 2015. Regional implementation of Phase 1- *Consolidation* of the Roadmap for Transition from AIS to AIM was summarized as follows:

- 15 Administrations (≈ 36%) had completed implementation of Phase 1;
- 16 Administrations (≈ 38%) had partly implemented Phase 1;
- 11 Administrations (≈ 26%) had not implemented any Phase 1 step; and
- Overall Regional implementation of Phase 1 ≈ 60%.

3.2.39 The performance objectives of the Asia/Pacific Seamless ATM Plan included the expectation that Phases 1 and 2 of the Roadmap for Transition from AIS – AIM would be completed by November 2015. Regional implementation of Phase 2 – *Going Digital* was as follows:

- No Administrations had completed implementation of Phase 2;
- 25 Administrations (≈ 59%) had partly implemented Phase 2
  - 11 Administrations (≈ 26%) have completed more than 50% of Phase 2;
- 17 Administrations (≈ 40%) had not completed any Phase 2 step; and
- Overall Regional implementation of Phase 2 ≈ 27%.

3.2.40 The following States had not provided any information on AIM transition since the AIM Transition Table was created in 2011: Bhutan, Brunei Darussalam, Kiribati, Marshall Islands, Micronesia, Nauru, Samoa.

3.2.41 Regarding the electronic AIP (eAIP), the AIM Implementation Table did not differentiate between a simple web-accessible, printable AIP provided via PDF or other files, and an AIP based on a digital database of information that could be exchanged through the use of an appropriate information exchange model. It was noted by the AAITF that some States may have implemented eAIP generated from a digital database that may not be suitable for future digital exchange. The performance objectives of the Asia/Pacific Seamless ATM Plan specified the Aeronautical Information Exchange Model (AIXM) version 5.1 or later.

3.2.42 APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/16 – eAIP from Digital Database

That, States providing updated AIM transition information in accordance with *Conclusion APANPIRG/25-15* should advise whether their eAIP is generated from a digital database of aeronautical information.

3.2.43 In discussing eAIP and the Asia/Pacific Seamless ATM Plan's performance objectives it was noted by the ATM/SG/3 that the use of the Aeronautical Information Exchange Model may not be applicable to Phases 1 and 2 of the Roadmap for Transition from AIS to AIM. Transition Phase 2 step P-11 – *Electronic AIP* related to the implementation of the electronic version of the AIP in two forms; a printable document, and one that could be viewed by web browsers. The Phase 3 Step P-09 – *Aeronautical Data Exchange* related to the definition of the information exchange model.

3.2.44 The lack of global guidance material for AIS-AIM transition was viewed by AAITF/9 (Pattaya, Thailand, 24 to 27 June 2014) as a significant obstacle in States' AIM implementation progress, and presented challenges to their efforts to implement AIM transition steps within timeframes defined by Annex 15 applicability and the Asia/Pacific Seamless ATM Plan's performance objectives. Delivery of the guidance documents had been further delayed beyond the latest advised timeframe (Q2/3 2014). The latest information from ICAO Headquarters at the time of the AAITF/10 meeting (April 2015) was that most of these documents were undergoing final drafting and/or editing, but publication dates had not yet been finalized.

3.2.45 While recognizing that any independently developed regional guidance material could risk encouraging States to implement AIM in ways that were either not supported by or running counter to the delayed global guidance material, AAITF had agreed to work on Regional AIM transition guidance material for four identified priority AIM transition steps: P-17 – *Quality*, P-16 – *Training*, P18 – *Agreements with data originators*, and P-11 *Electronic AIP*.

3.2.46 Draft Interim AIM Transition Guidance, intended to provide States with a simple checklist of references and information pending publication of the ICAO global guidance documents and PANS-AIM, was reviewed and finalized by AAITF/10. It was proposed that the Interim AIM Transition Guidance should form an appendix to the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region*, which was available on the ICAO Asia/Pacific Regional Office website at http://www.icao.int/APAC/Pages/edocs.aspx.

3.2.47 APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/17 – Interim AIM Transition Guidance

That, the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region* be updated to include as an appendix the Interim AIM Transition Guidance appended at **APANPIRG/26/WP07/Appendix J**.

3.2.48 Following the availability of the ICAO publications supporting AIM transition there would be a need to familiarize stakeholders with their contents. Recognizing also the performance objectives of the Asia/Pacific Seamless ATM Plan (AIM Transition Phases 1 and 2 implemented by November 2015), there would be a need for amendment or further development of the Regional AIM guidance manual.

3.2.49 APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/18 – AIM Transition Seminars/Workshops

That, ICAO be urged to facilitate Asia/Pacific AIM Transition Seminars/Workshops to:

a) familiarize stakeholders with the new and amended ICAO publications developed by the ICAO AIS-AIM Study Group;

b) assist States in developing AIM implementation plans; and

c) act as a forum for further development and updating of the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region.*

3.2.50 Hong Kong, China offered assistance to host an AIM Seminar/Workshop in the second half of 2016.

3.2.51 The following sections of the eANP relating to AIS/AIM had been provided for State review at both the AAITF/10 and ATM/SG/3 meetings:

- **WP07 Appendix K**: Volume II Table AIM II-1 – AIS/AIM Facilities and Services; and
- **WP07 Appendix L:** Volume II Table AIM II-2 Aeronautical Chart Production.

Volcanic Events – The Need for a Collaborative Approach

3.2.52 IATA had presented information discussing the importance of timely and ongoing information sharing during a volcanic event to the ATM/SG/3. Following an eruption, the ATM/SG/3 noted that the first information received by operators was usually a NOTAM issued by the State. That NOTAM typically indicated that an eruption was in progress and sometimes included actions (such as aerodrome closures) taken by the State to ensure safety of operations. Frequently, that was the only communication operators would receive from the State until the NOTAM was cancelled.

3.2.53 The ATM/SG/3 noted that ICAO Doc 9974 - *Information for Regulators and operators on operations in airspace potentially contaminate by volcanic ash* included a provision that an operator should not be prevented from operating through, under or over airspace forecast to be affected by a VAA, VAG or SIGMET provided it has demonstrated in its SMS the capability to do so safely.

3.2.54 From an airspace perspective, Doc 9974 reference left the decision on whether to operate or not in the hands of the operator. However, Doc 9691- *Hazards of operating in airspace and aerodromes contaminated by VA* contained the following, somewhat contradictory, statement: *A decision has to be taken by the airport authority regarding the feasibility or necessity to continue aircraft operations at the airport.* Given the significant disruptive and economic potential of an aerodrome closure, the State concerned should take a proactive approach to collaboratively work with stakeholders (including other States) in ensuring information is shared regularly.

3.2.55 IATA proposed that States with potential or regular volcanic activity urgently implement a communications mechanism that would provide regular and timely information sharing before, during and after an event, which would facilitate consultation with the airspace users.

3.2.56 APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/19 – Volcanic Ash Information Coordination and Collaboration

That, States are urged to:

a) establish a mechanism to provide regular and timely updates of information during a volcanic eruption and/or ash cloud event to ensure all stakeholders are up to date with current information, situation reports and contingency planning;

b) participate in volcanic ash exercises; and

c) consider establishing an internal crisis management centre where applicable to support the collaborative and timely sharing of information such as volcanic eruptions, or other crises that will have a significant impact on airport and/or airspace management.

Note: This is supplemental to the provisions of Annex 3 and Annex 15.

3.2.57 New Zealand recalled that there were a number of MET products (such as a VONA) which may assist. The meeting noted Australia's comment that the Conclusion was related to a more effective collaboration between stakeholders supplemental to Annex 3 and Annex 15 processes. New Zealand further added that it was imperative for all components of a crisis management centre to work correctly. Moreover, IATA stressed that a proactive process of information sharing was critical for airline operations.

Asia/Pacific Search and Rescue Task Force Outcomes

3.2.58 The outcomes of the Third Meeting of the Asia/Pacific Regional Search and Rescue Task Force (APSAR/TF/3, Maldives, 25-29 January 2015) and the Fourth Meeting of the APSAR/TF (APSAR/TF/4, Bangkok, Thailand, 06-10 July 2015) were reviewed by the ATM/SG/3 meeting.

3.2.59 The APSAR/TF/3 meeting reviewed the draft SAR Air Navigation Report Form (ANRF, **WP07/Appendix M**). APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/20 – SAR Air Navigation Report Form

That, the Search and Rescue (SAR) Air Navigation Report Form (ANRF) as appended at **APANPIRG/26/WP07/Appendix M** be utilised by Asia/Pacific States as a means of regional strategic SAR planning and implementation in the Asia/Pacific Region.

3.2.60 ICAO had provided a brief on the SAR response to the disappearance of Malaysia Airlines Flight 370 (MH370) on 08 March 2014, while flying from Kuala Lumpur, Malaysia to Beijing, China with 239 people on board. The APSAR/TF/3 meeting had noted the issues as being possible lessons learnt that were incorporated into the Asia/Pacific SAR Plan.

3.2.61 Considering the lessons learnt from the MH370 tragedy, and other relevant information on recent SAR events, APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/21 – SAR Lessons Learnt

That, considering the implications for Search and Rescue standards from recent events which required initiation of SAR actions, ICAO, in coordination with the IMO through the ICAO/IMO Joint Working Group on Harmonisation of Aeronautical and Maritime SAR (JWG), should consider urgently updating global SAR documents from the lessons learnt.

3.2.62 Indonesia had provided initial information regarding the Air Traffic Control (ATC) and SAR operation for Air Asia QZ 8501, which had lost contact with ATC on 28 December 2014. The last known position of the aircraft was over the Karimata Strait, Java Sea. The APSAR/TF/3 commended Indonesia on the conduct of the SAR operation, noting that the post-incident analysis and reporting was on-going. The APSAR/TF/3 discussed whether military SAR Units (SRUs) were adequately trained in specific SAR procedures (such as the need to operate at optimal search altitudes). Indonesia stated that regular SAREX and liaison with the military had developed an adequate knowledge among SAR responders, and this was noted as a key lesson for other States.

3.2.63 The APSAR/TF/4 reviewed the eANP SAR elements, and States were requested to provide feedback on any issues found to the ICAO Regional Office. The APSAR/TF/4 noted that the change in the status of Search and Rescue Region (SRR) designation to one whereby the Council approved the eANP Vol I amendment may require a consequential change to Annex 12 to reflect the change in the approval process currently outlined in Annex 12:

> *2.2.1 Contracting States shall delineate the search and rescue regions within which they will provide search and rescue services. Such regions shall not overlap and neighbouring regions shall be contiguous.*

3.2.64 The APSAR/TF/4 was provided with an extensive briefing on matters related to the global progress of SAR improvement and SAR standards development, including the:

a) the Global Aeronautical Distress and Safety System (GADSS) for flight tracking, SAR activities and retrieval of Cockpit Voice Recorders (CVRs) and Flight Data Recorders (FDRs) data; and

b) Normal Aircraft Tracking Implementation Initiative (NATII).

3.2.65 Emergency Locator Transmitters (ELTs) remained a significantly disproportionate contributor to false alerts compared to maritime Emergency Position Indicating Radio Beacon (EPIRB). This appeared to be due to training and information issues for cockpit crews and maintenance personnel, who activate beacons for testing without realizing that all transmitted alert signals are treated as real. In part as a result of incidents where ELTs failed to transmit a burst before destruction in fire or submersion in water, the delay for the beacon's first-burst transmission was being reduced from 50 seconds to three seconds in the next generation of beacons. However, without proper training of cockpit crews and maintenance personnel, this could lead to an increase in false aviation-related alerts.

3.2.66 The Medium Earth Orbit SAR (MEOSAR) constellation currently included three operational L-band satellites (Glonass-K1, and Galileo IOV-3 and IOV-4) and 17 GPS II satellites carrying experimental repeaters with an S-band downlink used by Cospas-Sarsat. The following Asia/Pacific States had announced the planned implementation of an operational MEOSAR ground segment with an Initial Operational Capability (IOC) for 2017: Australia, China, India, Japan, New Zealand and Pakistan.

3.2.67 Tests showed that about 25% of all tested SAR Points of Contact (SPOCs) remained insufficiently responsive or non-responsive. The majority of less responsive SPOCs were from the African Region. However, many Asia/Pacific administrations region indicated a deficiency with respect to Cospas-Sarsat alert facilities and procedures in the SAR Capability Matrix.

3.2.68 An analysis of the 35 Universal Safety Oversight Audit Programme (USOAP) SAR-related Protocol Questions (PQs) in June 2015 indicated an overall Effective Implementation (EI) of only **50.7%** for the Asia/Pacific Region. From this analysis, it appeared that the major areas of weakness was in areas of coordination with adjacent States, effective SAR oversight, and training of both SAR inspectors and staff that provide the SAR services.

3.2.69 The APSAR/TF/4 recognised that the PQ results were difficult to reconcile with the reality of challenges faced by many States, which had a priority to provide basic SAR services. The meeting was concerned that the imposition of a SAR inspectorate could reduce specialist SAR staff resources from States that were hard pressed to provide enough personnel for the provision of SAR services.

3.2.70 The ATM/SG/3 meeting had noted that while an independent regulatory oversight was necessary, the PQs intimated that SAR inspectors needed to be SAR experts, and were a separate inspectorate to other ANS inspectorates then this appeared to be an onerous situation. However it was recognised that it was unnecessary for inspectors to be an expert in the field being audited, but rather, it was necessary for inspectors to be experts in generic regulatory inspection skills. Thus an ANS inspectorate could mean that inspectors could be utilised in an efficient manner and not draw too many resources away from the primary service functions such as SAR.

3.2.71 The following sections of the eANP relating to SAR were appended to the working paper for review by the APSAR/TF and feedback to ICAO:

- **WP07 Appendix N**: SAR Excerpts;
- **WP07 Appendix O:** Volume I, Part VI Table Draft SRR Descriptions; and
- **WP07 Appendix P:** Vol II, Part VI SAR Facilities.

3.2.72 The SAR Capability Matrix Table is presented as **WP07 Appendix Q**. The overall SAR capability ranking of Asia/Pacific States (using a metric of 5% for an A and 4% for a B as assessed in the SAR Capability Matrix) is indicated in **Figure 2**:

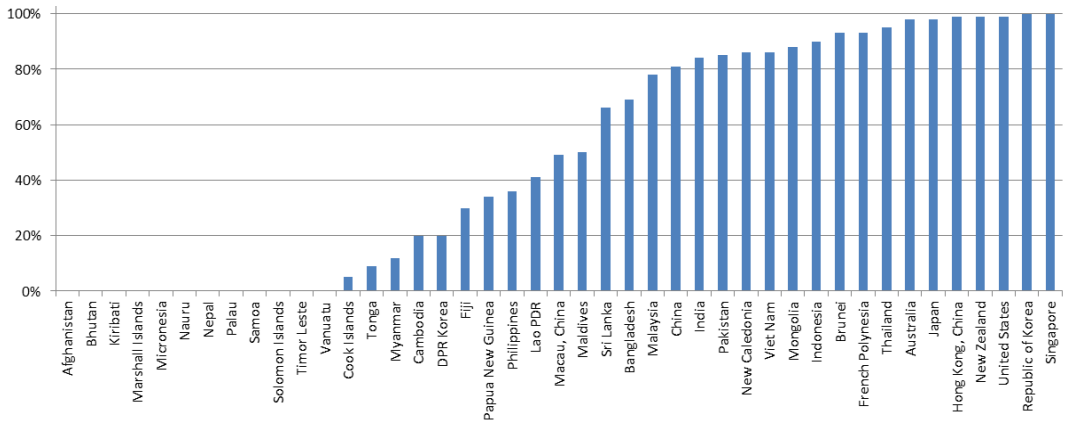

Figure 2: Asia/Pacific SAR Capability Ranking

3.2.73 The APSAR/TF/4 meeting had acknowledged the appraisal by Sri Lanka that had resulted in a reduced capability score. ICAO noted that integrity and honesty in self-appraisal was crucial to ensure that a State recognised its areas of improvement and applied resources to remedy this.

3.2.74 Derived from the Capability Matrix, **Figure 3** provided the updated overview for APSAR/TF/4. Five administrations had notified of substantial improvements in SAR capability in the past year: Bangladesh, India (which indicated a change from 26% to 84% compliance in their latest update), Indonesia, New Caledonia, Pakistan and Viet Nam.

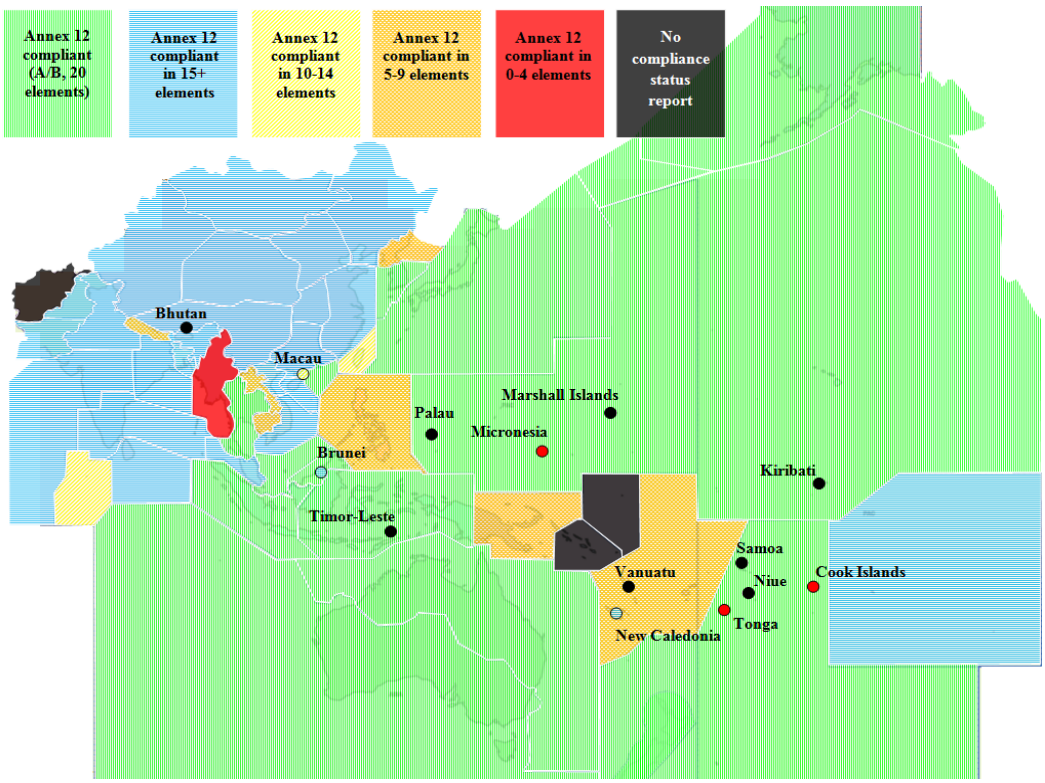

Figure 3: APSAR/TF/4 Asia/Pacific Regional SAR Overview

3.2.75 In summary, a significant risk of poor SAR responses remained unless major changes, including increased resources and effort, were made. It was expected that the combination of APANPIRG Deficiencies, the development of sub-regional SAR capacity-building projects and the Asia/Pacific SAR Plan could provide the impetus for dramatic improvement by 2016.

3.2.76 ICAO presented information on the development of the Asia/Pacific SAR Plan (**WP07/Appendix R**), including the latest draft considered by the APSAR/TF. The draft SAR Plan was extensively reviewed by the meeting over the course of two days of discussion. One of the key points discussed was the status of SAR agreements.

3.2.77 APANPIRG/26 agreed to the following Conclusions:

Conclusion APANPIRG/26/22 – Asia/Pacific SAR Plan

That, regarding the Asia/Pacific Search and Rescue (SAR) Plan Version 1.0 attached as **APANPIRG/26/WP07/Appendix R**, ICAO be requested to:

a) make the SAR Plan available on the ICAO Asia/Pacific Regional Office web site;

b) reference the SAR Plan within the Asia/Pacific Seamless ATM Plan;

c) add the following elements to the Asia/Pacific Seamless ATM monitoring and reporting scheme:

- SAR Regulatory and Coordination Mechanisms;
- SAR Facilities and Assets;
- SAR Information;
- SAR Improvement; and

d) conduct Asia/Pacific SAR Planning and Implementation Seminars/ Workshops for Asia/Pacific States.

Conclusion APANPIRG/26/23 – State SAR Planning

That, States should be urged to:

a) review Version 1.0 of the Asia/Pacific SAR Plan and utilise the SAR Plan to develop planning for State implementation of applicable SAR elements;

b) ensure relevant decision-makers are briefed on the SAR Plan;

c) submit the first SAR Plan Seamless ATM monitoring information to the ICAO Regional Office by 01 March 2016; and

d) where possible, participate and contribute to SAR Plan system collaborative training and research initiatives.

3.2.78 The APSAR/TF/4 discussed the merits of either strengthening the SAR presence at the ATM/SG (and not continuing with a specialist SAR group), or taking advantage of the greater awareness of SAR and the improvements brought by the APSAR/TF by establishing a SAR Workgroup as an APANPIRG contributing body.

3.2.79 The United States recognised the quality of the work related to SAR already produced under the guidance of the ICAO Bangkok Regional Office, quoting the ICAO Council working paper for its 205th session, C-WP/14280 dated 21/5/15 as an indicator of the role that the Asia/Pacific Office had played and the reputation it had earned. Noting the emphasis with regard to the importance of SAR development work globally, Australia, New Zealand, New Caledonia, Sri Lanka, India, Singapore, Malaysia, the USA and the IMO supported the suggestion to establish an ICAO Regional SAR Workgroup. APANPIRG/26 agreed to the following Decision:

Decision APANPIRG/26/24 – Asia/Pacific SAR Workgroup

That, the Asia/Pacific Search and Rescue (SAR) Task Force be disestablished and an Asia/Pacific SAR Workgroup (APSAR/WG) be established in accordance with the Terms of Reference at **APANPIRG/26/WP07/Appendix S**.

3.2.80 Australia noted that the agreement on the SAR Plan was a major step forward in SAR development, and it reflected very well on the region.

Air Navigation Service Deficiencies List

3.2.81 APANPIRG/25 had noted that there would be a number of States proposed for remedial action in the area of SAR capability. A list of SAR compliance deficiencies was proposed for APANPIRG/26's attention as part of the ATM/AIS/SAR Deficiency List as follows:

Afghanistan, Bhutan, Cambodia, Cook Islands, DPR Korea, Fiji, Kiribati, Lao PDR, Macau China, Maldives, Marshall Islands, Micronesia, Myanmar, Nauru, Nepal, New Caledonia, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Timor Leste, Tonga and Vanuatu.

3.2.82 The meeting reviewed and discussed the ATM/AIS/SAR Deficiency List included as **WP07/Appendix T** (including the proposed SAR deficiencies). The APSAR/TF/4 meeting agreed to the proposed APANPIRG SAR Deficiencies in accordance with a Draft Conclusion, which was endorsed by the ATM/SG for further consideration by APANPIRG/26 (**ATM/SG/3-26)**. APANPIRG/26 agreed to the Deficiency List update, which was consolidated within the APANPIRG Report Agenda Item 4 under a single APANPIRG Conclusion.

Measuring ANSP Performance (WP/16)

3.2.83 CANSO presented information on the subject of ATM performance measurement, as raised at APANPIRG/25 and the 51st Conference of Directors General of Civil Aviation Asia and Pacific Regions (DGCA/51, Hong Kong, China, 24 to 27 November 2014), including recent work published by CANSO relating to ANS performance and KPIs for measuring ANSP operational performance. Measurement of ANSP member performance was an important core activity for CANSO.

3.2.84 The CANSO *Global ANS Performance Report 2014* focused on analysis of cost-efficiency and productivity KPIs, but did not show the influence of investments and activities in areas such as safety, flight efficiency or quality of service. The *Recommended KPIs for Measuring ANSP Operational Performance* document was specific to these areas.

3.2.85 Singapore noted that the matter of performance management was discussed at the last DGCA Conference meeting and the ATM/SG/3. Singapore and Hong Kong, China stated that the ATM/SG's RAPMF/SWG may provide a valuable forum to enhance the region's performance monitoring capability Hong Kong added that the SWG would need to discuss bench marking methodology which is applicable across the region and should take into consideration of different situations and requirements of different airports. ICAO noted that aerodrome operators may need to be involved because some of the indicators were influenced by aerodrome operators, and that common definitions needed to be developed.

Crossing FIR Boundaries (WP/17)

3.2.86 CANSO presented the *Best Practice Guide to Crossing Flight Information Region Boundaries* document, supporting CANSO's vision to transform ATM performance and the objective of harmonizing airspace for seamless operations. Recommendations in the Guide were aligned with and complemented guidance material provided by ICAO and IATA.

3.2.87 The Guide identified impediments to the safe and efficient crossing of FIR boundaries, and focused on two of the higher priority disparities; inconsistencies in filing flight plans, and problems in transitioning between surveillance and non-surveillance airspaces. The application of the guidance in the document would help ANSPs to reduce or eliminate some of the factors contributing to operational inefficiencies, unnecessary fuel burn, CO_2 emissions and loss of required separation as aircraft crossed FIR boundaries.

Normal Aircraft Tracking (WP/21)

3.2.88 IATA highlighted the work being done globally by ICAO, States and Industry Partners in the development of provisions for aircraft tracking, and requested APANPIRG assign tasks to appropriate sub-groups to ensure optimal and timely regional compliance. The introduction of new regulations concerning normal tracking of aircraft had been agreed in principle by the ICAO High Level Safety Conference (HLSC, Montreal, Canada, February 2015). A circular on Normal Flight Tracking Implementation was being jointly developed in support of a proposed amendment to Annex 6 to the Convention, and consequential amendments to other ICAO publications, providing Standards and Recommended Practices (SARPS) for aircraft tracking.

3.2.89 IATA requested that the ATM and CNS Sub-Groups of APANPIRG be tasked to review ICAO SARPS and guidance related to normal aircraft tracking and assess regional implications. The United States noted the report from the Normal Aircraft Tracking Working Group (NATII WG) was made available to the Air Navigation Commission this week. In the report the United States asked the SARP be delayed 3 years and is concerned if a state begins implementation prematurely they may have to do significant rework later. APANPIRG/26 noted that the SAR/WG would continue to monitor the situation and review the evolving NATII/GADSS requirements for incorporation into the Asia/Pacific SAR Plan if appropriate.

ATFM Activities Supported by the ICAO RSO (WP/24)

3.2.90 ICAO provided information Air Traffic Flow Management (ATFM) and Collaborative Decision-Making (CDM) activities conducted by the Asia/Pacific Regional Sub-Office (RSO), including supporting the sub-regional ATFM collaborative efforts in North Asia (China, Japan and Republic of Korea), the Mekong Coordination Group (Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam), and the Bangladesh, India, Myanmar and Thailand (BIMT) coordination group.

3.2.91 Following on from the ATFM Workshop Asia Pacific 2014, a program of workshops had been developed to assist States in ATFM/CDM implementation. The program consisted of 3 types of workshops, each dependent on States' readiness and applicability; Foundation ATFM/CDM, Advanced ATFM/CDM and Cross-Border ATFM workshops. Japan and United States of America expressed appreciation on the ongoing ATFM work and support being provided to APAC States.

3.2.92 To further the RSO's objective of improving airspace organization and management, to maximize ATM performance, a work program to conduct workshops supporting establishment of sub-regional ATFM/CDM would be developed.

FUA Activities and Support (WP/25)

3.2.93 ICAO presented information on implementation support activities for FUA conducted by the RSO. Civil/military cooperation was highlighted in the Asia/Pacific Seamless ATM Plan as a high priority for the region, and was included in the RSO's mandate to assist States in improving access to airspace through effective civil-military coordination and FUA.

3.2.94 An Asia/Pacific Civil/Military Cooperation Lecture and Seminar had been held by the RSO in November 2014, aimed to provide guidance based in ICAO Circular 330 – Civil/Military Cooperation in Air Traffic Management with a special focus on conditional route and airspace management cell (AMC) operations. After an approach by Myanmar to ICAO a workshop was held in Yangon, Myanmar in July 2015, aiming to facilitate the implementation of FUA.

3.2.95 In addition to FUA workshops, the RSO could support a range of FUA implementation support activities.

Implementation of Simultaneous Parallel Independent Departure Procedures (IP/5)

3.2.96 Japan provided a summary of the implementation of Simultaneous Parallel Independent Departure (SPID) procedures at Narita International Airport using a Wide-Area Multilateration (WAM) system for continuous operations during periods of low visibility. The procedure had resulted in an improvement in hourly movements of about 6% since end of March 2015.

Integrated AMAN/DMAN Development Status (IP/10)

3.2.97 The meeting was provided with information summarizing the development and implementation status of an integrated Arrival Manager/Departure Manager (AMAN/DMAN) for metering of arrival flights to Jeju Airport, Republic of Korea. The integrated AMAN/DMAN had been under development since November 2014, and was planned to be completed by August 2020. Definition of system requirements was currently being conducted.

Optimization of Airspace and Procedures (IP/11)

3.2.98 The United States presented information on efforts at leveraging PBN expertise and experience to expedite implementation of optimized airspace and procedures. Projects under the Metroplex optimization of airspace procedures program focused on geographic areas rather than a

single airport, considering multiple airports and the airspace surrounding a metropolitan area and including all types of operations as well as connectivity with other Metroplexes.

BIMT Outcomes (IP/16)

3.2.99 The meeting was provided with the outcomes of the Second Bangladesh, India, Myanmar, Thailand ATM Coordination Meeting (BIMT/2), held in Yangon, Myanmar, from 22 to 24 June 2015. Outcomes included agreement on the design of an enhanced route structure including PBN specifications, implementation plan and transitions strategy, establishment of a new Required Navigational Performance – 10 (RNP 10), agreement on the use of 50NM longitudinal separation on RNP 10 routes, and advice to airlines to prepare for ADS-B operations in the northern Bay of Bengal.

China Cross-Border ATFM Development (IP/22)

3.2.100 China provided information on a proposal for cross-border ATFM in the Asia/Pacific Region, inviting stakeholders to participate in the construction of an APAC CDM platform together with China. The information noted the need for a decision-making exchange mechanism and supporting business rules for the Asia/Pacific Region's planned distributed multi-nodal ATFM network.

Role of Pakistan In Afghanistan Contingency Planning (IP/23)

3.2.101 Pakistan provided a paper on Pakistan's efforts to support contingency planning in the event that Afghanistan's airspace is adversely affected. Pakistan discussed ATS route options, longitudinal separation, and the extension of the 'Royal Road' Organised Track System currently being used within the Tehran FIR in the event of contingency.

Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.3 RASMAG Report

3.3.1 The Twentieth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/20) was held from 26-28 May 2015 in conjunction with the Fourth Meeting of the Future Air Navigation Systems Interoperability Team-Asia (FIT-Asia/4, 25 May 2015), at Bangkok, Thailand. A total of 61 participants attended either or both the meetings.

3.3.2 A total of nine WPs, two IPs and one flimsy were presented to FIT-Asia/4, and 32 WPs, seven IPs and three flimsies were presented to RASMAG/20. RASMAG/20 agreed on three Draft Conclusions and one Draft Decision for APANPIRG/26's consideration.

Central Reporting Agency (CRA) Services

3.3.3 The FIT-Asia/4 had recalled that *Conclusion 24/24: ADS/C and CPDLC Problem Reporting and Analysis* requested FIT-Asia States to register on the FIT-Asia website (http://www.ispacg-cra.com), and report their registration to the ICAO Asia/Pacific Regional Office by 31 December 2013 and report problems relating to Automatic Dependent Surveillance-Contract (ADS-C) and Controller Pilot Data-Link Communications (CPDLC) services to the CRA for analysis.

3.3.4 Since FIT-Asia/3, only two administrations had submitted problem reports to FIT-Asia CRA. The FIT-Asia CRA website administrator had noted that several Problem Reports (PRs) could not be assessed, as the data link service provider only retained logs for 90 days. In addition, only three administrations had submitted performance data analysis to FIT-Asia/4.

3.3.5 Regarding the lack of response to *Conclusion 24/24: ADS/C and CPDLC Problem Reporting and Analysis*, APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/25 – ANS Deficiencies Relating to Data Link Performance Monitoring and Analysis

That, an Air Navigation Deficiency should be raised against non-implementation of the provisions of Annex 11 Paragraph 2.27.5 when any FIT-Asia administration has implemented operational ADS-C/CPDLC services and:

a) has not made arrangements for the reporting and analysis of data link problems to a competent CRA as identified by the Regional Airspace Safety Monitoring Advisory Group (RASMAG); or

b) does not report data link problems to the CRA; or

c) does not provide data link problem analysis reports to a recognized FANS Interoperability/Implementation Team (FIT); or

d) does not provide data-link performance analysis reports to a recognized FIT.

3.3.6 The FIT-Asia/4 and RASMAG/20 meetings agreed to the additions to the APANPIRG Deficiency List (these proposed amendments were consolidated and combined with the ATM/SG's ATM/AIS/SAR Deficiency List for ease of reference):

- in respect of Data Link Performance Monitoring and Analysis, new deficiencies for China, Indonesia, Malaysia, Myanmar, Maldives, Sri Lanka and Viet Nam; and
- in respect of Data Link Performance Monitoring and Analysis and provision of data for monitoring the height-keeping performance of aircraft, new deficiencies for India and the Philippines, and the removal of the Bangladesh deficiency.

Revised Data Link Performance Reporting Template and Guidance

3.3.7 The Asia/Pacific Region Data Link Performance Reporting Template, developed by FIT-Asia/2, was found to be in need of further editorial and structural amendment. There was also a need for some brief guidance for the use of the template. The FIT-Asia/4 considered an updated template and guidance, which mainly consisted of error removal, and restructuring of content and format. The FIT-Asia/4 meeting agreed that a common January - December data link performance reporting period each year should be used by FIT-Asia States. It was also suggested that reporting of outages should also be provided for in the template. APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/26 – Data Link Performance Reporting Template and Guidance

That, the revised Data Link Performance Reporting Template and Guidance at **APANPIRG/26/WP08/Appendix A** replaces the Data Link Performance Reporting Template on the ICAO Asia/Pacific Regional Office website.

Operational Significance of 99.9% Performance Criteria

3.3.8 FIT-Asia TF/4 discussed the operational significance of the 99.9% data link performance criteria, and what could be done in cases of ACP, Actual Communication Technical Performance (ACTP) and ADS-C downlink latency 'just' failing to meet the standard. The Global Operational Datalink Document (GOLD) Appendix D paragraph D 2.4.7.5 was reviewed. To support the performance objectives of the Seamless ATM Plan, and to ensure consistency of performance monitoring, analysis and reporting and CRA problem reporting among FIT-Asia States, a Draft Conclusion was developed. APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/27 – Data Link Performance Guidelines

That, FIT-Asia States are urged to:

a) Monitor data link performance against the RCP240 and RSP180 criteria specified in Appendix B of the Global Operational Data Link Document (GOLD); and

b) apply the guidelines specified in the GOLD Appendix D to determine whether fleet performance (the aggregate fleet of all data link aircraft operating in the airspace concerned, except only where it related to analysis of individual operator performance) either:

i. meets the 99.9% performance level; or

ii. requires submission of CRA problem reports and/or investigation that will attempt to determine the cause of the degradation.

Note: GOLD Version 2.0 Appendix D Paragraph D.2.4.7.5.2 refers.

AAMA Safety Report

3.3.9 The Australian Airspace Monitoring Agency (AAMA) had presented the results of Reduced Vertical Separation Minimum (RVSM) safety assessments undertaken by the Australian Airspace Monitoring Agency (AAMA) for the twelve month period ending 31 December 2014. The report showed that for the Australian (Brisbane, Melbourne), Nauru, Papua New Guinea (Port Moresby) and Solomon Islands (Honiara) FIRs, the Target Level of Safety (TLS) was met with a risk assessment of **3.01×10^{-9}** (TLS, 5.0×10^{-9}).

3.3.10 Regarding Indonesian airspace, the TLS was met for 2014 (**2.18×10^{-9}**). AAMA noted a significant grouping of Category E (ATC coordination error) Large Height Deviations (LHDs) on the Jakarta/Ujung Pandang FIR boundary. A majority of these were attributed to Jakarta Area Control Centre (ACC), with either no coordination to the adjacent FIR or incorrect information provided.

China RMA Safety Report

3.3.11 China had presented the airspace safety oversight results for RVSM in the airspace of Chinese FIRs and the Pyongyang FIR (Democratic Republic of Korea – DPRK) during 2014. The estimates of technical and total risks for the airspace of Chinese FIRs exceeded the TLS of 5.0 x 10^{-9} fatal accidents per flight hour, with an overall risk estimate of **5.50 x 10^{-9}**. **Figure 4** presents collision risk estimate trends for the Chinese FIRs.

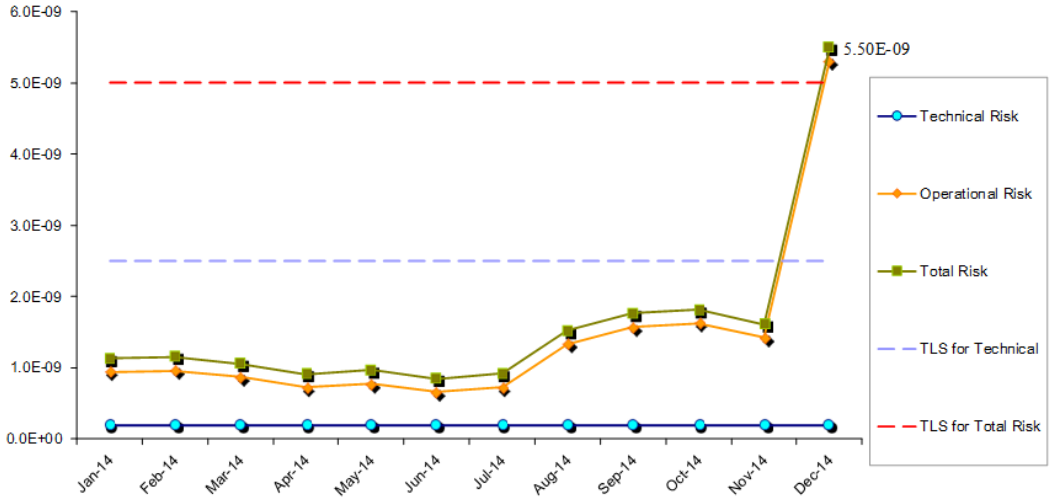

Figure 4: Chinese FIRs RVSM Risk Estimate Trends

3.3.12 China RMA had noted that in 2014 a number of Category E LHDs were not reported by domestic ATC. China RMA conducted an intensive investigation into the causes leading to lack of reporting.

3.3.13 In the second half of 2014, China RMA took action to improve LHD reporting in China with workshops in all regional centres, updating training material and simplifying the LHD reporting template. China RMA had reported that the situation was improving and would provide further updates to RASMAG/21 meetings. The meeting noted with appreciation the work of China RMA to improve the reporting regime within China, while China thanked the ICAO Regional Office for its efforts to highlight this issue at RASMAG/19.

3.3.14 China had recalled the LHD 'hot spot near the China – Pakistan border. They informed the meeting about progress made to improve the Air Traffic Services (ATS) communication and surveillance capability in this area.

3.3.15 The estimate by China RMA of the overall vertical collision risk for the Pyongyang FIR was **1.58 x 10^{-9}** fatal accidents per flight hour, which satisfied the TLS. Based on data from the DPRK, no LHD had occurred during 2014 within the Pyongyang FIR.

3.3.16 Japan Airspace Safety Monitoring Agency (JASMA) had presented the results of the airspace safety assessment of the Fukuoka FIR by the JASMA. The report showed that the Fukuoka FIR did not meet the TLS, with the assessed risk calculated as **7.17 x 10^{-9}**.

3.3.17 **Figure 5** presents the RVSM collision risk estimate trends for the Fukuoka FIR during the 12 months from January to December 2014.

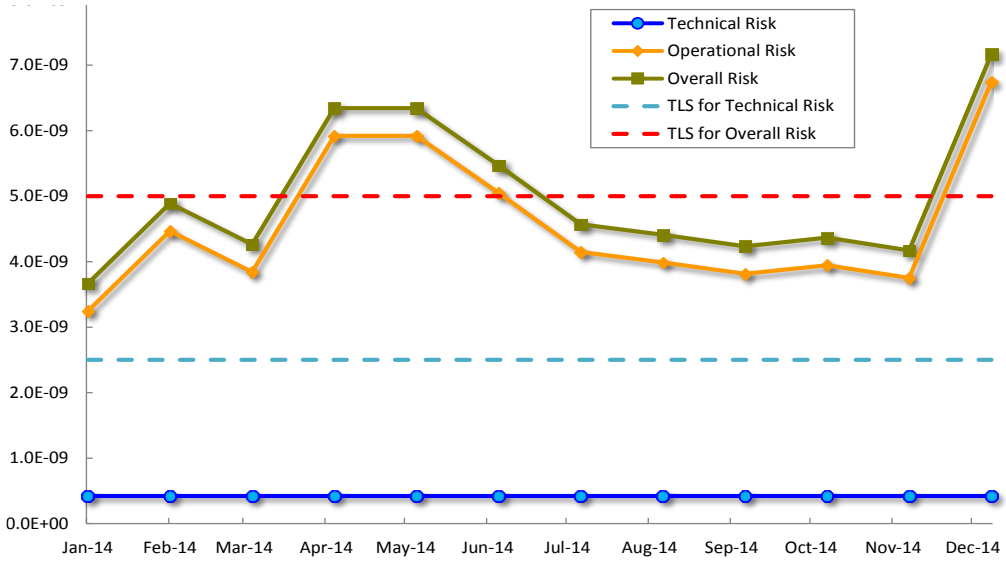

Figure 5: Fukuoka FIR RVSM Risk Estimate Trends

3.3.18 ICAO had noted the number of Category E errors in the south-west area of the FIR which is a critical piece of airspace with high traffic densities. JASMA reported that they were investigating these occurrences with the relevant ACC.

MAAR Safety Report

3.3.19 The Monitoring Agency for the Asian Region (MAAR) had provided the results of the airspace safety oversight for the RVSM operation in the Bay of Bengal (BOB), Western Pacific/South China Sea (WPAC/SCS), and Mongolian airspace for 2014.

3.3.20 The BOB RVSM airspace overall risk was estimated to be **18.73 x 10^{-9}**, which did not meet the TLS by a substantial margin. This represented a major increase in apparent risk, which was probably caused by improved reporting. The MAAR stated that the Transfer of Control (TOC) points between the Chennai and Kuala Lumpur FIRs remained the most prominent hot spots in the region. They noted that there had been a series of ATS Inter-Facility Data Link Communications (AIDC) trials between Chennai and Kuala Lumpur FIRs, but it was unclear when this technology would become operational.

3.3.21 **Figure 6** presents BOB RVSM collision risk estimate trends during 2014.

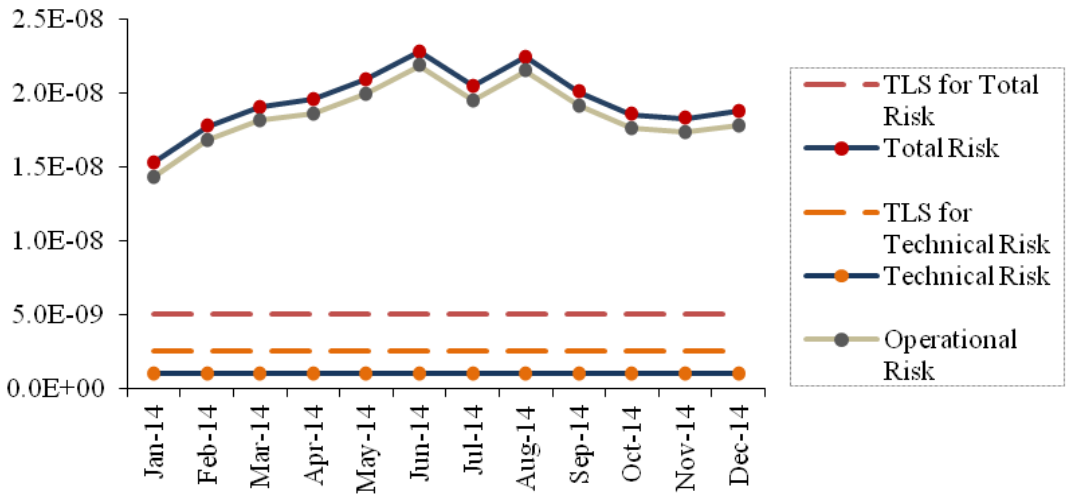

Figure 6: BOB Airspace RVSM Risk Estimate Trends

3.3.22 The WPAC/SCS RVSM airspace total risk was estimated to be **4.14 x 10^{-9}**, which met the TLS. The meeting recognised that this was an improvement in safety performance since 2013. Regarding the WPAC/SCS airspace, NOMAN and SABNO TOC points along the Hong Kong - Manila FIR boundary were the main hot spots. The number of occurrences at DOTMI on the Guangzhou/Hong Kong FIR boundary (all incorrect transfers occurred from China) and OSANU on the Manila/Kota Kinabalu FIR interface (most from flights being transferred from the Philippines) were relatively high. However the LHD durations were low since the accepting ATS units had radar surveillance, but this increased controller workload and still entailed unnecessary risk.

3.3.23 The Mongolian RVSM airspace total risk was estimated at **2.98 x 10^{-9}**, which met the TLS and represented a major advance on 2013's results. RASMAG/20 recalled the positive effect of ATS surveillance in reducing risk within the Ulaanbaatar FIR by allowing rapid intervention, allowing less exposure to risk-bearing events. Due to the high number of LHD occurrences near NIXAL and INTIK, Mongolia had extended Secondary Surveillance Radar (SSR) coverage by about 30NM beyond its FIR boundary since December 2014.

PARMO Vertical Safety Report

3.3.24 The Pacific Approvals Registry and Monitoring Organization (PARMO) had presented a safety assessment of RVSM for the Pacific and the Republic of Korea's (ROK) airspace for 2014. The Pacific airspace total risk was estimated to be **3.86 x 10^{-9}**, which met the TLS and was a major reduction from the 2013 estimated risk. The Incheon FIR RVSM total risk was estimated to be **4.13 x 10^{-9}**, which met the TLS.

Regional Safety Monitoring Assessment

3.3.25 ICAO had presented an overview of safety assessment results from a regional perspective. **Figure 7** indicated the status as reported to RASMAG/20.

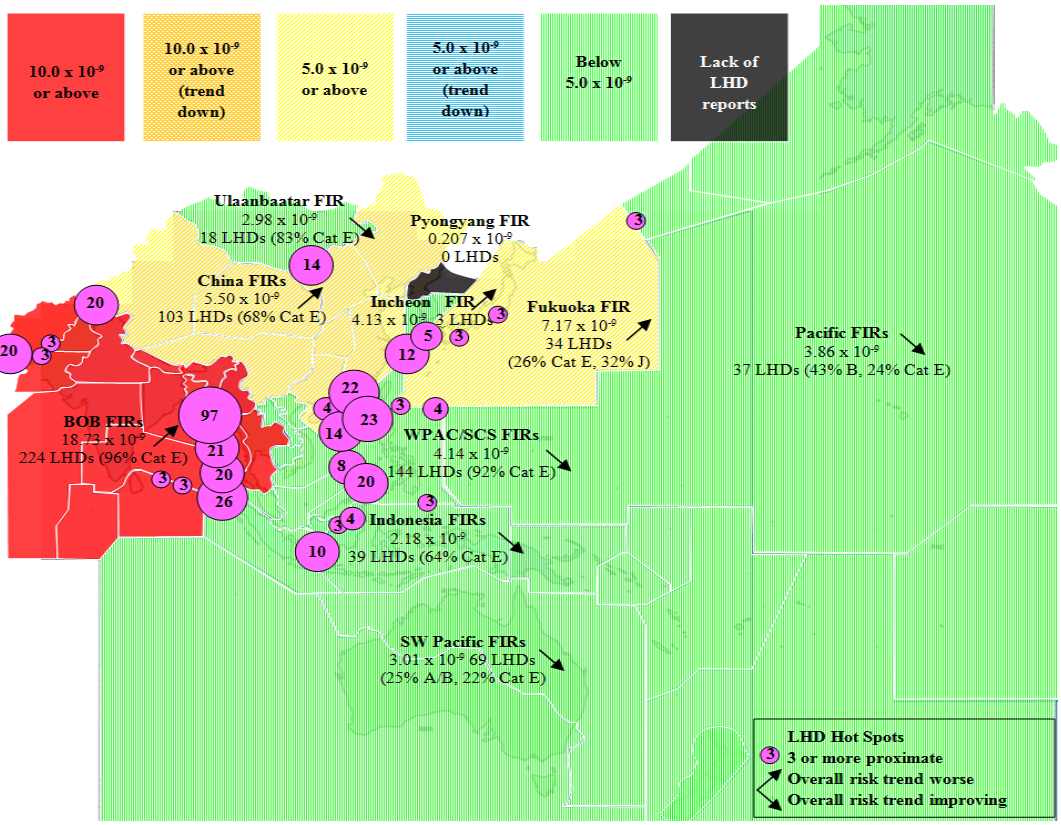

Figure 7: Asia/Pacific TLS compliance reported to RASMAG/20

3.3.26 **Figure 7** indicated the following sub-regional regional trends.

- **South Asia**: the improved reporting by India has resulted in a further significant degradation in the Bay of Bengal (BOB) safety risk assessment to reflect the true safety performance that had been hidden – one that greatly exceeded the TLS and remained the Asia/Pacific's highest risk area. However, the States concerned were taking a number of ATM improvement actions that were expected to substantially reduce risk during 2015 and 2016 when the new systems were implemented (however, there was no confirmation as to when the new communications and surveillance systems on Great Nicobar Island would be operational).

  While the increased reporting at Indian FIR boundary TOC points was laudable, it appeared unlikely that there could be no LHDs as reported within Indian continental airspace; thus further work was necessary to sensitise ATC to an appropriate reporting culture.

  There were a number of hot spots evident on the Kabul FIR boundary, most notably at position GADER (between the Tehran and Kabul FIRs); however since late 2014 these LHDs had markedly reduced after intervention by MAAR in coordination with the ICAO Middle East (MID) Region.

- **Southeast Asia** reflected an overall improvement in safety risk, even with an increase in reported LHDs. The Philippines airspace remained a major concern, with numerous LHDs evident at all points along the Manila FIR boundary. The greater use of AIDC and ATS surveillance in the South China Sea, and an ATM system upgrade for the Manila FIR continued to require a priority focus.

- **East Asia**: China recorded a dramatic increase in reported LHDs, resulting in its airspace being well over TLS. This reflected a much improved reporting culture, fostered by the efforts of the China RMA. Other than the known hot spots between Pakistan and Chinese airspace near PURPA and between Mongolia and China near NIXAL, new hot spots were revealed between Shanghai/Taibei, Guangzhou/Hong Kong and Sanya/Hong Kong FIRs. China had made significant progress in addressing the PURPA hot spot between China and Pakistan by improving the communication and surveillance capabilities in this area.

  Attention to the other hot spots in the congested airspace of Eastern China was also required, particularly as these were mainly operational ATC errors in general that could be improved with the use of AIDC and more robust procedures (note: the volume of occurrences between Hong Kong and the Sanya/ Guangzhou FIRs may require an urgent focus on such matters as airspace dimensions, ATS route structures, Flight Level Allocation Scheme (FLAS), ATS coordination procedures and the management of the aerodromes within the Pearl River Delta using a 'metroplex' planning methodology).

  Mongolian airspace observed a downward trend in risk, despite a doubling of the reported LHDs – mainly due to the improved intervention capability using ATS surveillance (note: there were several LHDs reported in MAAR's analysis of the Ulaanbaatar/Beijing FIR boundary at NIXAL and INTIK which do not appear to have been reported to the China RMA; thus the work on improving the reporting culture within China should continue)

  The Pyongyang FIR continued to record no LHDs, which was statistically possible, given the low estimated flight hours. However, no LHDs had been reported for many years; thus it was likely that there was a lack of reporting culture within this airspace, despite China's past efforts to sensitise DPRK ATC.

Japanese airspace had shown a marked upward (worsening) risk trend; despite the number of LHDs reducing (this was assumed to be due to the longer duration of the LHDs). The significant number of ATC interface errors with the Incheon FIR was concerning, as this was related to the 'AKARA' corridor. The corridor was, a complex airspace serving very high density traffic between China and Japan, and the ROK and the Taibei FIR that used a FLAS, with multiple frequencies and control authorities in the same area. It would appear to be necessary for the involved administrations to urgently review this airspace and its associated procedures (note: AIDC was being used between the ROK and Japan).

- **Southwest Pacific**: all FIRs showed a downward trend, with significant improvement in the performance of Indonesian airspace. However some caution was necessary, as there had still been major interface issues between the Jakarta and Ujung Pandang FIRs, and reporting had been a problem in the past in this airspace. In summary, the result indicated a positive safety result from the efforts of the AAMA, regulators and ANSPs in the FIRs concerned, although Indonesia needed continued focus on its internal improvement programme (note: there were several LHDs reported in MAAR's analysis of the Kota Kinabalu/Jakarta FIR boundary which do not appear to have been reported to AAMA).
- **Pacific**: the Pacific showed a significant risk improvement, even though the number of LHDs more than doubled (mainly occurring in the high density North Pacific Organised Track System (NOPAC) and Hawaiian route system).

3.3.27 The Regional analysis of 'hot spots' indicated a number of priority high risk areas where APANPIRG needed to take specific action, in order to reduce risk to an acceptable level. Notwithstanding the establishment of the Asia/Pacific ATS Inter-facility Data Link Communication Implementation Task Force (APA TF/1) and on-going ATM improvement programmes designed to enhance the capability of ATC, RASMAG/20 agreed to the following Draft Conclusion related to Special Coordination Meetings (SCM) in order of assumed risk (as presented to RASMAG) to ensure an urgent reduction of risk. APANPIRG/26 agreed to the following Conclusion:

Conclusion APANPIRG/26/28 – Asia/Pacific LHD Hot Spot Action Plans

That, the following Regional Monitoring Agencies (RMAs), States and ATC units should take urgent action to establish a scrutiny group or an alternate means to address the following Large Height Deviation (LHD) hot spot areas and present Action Plans and details of progress made to the ICAO Regional Office, prior to 01 January 2016:

a) **MAAR**, India, Myanmar and Malaysia – Kolkata/Chennai FIRs interface with Yangon/Kuala Lumpur FIRs;

b) **PARMO**, China RMA, JASMA, MAAR, China, Japan, Republic of Korea and Taibei Area Control Centre (ACC) – Incheon FIR AKARA Corridor interface with Shanghai/Fukuoka/Taibei FIRs;

c) **China RMA**, MAAR, China and Hong Kong China – Hong Kong FIR interface with Guangzhou/Sanya FIRs;

d) **MAAR**, AAMA, JASMA, Hong Kong China, Indonesia, Japan and the Philippines – Manila FIR interface with Fukuoka/Hong Kong China/ Singapore/Ujung Pandang FIRs; and

e) **China RMA**, MAAR, China and Pakistan – Urumqi FIR interface with Lahore FIR.

Note 1: the RMAs in bold were expected to take the lead in organising the scrutiny groups or alternative means to address the issues.

Note 2: BOBASIO (Bay of Bengal Arabian Sea Indian Ocean) in agreement with MAAR has been identified as a scrutiny group for BOBASIO States in respect of the BOBLHD Hot spot Action Plan.

3.3.28 The Philippines, Hong Kong China, China and Pakistan informed APANPIRG/26 of on-going work to implement technologies such as AIDC, ADS-C, CPDLC and ADS-B, in order to mitigate problems identified at the various hot spots. India requested Malaysia to sign the ATS Letter of Agreement (LOA) as soon as possible regarding AIDC implementation.

3.3.29 In particular, Hong Kong, China reported the follow up actions taken after the RASMAG/20 meeting and planned actions coordinated with relevant States to address LHD hot spot issues.

(i) Scrutiny group meeting for LHD was held in June 2015 between Hong Kong, China and China to identify the causes and discussed planned actions.
(ii) Hong Kong, China has briefed and issued instructions to remind controllers to maintain vigilance and awareness.
(iii) HK-Sanya AIDC had been in operation since 2007. AIDC technical tests with Guangzhou has been planned for Q1 2016
(iv) AIDC technical tests with Manila have been planned for end 2015 (which the Philippines also agreed and supported).

3.3.30 APANPIRG/26 discussed the problem of ANSPs not being informed until months after an LHD incident, when the recorded data was no longer available. ICAO informed the meeting that RASMAG had a clear policy on such incidents affecting two ANSPs, whereby the ACC supervisors must share information immediately after the incident is reported. Moreover, the meeting was informed that the matter would be raised again at the forthcoming RASMAG/Monitoring Agencies Working Group (MAWG/3) meeting, to be held in Australia in December 2015, with the intention that all RMAs remind their States of RASMAG's consistent policy on exchange of data.

3.3.31 **Table 1** provides a comparison of Asia/Pacific RVSM risk as a measure against the TLS, either by RMA 'sub-region[1]' (Conclusion 20/4 − *Asia/Pacific Performance Metrics* refers), or by FIRs. There had been significant improvement in the region meeting the TLS overall, but three 'sub-regions' – BOB, Chinese and Japanese airspace recorded marked increases in risk assessment.

	RASMAG17	**RASMAG18**	**RASMAG19**	**RASMAG20**
RMA 'sub-regions'	78%	89%	22%	67%
FIRs	73%	90%	16%	53%

Table 1: Comparison of Sub-Regional and Regional RVSM TLS Achievement

LHD Reporting

3.3.32 An analysis of the rate of LHD reporting in Chinese, Indian, Indonesian, Japanese (with a low reporting ratio of 1: 37,549) and ROK airspace indicated that despite an improvement in reporting, there may be further improvements required to paint a true picture of the risk-bearing incidents (especially within Indian domestic airspace), particularly by implementation of all elements of a 'just culture' environment. The indications included a lack of reporting over an entire continental airspace, very low reporting ratios such as is evident in ROK airspace, and the reporting of LHDs by one RMA that were not reported by another on the same RMA boundary.

[1] (1) Melbourne, Brisbane, Nauru, Honiara FIRs (AAMA); (2) Port Moresby FIR (AAMA); (3) Indonesian FIRs (AAMA); (4) Sovereign airspaces of China (China RMA); (5) Fukuoka FIR (JASMA); (6) Bay of Bengal FIRs (MAAR); (7) Western Pacific/South China Sea FIRs (MAAR); (8) Pacific Area (PARMO); and (9) North-East Asia Incheon FIR (PARMO).

Non-RVSM Approved Aircraft

3.3.33 **Table 2** compared the number of non-RVSM airframes reported by each RMA:

Report	AAMA	China RMA	JASMA	MAAR	PARMO
RASMAG/18	98	43	47	118	15
RASMAG/19	90	33	40	130	19
RASMAG/20	8	45	15	203	26

Table 2: Trend of Non-RVSM airframes Observed by Asia/Pacific RMAs

3.3.34 Overall, the number of non-RVSM aircraft had decreased by 5% in the past year. This indicated that there was still considerable work to do and APANPIRG Conclusion 24/6 (*Repetitive Non-RVSM Approved Aircraft Operating as RVSM Approved Flights* had not yet been effective.

3.3.35 Of note was the significant reduction in non-RVSM approved airframes detected by the AAMA and JASMA, but this was unfortunately offset by a large increase in non-RVSM approved aircraft identified by MAAR, with the most prominent States featured in the list of non-RVSM aircraft all from the MAAR area: India, Thailand, Malaysia, Indonesia and the Philippines.

3.3.36 RASMAG/20 noted that only Bangladesh had a RASMAG-related APANPIRG Deficiency recorded regarding the requirement of Paragraph 3.3.5.1 of Annex 11 (provision of data for monitoring the height-keeping performance of aircraft). RASMAG/20 agreed to propose the deletion of Bangladesh's Deficiency, but proposed new Deficiencies for non-provision of RVSM approvals safety data by India and the Philippines (**WP08/Appendix C**).

Brazilian System of RVSM Compliance Enforcement

3.3.37 The Tenth Meeting of the Regional Monitoring Agencies Coordination Group (RMACG/10, Bangkok, Thailand, 18-22 May 2015), noted the Brazilian enforcement process for non-compliant RVSM aircraft operations. Brazil managed non-complaint Brazilian registered aircraft within their airspace with specific monitoring from within their ATFM unit and a clear enforcement process. Brazil had requested other States to support their initiative by providing information on non-compliant Brazilian aircraft operating in other airspace. RASMAG noted that Asia/Pacific States may also consider implementing similar enforcement strategies.

RMA Monitoring Burden

3.3.38 **Table 3** compares the outstanding monitoring burden reported by each RMA:

Report	AAMA	China RMA	JASMA	MAAR	PARMO
RASMAG/18	102	141	29	189	118
RASMAG/19	79	87	16	200	37
RASMAG/20	113	105	14	169	20

Table 3: Outstanding Monitoring Burden of Asia/Pacific RMAs

3.3.39 **Table 3** indicated that the monitoring burden for all the RMAs had remained relatively steady, although PARMO significantly reduced its burden for a second year in a row. MAAR carried 40% of all Asia/Pacific's monitoring burden.

Regional Horizontal TLS Compliance

3.3.40 The following Asia/Pacific En-Route Monitoring Agency (EMAs) had reported horizontal risk assessments as follows based on Large Longitudinal Errors (LLE) and Large Lateral Deviations (LLD), which all met the TLS of 5.0×10^{-9} (**Table 4**):

Separation Standard	EMA	Estimated Risk
50NM Lateral Risk	BOBASMA	1.07856×10^{-9}
	JASMA	0.751×10^{-9}
	PARMO	1.35×10^{-9}
	SEASMA	0.045×10^{-9}
30NM Lateral Risk	PARMO	0.53×10^{-9}
50NM Longitudinal Risk	BOBASMA	1.59734×10^{-9}
	PARMO	2.32×10^{-9}
	SEASMA	0.034×10^{-9}
30NM Longitudinal Risk	BOBASMA	0.127551×10^{-9}
	JASMA	0.000578×10^{-9}
	PARMO	3.74×10^{-9}

Table 4: Comparison of Horizontal Risk Assessments

Observed Use of Strategic Lateral Offset Procedure

3.3.41 The United States provided a summary of the observed usage of the Standard Lateral Offset Procedure (SLOP) within the Oakland Oceanic FIR for data link aircraft using ADS-C. The purpose of SLOP was to reduce the concentration of operations about 'oceanic' route centrelines, which was characteristic of aircraft with highly accurate navigational systems, such as Global Navigation Satellite Systems (GNSS), thus reducing the risk of collision.

3.3.42 **Table 5** presented the percentage of flights that were observed to be on centreline, 1 NM right offset, and 2NM right offset SLOP procedures (with at least three consecutive ADS-C positions) during April 2014.

Observed SLOP	Number of operations	Percentage
Centreline	3,015	72.2%
1NM right of centreline	966	23.1%
2NM right of centreline	193	4.6%
Total	4,174	

Table 5: Observed SLOP usage within Oakland FIR, April 2014

3.3.43 The analysis showed that the observed SLOP usage was below the optimal recommended behaviour, where crews are encouraged to use all three options equally, including the centreline. The meeting noted that SLOP was not relevant on User Preferred Routes (UPR).

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Agenda Item 3: Performance Framework for Regional air navigation planning and implementation

3.4 CNS Matters

3.4.1 APANPIRG/26 reviewed the outcomes of the Nineteenth Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/19) of APANPIRG held at the ICAO Regional Office, Bangkok, Thailand, from 20 – 24 July 2015 (WP/9). The meeting noted with appreciation the work done and achievements by the SG and those contributory bodies reporting to APANPIRG through the SG. The meeting discussed CNS related matters and took following actions on the report of CNS SG/19 and other papers presented under Agenda Item 3.4.

Aeronautical Fixed Service (AFS)

3.4.2 APANPIRG/26 noted actions taken by the SG on the report of the Second Meeting of ACSICG held in May 2015.

3.4.3 The meeting noted that the VSAT connectivity to a number of Pacific Islands States had been planned and this will support IP-based AFTN/AMHS connections and voice. The meeting noted that the World Bank had issued a tender which would fund the installation of VSAT connections at a number of locations in the Pacific Region.

3.4.4 It was encouraging to note that a number of new operational AMHS had been put into operation in the end of 2014 and beginning of 2015 in the Region and more planned implementation will take place in 2016. The meeting noted the updated AMHS implementation planner and the Regional ATN/AMHS implementation Status Table.

Revised AMHS Naming Plan

3.4.5 The meeting noted the revised AMHS Naming Plan which provides planning and technical guidance on the naming convention for AMHS. Based upon the ATN SARPs as published in ICAO Annex 10 and updated ICAO Doc. 9880, naming and addressing plans are required to be developed by ICAO Regions concerned. The updated sections in the revised document for the naming assignment conventions for allocating Originator/Recipient (O/R) names were highlighted in the report of ACSICG. Accordingly, the meeting adopted following Conclusion:

Conclusion APANPIRG/26/29 – Revised AMHS Naming Plan

That, the revised AMHS Naming Plan provided in **Appendix B** to WP/9 is adopted.

3.4.6 The meeting noted ACSICG had reviewed updated Cost Benefit Analysis (CBA) for CRV project and adopted the following Conclusions:

Conclusion APANPIRG/26/30 – Second Iteration of CRV Cost Benefit Analysis (based on RFI)

That, the second iteration of the CRV Cost Benefit Analysis provided in **Appendix C** (with password to access) to WP/9 is adopted and distributed to States/ Administrations for their reference.

Conclusion APANPIRG/26/31 - CRV preliminary Safety Analysis

That, CRV Participating States/Administrations be urged to consider the CRV safety specified in the CRV Preliminary Safety Analysis v1.0 provied in **Appendix D** to WP/9 as a basis for their local safety case, perform their local safety case, and report to CNS SG.

3.4.7 The meeting further noted the proposed cost arrangements between Administrations. In order to facilitate Administrations with negative CBA value to implement CRV project to achieve common benefits, the meeting encourage those Administrations in a position to do so, to work out cost arrangements with their counter parts. Accordinlgy, the meeting adopted the following Conclusion:

Conclusion APANPIRG/26/32 – CRV Cost Arrangement Framework

That, noting that cost arrangements on current telecommunications exist between some States/Administrations and considering the result of the second iteration of the CRV Cost Benefit Analysis, APAC States/Administrations be advised to:

- make their own local Cost benefit analysis as needed;

- start discussions of possible new or improved cost arrangement frameworks with other ICAO Member State(s)/Administration(s), based on the Request For Information results; and

- endeavor to establish arrangements for mid 2016.

Inter-regional Connection issues

3.4.8 The meeting noted the need to replace existing International Private Line (IPL) between Air Navigation Service Providers (ANSPs) with common network using standard Internet Protocol (IP) interface. The equipment to support IPL service is obsolete and has been difficult to maintain as spare part inventory is depleting and many parts are no longer manufactured. ANSPs in the Asia/Pacific Region who have IPLs with other ICAO Regions should consider the following options to replace their existing IPLs:

1) Invite counterparts in other ICAO Regions to join CRV; or
2) Join the respective ICAO Regional IP network (e.g. PENS) ; or
3) Establish a bi-lateral agreement for a single telecommunication network vendor

3.4.9 The meeting invited States with inter-regional entry/exit points including Australia, China, India, Japan, Singapore and Thailand to provide addresses and contact points of their counter parts in the other Regions so the potential service providers may be requested to provide quotation on the options for including those circuits in the CRV project proposal.

Mini-Global Demonstration Project on SWIM (WP/22)

3.4.10 Singapore, Japan and Thailand informed that meeting about the USA-led Mini-Global Demonstration project, which demonstrated the applicability of global information exchange models for flight information, aeronautical information and weather information using standardized

formats[1]. Following on from the Mini-Global Demonstration Phase I (MG I) held in September 2014, MG II would be held in April 2016 in Florida, USA.

3.4.11 As part of the project, the Global Enterprise Messaging Service was proposed to provide harmonized, interoperable service for the exchange of information under the System Wide Information Management (SWIM) concept. A figure describing the notional Mini Global II Architecture was shown in the paper.

3.4.12 It was expected that the project would explore how SWIM could be used to support the multi-nodal ATFM trial currently being undertaken in the Asia/Pacific Region, the assignment and handling of Globally Unique Flight Identifiers (GUFIs), and issues of data governance.

3.4.13 The United States, Japan and New Zealand all supported the MG II. New Zealand stated that States needed to take into account the large data requirements for some parts of SWIM, such as meteorological information.

SWIM Seminar/Workshop in 2016 (WP/19)

3.4.14 To follow up APANPIRG Conclusion 25/43 - Promote understanding of SWIM in APAC Region with focus on both technical and operational aspects for SWIM development, a workshop is scheduled for April-June 2016. States/Administrations were invited to support the event by providing Subject Matter Expert (SME). USA, China, Japan and Singapore expressed their willingness to support the event. Australia, Republic of Korea and Thailand were requested to confirm their support. Australia recommended conducting the workshop in conjunction with other associated meeting so approval of travel for participants from States would be justified.

3.4.15 Through WP/19, Japan made a proposal for the SWIM Workshop in Asia Pacific Region. It was stated that SWIM on the governance on all stakeholders and collaborative activity with stakeholders is a key-point to the SWIM implementation. Focusing on both technical and operational aspects for SWIM development should be balanced. Based on initial discussions in ACSICG/2 and CNS SG/19 meetings, Japan proposed a skeleton of the SWIM Workshop including approach, audience, partnership, scope etc. The paper also proposed to establish a promotion committee or working group of SWIM in the APAC Region which would be further discussed during the workshop. The meeting thanked Japan for the proposal and asked Secretariat to consider the proposed skeleton for preparing and conducting the workshop. States/Administrations were urged to provide support to the Workshop. China, Singapore and USA reconfirmed their support and will provide speakers for the Seminar. Thailand will confirm its support shortly. ICCAIA and IATA also expressed their interest in and support to the workshop.

Proposed joint action by the ATFM/SG

3.4.16 The CNS/SG/19 noted that ATFM/SG/5 made a decision (ATFM/SG/5-1) on the need for an ICD for technical ATFM communications solutions. A small working group comprised of China, Hong Kong China, India, Indonesia, Japan, Singapore, Thailand was established to draft an Operational Requirements document and a technical interface control document (ICD). The meeting noted that ACSICG encouraged member Administrations of the ATFM/IR/SWG to nominate additional telecommunication subject experts in addition to the ATFM expert for joint development of the ICD. ATFM SG was requested to provide the draft ATFM ICD to the ACSICG for review and comments once it is ready.

[1] Flight Information Exchange Model (FIXM), Aeronautical Information Exchange Model (AIXM) and ICAO Meteorological Information Exchange Model (IWXXM).

Report of the First meeting of AIDC Task Force

3.4.17 APANPIRG/26 noted the recommendations consolidated by the AIDC Task Force (APA TF/1) which provide implementation guidance to States/Administrations and adopted the following Conclusion:

Conclusion APANPIRG/26/33 – Recommendations for AIDC Implementation

That, a list of recommendations provided in **Appendix E** to WP/9 is adopted and distributed to States/Administrations for AIDC Implementation guidance.

3.4.18 Considering that the Pan Regional ICD for AIDC had been adopted by APANPIRG/25 meeting, the meeting adopted the following Conclusion which was endorsed by CNS SG.

Conclusion APANPIRG/26/34 – Use of Pan Regional ICD for AIDC

That, States/Administrations in the Asia/Pacific Regions are encouraged to use the Pan Regional ICD for AIDC for any planned new ATM automated system or updating ATM automated systems for AIDC function.

3.4.19 The meeting recalled safety issues related to human errors during ATS transfer human errors which had been identified by RASMAG/18 and RASMAG/20 meetings. Considering that ATS Inter-facility Data Communications (AIDC) is an important means of minimizing Large Height Deviations (LHD), States/Administrations concerned were urged to support the expedition of AIDC through collaborative projects at the following significant LHD interface areas:

a) Indonesia: between Jakarta and Chennai/Ujung Pandang/Brisbane/Melbourne FIRs;

b) India: between Chennai and Kuala Lumpur FIRs;

c) Philippines: between Manila and Fukuoka/ Taibei /Hong Kong/Ho Chi Minh/ Singapore/ Kota Kinabalu /Ujung Pandang FIRs; and

d) China: between –
   i. Urumqi and Lahore FIRs; and
   ii. Beijing and Ulaan Baatar FIRs.

3.4.20 The meeting noted issue/problems report form developed by the APATF for use by States/Administrations which is provided in the Appendix B to the Task Force meeting report. States/Administrations had been urged to submit the identified issues using the form to the ICAO Regional Office (A State Letter Ref.: T 8/3.5:AP097/15 (CNS) dated 07 July 2015 refers).

Sharing of experience on AIDC implementation including training and implementation packages

3.4.21 The meeting noted that a number of papers presented to APA TF/1 meeting by Indonesia, Singapore, Malaysia, Sri Lanka and USA on the AIDC implementation status. The meeting congratulated all States for having achieved the successful conduct of trials and/or implementation of AIDC. The meeting noted with appreciation the AIDC and ATN/AMHS implementation status in the APAC Region provided in **Appendix F** to WP/9.

Benefits of AIDC Implementation

3.4.22 The first meeting of the APA Task Force reconfirmed the benefits brought about by introduction of AIDC such as reduction of controller workload, increasing efficiency and capacity for operators, and enhancing safety to stakeholders. Errors such as large height deviations are eliminated as human errors are minimized with the automated coordination process. Although, some States only use a small message set currently, the benefits of AIDC operations have reap substantial benefits to States as voice coordination is reduced drastically.

Progress of AIDC Implementation in Singapore

3.4.23 Singapore presented the progress of AIDC Implementation with ATS units of its adjacent States. States concerned were urged to implement AIDC early in view of its benefits. The detailed implementation was provided to the meeting in a table form.

COM Coordination meetings

3.4.24 In order to improve AFS communication between States and address identified air navigation deficiencies in CNS fields, three COM coordination meetings were held since CNS SG/18 meeting including:

- First one was held in at Headquarters of AAI, New Delhi, India from 16 to 17 December 2014. The meeting discussed COM issues between India and Pakistan and between Afghanistan and India and developed an action plan.

- A follow-up meeting was held in the IATA Office, Abu Dhabi, and UAE on 25 - 26 February 2015. The objective of the meeting was to update the remedial action plan for the identified air navigation deficiency between Afghanistan and Pakistan.

- Another meeting between China and Pakistan was held at Headquarters of ATMB in Beijing, China from 7 to 9 May 2015. The meeting discussed about the ground/ground communication issues between Lahore and Urumqi and Air/ground communication around boundary between China and Pakistan from technical and operational aspects through development of a remedial action plan.

AFTN messages length and max. number of characters per line

3.4.25 Hong Kong China brought up for attention to the meeting regarding State letter (AN 7/1.3.104-15/31) on the proposal for amendment to Annex 10, Vol. II relating to the AFTN message length and max characters per line etc. dated 24 April 2015. Hong Kong China highlighted the potential impacts to the region by this proposal considering the tight timeframe and migration to ATN/AMHS and CRV in progress in the region. Japan also shared similar concerns as it would be costly to modify their system to support this function. However, the United States of America stated that this recommended practice would provide flexibility to those Administrations who have plans to upgrade their system to accommodate new applications. The United States of America also indicated that the amendment may impact those AFTN stations that have a number of AFTN connections with different signal speed.

CRV Tender and evaluation Package

3.4.26 CNS/SG/19 reviewed the CRV tender package and the evaluation package developed by the CRV Task Force and agreed by 15 CRV Pioneer States/Administrations on 21 and 22 July 2015. The tender package consists of several parts including instructions to Tenderers; Terms of Reference (TOR) and Terms and Conditions. The meeting was informed that the tender package was issued by ICAO TCB on 1 September 2015 with closing date on 1 December 2015. The meeting encouraged those States/Administrations that are not CRV Pioneer States to indicate their intention to participate in the stage 2 (implementation) as early as possible so that the tender package indicates this intention.

Aeronautical Mobile Service (AMS)

3.4.27 The meeting noted the updates provided by States at CNS/SG/19 meeting on AMS developments highlighted below:

- India: Introduction of new state-of-art IP based Voice Communincation Control System (VCCS) to cope with the growth of air traffic. It was one of the major ANS initiatives to enhance safety, efficiency and increasing airports & airspace capacity by networking of systems in implementing Upper Air Space Harmonization in Kolkata FIR. The system support the ongoing harmonization of Indian upper airspace in Kolkata and Delhi FIR (also refers to IP/21 to APANIRG/26).

- Japan: A trial operation of DEPARTURE CLEARANCE through DATA-LINK SERVICE (DCL) at Tokyo international airport and Narita international airport had been conducted from 28 June 2012 to 19 August 2015. Then DCL service was expected to be put into operation from 20 August 2015.

- New Zealand: A summary of the issues encountered while designing and implementing Digital Clearance delivery (DCL) in the New Zealand domestic FIR and ways to resolve them were highlighted:

  - CLD message format conflicting with domestic initial clearance content
  - Avionics issues with message format or content
  - Exposure to real request messages during live 'end-to-end' testing
  - ED-85A/AIRINC622 non-compliant airspace users who wished to participate

- Republic of Korea: VHF DATA LINK System trial/implementation status in particular for using VDL M2 during the period from October 2014 to December 2015.

Navigation

Performance-based Navigation (PBN) Implementation Report

3.4.28 The CNS/SG/19 noted reports of the first meeting of Performance Based Navigation Implementation Co-ordination Group (PBNICG/1) and second meeting of the PBNICG as well as the PBN Seminar organized in conjunction with the second meeting. The PBNICG developed a document called the 'PBN-in-a-page' to summarise relevant PBN-related information from various ICAO documents into one page to be used as a quick reference material during PBNICG meetings as well as during PBN airspace and route design sessions. Recognising the difficulties of safety

assessment of PBN procedures which are required by various ICAO documents, the PBNICG developed a PBN Procedure Safety Assessment Checklist and Hazard Template which can be used to record and analyse the hazards identified as well as the proposed mitigation measures. APANPIRG/26 therefore adopted the following Conclusions which were endorsed by CNS SG:

Conclusion APANPIRG/26/35 – PBN in a page

That, the PBN-in-a-page document provided in **Appendix 1A** to the Report under Agenda Item 3.4 is adopted as a regional supporting material and published on the ICAO Regional Office's website.

Conclusion APANPIRG/26/36 – PBN Procedure Safety Assessment Checklist and Record of Hazard Template

That, the PBN Procedure pre-implementation Safety Assessment Checklist and Record of Hazard Template provided in **Appendices 1B and 1C** to the Report under Agenda Item 3.4 are adopted as regional supporting materials and published on the ICAO Regional Office's website.

Ionospheric Studies Task Force outcome

3.4.29 The CNS/SG/19 noted studies done by the Ionospheric Study Task Force. In particular, the need for local threat model for GBAS for the APAC Region. APANPIRG/26 adopted the following Conclusion which was endorsed by the CNS SG:

Conclusion APANPIRG/26/37 – Need for ionospheric models in the APAC Region

That, considering that extreme ionospheric gradients were observed in parts of APAC Region through data collection, the need for GBAS threat model is confirmed**.**

3.4.30 The Task Force reported to CNS SG that the ionospheric threat models would only be available for review at the CNS SG/20 meeting in 2016. The meeting agreed with the Task Force's schedule. The meeting also agreed with the Task Force that these threat models being developed as outcomes of the Task Force should be properties of ICAO. It was agreed that these threat models should be published in both ICAO documents as well as technical journals for public use. It was indicated by the chair of the Task Force that it would develop a framework for maintenance of these models for consideration at CNS SG/20 meeting.

3.4.31 The CNS/SG/19 meeting was briefed about the need for guidance material for developing safety case of using SBAS services in the APAC Region, namely how to mitigate operational hazards related to the ionospheric threats. The meeting noted that the SG endorsed a Decision regarding development of SBAS ionospheric safety case model by the Task Force. In order to facilitate exchange and sharing of GNSS data in the study of ionospheric effects on navigation systems, APANPIRG/26 adopted the following Conclusion as recommended by the Task Force and endorsed by the CNS/SG.

Conclusion APANPIRG/26/38 – Standard for exchange and sharing of GNSS data in the APAC Region

That, considering the need for sharing GNSS data to study the ionospheric effects on navigation systems, the SCINTEX and GTEX Formats are adopted as ICAO APAC standard for exchange of GNSS data and these formats be posted on the ICAO APAC Regional Website.

3.4.32 The CNS/SG/19 meeting was briefed about how airport environment and Localiser antenna selection at the Beijing Capital Airport could impact the ILS signals of Runway 01 and 36L during CAT III operations. The meeting was also briefed that the India's GAGAN had obtained required certifications for RNP 0.1 and APV 1.0 Service over Indian Airspace.

3.4.33 Japan briefed the CNS/SG meeting about its SARPs validation activities for CAT III GBAS. To do so, Japan had developed a ground experimental prototype and an airborne experimental system, following draft international standards. Successful flight trials were conducted, with and without ionospheric disturbances.

BeiDou Navigation Satellite System (IP/18)

3.4.34 China made a presentation on the status of its BeiDou Navigation Satellite System (BDS). The BDS had officially been providing Open Service (OS) since 27 December 2012. The BDS will provide global Open Service (OS) after its full deployment in 2020. The development of BDS SARPs was initialized in ICAO in 2011. The approval of BDS SARPs is targeted for 2018, in line with the standardization of the next generation of aviation receivers.

3.4.35 14 satellites (5GEO+5IGSO+4MEO) of BDS are currently in orbit and broadcasting B1I signal for civil users, which is compatible with GPS L1 navigation signal. The Interface Control Document (ICD) for these signals was released by China Satellite Navigation Office (CSNO). The BDS regional service capability is capable to cover the most part of the APAC Region from 55°S to 55°N; 70°E to150°E. The key parameters representing BDS signal and open service performance were extensively tested within China. CAAC is validating the performance of the BDS Signal-in Space (SIS). The tests and applications of BDS in general aviation with several types of fixed-wing aircraft and helicopters had been conducted. The technical and airworthiness standards of BDS avionics for general aviation were initialized by CAAC.

3.4.36 USA expressed its continuous support for the development on the compatibility between BDS and GPS.

CNS/ATM structure updates in Australia

3.4.37 Australia informed the Sub-group meeting that Australia was transitioning to a largely satellite-based CNS/ATM structure. This includes publishing mandates for the carriage of GNSS and ADS-B and the subsequent removal of some 200 ground-based navigation aids.

3.4.38 Major implementation dates are February 2016 for the carriage of GNSS (with TSO C145/6 preferred) and the carriage of ADS-B by February 2017. Australia had already in place a mandate for carriage of ADS-B above FL290 and a very high compliance had been achieved. The PBN transition is planned for 26 May 2016 with the publication of the required charts and associated material in AIP.

3.4.39 Australia has also deployed a GBAS (GLS) at Sydney airport and the unit provided Category I level approaches to all 6 runways. A unit at Melbourne airport is being installed with Brisbane airport under consideration. The use of the GLS is available to all aircraft that have State of Registry approval for GLS use – that is the aircraft is fitted and the crews are trained and current.

3.4.40 APANPIRG/26 reviewed and updated the navigation strategy and adopted the following Conclusiong:

Conclusion APANPIRG/26/39 – Revised Navigation Strategy for the Asia/Pacific Region

That, the revised Navigation Strategy for APAC Region provided in **Appendix G** to WP/9 is adopted.

CANSO PBN Best Practice Guide to ANSPs (WP/18)

3.4.41 CANSO introduced its *PBN Best Practice Guide to ANSPs* which provides practical guidance to ANSPs that are embarking on the implementation of PBN. The Guide draws on the lessons learned from those with previous PBN implementation experience and provides PBN guidance that specifically addresses the five key issues that have been highlighted by CANSO Members i.e. knowledge, regulations, avionics equipage, resources and training. The *Performance Based Navigation Best Practice Guide for ANSPs* can be downloaded from the website at www.canso.org. States/Administrations and ANSPs were encouraged to avail themselves of the CANSO *PBN Best Practice Guide for ANSPs.*

Surveillance

3.4.42 The meeting noted the report of the Fourteenth Meeting of the Automatic Dependent Surveillance – Broadcast (ADS-B) Study and Implementation Task Force (ADS-B SITF/14) held in Christchurch, New Zealand in April 2015 including the outcome of the Tenth meeting of SEA/BOB ADS-B Working Group held in Singapore in November 2014.

3.4.43 The meeting noted that an ADS-B Seminar was held in conjunction with the ADS-B SITF/14 meeting which provided an opportunity for sharing information and experience focused on mandating carriage/operational use of ADS-B from regulators; airframe and avionics manufacturers; air space users' perspective; system/equipment suppliers, and Air Navigation Service Providers.

Amendment to AIGD

3.4.44 The meeting identified the need to update the AIGD. The source of amendments was derived from number of papers presented to the Task Force meeting. The consolidated amendment to AIGD is provided in **Appendix H** to WP/9. Accordingly, the APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/40 – Amendment to ADS-B Implementation and Operations Guidance Document (AIGD)

That, the consolidated amendment to the AIGD provided in **Appendix H to** WP/9 is adopted.

3.4.45 Noting Section 5.1.2 of AIGD regarding a need for State to establish an Implementation Team to ensure international coordination, IBAC stated that the tasks listed in the section provide good guidance for States that plan to implement ADS-B in sovereign airspace, and it is important that States cooperate with neighbors with contiguous airspace. It may also need to provide guidance to those States that may have ANS responsibilities over the high seas or in international airspace. IBAC offered its assistance in developing some draft text for consideration by appropriate bodies of APANPIRG.

Operational Approval for Receiving ADS-B Surveillance Service

3.4.46 APANPIRG/25 held in September 2014 did not adopt the second part of the draft Conclusion formulated by ADS-B SITF/13 meeting i.e. "States in the Asia and Pacific Regions may choose to require or not require an Operations Specification or Operations Approval for ADS-B OUT". The ADS-B SITF/14 meeting further discussed this issue including the outcome of ad hoc working group and SEA/BOB ADS-B WG. As a result of discussion, the APANPIRG/26 adopted following Conclusions:

Conclusion APANPIRG/26/41 – Approval and Monitoring Requirements for Operation using ADS-B

That, States:

a) do not require operational approval for the operational use of ADS-B OUT by ATC;

b) note that operational approval may be required for ADS-B IN applications where there is a safety case;

c) monitor ADS-B transmissions from aircraft and take action to ensure compliance with Regional Supplementary Procedure MID/ASIA Section 5.5; and

d) provide capabilities to either:

- reject ADS-B data from aircraft which are known to transmit misleading ADS-B data until corrective actions have been successfully conducted; or

- implement procedures to ensure that such aircraft are safely managed.

Conclusion APANPIRG/26/42 – Template for Promulgation of ADS-B Avionics Equipage Requirements

That, based on APANPIRG Conclusion 20/54, States intending to implement ADS-B based surveillance service for a defined airspace and having not published regulations be urged to promulgate mandating rules for ADS-B Avionics Equipage Requirements as soon as possible using the following template:

On and after dd/mm/yyyy, if an aircraft operates on airways (insert routes)……at or above FLXXX……(or in defined airspace boundaries ……. at or above FLXXX):

the aircraft must carry serviceable 1090 MHz ES ADS-B transmitting equipment that has been certificated as meeting EASA AMC 20-24, or FAA AC No. 20-165A – Airworthiness Approval of ADS-B, or meets the equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia.

Note: This Conclusion supersedes APANPIRG Conclusion 21/39 (i.e. removes any requirement for operations approval)

Conclusion APANPIRG/26/43 – Guidelines for Airworthiness Approval for ADS-B Avionics Equipage

That, States be advised to use the guidelines provided in **Appendix I** to WP/9 for Airworthiness Approval for ADS-B OUT Avionics Equipage.

Note: This Conclusion supersedes APANPIRG Conclusion 21/40

3.4.47 IBAC expressed appreciation for work done by relevant bodies of APANPIRG and the Secretariat.

3.4.48 In addition, the meeting also agreed to update the AIGD by removal of the reference to operations approval for ATC use of ADS-B OUT.

Enhancing Aviation safety through Establishment of a Regional ADS-B Avionics Problem Report Database (APRD)

3.4.49 The meeting noted the latest satisfactory progress in establishment of a Regional ADS-B Avionics Problem Reporting Database (APRD) in collaboration with the ICAO Regional Sub-office (RSO). During 51st DGCA Conference held in November 2014, Hong Kong China presented a paper outlining a proposal on the establishment of the Regional APRD for sharing the analysis results with a view to enhancing aviation safety for the Region. The proposal gained support from the Conference. The demonstration made by Hong Kong China at the Task Force meeting included the work flow of problem reporting and phases of processing, and also the roles of the reporting Administration/ANSP, ICAO, verifying and follow-up parties, as well as a prototype of the database and human-machine interface (HMI) design. The APRD will contain useful information on the generic ADS-B avionics performance problem commonly encountered in the Region. The APRD would be posted on an ICAO secure website, with States/Administrations requesting access required to nominate registered points-of-contact, who would be notified whenever there were updates to the APRD.

Regional ADS-B Requirement for New Aircraft

3.4.50 ADS-B SITF proposed the revised wording for an Asia/Pacific Region ADS-B forward fitment commencing in 2018. It was pointed out that as the lowest cost of fitment of ADS-B was during manufacture, the proposal would allow the avoidance of later retrofit costs, bringing long term savings to the aviation community without any significant cost in the short term. While the Asia/Pacific Region had taken the pragmatic view of ADS-B implementation using DO-260 and DO-260A, implementation of DO-260B would leverage off the Europe (from 2016) and FAA mandates (from 2020 not only for forward fit) and promote global harmonization. Mandates for forward fit would minimize the economic burden on aircraft operators, as it would not apply to existing aircraft.

3.4.51 Defining a forward fit mandate according to the date of issue of a certificate of airworthiness could result in the mandate being applied to an imported aircraft that is quite old. Mandates determined by date of manufacture were a better option. The meeting noted that the overall purpose was to commence the transition to a DO-260B environment by applying only to newly manufactured aircraft from a defined future date. Accordingly, the APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/44 – ADS-B OUT Forward Fit Equipage

That, States/Administrations in APAC Region be strongly encouraged to mandate that registered aircraft with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots, with a date of manufacture on or after 8 June 2018 (two years after the European forward fitment mandate is effective) be equipped with ADS-B avionics compliant with Version 2 ES (equivalent to RTCA DO260B) or later version.

3.4.52 Status of Implementation issues and experience gained in monitoring performance of aircraft were provided by a number of States/Administrations at ADS-B SITF and CNS SG/19 meetings including Australia, China, Indonesia, Japan, Philippines, Republic of Korea, Singapore and USA. The meeting noted with appreciation the updated ADS-B implementation status in the APAC Region provided in **Appendix J** to WP/9.

ADS-B in the South Pacific

3.4.53 Tonga provided information on the ADS-B implementation plans of the governments of the Republic of Kiribati, Samoa, Tonga and Tuvalu (and potentially Vanuatu) under the Pacific Aviation Investment Program (PAIP), a World Bank initiative. The PAIP included investments in four main components: Aviation Infrastructure Improvements, Aviation Sector Reform, Future Investments for Sustainability and Program Support and Training. The Aviation Infrastructure Improvements included ADS-B implementation and supporting communications. ADS-B equipage was expected to be made mandatory for all resident aircraft.

Future work of ADS-B SITF

3.4.54 The ADS-B SITF meeting recalled that the Task Force had met 14 times in the past 12 years. A number of guidance materials in particular for the AIGD had been developed and then adopted by APANPIRG from time to time to assist States in the planning and implementation of ADS-B. The Task Force would further discuss outstanding issues/tasks at its next meeting and, depending on the scale of work involved, any uncompleted tasks would be addressed by other contributory bodies of APANPIRG after its next meeting. In addition, the need for guidance on Mode S SSR planning and implementation was identified, as the region was not taking advantage of the technology that was available to improve safety and efficiency outcomes.

3.4.55 In view of the foregoing, the meeting agreed to the proposal of the Task Force that ADS-B SITF should meet in its present form for one more meeting in 2016 to provide the opportunity to finalize the current outstanding action items where possible, and to arrange for the transfer of action items to new body which would cover broader surveillance technologies including ADS-B, and SSR Mode S and Multilateration applications. The next meeting of the ADS-B SITF would be a back to back meeting with a new surveillance body.

3.4.56 In this connection, the meeting reviewed and agreed to the draft Terms of Reference for a broader "Surveillance Implementation Coordination Group (SURICG)". Consequently, the APANPIRG/26 adopted following Decision:

Decision APANPIRG/26/45 – Surveillance Implementation Coordination Group

That, the Surveillance Implementation Coordination Group (SURICG) be established with Terms of Reference provided in **Appendix K** to WP/9.

3.4.57 It was also suggested that SEA/BOB ADS-B WG which currently reports to ADS-B SITF would report to APANPIRG through SURICG from 2017 onwards.

Australian and New Zealand Use of Downlink Aircraft Parameters DAPs

3.4.58 The meeting noted that Australia and New Zealand presented information at ADS-B SITF/14 meeting describing the plan to utilize SSR Mode S Downlink Aircraft Parameters (DAPs). Mode S radars had the ability to interrogate 'registers' in Mode S SSR transponders to obtain useful information for ATC. Some ADS-B transmissions included the same information. Information already available from a large number of aircraft included Flight ID, selected vertical intention (pilot or FMS selected level and barometric pressure setting), track and turn report (roll angle, true track angle, groundspeed, track angle rate and true airspeed), heading and speed (magnetic heading, indicated airspeed, Mach no., true airspeed and inertial vertical velocity).

Update on the ADS-B Collaboration Project in the South China Sea

3.4.59 Singapore presented the paper on the collaborative efforts of States to achieve a seamless ADS-B surveillance coverage over a portion of the South China Sea area with the aim of improving safety, capacity and efficiency. The meeting noted the progress of the collaborative efforts of Indonesia, Singapore and Viet Nam to achieve seamless ADS-B surveillance coverage over a portion of the South China Sea area.

3.4.60 Singapore and Viet Nam had agreed on a progressive phased approach to reduce longitudinal separation on specified ATS routes to allow airspace users the optimum benefits of ADS-B. From the previous 50 NM longitudinal separation, the minimum separation would be reduced to 20NM over 3 phases commencing in December 2013 and planned to be completed at the end of 2015.

Surveillance Data sharing between India and Myanmar

3.4.61 India and Myanmar provided updates on their ADS-B implementation programme and readiness status for ADS-B data sharing in accordance with guidance of APANPIRG. The meeting congratulated to the States for the progress made and encourage States to overcome the identified issues to realize the data sharing in order to enhance flight safety and coverage of surveillance in the Bay of Bengal area.

3.4.62 IATA emphasized the importance of collaborative cooperation on surveillance sharing in South China Sea and Bay of Bengal and appreciated the efforts made by States and congratulated for the achievement made.

Surveillance Strategy Review

3.4.63 The meeting reviewed the surveillance strategy presented by the Secretariat. There were several proposed changes which had been included in a draft of revised surveillance strategy provided in **Appendix L** to WP/9.

3.4.64 New Zealand added that the current strategy does not recognise the need for contingency surveillance systems. This should be a strategic consideration for States and Regions when implementing modernised surveillance systems. The strategy makes the statement that the adoption platform based surveillance options will facilitate a reduced reliance on primary radar. The residual reliance on primary radar will be different for each state as the likes of ADS-B technology has system wide implications. New Zealand will take cognisance of the strategy when implementing a modernised surveillance system to meet our specific needs.

3.4.65 Additionally, this meeting has expressed a view that the use MODE S data (especially DAPS) from SSR's is desirable. That being the case then the use of such data has to be applicable to ADS-B ground systems as well. Providing such data to enhance both safety net processing and aircraft trajectory within the ATM needs to be provided by both systems to ensure completeness and consistency.

3.4.66 IATA recommended that the revised surveillance strategy should also consider the requirement for aircraft tracking as the new SARPs for aircraft tracking would soon become available.

3.4.67 Considering the proposed new SURICG is likely to meeting in the first half of 2016, the CNS SG agreed to refer the surveillance strategy with comments by the meeting to the new SURICG for them to review as it would be one of the deliverables in the proposed draft TOR of the new group.

Inter-regional ADS-C Reporting Interval Task Force

3.4.68 The meeting noted the outcome of the Forty-Fifth Meeting of the North Atlantic Implementation Management Group (NAT IMG/45 Nov. 2014) presented by the Secretariat regarding the need for a study to determine the minimum ADS-C periodic report intervals.

3.4.69 The NAT IMG noted that the FANS 1/A Interoperability Standard (RTCA DO 258A/EUROCAE ED 100A) specified a minimum ADS-C periodic reporting interval of 64 seconds for each of up to five possible ADS periodic contracts. However, early on, Airbus and Boeing certification testing had identified that system performance would significantly deteriorate, particularly if each ADS-C periodic contract specified such intervals. Any potential issues with using short (i.e. 64 seconds) ADS-C periodic reporting intervals could impact NAT planning and implementation initiatives as well as have global implications. Specifying a short ADS-C periodic reporting interval in one part of the world may affect system performance in other parts of the world.

3.4.70 The NAT IMG was informed that a new global initiative had arisen out of the loss of MH370 (as well as the older AFR447 accident) addressing the perceived need to constantly track aircraft on a global basis for the purpose, inter alia, of reducing the size of the potential search area should an aircraft be lost. An international meeting convened by ICAO concluded that IATA, with support from ICAO, would investigate solutions to effectively implement global tracking of aircraft. Using ADS-C to report position at one minute (64 second) periodic intervals in abnormal circumstances was currently among the near-term options.

3.4.71 Taking into account the vast investment that was instigated by aircraft operators and ANSPs in FANS 1/A systems, the NAT IMG considered appropriate to investigate the performance capabilities of the end-to-end FANS 1/A system in order to be able to maximize the benefits that can be derived from the system. Therefore, the NAT IMG agreed to establish an inter-regional task force with the terms of reference as provided at **Appendix M** to WP/9 to determine the technically feasible minimum reporting interval.

3.4.72 At the CNS SG meeting, Japan, Singapore and New Zealand expressed their interest to join this inter-regional Task Force. As result of the discussion, the meeting agreed to the proposal for such study and encouraged States/ Administration with experience of ADS-C implementation and in a position to do so participate in the Task Force and provide input and contribution to the study. Accordingly, the meeting adopted the following Conclusion:

Conclusion APANPIRG/26/46 – Inter-regional ADS-C Reporting Interval Task Force

That,

a) the Terms of Reference of the inter-regional ADS-C Reporting Interval Task Force provided by NAT Implementation Management Group at **Appendix M** to WP/9 is endorsed; and

b) States in Asia/Pacific Regions with experience of ADS-C implementation and in a position to do so, are encouraged to participate in the Task Force to contribute the study.

Updated ICAO Postion for WRC-2015

3.4.73 The meeting noted the updated ICAO position for WRC-2015 approved by ICAO Council on 17 June 2015. The updated ICAO Position was distributed to ICAO member States under cover of State letter E 3/5.15-15/52 dated 15 July 2015. The main changes in the ICAO position were highlighted in the paper. Active support from ICAO member States is expected to ensure that the results of the ITU WRC-15 reflect civil aviation's need for spectrum. States were requested to apply the ICAO position to the maximum extent possible when developing/finalizing States' position for WRC-15 and support the ICAO position before and during WRC-15. States were also requested to include aviation experts in the development of national position for WRC-15 and as part of your State's delegation to the regional forum and to the WRC-15.

3.4.74 The meeting was informed that the same information had also been forwarded to the WRC-15 contact focal points as nominated by States/Administrations. Some states have updated their focal point for WRC-15 during the meeting. It was reminded that the World Radiocommunication Conference 2015 (WRC-15) is scheduled from 2 to 27 November 2015 in Geneva, Switzerland. States were urged to support ICAO position at these forums in accordance with APANPIRG Conclusion 23/37 – Preparation for WRC-15.

Outcomes of SRWG/2 Meeting

3.4.75 The meeting reviewed the outcomes of the 2nd Spectrum Review Working Group meeting held in Bangkok in May 2015 and took following action:

3.4.76 The SRWG considered that it would be possible to keep using the 25 KHz spacing scheme throughout APAC Region in the next 5 years. But it was also discussed that such assessment should be revised on an annual basis. It was discussed that a planning mechanism is consistently used by the APAC Region for the future. It was also considered number of method should be considered to reduce the pressure of frequencies congestion including introduction of strategic planning. The meeting endorsed a number of conclusions formulated by the SRWG/2 meeting with slight changes made to the first one on Strategic planning and tactical use of VHF frequencies based on comments from China. The adopted the following Conclusions are as follows:

Conclusion APANPIRG/26/47 – Strategic planning and tactical use of VHF frequencies in the APAC Region from 2015 onwards

That, the guidance on Strategic planning and tactical use of VHF frequencies in the APAC Region from 2015 onwards provided in **Appendix 1D** to the Report under Agenda Item 3.4 is adopted.

Transition to the new global database

3.4.77 As Frequency Finder was considered to be a necessary tool for an efficient frequency management across ICAO Regions, the need for securing the resources to maintain the tool and organize a SIP to train States was reinforced. Consequently the meeting adopted the following Conclusion:

Conclusion APANPIRG/26/48 – Transition to the new global database

That, considering that Frequency Finder and the global database were a necessary toolkit for efficient frequency management across ICAO Regions, and training on using it is needed,

a) ICAO be invited to secure the resources to maintain the tool and organize a seminar/workshop on Frequency Finder in 2016,

b) States secure the attendance of their Subject Matter experts to the Seminar/workshop

Backup frequencies

3.4.78 The meeting noted the guidance material on the use of backup frequencies, based on the practices in the EUR Region, as presented to the SRWG meeting. Considering that the guidance material would be quite useful to regulate the assignment of back up frequencies, the meeting adopted the following Conclusion:

Conclusion APANPIRG/26/49 – Assignment of back up frequencies in APAC Region

That, considering that the assigned number of backup frequencies should be kept to a minimum,

1) the guidance material placed at **Appendix N** to WP/9 is adopted as regional guidance;

2) States/Administrations requiring back up frequencies, where operationally feasible:

- share backup frequencies either between different services (at the same ATC center) or between different facilities (e.g. different aerodromes or different APP/ACC/FIS serves from different ATC centers);

- follow the regional guidance for the backup frequencies to be assigned; and

- re-coordinate the backup frequencies already assigned as necessary.

Emergency Frequency Guard Band

3.4.79 Regarding the use of additional aeronautical emergency frequency guard band, the APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/50 – Amendment to the APAC frequency allotment plan

That, considering the effect of the reduction of the guard band around the frequency 121.500 MHz and the four new channels that can be used for ATC communications and the necessity to map services previously defined in APAC Region under ASIA/PAC/3 RAN meeting Recommendation 11/4,

a) the frequency allotment plan for the APAC Region be modified as follows:

Current allotment	Current frequency band	New frequency band
APP-I	121.100 – 121.400 MHz	121.100 – 121.450 MHz
AS (aerodrome surface)	121.600 – 121.975 MHz	121.550 – 121.975 MHz

b) coordination be undertaken with ICAO HQ to update the ICAO Doc 9718 Volume II accordingly.

c) the mapping between the services and designated operational coverages previously defined in APAC Region under ASIA/PAC/3 RAN Meeting Recommendation 11/4 and those defined in the global Database as per **Appendix O** to WP/9 is adopted.

3.4.80 The meeting also noted the result of survey on regarding national/international allocation and AOC sub-band provided in the attachment to the working paper.

Review outcome of e-ANP WG meeting and regional air navigation tables

3.4.81 The meeting noted that the draft CNS parts of e-ANP had been developed based on contributions by the eANP Working Group established by the CNS SG/18 meeting. The populated templates and tables were further updated through the relevant meetings and feedback from States/Administrations. As a result, the meeting agreed to those proposed text materials including those from harmonized template and regional specific requirements extracted from the existing ANP. (The consolidated Conclusion on e-ANP under agenda Item 3 refers)

AFS Alternate Routing to/from Bhutan (WP/20)

3.4. 82 Bhutan proposed to establish a requirement of alternate circuit between VQPR (Paro) and VTBB (Bangkok) in case of service failure between VQPR (Paro) and VABB (Mumbai). It was informed that failure between Mumbai and Paro was frequent in the past and the restoration of service took indefinite time which compromised the required services. It was further proposed to establish the additional AFTN link with Bangkok and main AFTN link with Mumbai over IP (Internet Protocol). The Mumbai/VABB would remain as the main routing for AFS traffic. Thailand and India expressed their support to the proposal. The meeting noted that requirement for the alternate routing had been included in the Table CNS II-1 – AFTN Plan of the draft e-ANP Vol. II which is subject to PfA process.

Introduction of VOIP to the Voice Communication System

3.4.83 Japan informed in IP/3 their plan for introducing a high-quality VoIP network on a step-by-step basis during the next three years starting from 2016. JCAB also has a plan to introduce VoIP to RCAG (Remote Center Air/Ground communications) in sequence starting from 2016.

SWIM Project in China (IP/17)

3.4.84 China reported in IP/17 that a four-year R/D project on SWIM had been conducted from 2011 to 2014 to study a suitable information management infrastructure for the next generation ATM system and demonstrate initial SWIM capabilities with a demonstration system. The need was identified to establish sound principles in SWIM governance and criteria to select a suitable system supporting Enterprise Messaging Services. China also confirmed their willingness to contribute to the regional SWIM workshop in 2016.

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PBN NavSpecs and Route Spacing (PBN Manual Doc 9613 Volume II, Attachment B & PANS-OPS Doc 8168 Volume II, Part III)

Nav Specs	Flight Phase (PANS-OPS Table III-1-1-1, PBN Manual Table II-A-1-1)								Supporting Nav. Infrastructure	Route Spacing (NM)	Additional Functionality (Required or Optional)					Operational Requirements (Doc 9613, Vol II, Attachment B)			
	En-route Remote	En-route Continental	Arrival	Approach				Departure			RF	FRT	TOAC[2]	Baro VNAV	Nav DB	Communication	Navigation	Surveillance	Others
				Initial	Intermediate	Final	Missed[1]												
RNAV 10	10								Not require ground-based Naviad Dual LRNS (INS, IRS FMS, GNSS)	50 (PANS-ATM Para 5.4.1.2.1.6, Doc 9613 Vol II, Part B Para 1.2.3.3)			TBD[2]		O	Voice com through 3rd party, DCPC in some areas	RNAV 10 (RNP 10) Approval, lateral deviation less than 7NM (same direction)/6NM (opposite direction)	Procedureal pilot position reports	System safety must be monitored, TLS $5X10^{-9}$ accident per flight hour
RNAV 5		5	5[3]						VOR/DME DME/DME INS or IRS GNSS	16.5 - straight unidirectional racks (same direction route-ECAC) 18 - straight bidirectional tracks (opposite direction route- ECAC) 10 - ATC intervention capability (ECAC) 30 - No ATS Surveillance in high traffic density (ECAC) (Doc 9613, II-B Para 2.2.3.2, 2.2.3.3, Attachment B, Para 4.3, 4.3.1)			TBD		O	DCPC- VHF	RNAV 5/RNP 5 OPS Approval (BRNAV)	Procedureal pilot position report (RNP 5) Radar surveillance (RNAV 5)	
RNAV 2		2	2					2	GNSS DME/DME DME/DME/IRU	8 to 9 - straight tracks in high traffic density (en-route) (FAA) (Doc 9613, Vol II Attachment B, Para 4.4)			TBD		R	DCPC- VHF	RNAV 2 OPS Approval (PRNAV, US RNAV AC 90-100)	Radar surveillance	
RNAV 1		1	1	1	1		1	1	GNSS DME/DME DME/DMe/IRU	8 - straight tracks in high density (terminal, Eurocontrol) (Doc 9613, Vol II Attachment B, Para 5.1) 7 for SIDs/STARs (PANS-ATM Para 5.4.1.2.1.4)			TBD	O	R	DCPC- VHF	RNAV 1 OPS Approval (PRNAV, US RNAV AC 90-100)	Radar surveillance	
RNP 4	4								Not require ground-based Naviad GNSS	30 (part of the Pacific airspace) (Doc 9613, Vol II, Attachment B, Para 3.3) 50 or 30* (PANS-ATM Para 5.4.1.2.1.6) *23NM proposed by SASP (applicable date : 10 November 2016)		O	TBD		R	DCPC or CPDLC	RNP 4 OPS Approval	ADS with a lateral deviation contract having 5NM	Sytem verification assuring lateral deviation less than 15NM
RNP 2	2	2							GNSS	50, 30 or 15 7 for climb/descend through other aircraft with VHF DCPC 20 for climb/descend through other aircraft with other type of com. (PANS-ATM Para 5.4.1.2.1.6)		O	TBD		R	Depend on operational considerations (route spacing, traffic density, complexity, contingency procedures)	RNP 2 OPS Approval (Oceanic/Remote/continental)	Not required except reduced route spacing	
RNP 1			1	1	1		1	1	GNSS	5 for SIDs/STARs (PANS-ATM Para 5.4.1.2.1.4)	O		TBD	O	R	DCPC (RNP 1 SIDs/STARs)	RNP 1 OPS Approval	Not required except reduced route spacing	
A RNP[4]	2	2 or 1	1 - 0.3	1 - 0.3	1 - 0.3	0.3	1 - 0.3	1 - 0.3	GNSS Multi-DME may be provided	7 - straight and turning tracks (<90°) in high traffic density (en-route, Terminal, Eurocontrol) (Doc 9613, Vol II Attachment B, Para 4.4, 5.2) 6 to 7 NM with an RNP 0.5 (terminal, (Doc 9613, Vol II Attachment B, Para 5.2.1)	R	O	TBD	O	R	DCPC- VHF	A-RNP OPS Approval (Navigation accuracy at least ±1NM, 95% of the flght time)	Radar surveillance (may not be required to certain navigation application)	
RNP APCH (Part A)[5]				1	1	0.3	1		GNSS (Missed App - RNAV or Conv.)	5 for SIDs/STARs (PANS-ATM Para 5.4.1.2.1.4)	O		TBD	O	R	Not required	RNP APCH OPS Approval	Not required	
RNP APCH (Part B)[5]				1	1	Angular	1 or 0.3 (Initial Straight MISAP)		GNSS	5 for SIDs/STARs (PANS-ATM Para 5.4.1.2.1.4)	O		TBD		R	Not required	RNP APCH OPS Approval	Not required	
RNP AR APCH				1 - 0.1	1 - 0.1	0.3 - 0.1	1 - 0.1		GNSS (DME/DME may be authorized	5 for SIDs/STARs (PANS-ATM Para 5.4.1.2.1.4)	R[6]		TBD	R[6]	R	Not required	RNP AR APCH OPS Approval	Not required	
RNP 0.3		0.3	0.3	0.3	0.3		0.3	0.3	GNSS		O		TBD	O	R	Not required	RNP 0.3 OPS Approval	Not required	

1) RNP requirements do not apply to initial and intermediate missed approach segments.
2) TOAC (Time of Arrival Control), TBD (To Be Determined)
3) RNAV 5 may be used for initial parts of STARs outside 30 NM from the ARP.
4) Advanced RNP core requirements are limited to RNP 1 in all flight phases except final approach (RNP 0.3) and RNP 2 in oceanic/remote and en-route continental. A scaleability option will allow accuracy values between 0.3 and 1.0, in 0.1 NM increments, in all flight phases except oceanic/remote/en-route continental (RNP 1 and RNP 2) and final approach (RNP 0.3).
5) Part A and B refer to the Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, Part C, Chapter 5, Part A — RNP APCH operations down to LNAV and LNAV/VNAV minima and Part B — RNP APCH operations down to LP and LPV minima, respectively.
6) Specific requirement for RF and VNAV

PBN PRE-IMPLEMENTATION CHECKLISTS FOR PREPARATION OF PBN PROCEDURE IMPLEMENTATION SAFETY ASSESSMENT

1. RNP APCH

PBN Procedure Safety Assessment Initial Checklist – RNP APCH					
Assessor		□ New	□ Amended		
Procedure Name		Date			
S : **S**atisfactory, **U** : **U**nsatisfactory, **N/A** : **N**ot **A**vailable					
No.	Check Items	S	U	N/A	
1	Is the safety assessor independent of the flight procedure team and has s/he been involved with the process? ▪ Comments :				
2	Were proposed flight procedures/amendments designed by an qualified flight procedure designer and reviewed independently by another qualified flight procedure designer? ▪ Comments :				
3	Did procedure designers coordinate with stakeholders such as ATC, operators, etc., regarding new and/or amended flight procedures? ▪ Comments :				
4	Did relevant ATC facilities review the new and/or amended procedures based on the Letter of Agreement (LOA) between facilities? Is the amended LOA published and effective? ▪ Comments :				
5	Are the locations of waypoints and restrictions (speed, altitude, etc.) appropriate for the aircraft types expected to use these procedures? ▪ List aircraft categories considered: ▪ Comments :				
6	Are there any expected difficulties or possibilities of phonetic confusion in the names used for waypoints and procedure ? It is recommended that proximity check for like-sounding codes be done within 250NM for TMA waypoints using ICARD system. ▪ Comments :				
7	Are there any elements that may lead to misinterpretation or other difficulties while using the proposed procedures (e.g. textual description of the chart, local wind condition or temperature causing difficulties while climbing/descending, etc.)? ▪ Comments :				
8	In case of procedure amendment, was a review of safety incidents/accidents concerning the existing procedure conducted, with the view of mitigating them? Comments :				
9	Referring to ICAO Annex 4, 15 and Doc 8697, are there any errors on the chart(s)? (Items to focus on: Magnetic Bearings/True Headings, Distances, Climb/Descent Gradients, TAA/MSA, Magnetic Variation, Topography, Location of Obstacles, Coordinates, Restrictions, etc.) ▪ Comments :				

10	Were all obstacles evaluated when calculating OCA/H in the proposed procedures and properly documented? ▪ Comments :			
11	Were RAIM/GNSS availability and prediction (as necessary) considered while implementing the proposed procedures? ▪ Comments :			
12	If RAIM/GNSS availability/prediction information is provided by entities other than the ANSP, are there any agreements with those entities regarding the provision of this information? ▪ Comments :			
13	Are the descent rates and descent angle, if not the same as the optimum value, of proposed approach procedure appropriate to enabling aircraft to complete its approach? If not, were operators consulted and consent obtained? ▪ Comments :			
14	Do missed approach procedures enable aircraft to climb to the assigned altitude/s? Are climb gradients specified where the climb gradient exceeds the standard missed approach climb gradient of 2.5%? If so, have the operators been consulted? ▪ Comments			
15	Do the proposed procedures take into account adequate separation between aircraft using these approaches and other aircraft using conventional approaches (ILS, VOR, NDB)? Was the standard operating procedure/operating manual updated? ▪ Comments :			
16	Have any alternative procedures been instituted if an aircraft conducting the proposed procedure/s is unable to complete the assigned procedure due to temporary GNSS signal abnormality, airborne system failures, technical problems or other difficulties? ▪ Comments :			
17	**For LNAV/VNAV Procedures**: Is the location of the altimeter setting source appropriate for the use of the Baro-VNAV approach procedure? ▪ Comments :			
18	**For LNAV/VNAV Procedure:** Is the published minimum temperature reasonable for the application of the Baro-VNAV procedure? ▪ Comments :			
19	Has implementation training been executed (or planned) for air traffic controllers on the use of the proposed procedures, including management of QNH in case of Baro-VNAV? ▪ Comments :			
20	Are there any criteria applied for the RNP APCH design using the minimum or maximum value in ICAO PANS-OPS (Doc 8168)? If so, are they documented properly? ▪ Comments :			

21	Are there any items requiring special authorization in the proposed procedures? If any, were sufficient reviews on criteria conducted and was the rationale for requiring such special authorization reasonable and necessary? ▪ Comments :			
22	Are there any other safety considerations regarding the procedure(s)? ▪ Comment :			

2. SID/STAR

PBN Procedure Safety Assessment Initial Checklist – SID/STAR					
Assessor		□ New □ Amended			
Procedure Name		Date			
S : **S**atisfactory, **U** : **U**nsatisfactory, **N/A** : **N**ot **A**vailable					
No.	Check Items		S	U	N/A
1	Is the safety assessor independent of the flight procedure team and has s/he been involved with the process? ▪ Comments :				
2	Were proposed flight procedures/amendments designed by an qualified flight procedure designer and reviewed independently by another qualified flight procedure designer? ▪ Comments :				
3	Did procedure designers coordinate with related entities such as ATC, Operators, etc., regarding new and/or amended flight procedures? ▪ Comments :				
4	Did related ATC facilities review and accept new and/or amended procedures based on the Letter of Agreement (LOA) between facilities? Is the amended LOA published and effective? ▪ Comments :				
5	Are the locations of waypoint and restrictions (speed, altitude, etc.) appropriate for the aircraft that is expected to use the procedures? ▪ Comments :				
6	Are there any expected difficulties or the possibility of confusion on the name of waypoints and procedures phonetically? It is recommended that proximity check for like-sounding codes should be done within 250NM for TMA waypoints using ICARD system. ▪ Comments :				
7	Are there any parts that may lead to mistakes or difficulties while using the proposed procedures (e.g. textual description of the chart, local wind condition or temperature causing difficulties while climbing/descending, etc.)? ▪ Comments :				
8	In case of procedure amendment, was a review of safety incidents/accidents concerning the existing procedure conducted, with the view of mitigating them? ▪ Comments :				
9	Referring to ICAO Annex 4, 15 and Doc 8697, are there any errors on the chart(s)? (check items : magnetic bearing/true heading, distance, climb/descent gradient, TAA/MSA, magnetic variation, topography, location of obstacle, coordinates, restrictions, etc.) ▪ Comments :				
10	Were all obstacles evaluated in the proposed procedures and properly documented? ▪ Comments :				

11	Were coverage and limitations of available avionics, ground navigational aids and GNSS considered while designing and validating the proposed procedures? ▪ Comments :			
12	Were traffic flows in the terminal area considered while designing the proposed procedures? ▪ Comments :			
13	Are climb/descent rates of the proposed procedures appropriate to enabling the climb/descent within the airspace? ▪ Comments :			
14	Does separation applied between instrument flight procedures of neighbouring airport(s), airspaces including special use airspaces (SUAs) and the proposed procedures satisfy separation criteria specified in ICAO PANS-ATM (Doc 4444)? ▪ Comments :			
15	Do the proposed procedures consider separation between aircraft using PBN procedures and aircraft using other procedures specified in ICAO PANS-ATM (Doc 4444)? ▪ Comments :			
16	Did the proposed procedures consider current and expected future airspace capacity? ▪ Comments :			
17	Are there any alternative methods when an aircraft conducting a proposed procedure is unable to conduct the procedure because of ground/satellite/airborne system failures, technical problems or other difficulties? ▪ Comments :			
18	Is there any training plan for air traffic controllers on the proposed procedures? Has the training been conducted? ▪ Comments :			
19	Are there any criteria applied for the SID/STAR design using the minimum or maximum value in ICAO PANS-OPS (Doc 8168)? If so, are they documented properly? Comments :			
20	Are there any items requiring special authorization in the proposed procedures? If any, were sufficient reviews on criteria conducted and was rationale for requiring special authorization reasonable? ▪ Comments :			
21	Are there any other safety considerations regarding the procedure(s)? ▪ Comment :			

3. **ATS Route**

PBN Safety Assessment Initial Checklist – ATS Route					
Assessor		□ New	□ Amended		
Route Designator		Date			
S : **S**atisfactory, **U** : **U**nsatisfactory, **N/A** : **N**ot **A**vailable					
No.	Check Items		S	U	N/A
1	Is the safety assessor independent of the flight procedure team and has s/he been involved with the process? Comments :				
2	Has proposed ATS route been reviewed independently by a qualified route designer? Comments :				
3	Did procedure designers coordinate with related entities such as ATC, Operators, etc., regarding the new and/or amended ATS route? ▪ Comments :				
4	Did related ATC facilities review new and/or amended procedures based on the Letter of Agreement (LOA) between facilities? Is the amended LOA published and effective? ▪ Comments :				
5	Are the locations of waypoint and restrictions (e.g. speed, altitude, etc.) appropriate for the aircraft that is expected to use the ATS route? ▪ Comments :				
6	Are there any expected difficulties or the possibility of confusion on the name of waypoints phonetically? It is recommended that proximity check for like-sounding codes should be done within 500NM for en-route waypoints using ICARD system. ▪ Comments :				
7	Is the designator of ATS route appropriate for its application, i.e. domestic or international? Is the duplicity of the name confirmed with neighbouring States? ▪ Comments :				
8	Are there any parts that may lead to mistakes or difficulties while using the proposed ATS routes (e.g. separation from other ATS routes and/or airspace including military controlled airspace, coordination with other facilities including military, identification of navigation specification, difference of turn performance, introduction of FRT, etc.)? ▪ Comments :				
9	In case of procedure amendment, was a review of safety incidents/accidents concerning the existing procedure conducted, with the view of mitigating them? ▪ Comments :				
10	Referring to ICAO Annex 4, 15 and Doc 8697, are there any errors on the AIP publication? (check items : magnetic bearing/true heading, distance, coordinates, restrictions, directions, etc.) ▪ Comments :				

11	Were all obstacles evaluated in the proposed ATS route and properly documented? ▪ Comments :			
12	Were coverage and limitations of available avionics, ground navigational aids and GNSS considered while designing and validating the proposed procedures? ▪ Comments :			
13	Does separation applied between instrument flight procedures of neighbouring airport(s), airspaces including special use airspaces (SUAs), neighbouring ATS routes and the proposed ATS route satisfy separation criteria specified in ICAO PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168)? ▪ Comments :			
14	Do the proposed ATS route consider separation between aircraft using PBN procedures and aircraft using other procedures specified in ICAO PANS-ATM (Doc 4444)? ▪ Comments :			
15	Did the proposed ATS route consider current and expected future airspace capacity? ▪ Comments :			
16	Are there any alternative methods when an aircraft flying the proposed ATS route is unable to maintain the requirement of the route because of ground/satellite/airborne system failures, technical problems or other difficulties? ▪ Comments :			
17	Is there any training plan for air traffic controllers on the proposed ATS route? Has the training been conducted? ▪ Comments :			
18	Are there any items requiring special authorization on the use of the proposed ATS route, e.g. reduction of lateral separation between ATS routes? If any, were sufficient reviews on criteria conducted and was rationale for requiring special authorization reasonable? ▪ Comments :			
19	Are there any other safety considerations regarding the proposed route(s)? ▪ Comments :			

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RECORD TEMPLATE ON IDENTIFICATION, ANALYSIS AND MITIGATION OF HAZARD

<table>
<tr><td colspan="2">Identification No</td><td></td><td>Source</td><td>□ Safety Report □ Safety Review
□ Safety Assessment □ Safety Audit
□Safety Observation □Safety Survey
□ Sampling Survey □ Others</td></tr>
<tr><td colspan="2">Assessment Date</td><td colspan="3">YYYY.MM.DD</td></tr>
<tr><td colspan="2">Assessment Items</td><td colspan="3">Name of IFP/SID/STAR/ATS route</td></tr>
<tr><td colspan="2" rowspan="3">Identification of Hazard(s)</td><td colspan="3">□ Human Factors □ Equipment □ Operational □ Environment</td></tr>
<tr><td colspan="3">Subject :</td></tr>
<tr><td colspan="3">Details (includes a review of safety incidents of the existing procedure(s), if any) :</td></tr>
<tr><td rowspan="4">Risk Analysis</td><td>Probability</td><td colspan="3">□ 1 □ 2 □ 3 □ 4 □ 5</td></tr>
<tr><td>Severity</td><td colspan="3">□ A □ B □ C □ D □ E</td></tr>
<tr><td rowspan="2">Outcome of Risk Analysis</td><td>Assessed Risk Index</td><td rowspan="2">□ Unacceptable
□ Acceptable based on risk mitigation
□ Acceptable</td></tr>
<tr><td>(Probability & Severity, e.g. 3C)</td></tr>
<tr><td colspan="2">Mitigation Measures</td><td colspan="3"></td></tr>
<tr><td colspan="2">Outcome of Safety Reassessment</td><td colspan="3"></td></tr>
<tr><td colspan="2">Comments by Safety Assessment Team (If necessary)</td><td colspan="3"></td></tr>
<tr><td colspan="2">Date Completed</td><td colspan="3">YYYY.MM.DD</td></tr>
</table>

Safety Risk Probability Table (SMM Manual (Doc 9859) Figure 2-11)

Likelihood	Meaning	Value
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently)	4
Remote	Unlikely to occur, but possible (has occurred rarely)	3
Improbable	Very unlikely to occur (not known to have occurred)	2
Extremely Improbable	Almost inconceivable that the event will occur	1

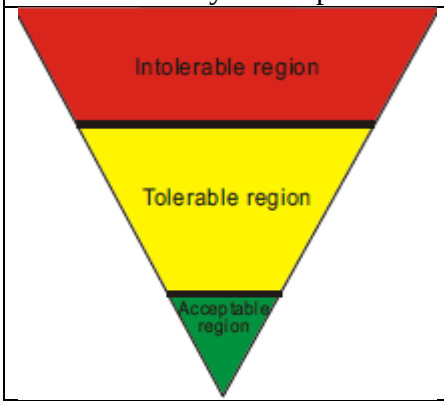
Safety Risk Severity Table (SMM Manual (Doc 9859) Figure 2-12)

Severity	Meaning	Value
Catastrophic	• Equipment destroyed • Multiple deaths	A
Hazardous	• A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely • Serious injury • Major equipment damage	B
Major	• A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of an increase in workload or as a result of conditions impairing their efficiency • Serious incident • Injury to persons	C
Minor	• Nuisance • Operational limitations • Use of emergency procedures • Minor incident	D
Negligible	• Few consequences	E

Safety Risk Assessment Matrix (SMM Manual (Doc 9859) Figure 2-13)

Risk Probability		Risk Severity				
		Catastrophic **A**	Hazardous **B**	Major **C**	Minor **D**	Negligible **E**
Frequent	**5**	**5A**	**5B**	**5C**	**5D**	**5E**
Occasional	**4**	**4A**	**4D**	**4C**	**4D**	**4E**
Remote	**3**	**3A**	**3B**	**3C**	**3D**	**3E**
Improbable	**2**	**2A**	**2B**	**2C**	**2D**	**2E**
Extremely Improbable	**1**	**1A**	**1B**	**1C**	**1D**	**1E**

Safety Risk Tolerability Matrix (SMM Manual (Doc 9859) Figure 2-14)

Tolerability Description	Assessed Risk Index	Suggested Criteria
	**5A, 5B, 5C, 4A, 4B, 3A**	Unacceptable under the existing circumstances
	5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D 2A, 2B, 2C, 1A	Acceptable based on risk mitigation. It may require management decision.
	3E, 2D, 2E, 1B, 1C, 1D, 1E	Acceptable

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STRATEGIC PLANNING AND TACTICAL USE OF VHF FREQUENCIES IN THE APAC REGION FROM 2015 ONWARDS

Considering that the simulations conducted by SRWG on the basis of the needs submitted, showed that congestion in the APAC region for VHF frequencies using a 25 kHz channel spacing was unlikely to happen until 2020, and considering the necessity to continue using 25 kHz channel spacing as long as possible,

1/ All APAC States should contribute to the strategic planning by submitting number of VHF channel required based on the operational requirement (planned use and release) for a 5-years sliding window so as to detect and mitigate any spectrum congestion sufficiently beforehand and optimize the efficiency of the available spectrum, by submitting and updating their operational needs in terms of VHF frequencies (international and national) on a yearly basis to the ICAO Regional Office;

2/ If the frequencies for the channels could be reserved for protection as a result of strategic planning, their effective use should start after tactical assignment coordinated with the ICAO Regional Office;

3/ The tactical coordination of frequencies without any prior strategic planning should be avoided as much as possible in congested areas;

4/ Both strategic planning and tactical assignments should be completed using the ICAO global tool Frequency Finder; and

5/ Strategic planning should be revised on an annual basis; in case of detected congestion within a 3-year timeframe based on the latest simulations made, the decision to move to 8.33 KHz spacing would need to be made by APANPIRG and implemented in a coordinated manner, after due consultation of airspace users.

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Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

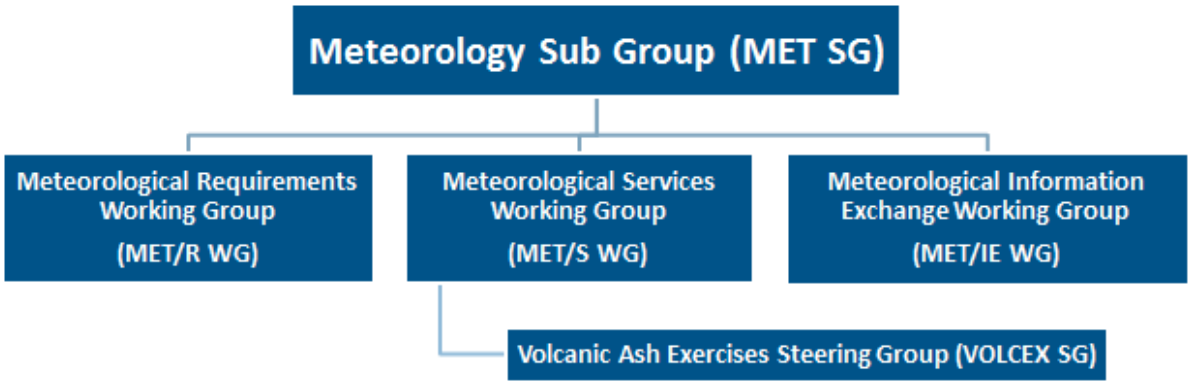
3.5 MET

MET SG/19

3.5.1 The Nineteenth Meeting of the Meteorology Sub-Group (MET SG/19) of APANPIRG was held in the ICAO Regional Office, Bangkok, Thailand from 3 to 6 August 2015. The meeting documentation, including papers reviewed and the final report is available at the webpage: http://icao.int/APAC/Meetings/Pages/2015-METSG19.aspx. MET SG/19 adopted eleven (11) Decisions for the MET SG and formulated nine (9) Draft Conclusions for consideration by APANPIRG.

MET SG structure

3.5.2 The MET SG reviewed the structure of its contributory bodies and agreed on the following in order to assist APANPIRG with its planning and implementation work in close alignment with the Global Air Navigation Plan (GANP) and Aviation System Block Upgrade (ASBU) strategies and the APAC regional priorities, and to facilitate coordination, where necessary, with the Meteorology Panel (METP):



3.5.3 The MET SG also accepted the revised Terms of Reference (ToR) for the group (with the addition of the word efficient) and developed new TOR for the MET SG Working Groups.

Planning and monitoring

3.5.4 The MET SG developed the meteorology parts of the new APAC electronic Air Navigation Plan (eANP) in accordance with APANPIRG/25 Decision 25/1 – *Development of the New APAC eANP* (refer to APANPIRG/26 Conclusion 26/2 and WP/10 Appendix B). The eANP was discussed further under **Agenda Item 3.0**.

3.5.5 APANPIRG noted the development of the Air Navigation Report Form (ANRF) for B0-AMET - *Meteorological information supporting enhanced operational efficiency and safety* (refer to APANPIRG/26 WP/10 Appendix C) and input into the Seamless ATM Plan element 310.

Air navigation deficiencies in the MET field

3.5.6 The discussion on the twenty (20) MET deficiencies in the APANPIRG database is included under **Agenda Item 4**. The meeting noted the ongoing work with the Philippines, Solomon Island, Tonga, Papua New Guinea, Nauru and Indonesia to eliminate deficiencies in those States which primarily relate to the provision of volcanic ash and SIGMET information. To assist States with improving SIGMET provision, APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/51 — SIGMET Training

That, ICAO, in coordination with the WMO and relevant States and organizations, considers facilitating urgent, targeted training for aeronautical meteorological service providers designated by States in the APAC Region to improve the quality, reliability and availability of SIGMET information, particularly in States with identified SIGMET deficiencies.

Notes: the following specific recommendations are provided:

1) Follow-up training programme on SIGMET provision for the Solomon Islands (similar to the TAF training programme conducted on a bilateral basis in 2014);

2) Follow-up on recommendations from previous investigations into SIGMET provision in Pacific Island States (e.g., the diagnostic of MET service provision in Papua New Guinea conducted on a bilateral basis in 2014);

3) Encourage APAC States, in particular Papua New Guinea and the Solomon Islands, to participate in the Japan/WMO SIGMET Seminar planned for 2016, in coordination with WMO RAII/RAV; and

4) Coordinate with WMO on the inclusion of possible additional training on SIGMET issuance in the training workshop under the WMO Severe Weather Forecasting Demonstration Project (SWFDP) program.

World Area Forecast System (WAFS)

3.5.7 The SADIS 2G (satellite) service will cease on 31 July 2016 and States will be required to migrate to the Internet based Secure SADIS FTP service. This transition should be completed by 1 June 2016 at the latest. In light of this the following Conclusion was adopted by APANPIRG/26:

Conclusion APANPIRG/26/52 — SADIS user States and SADIS users to prepare for cessation of SADIS 2G

That, ICAO be invited to urge SADIS user States and SADIS users to ensure that they are prepared for the cessation of SADIS 2G.

Notes:

1) For those users not yet using, or who have not yet arranged accounts for, Secure SADIS FTP, it is strongly recommended that they undertake actions to migrate to the Secure SADIS FTP service at the earliest opportunity;

2) Although the SADIS 2G service will continue until 31 July 2016, it is recommended that user's transition is complete and that SADIS 2G is not being used operationally after 1 June 2016; and

3) Users are encouraged to establish and regularly test backup accounts with the alternative provider to be used in the rare event that their normal service (Secure SADIS FTP or WIFS, as specified by the APAC Regional Air Navigation Plan, FASID Table MET 6) is unavailable.

Observations and reports

3.5.8 The meeting noted that Japan's new geostationary meteorological satellite, Himawari-8, began operation on 7 July 2015, providing significantly advanced capability for meteorological observations along with improved capability for detection of SO_2 used for volcanic ash cloud detection.

3.5.9 The meeting also noted that the United States of America (USA) is likely to commence including a "remarks" section in METAR and SPECI distributed by the US for international availability (in light of a National Transportation Safety Board (NTSB) recommendation), which is not compliant with Annex 3 SARPs. Concerns were expressed at the MET SG/19 meeting that this could have possible impacts for users without proper guidance on how to use the "remarks" information; e.g., established OPMET exchange systems, as well as future systems to be implemented for the digital exchange of aeronautical meteorological information, which are configured to recognize Annex 3-compliant meteorological information, may be compromised by the distribution of METAR/SPECI with the "remarks" information included.

Forecasts, advisories and warnings

3.5.10 APANPIRG/26 noted the improvement in SIGMET test participation, but that issues still existed regarding format, dissemination and non-issuance of SIGMET by some States. The meeting also noted the development of graphical SIGMET displays by some States and the need to have better cross-FIR coordination in place to resolve boundary issues.

3.5.11 With regard to the Tropical Cyclone Advisory Centres (TCACs) in the APAC Region, APANPIRG/26 noted that no formal backup arrangements between TCACs were in place (as is the case for Volcanic Ash Advisory Centres) and this required further clarification from ICAO. Additionally, the southern boundary of the Darwin (TCAC) has been changed to better align with the neighbouring TCACs.

3.5.12 Improvement in the format of the Tropical Cyclone Advisory (TCA) messages is required to ensure that all Meteorological Watch Offices (MWO) have adequate information for which to base the SIGMET on and to ensure consistency in format with other advisories such as the Volcanic Ash Advisory (VAA). In light of this the following Conclusion was adopted by APANPIRG/26:

Conclusion APANPIRG/26/53 — Tropical Cyclone Advisory (TCA) and SIGMET messages

That, ICAO be invited to consider updating the templates for advisory messages for tropical cyclones [Annex 3, Table A2-2] and SIGMET [and AIRMET] messages [Annex 3, Table A6-1A] to facilitate clarity and consistency of the information.

3.5.13 In accordance with APANPIRG/25 Decision 25/47, the APAC Volcanic Ash Exercises Steering Group was established and the first meeting (VOLCEX/SG/1) was held in Manila, Philippines, from 27 to 29 May 2015. The first ICAO APAC volcanic ash exercise (named VOLPHIN15/01) was conducted on 11 August 2015 – based on a simulated eruption of the Taal Volcano in the Philippines, with volcanic ash cloud contaminating the Manila FIR. The second

meeting, VOLCEX/SG/2, is scheduled from 14 to 16 September 2015 to review VOLPHIN15/01 and plan future ICAO APAC volcanic ash exercises.

3.5.14 APANPIRG/26 also noted the change to the WMO headers for the Volcanic Ash Advisory Centre (VAAC) back-up procedures, the change in the primary contact number for the Darwin VAAC and the requirement to update these in the procedural documentation. The meeting also noted the need to remind States and airspace users of the requirement to report hazardous phenomena, including volcanic ash.

OPMET exchange

3.5.15 APANPIRG/26 noted that the regular OPMET monitoring by IATA had again identified errors related to format and a need for improved OPMET availability. In view of this APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/54 — Improvement of OPMET data availability

That, ICAO be invited to urge APAC States to continue efforts to improve the availability of OPMET data for aerodromes listed in FASID Table MET 2A, as soon as possible, including specifically to:

a) Achieve 95% availability on the SADIS/WIFS broadcast of OPMET data for the FASID Table MET 2A aerodromes listed in AOP Tables;

b) Achieve 90% availability on the SADIS/WIFS broadcast of OPMET data for the FASID Table MET 2A aerodromes not listed in AOP Tables; and

c) Support harmonized availability on the SADIS/WIFS broadcast of OPMET data for the FASID Table MET 2A aerodromes.

3.5.16 APANPIRG/26 noted that the digital exchange of OPMET information using the ICAO aeronautical meteorological information exchange model (IWXXM) was enabled in Annex 3 in 2013 for States in a position to do so. It is expected that (if approved as part of future Amendments to Annex 3) this provision will be elevated to a recommended practice in 2016 and a Standard in 2018 or 2019, for all States. In view of this States need to plan and implement XML/GML-formatted OPMET exchange systems (using IWXXM), which requires availability of the AMHS. Consideration should also be given to possible shared objectives with the Common Regional Virtual (CRV) Private Network project. In view of the above, the following Conclusions were adopted by APANPIRG/26:

Conclusion APANPIRG/26/55 — IWXXM and AMHS Survey

That, ICAO be invited to urge States to complete the survey, located at APANPIRG/26 WP/10 Appendix D, prior to 30 October 2015 to provide information on the status of planning and implementation of IWXXM and AMHS in support of MET service for international air navigation.

Conclusion APANPIRG/26/56 — Capacity building workshop to facilitate planning and implementation of digital exchange of aeronautical meteorological information

That, ICAO, in coordination with the WMO, be invited to organize and conduct an inter-regional workshop in the first half of 2016 to build capacity in States for digital exchange of aeronautical meteorological information. The workshop should facilitate intra- and inter-regional planning and implementation activities.

MET/ATM coordination

3.5.17 APANPIRG/26 noted the activities related to the coordination between MET and ATM, including the MET/ATM Seminar held in Tokyo from 29 June to 3 July 2015, which highlighted the need for increased collaboration to promote the provision of MET information supporting enhanced operational efficiency and safety, and ATM-MET integration in supporting enhanced operational decisions. In light of this APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/57 — Survey of State Meteorological Information Supporting Air Traffic Management

That, ICAO be invited to urge States to respond to the survey, located at APANPIRG/26 WP/10 Appendix F, to gauge the types of meteorological information provided by MET services to support Air Traffic Management including Air Traffic Flow Management operations.

Quality Management

3.5.18 APANPIRG/26 noted the progress in the implementation of quality management systems (QMS) by the MET service providers and identified the need for further assistance for a number of States, in particular in South-East Asia and the Pacific. States are encouraged to contact the WMO Secretariat if assistance with QMS implementation is required.

Competencies and qualifications of meteorological personnel

3.5.19 Provisions for the competency of aeronautical meteorological personnel became a standard for World Meteorological Organisation (WMO) members on 1 December 2013. WMO has been providing assistance through training and implementation guidance on competency assessment, however, the status of compliance, and maintenance of compliance, by APAC States is still far from satisfactory. In order to facilitate States understanding and, in turn, planning and implementation of competency requirements for aeronautical meteorological personnel (under the ICAO framework), the following conclusion was adopted by APANPIRG/26:

Conclusion APANPIRG/26/58 — Competency of aeronautical meteorological personnel

That, ICAO be invited to consider inclusion in Annex 3 of a new provision on the competency of aeronautical meteorological personnel, similar to paragraph 3.7.4 in Annex 15 (2013) on the competency of AIS personnel, with appropriate reference to relevant WMO material on competency and qualification of aeronautical meteorological personnel, in order to align the provisions concerning the required competency of operational personnel.

Regional guidance material

3.5.20 APANPIRG/26 noted that the MET SG has reviewed updates to the following MET-related guidance material (note: additional updates were provided by States in APANPIRG/26 Flimsy No.1 and No.3):

- Asia/Pacific ROBEX Handbook;
- Asia/Pacific OPMET Data Banks Interface Control Document (ICD);
- Asia/Pacific Regional SIGMET Guide;

- SIGMET pamphlets for tropical cyclones and other phenomena;

and adopted the following Conclusions:

Conclusion APANPIRG/26/59 — SIGMET Pamphlets

That, ICAO be invited to adopt the SIGMET Pamphlets, provided in APANPIRG/26 WP/10 Appendix F, as Regional guidance material and distribute to States to facilitate improved format of SIGMET information.

Conclusion APANPIRG/26/60 — Updates to Regional guidance material (ROBEX Handbook, ICD and SIGMET Guide)

That, ICAO be invited to publish the updated ROBEX Handbook and ICD and the new [5th Edition] Asia/Pacific Regional SIGMET Guide, as provided in APANPIRG/26 IP/07, IP/08 and IP/09 (including additional updates provided in Flimsy No.1 and No.3), in accordance with the established procedures and to urge States to review the operations of the designated meteorological offices to ensure that OPMET information is issued in accordance with the updated Regional guidance material.

3.5.21 APANPIRG/26 also noted the continued work being undertaken by the MET SG to develop regional guidance for radioactive cloud SIGMET, tsunami warnings for aerodromes and an additional SIGMET pamphlet for volcanic ash

MET/ATM collaboration and cross border MET coordination

3.5.22 Hong Kong China, Japan, Philippines and Singapore invited the meeting to consider additional means (beyond the existing APANPIRG regional framework) by which to strengthen MET/ATM collaboration – specifically at a national and sub-regional level – and presented an example ‘collaboration framework’ (refer APANPIRG/26 WP/26), which was structured to complement the ICAO GANP/ASBU goals for air transport development. The meeting agreed that such initiatives would help support APAC States’ efforts towards the provision of MET information supporting enhanced operational efficiency and safety, and ATM-MET integration in supporting enhanced operational decisions. In view of the above, APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/61 — MET-ATM Collaboration at National and Sub-Regional Levels

That, States/Administrations are encouraged to strengthen MET-ATM collaboration at national and sub-regional levels, by engaging Meteorological Authorities at suitable ATM coordination meetings with a view to enhance MET support for ATM and develop harmonised requirements for MET to support ATM.

3.5.23 The meeting was also invited to note the importance of cross-FIR-boundary coordination and alignment of the MET information provided by States for adjacent FIRs to support enhanced operational efficiency and safety of the air transport system – especially SIGMET information provided for a hazardous phenomenon that affects multiple FIRs. The meeting agreed that such initiatives to enhance the sharing of MET information between States would help to ensure the necessary alignment of MET information provided for adjacent FIRs. In view of the above, APANPIRG/26 adopted the following conclusion:

Conclusion APANPIRG/26/62 — Cross-border MET Collaboration and Coordination

Recognizing the presence of SIGMET weather phenomena that straddles across boundaries, States/Administrations are encouraged to promote cross-border collaboration and coordination to harmonise the MET products of such phenomena between Meteorological Authorities to enhance MET support for ATM in the Asia/Pacific Region.

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Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation

3.6: Other Air Navigation Matter

3.6.1 Regional Workshops (WP/15)

3.6.1.1 APANPIRG/26 noted the information on regional workshops on various topics conducted by Singapore and the United States, in order to share information and improve air traffic management capabilities in the Asia-Pacific Region and encouraged States to attend.

3.6.1.2 IATA provided information on the ATFM workshops planned in APAC Region and encouraged attendance at these workshops. To a query from New Zealand on ICAO APAC Regional Office organizing a Regional Remotely Piloted Aircraft System symposium/Seminar, it was informed that ICAO RO has initiated the proposal with ICAO HQ. The meeting noted that FAA and CAAS have jointly planned to organize a RPAS workshop in the region and may coordinate with ICAO RO on the dates to avoid overlap or consider having a joint workshop.

3.6.1.3 Singapore highlighted that existing programs, such as the Asia and Pacific Initiative to Reduce Emission (ASPIRE), contributes best practices on operational measures to reduce emission and urged more States and Administration to join ASPIRE.

3.6.2 Recent Developments in ICAO on International Aviation and Climate Change (WP/23)

3.6.2.1 APANPIRG/26 noted that ICAO and its Member States were taking concrete steps to undertake coordinated and comprehensive actions to address CO_2 emissions from international aviation, in order to reach the ultimate goal of ensuring a sustainable future for international aviation.

3.6.2.2 APANPIRG/26 also noted that the paper provided a summary of the main developments on the actions requested by the 38th Session of the ICAO Assembly in the field of international aviation and climate change, in particular those actions relating to the following key areas: 1) technological and operational measures; 2) sustainable alternative fuels for aviation; 3) market-based measures; 4) States' Action Plans; and 5) assistance to States.

3.6.2.3 The United States supported the inclusion of sustainable alternative fuels in the development of Global Market Based Measures. Additionally, United States noted the development of global MBM requires both policy and technical input to develop CO_2 tracking systems and to determine eligibility of emission units for obligated parties in the global MBM scheme. The United States encouraged participation of States in the APAC region at the GLADs scheduled for 2016.

3.6.2.4 APANPIRG/26 reviewed the information provided in the working paper and adopted the following Conclusion:

Conclusion APANPIRG/26/63 – International Aviation and Climate Change

That, States/Administrations in APAC Region are invited to:

a) continue to consider environmental issues in the planning and implementation of regional air navigation systems;

b) bring to the attention of the ICAO Secretariat specific areas where additional guidance on environmental benefits would be valuable;

c) promote further collaboration with State action plan national focal points for all the operational measures that States wish to develop, implement and/or include in their action plans;

d) inform State action plan national focal points of the availability of further assistance, to be provided by the ICAO Secretariat, related to the preparation and submission of States' action plans; and

e) note that the ICAO Secretariat will keep PIRGs informed of its future activities and developments related to environmental protection.

3.6.3 Activities of ICAO Asia and Pacific Regional Sub-Office in 2015

3.6.3.1 APANPIRG/26 noted through IP/15 the ICAO RSO activities on the implementation support assistances to APAC States and Administrations in ATM enhancement activities, including Airspace Organisation and Management (AOM), Air Traffic Flow Management (ATFM), Collaborative Decision Making (CDM) and Performance Based Navigation (PBN) and the progress on these activities during 2015.

3.6.4 Review of BOBASIO/5 Meeting

3.6.4.1 APANPIRG/26 noted that India in IP/24 provided a brief review of the Fifth Bay Of Bengal, Arabian Sea and Indian Ocean Region (BOBASIO/05) held at New Delhi, India from 31 August, 2015 to 02 September 2015. The paper discussed advancements such as 50NM separation implementation, ADS-B data sharing, AIDC implementation, SAR, upper airspace management, contingency planning and airspace safety monitoring.

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Agenda Item 4: Regional Air Navigation Deficiencies

Status of Air Navigation Deficiencies in the Asia/PAC Region

4.1 Under the Terms of Reference, the APANPIRG has been regularly reviewing the status of implementation of the Asia Pacific Air Navigation Plan through its subgroups to identify and address the air navigation deficiencies according to the uniform methodology approved by the ICAO Council. In meeting this objective, APANPIRG facilitated the development and implementation of action plans by States to resolve identified deficiencies, where necessary.

4.2 The online deficiency database is available through the ICAO APAC website www.icao.int/apac via secure access provided by the Regional Office to States and International Organizations.

Deficiencies in the ATM/AIS/SAR fields

4.3 APANPIRG/26 noted the List of Air Navigation Deficiencies in the ATM/AIS/SAR field which was reviewed and updated by ATM/SG/3. Appendix A to APANPIRG Working Paper/11 presented the updated List of Air Navigation Deficiencies in the ATM/AIS/SAR fields.

Deficiencies in the AOP field

4.4 APANPIRG/26 noted the List of Air Navigation Deficiencies in the AOP field which was reviewed and updated by AOPWG/3. Appendix B to APANPIRG Working Paper/11 presented the updated List of Air Navigation Deficiencies in the AOP field.

Deficiencies in the CNS field

4.5 APANPIRG/26 noted the list of Air Navigation Deficiencies in CNS field which was reviewed and updated by CNS/ SG/19. Appendix C to APANPIRG Working Paper/11 presented the updated List of Air Navigation Deficiencies in the CNS field.

Deficiencies in the MET field

4.6 APANPIRG/26 noted the list of Air Navigation Deficiencies in MET field which was reviewed and updated by MET/SG/18. Appendix D to APANPIRG Working Paper/11 presented the updated List of Air Navigation Deficiencies in the MET field. .

Discussions

4.7 APANPIRG/26 urged States with deficiencies to put in additional resources to resolve the deficiencies and inform the Regional Office the action taken. The meeting noted that it was the responsibility of States with deficiencies to update the information in the deficiency database. The Regional Office will update the deficiencies based on written confirmation provided by their respective Administrations.

4.8 The Secretariat stressed the importance of resolving the deficiencies and urged States to update the status on resolving the deficiencies. The meeting noted the mechanisms available with ICAO to resolve deficiencies and urged States to approach ICAO for assistance.

APANPIRG/26 reviewed the Deficiencies and adopted the following Conclusion:

Conclusion APANPIRG/26/64 – Update of ATM/AIS/SAR, AOP, CNS and MET Deficiency List

That, the list of Air Navigation Deficiencies reported and identified in ATM/AIS/SAR, AOP, CNS and MET Deficiency List be updated as detailed in **Appendices A to D** to APANPIRG Working Paper 11.

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Agenda Item 5: Future Work Programme

Schedule of Future Meetings

5.1 APANPIRG/26 agreed that the tentative schedule of meetings for the rest of 2015, 2016 and 2017 should be as follows (Notes: A decode of acronyms has been included in **Appendix A** to the Report on Agenda Item 5):

2015 – Outstanding Meetings

ADS-B SEA/BOB WG/11	17 – 19 November	New Delhi
RACP/TF/5	December	Bangkok
2016		
APSAR/WG/1	January	Bangkok
ISTF/6	19 – 21 January	Bangkok
APATF/2	24 – 26 February	TBD
SAIOACG/6, SEACG/23	Feb/March	Bangkok
PBNICG/3	08 – 10 March	TBD
ROBEX WG/14(MET/IE WG)	7 – 9 March	Bangkok
MET/H TF/5 (MET/S WG)	9 – 11 March	Bangkok
CRV Pioneer States/1	15 – 17 Mar	Singapore
MET/R TF/4 (MET/R WG)	TBD	TBD
ADS-B SITF/15	18 – 20 April	Bangkok
SURICG/1	21 – 22 April	Bangkok
AAITF/11	May	TBD
CRV Pioneer States/2	9 – 10 May	Bangkok
CRV TF/5 & ACSICG/3	10 – 13 May	Bangkok
FIT-Asia/5/ RASMAG/21	April/May	Bangkok
SRWG/3	31 May – 2 June	TBD
WASWG	May	TBD
RACP/TF/6	May	TBD
AOP/WG/4	May/June	TBD
MET/SG/20	6 – 9 June	Bangkok
ATFM/SG/6	June	TBD
CNS/SG/20	11 – 15 July	Bangkok
ATM/SG/4	July	Bangkok
VOLCEX/SG/3	TBD	TBD
APANPIRG/27	5 – 8 September	Bangkok
PBNICG/4	October	TBD
ADS-B SEA/BOB WG/12	November	TBD
2017		
APSAR/WG/2	January	TBD
SEACG/24	February/March	Bangkok
SAIOACG/7	February/March	Bangkok
ROBEX WG/15	March	Bangkok
MET/H TF/7	March	Bangkok
APATF/3	March	TBD
AAITF/12	April	TBD
SURICG/2	April	TBD
FIT-Asia/6/ RASMAG/22	May	Bangkok
RACP/TF/7	May	TBD
CRV TF/7 & ACSICG/4	May	TBD
MET/SG/21	June	Bangkok
AOP/WG/5	June	Bangkok
ATM/SG/5	TBD	Bangkok
ATFM/SG/7	June	TBD
CNS/SG/21	July	Bangkok
APANPIRG/28	11 – 14 September	Bangkok
ADS-B SEA/BOB WG/13	November	TBD

5.2 Report of the APANPIRG Contributory Bodies Review Task Force Meeting (WP/13)

5.2.1 APANPIRG/26 reviewed the Report of the Second Meeting of the APANPIRG Contributory Bodies Structure Review Task Force (ABSRTF/2) convened from 24 to 25 June 2015 in Bangkok and recalled that APANPIRG/25 considering the need to review the APANPIRG Structure and Terms of Reference of its Sub Groups, in light of the performance based approach to air navigation planning and implementation, established the APANPIRG Contributory Bodies Structure Review Task Force under Decision 25/50. The ABSRTF/2 meeting was attended by 14 participants from 5 Member States and two Special Administrative Regions of China.

5.2.2 APANPIRG/26 noted the following recommendations proposed by ABSRTF:

a) MET SG is well organized and should continue as a separate Sub Group reporting directly to APANPIRG;

b) AOPWG has matured to be a Sub Group and should report directly to APANPIRG for discussing implementation of Annex 14 provisions, AOP subject of the Asia Pacific Regional Air Navigation Plan and the Asia Pacific Seamless ATM Plan;

c) RASMAG monitors air space safety, coordinates all the activities of the Region's designated monitoring agencies including undertaking aircraft height-keeping monitoring for RVSM, and submits recommendations to APANPIRG for improving ATM operations. RASMAG therefore should keep the Sub Group status reporting directly to APANPIRG;

d) Not to create an APANPIRG Coordination Committee (ACC) but to retain the current APANPIRG structure except for upgrading the AOPWG to AOPSG;

e) APANPIRG Sub Groups should have the ability to adopt, without further APANPIRG endorsement, any technical Conclusion or Decision (especially those concerning guidance to States in the implementation of ICAO SARPs, GANP, RANP, Seamless ATM Plan) that does not have additional economic, environmental or political effects; It is recommended that Sub Groups should be empowered to adopt draft Conclusions/Decisions on behalf of APANPIRG, which are developed by their respective Working Groups and Task Forces;

f) The respective APANPIRG Sub Group should examine and review the usefulness and continuity of the Working Groups & Task Force reporting to it and propose their new structure to APANPIRG/27 (2016) for approval;

g) ABSRTF also agreed to the concept of the project management principles to promote a more project-management-driven approach to regional air navigation planning and implementation, which is guided by and aligned with regional priorities and the Global Air Navigation Plan/ASBU strategy;

h) One-day informal meeting immediately after the APANPIRG meeting among the Chairs/Vice Chairs of the Sub Groups was needed to discuss their work programmes, projects and deliverables and to address inter coordination issues and sharing information in their respective areas to avoid duplication of efforts; and

i) APANPIRG is invited to review the proposed new structure and consider for adoption. It is recommended that the approved new structure would become effective from 2017 meeting year (APANPIRG/28) with 2016 (APANPIRG/27) being used for transitional arrangements.

5.2.3 APANPIRG/26 reviewed the proposed APANPIRG re-organized structure, revised Terms of Reference and the proposal on the empowerment of Sub Groups recommended by ABSRTF. Australia and the USA raised concerns about the lack of clarity of the proposal, notably in respect of the clear demarcation of boundaries for Sub Groups, non-participation by many States at Sub Group meetings and acceptability by States of the Decisions/Conclusions adopted at the Sub Groups level of APANPIRG. Based on past trends and the maturity level of the Sub Groups, it was decided to empower the Sub Groups, noting that the decision could be reversed in 2018 if the arrangement was found to be not functioning satisfactorily.

5.2.4 It was agreed to strengthen the APANPIRG Handbook with clear definitions and procedures to ensure conformity with the expectations of APANPIRG (in particular, regarding which Draft Conclusions would need to be reviewed by APANPIRG). Moreover, empowerment to Sub Groups would become effective from 2017 (2016 would be used for transitional arrangements). APANPIRG adopted the following Decision.

Decision APANPIRG/26/65 — Revised APANPIRG Structure, Terms of Reference and APANPIRG Sub Group Empowerment

That, in accordance with APANPIRG Decision 25/50, and to promote a more project-management-driven approach to regional air navigation planning and implementation which is guided by and aligned with regional priorities and the Global Air Navigation Plan/ASBU Strategy:

a) the new structure of the APANPIRG and its Sub Groups is adopted as presented in **Appendix B** to the Report on Agenda Item 5;

b) the revised Terms of Reference of APANPIRG Sub Groups placed at **Appendix C** to the Report on Agenda Item 5 is adopted;

c) to enhance the efficiency of APANPIRG approval process, the Sub Groups are empowered to adopt Conclusions and Decisions on technical matters (especially those concerning guidance to States in the implementation of ICAO SARPs, GANP, RANP, Seamless ATM Plan) that do not have additional economic, environmental or political effects, which should be considered at a higher level at APANPIRG; and

d) the APANPIRG Procedural Handbook be amended in accordance with the new APANPIRG Structure, Terms of Reference, project management principles [**Appendix D** to the Report on Agenda Item 5] and procedures to be followed for the processing of Sub Group- endorsed Conclusions and Decisions.

Note: (1) the new structure of APANPIRG Sub Groups, revised Terms of Reference and empowerment shall become effective from 2017 meeting year with 2016 being used for transitional arrangement; the empowerment would be subject to further review in 2018 based on the experience gained in 2017; and (2) the amendment to the APANPIRG Procedural Handbook shall be submitted to APANPIRG/27 for endorsement.

5.2.5 APANPIRG/26 noted that following the reorganization of APANPIRG structure and the revised Terms of Terms of the Sub Groups, it is necessary for the Sub group to review the structure of its Working Groups and Task Forces and their Terms of Reference. APANPIRG adopted the following Decision.

Decision APANPIRG/26/66 — Review Terms of Reference of Contributory Bodies under the APANPIRG Sub Groups

That, the Secretariat, in consultation with Chairs of the existing Task Forces and Working Groups under the APANPIRG Sub Groups, reviews the TOR as necessary, and submits to the respective Sub Groups and APANPIRG/27 for further review and adoption.

5.2.6 APANPIRG/26 noted that the work of the Task Force has been completed and no further meetings were required. According, the meeting agreed that the ABSRTF should be dissolved and adopted the following Decision:

Decision APANPIRG/26/67 — Dissolution of ABSRTF

That, the ABSRTF having completed its task as set out in its Terms of Reference, is dissolved.

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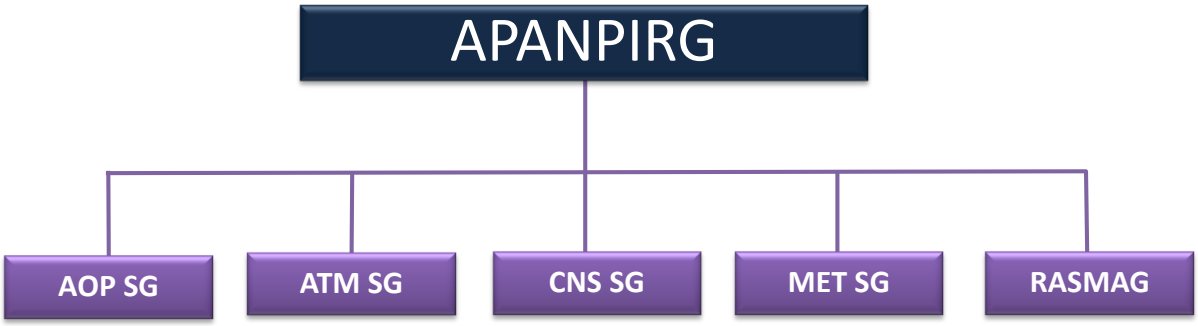
APPENDIX - A

ACRONYMS

AAITF	Aeronautical Information Services – Aeronautical Information Management Implementation Task Force
ACSICG	Aeronautical Communication Services (ACS) Implementation Co-ordination Group
ADS-B SITF	ADS-B Study and Implementation Task Force
AOP/WG	Aerodrome Operations and Planning Working Group
APANPIRG	Asia/Pacific Air Navigation Planning and Implementation Group
APA/TF	Asia/Pacific ATS Inter-Facility Data-Link Communication (AIDC) Implementation Task Force (APA/TF)
APSARWG	Asia Pacific Search and Rescue Working Group
ATFM/SG	Air Traffic Flow Management Steering Group
ATM/SG	ATM/Sub Group
ATN IC G	Aeronautical Telecommunication Network Implementation and Coordination Group
CMRI	China, Mongolia, Russian Federation and IATA ATS coordination Meeting
CNS/SG	CNS Sub-Group of APANPIRG
CRV TF	Common Regional Virtual Private Network (VPN) Task Force
FIT-Asia	FANS Interoperability Team-Asia
ISTF	Ionospheric Study Task Force
MET/ATM/Seminar	Meteorology/Air Traffic Management Seminar
MET/IE WG	Meteorological information Exchange [working group]
MET/S WG	Meteorological Services [working group]
MET/R WG	Meteorological Requirements [working group]
MET/H TF	Meteorological Hazards Task Force (of the MET SG)
MET/R TF	Meteorological Requirements Task Force (of the MET SG)
MET/SG	Meteorology Sub-Group of APANPIRG
RACP/TF	Regional ATM Contingency Planning Task Force
RASMAG	Regional Air Space Monitoring Advisory Group of APANPIRG
ROBEX WG	Regional OPMET Bulletins Exchange Working Group (of the MET SG)
SAIOACG	South Asia/Indian Ocean ATM Coordination Group
SEACG	South East Asia ATS Coordination Group
SEA/BOB ADS-B WG	South East Asia and Bay of Bengal Sub-regional ADS-B Implementation Working Group
SRWG	Spectrum Review Working Group
SURICG	Surveillance Implementation Coordination Group
WASWG	Water Aerodromes Small Working Group

APPENDIX B

PROPOSED NEW STRUCTURE OF APANPIRG



- AOP SG: Aerodrome Operations and Planning Sub Group
- ATM SG: Air Traffic Management Sub Group
- CNS SG: Communications, Navigation and Surveillance Sub Group
- MET SG: Meteorology Sub Group
- RASMAG: Regional Airspace Safety Monitoring Advisory Group

Note: The scope of the ABSRTF is limited to APANPIRG Sub Groups

APPENDIX C

Terms of Reference for APANPIRG Communications, Navigation and Surveillance/Sub Group (CNS/SG)

The Objectives of the CNS/SG are to:

1) *ensure continuous and coherent development of the CNS parts of the Asia/Pacific Regional Air Navigation Plan (APAC ANP) in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs, the Global Air Navigation Plan and the Global Aviation Safety Plan;*

2) *facilitate the implementation of CNS systems and services identified in the APAC ANP, Aviation System Block Upgrade (ASBU) priority modules and Asia/Pacific Seamless ATM Plan elements using the project management principles where appropriate;*

3) *review, identify and address deficiencies that impede the implementation or provision of efficient CNS services in the Asia & Pacific Regions.*

Deliverables to meet the Objectives:

1) *Progress report to be **submitted** to APANPIRG addressing the CNS SG deliverables (listed in 2 to 9 below);*

2) *CNS parts of the APAC ANP to be **reviewed** and, as necessary, amendment proposals **prepared** to update the APAC ANP to reflect changes in the operational and global requirements;*

3) *Level of implementation of CNS systems and services to be **monitored** and, as necessary, **facilitated** to support the effective implementation of ASBU priority modules and the Asia/Pacific Seamless ATM Plan elements;*

4) *Air navigation deficiencies in the field of CNS to be **`identified** (which may require any necessary systems performance monitoring to be **facilitated**) and, where necessary, appropriate corrective action **proposed** and the development and implementation of action plans by States to resolve identified deficiencies **facilitated**;*

5) *Air navigation deficiencies in the field of CNS (as listed in the APANPIRG database) to be **reviewed** and, as necessary, **updated** to reflect the current situation;*

6) *Research and development, trials and demonstrations in the field of CNS and other relevant areas to be **monitored** and, as necessary, the transfer of this information and expertise between States **facilitated**;*

7) *Specific recommendations to be **made,** and guidance materials **developed,** aimed at improving CNS services by the use of existing and/or new procedures, facilities and technologies;*

8) *Inter-regional and intra-regional co-ordination issues in the field of CNS to be **reviewed** and **identified** and, as necessary, actions **recommended** addressing those issues*;

9) *CNS environmental initiatives are consistently identified and progressed; and report outcomes from CNS environmental initiatives*;

10) *Draft Conclusions and Decisions to be **formulated** relating to matters in the field of CNS that come within the scope of the APANPIRG work plan.*

Terms of Reference for APANPIRG Meteorology Sub-Group (MET SG)

The Objectives of the MET/SG are to:

1) *ensure the continuous and coherent development of the MET parts of the Asia/Pacific Regional Air Navigation Plan (APAC ANP) in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs, the Global Air Navigation Plan and the Global Aviation Safety Plan;*

2) *facilitate the implementation of aeronautical meteorological services identified in the APAC ANP, Aviation System Block Upgrade (ASBU) priority modules and the Asia/Pacific Seamless ATM Plan elements using the project management principles where appropriate;*

3) *review, identify and address deficiencies that impede the implementation or provision of efficient aeronautical meteorological services in the Asia and Pacific Regions.*

Deliverables to meet the Objectives:

1) *Progress report to be **submitted** to APANPIRG addressing the MET SG deliverables (listed in 2 to 9 below).*

2) *MET parts of the ASIA/PAC ANP to be **reviewed** and, as necessary, amendment proposals **prepared** to update the APAC ANP to reflect changes in the operational and global requirements.*

3) *Level of implementation of aeronautical meteorological services to be **monitored** and, as necessary, **facilitated** to support the effective implementation of ASBU priority modules and the Asia/Pacific Seamless ATM Plan elements;*

4) *Air navigation deficiencies in the field of MET to be **identified** (which may require any necessary systems performance monitoring to be **facilitated**) and, where necessary, appropriate corrective action **proposed** and the development and implementation of action plans by States to resolve identified deficiencies **facilitated**.*

5) *Air navigation deficiencies in the field of MET (as listed in the APANPIRG database) to be **reviewed** and, as necessary, **updated** to reflect the current situation.*

6) *Research and development, trials and demonstrations in the field of MET and other relevant areas to be **monitored** and, as necessary, the transfer of this information and expertise between States **facilitated**.*

7) *Specific recommendations to be **made,** and guidance materials **developed,** aimed at improving aeronautical meteorological services by the use of existing and/or new procedures, facilities and technologies.*

8) *Inter-regional and intra-regional co-ordination issues in the field of MET to be **reviewed** and **identified** and, as necessary, actions **recommended** addressing those issues*;

9) *MET environmental initiatives are consistently identified and progressed*

10) *Draft Conclusions and Decisions to be **formulated** relating to matters in the field of MET that come within the scope of the APANPIRG work plan.*

Terms of Reference of Air Traffic Management Sub-Group of APANPIRG (ATMSG)

The Objectives of the ATM/SG are to:

1) *ensure the continuous and coherent development of the ATM/AIM/SAR parts of the Asia/Pacific Regional Air Navigation Plan (APAC ANP) in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs, the Global Air Navigation Plan and the Global Aviation Safety Plan;*

2) *facilitate the implementation of ATM systems, procedures and services identified in the APAC ANP, Aviation System Block Upgrade (ASBU) priority modules and Asia/Pacific Seamless ATM Plan elements using the project management principles where appropriate;*

3) *review, identify and address deficiencies that impede the implementation or provision of efficient ATM services in the Asia and Pacific Regions.*

Deliverables to meet the Objectives:

1) *Progress report to be **submitted** to APANPIRG addressing the ATM SG deliverables (listed in 2 to 9 below);*

2) *ATM parts of the ASIA/PAC ANP to be **reviewed** and, as necessary, amendment proposals **prepared** to update the APAC ANP to reflect changes in the operational and global requirements;*

3) *Level of implementation of ATM services to be **monitored** and, as necessary, **facilitated** to support the effective implementation of ASBU priority modules and the Asia/Pacific Seamless ATM Plan elements;*

4) *Air navigation deficiencies in the field of ATM to be **identified** (which may require any necessary systems performance monitoring to be **facilitated**) and, where necessary, appropriate corrective action **proposed** and the development and implementation of action plans by States to resolve identified deficiencies **facilitated**;*

5) *Air navigation deficiencies in the field of ATM (as listed in the APANPIRG database) to be **reviewed** and, as necessary, **updated** to reflect the current situation;*

6) *Research and development, trials and demonstrations in the field of ATM and other relevant areas to be **monitored** and, as necessary, the transfer of this information and expertise between States **facilitated**;*

7) *Specific recommendations to be **made,** and guidance materials **developed,** aimed at improving aeronautical meteorological services by the use of existing and/or new procedures, facilities and technologies;*

8) *Inter-regional and intra-regional co-ordination issues in the field of ATM to be **reviewed** and **identified** and, as necessary, actions **recommended** addressing those issues*;

9) *ATS environmental initiatives are consistently identified and progressed; and report outcomes from ATM environmental initiatives;*

10) *Draft Conclusions and Decisions to be **formulated** relating to matters in the field of ATM that come within the scope of the APANPIRG work plan.*

Terms of Reference of Aerodromes Operations and Planning Sub-Group of APANPIRG (AOP/SG)

The Objectives of the AOP/SG are to:

1) *ensure the continuous and coherent development of the AOP parts of the Asia/Pacific Regional Air Navigation Plan (APAC ANP) in a manner that is consistent with ICAO SARPs, the Global Air Navigation Plan and the Global Aviation Safety Plan;*

2) *facilitate the implementation of AOPservices identified in the APAC ANP, Aviation System Block Upgrade (ASBU) priority modules and Asia/Pacific Seamless ATM Plan elements using the project management principles where appropriate;*

3) *review, identify and address deficiencies that impede the implementation or provision of efficient AOP services in the Asia and Pacific Regions.*

Deliverables to meet the Objectives:

1) *Progress report to be **submitted** to APANPIRG addressing the AOP SG deliverables (listed in 2-6 below);*

2) *AOP parts of the ASIA/PAC ANP to be **reviewed** and, as necessary, amendment proposals **prepared** to update the APAC ANP to reflect changes in the operational and global requirements;*

3) *Level of implementation of AOP service to be **monitored** and, as necessary, **facilitated** to support the effective implementation of ASBU priority modules and Asia/Pacific Seamless ATM Plan elements;*

4) *Air navigation deficiencies in the field of AOP to be **identified** and, where necessary, appropriate corrective action **proposed** and the development and implementation of action plans by States to resolve identified deficiencies **facilitated**;*

5) *Air navigation deficiencies in the field of AOP (as listed in the APANPIRG database) to be **reviewed** and, as necessary, **updated** to reflect the current situation;*

6) *AOP environmental initiatives are consistently identified and progressed; and report outcomes from AOP environmental initiatives;*

7) *Draft Conclusions and Decisions to be **formulated** relating to matters in the field of AOP that come within the scope of the APANPIRG work plan.*

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APPENDIX D

Project Management Principles

1 In the context of a project management approach, projects will be identified primarily from ASBU Modules adopted by APANPIRG, agreed regional targets and objectives and existing initiatives. Any ANS operational improvement is conducted through a project[1]. The Seamless ATM implementation guidance published and maintained by the ICAO Regional Office would apply for structuring the project and providing the necessary technical guidance (standards etc). However the level of documentation required would be commensurate with the project objectives and scale (see below).

2 Where it is not the case, a project team will be nominated by States and concerned international organizations in coordination with SG. The Task Force Chair and/or the ICAO Secretariat will act as Project Managers.

3 In this regard it is proposed that the ToR of the Sub Groups should be reviewed to better support the ICAO performance framework, in particular implementation activities to align with ASBUs and regional priorities. It is also proposed to empower the Sub Groups/Task Forces to make decisions on internal matters and take corrective actions. The Sub Groups would have the ability to agree, without further APANPIRG endorsement, any Conclusion or Decision (especially those concerning guidance to States in the implementation of ICAO SARPs) that does not have significant additional economic, environmental or political effects, which should be considered at a higher level at APANPIRG.

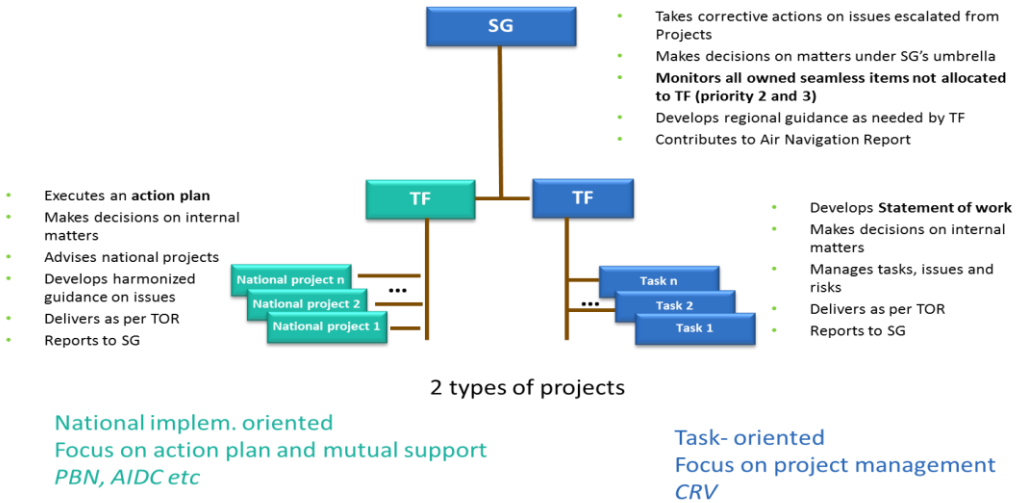
Scale of projects

4 The scale of the project will be defined as experience shows that coordination and control activities vary accordingly:

- interregional (example: definition of an interregional AIDC standard)
- regional (examples: CRV, ATFM projects)
- sub-regional (example: Implementation of new PBN routes between States in a sub region)
- a collection of national projects driven by a State/Administration

Types of project

5 Depending on the objective of the project, 2 types of projects could be defined:



1 Project: according to ISO 10006, unique process consisting of a set of co-ordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost and resources.

Documents and tools

6 TORs of the Project should define timelines from start to completion. These timelines should be consistent with eANP Volume III main planning table, stating all deadlines for ASBU and regional objectives and related ANRF.

7 TORs will record also the project manager(s), the project team, the reporting lines (SG and APANPIRG) and scale (interregional, regional, sub-regional, or national) of the project.

8 Projects should be conducted using standardised and simple documents for which templates would be proposed on ICAO APAC RO website:

- Statements of work for the definition of tasks inside a project
- Action list for the allocation and follow-up of actions inside the project and outside the project (dependencies)
- Basic Risk table for the identification and mitigation of risks inside a project
- Project report (1 slide) to report to the SG(s)
- Summary of discussions of the meeting

9 At the creation of the project, the set of applicable documents would be proposed by the Project Manager according to the scale and type of project, endorsed by the SG, and recorded in the TOR.

10 The use of ICAO portal and teleconferences should be generalized to control and coordinate the activities conducted under a project.

Safety management

11 For inter-regional, regional and sub-regional projects undertaking major changes to the air navigation system in Asia Pacific Region, a safety analysis may have to be conducted[2] in the framework of the project. For national projects, the analysis would more probably be conducted inside the State/organizations involved. Such analyses have to comply with ICAO Doc 9859, Safety Management Manual, particularly the Safety risk probability table and the Safety risk severity table.

12 If no other process is available or preferred, the analysis could be based on:

- A Concept of Operations (CONOPS) and/or OSED identifying the new operational services/environments being envisaged;
- Operational Hazard Analysis (OHA) identifying hazards brought by the new operational services;
- Preliminary System Safety Assessment (PSSA) as per ARP 4761 identifying and mitigating the causes of hazards (people, equipment, procedures)
- System Safety Assessment (SSA) as per ARP 4761 establishing that the risk is acceptable according to ICAO Doc 9859.

2 A criterion could be that if an initial Hazard Analysis identifies hazards with severity being major or more severe (significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of an increase in workload or as a result of conditions impairing their efficiency, Serious incident, Injury to persons) then an extensive process would have to be conducted. Otherwise a lighter process would be conducted.

Checking/Reporting

13 It is proposed that interregional, regional and sub-regional projects report to their SG through a one page slide on their progress, issues and top risks. National projects would be tracked through the seamless ATM plan on-line reporting process.

14 In order to track the progress of implementation, data collection will be done through the seamless ATM plan on-line reporting process using the metrics defined.

15 A regional picture could be developed to graphically illustrate the progress by seamless ATM plan implementation item. The project was started but is frozen. ICAO's resources would need to be mobilized to support the regional picture.

Acting/correcting

16 A SG would have an overview of all its projects: objectives, achievements, issues, top risks. It will take action on issues escalated by any project supervised or identified between projects supervised. APANPIRG would have an overview of all the projects and will take corrective actions on issues escalated from SGs or identified between SGs.

17 SGs would monitor dependencies between projects. APANPIRG would monitor dependencies between projects supervised by different SG. APANPIRG could review periodically the top 10 risks. A table of projects for the region could be maintained by APANPIRG.

Change management

18 The project management principles presented in this Attachment and considered beneficial by ABSRTF should be refined and recorded in the APANPIRG Procedural Handbook**.**

19 All principles would need a certain time to be properly and homogeneously applied throughout the region. Selection and briefing of project managers would be necessary. Certain principles may be regarded as guidance/good practice first and later on become recommendations.

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Agenda Item 6: Any other business

6.1 ICAO ANNEX AND PANS AMENDMENTS (IP/13)

6.1.1 APANPIRG/26 noted the information concerning ICAO Annex and PANS Amendments applicable during the period 2014 - 2018

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ATTACHMENT 1 to the APANPIRG/26 Report

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LIST OF INFORMATION AND WORKING PAPERS

Paper No.	Agenda Item	Title	Presented by
INFORMATION PAPERS			
IP/1	—	Meeting Bulletin	Secretariat
IP/2	1B	Update of RASG-APAC Activities	Secretariat
IP/3	3.4	Introduction of VoIP to the Voice Communication System for ATC in Japan	Japan
IP/4	2	Air Navigation Activities at Global Intra — and Inter Regional Level	Secretariat
IP/5	3.2	Implementation of Simultaneous Parallel Independent Departure Procedures for Narita International Airport	Japan
IP/6	1B	Report of the Second Coordination Meeting between the Chairperson of APANPIRG and RASG-APAC	Secretariat
IP/7	3.5	ROBEX Handbook Updates	Secretariat
IP/8	3.5	ASIA/PAC ICD Updates	Secretariat
IP/9	3.5	ASIA/PACIFIC Regional SIGMET Guide	Chairman of MET SG
IP/10	3.2	Integrated AMAN/DMAN Development Status of Republic of Korea	Republic of Korea
IP/11	3.2	Optimization of Airspace and Procedures	USA
IP/12	2	Second Planning and Implementation Regional Group (PIRG) – Regional Aviation Safety Group (RASG) – Global Coordination Meeting (PIRG-RASG GCM/2)	Secretariat
IP/13	6	ICAO Annex and PANS Amendments	Secretariat
IP/14	3.0	Performance-Based Approach to ASBUs Implementation	Secretariat
IP/15	3.6	Activities of ICAO Asia and Pacific Regional Sub-Office in 2015	Secretariat
IP/16	3.2	Outcomes of the Second Bangladesh, India, Myanmar, Thailand ATM Coordination Meeting (BIMT/2)	Bangladesh, India, Myanmar and Thailand
IP/17	3.4	Introduction to China SWIM Initiatives	China
IP/18	3.4	Progress of the BDS Development	China
IP/19	3.2	Recent ATM/CNS Activites	Mongolia

Paper No.	Agenda Item	Title	Presented by
IP/20	3.2 & 3.4	Development of New CNS Strategy, Implementation of PBN and Transformation from AIS TO AIM	Pakistan
IP/21	3.4	Implementation of IP BASED VCCS/VHF for Upper Airspace Harmonisation in India	India
IP/22	3.2	China Dedicate to Promote Cross-Border ATFM Development	China
IP/23	3.2	Role of Pakistan in Afghanistan Contigency Planning	Pakistan
IP/24	3.6	Review of BOBASIO/5 Meeting	India

Paper No.	Agenda Item	Title	Presented by
WORKING PAPERS			
WP/1	-	Adoption of the Provisional Agenda	Secretariat
WP/2	1.1	Review of the Actions of the Air Navigation Commission on the Report of the APANPIRG/25	Secretariat
WP/3	1.2	Status of Implementation of APANPIRG/25 Conclusions and Decisions	Secretariat
WP/4 Revision 1	1.3	Status of Implementation of Outstanding APANPIRG Conclusions and Decisions	Secretariat
WP/5	3.0	APAC eANP	Secretariat
WP/6	3.1	Report on the Third Meeting of AOP Working-Group	Chairman of AOPWG
WP/7 Revision 1	3.2	ATM/SG Outcomes	Chairman of ATMSG
WP/8	3.3	RASMAG/20 Outcomes	Secretariat
WP/9	3.4	Report on the Nineteenth Meeting of CNS Sub-Group	Chairman of CNS SG
WP/10	3.5	Report on the Nineteenth Meeting of MET Sub-Group	Chairman of MET SG
WP/11	4	Status of Air Navigation Deficiencies in the Asia/PAC Region	Secretariat
WP/12 Revision 2	5	APANPIRG Work Programme 2016+	Secretariat
WP/13	5	Report of the Second Meeting of the APANPIRG Contributory Bodies Structure Review Task Force (ABSRTF)	Chairman of Task Force
WP/14	3.0	Update on the Seamless ATM Reporting Process and Regional Picture	Secretariat
WP/15	3.6	Regional Workshops	Singapore and USA
WP/16 Revision 1	3.2	Measuring ANSP Performance	CANSO
WP/17	3.2	Crossing FIR Boundaries	CANSO
WP/18	3.4	CANSO PBN Best Practice Guide for ANSPs	CANSO
WP/19	3.4	Proposal for SWIM Workshop in Asia Pacific	Japan

Paper No.	Agenda Item	Title	Presented by
WP/20	3.4	Opening of Alternate Route for AFTN Circuit and Planned Updates	Bhutan
WP/21	3.2	Normal Aircraft Tracking	IATA
WP/22	3.2	Participation in Mini-Global to Enhance Air Traffic Management and Promote Collaborative Decision Making	Japan, Singapore and Thailand
WP/23	3.6	Recent Developments in ICAO on International Aviation and Climate Change	Secretariat
WP/24	3.2	Air Traffic Flow Management (ATFM) Activites Supported by ICAO Apac Regional Sub-Office (RSO)	Secretariat
WP/25	3.2	Flexible Use of Airspace (FUA) Activities and Support by ICAO APAC Regional Sub-Office (RSO)	Secretariat
WP/26	3.5	Strengthening MET/ATM Collaboration and Promoting Cross Border MET Coordination	Hong Kong China, Japan, Philippines and Singapore

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ATTACHMENT 3 to the APANPIRG/26 Report

APANPIRG/26 Conclusions/Decisions – Action Plan

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/1 **A & B**	**Seamless ATM Plan Reporting Process- Amended Responsibility Matrix**	That, on reassignment of lead responsibility by the Regional RASG-APANPIRG Coordination Meeting the endorsing body for Airborne Collision Avoidance System (ASBU B0-ACAS, Seamless ATM item 170 - Airborne Safety Systems) is transferred from CNS/SG to RASG APAC. The amended APANPIRG matrix of responsibilities placed at Appendix B to WP/14 is adopted for the APAC Region;	ICAP APAC Office	State Letter	November 2015
C 26/2 **A & B**	**Adoption of the ASIA/PAC eANP**	That, the following text parts and tables for Volume I and Volume II of the APAC e-ANP is endorsed and Volume III is adopted and invite ICAO to process the PfAs (Proposal for Amendments) for Volume I and Volume II of e ANP in accordance with the established procedures: a) In AOP field: Appendices A and B to WP/6; b) In ATM field: Appendices E, G, H, K, L and P to WP/7; c) In CNS field: Appendices R1, R2, R3, S1, S2, S3, S4, S5, S6 and S7 to WP/9; d) In MET field: Appendices B & C to WP/10 plus updates provided in Flimsy no 1.	ICAO APAC Office	PfAs	December 2015

APANPIRG/26 Conclusions/Decisions – Action Plan

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/3 **A & B**	**Guidance on charting of RESA and/or arresting system in State AIP Aerodrome Chart**	Recognizing that most pilots refer to Aerodrome Charts for aeronautical information even though the information is published in State AIP, ICAO be invited to: i) Study the feasibility for the publication of RESA and/or arresting system data in Aerodrome Chart: and ii) Consider amendments, if necessary to Annex 4 to include provisions to standardise charting of RESA and /or arresting system.	ICAO APAC Office	IOM to HQ	November 2015
C 26/4 **A & B**	**Sample Regulations for Water Aerodromes**	That, in accordance with Decision ATMSG/2-7, the sample regulations for water aerodromes is adopted for use as a reference document in the Asia/Pacific Region.	ICAO APAC Office	State Letter	November 2015
C 26/5 **A & B**	**Roll out of PANS–Aerodromes**	That, ICAO be invited to organize a seminar/workshop in the Asia/Pacific Region to roll out the first edition of PANS Aerodromes (Doc 9981) during first quarter of 2016.	ICAO APAC Office	IOM to HQ	November 2015
C 26/6 **A & B**	**Airport Master Plans**	That, recognizing the importance of long term development of an airport to cater to the growing traffic, States should encourage airport operators to develop long term airport master plan to assist in the timely phased airport expansions, thereby increasing capacity and enhancing the safety and regularity of aircraft operations, and report progress to AOPWG/4.	ICAO APAC Office APAC States	State Letter Report Status	November 2015 April 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/7 **A & B**	**Aerodrome Carbon Emissions Management**	That States: a) Support the inclusion of Aerodrome Carbon Accreditation into their State Action Plans for CO_2 Reduction; and b) encourage aerodrome operators to consider adopting the ACERT (Airport Carbon and Emission Reporting Tool), and to participate in the ACI Airport Carbon Accreditation Programme.	ICAO APAC Office	State Letter	January 2016
C 26/8 **A & B**	**Regional Cross-border ATFM Implementation Support**	That, to support regional cross-border Air Traffic Flow Management (ATFM) progress and implementation, States are urged to: • support the multi-nodal ATFM operational trial program commencing June 2015; • ensure timely completion of planning, procurement and resource allocation to enable participation in the multi-nodal ATFM operational trial program; and • implement cross-border ATFM in accordance with the performance objectives of the Regional Framework for Collaborative ATFM.	ICAO APAC Office APAC States	State Letter ref no.: T 3/10.0 – AP129/15 (ATM) Support the multi-nodal ATFM operational trial and implement cross-border ATFM	01 October 2015 08 November 2018

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/9 **A & B**	**Asia/Pacific Regional Framework for Collaborative ATFM**	That, regarding the Asia/Pacific Regional Framework for Collaborative ATFM Version 1.0 **(APANPIRG/26/WP07/Appendix A), and the Regional ATFM Concept of Operations Version 1.0 (APANPIRG/26/WP07/Appendix B),** ICAO be requested to: a) make the Framework and the Concept of Operations available on the ICAO Asia/Pacific Regional Office web site, replacing the earlier APAC ATFM Regional Concept of Operations and ATFM Communications Handbook for the Asia Pacific Region; and b) reference the Framework within the Asia/Pacific Seamless ATM Plan.	ICAO APAC Office ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP129/15 (ATM) Upload of the ATFM CONOPs onto the APAC website Referencing with the Seamless ATM Plan during the Plan review	01 October 2015 01 October 2015 01 October 2016
C 26/10 **A & B**	**ATFM Seminars/Workshops**	That, ICAO be urged to facilitate Asia/Pacific ATFM Seminars/Workshops for Asia/Pacific and trans-regional States, to: a) familiarize stakeholders with the Asia/Pacific Regional Framework for Collaborative ATFM; b) assist implementation of ATFM; and c) act as a forum for further development of the Asia/Pacific Regional Framework for Collaborative ATFM, and the associated ATFM Information Requirements document and Interface Control Document (ICD).	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP129/15 (ATM) Conduct of Asia/Pacific ATFM Seminars/Workshops	01 October 2015 01 October 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/11 **A & B**	**Implementation of FPL 2012 Capability**	That, noting the relevant aircraft separation and track spacing minimums specified in ICAO Doc 4444 PANS-ATM, and the performance objectives of the Asia/Pacific Seamless ATM Plan; States are urged to include in ATM automation system specifications the processing and presentation in ATC human-machine interfaces and decision support and alerting tools, the communications, navigation and approach aid indicators received in items 10 and 18 of FPL and ATS messages, where applicable, and the following Mode S SSR or Automatic Dependent Surveillance – Broadcast (ADS-B) downlinked aircraft parameters as a minimum: • Aircraft Identification, magnetic heading and indicated airspeed or Mach Number; and • Pilot selected altitude.	ICAO APAC Office APAC States	State Letter ref no.: T 3/10.0 – AP132/15 (ATM) Action to note and take action in accordance with FPL 2012 ATM automation expectations	01 October 2015 No specific date
C 26/12 **A & B**	**Flight Plan Item 19 Information**	That, States are urged to ensure that item 19 information contained in submitted flight plans is not included in Flight Plan (FPL) messages.	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP132/15 (ATM) States to note FPL Item 19 expectations	01 October 2015 No specific date

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/13 **A & B**	**Consistent PANS-ATM Provisions for RNP 2/RNAV 2**	That, ICAO be requested to take action to provide consistency in ICAO Doc 4444 – PANS-ATM, noting the specification of RNP 2-based separation while RNAV 2 is specified for entry in the flight plan.	ICAO APAC Office ICAO HQ	State Letter ref no.: T 3/10.0 – AP132/15 (ATM) IOM to HQ ref no. T3/10.0 - AP-ATM0094/15	01 October 2015 No specific date
C 26/14 **A & B**	**Draft Regional ATM Contingency Plan**	That, regarding the Draft Asia/Pacific Regional ATM Contingency Plan version 0.2 attached as **APANPIRG/26/WP07/Appendix C:** 1. ICAO be requested to make the Draft Regional ATM Contingency Plan available on the Asia/Pacific Regional Office website; and 2. States are urged to consider the following sections of the Draft Regional ATM Contingency Plan in the planning and development of State contingency plans and inter-State contingency agreements, pending finalization of the Regional ATM Contingency Plan: a) Section 7 – Performance Improvement Plan; b) Appendix A – ATM Contingency Planning Principles; c) Appendix B – Basic Plan Elements; and d) Other relevant information and guidance provided in the document.	ICAO APAC Office ICAO APAC Office APAC States	State Letter ref no.: T 3/10.0 – AP130/15 (ATM) Upload of the Draft Contingency Plan onto the APAC website States to note and take action in accordance with draft Contingency Plan expectations	01 October 2015 01 October 2015 No specific date

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/15 **A & B**	**ATS Route Catalogue Version 14**	That Version 14 of the *Asia and Pacific Region ATS Route Catalogue* at **APANPIRG/26/WP07/Appendix I** replaces Version 13 on the Asia/Pacific Regional Office's web site, noting that: • Chapter A had been transitioned to the electronic Air Navigation Plan (eANP); and • the remaining ATS route proposals in the ATS Route Catalogue may be amended by the ICAO Regional Office without reference to an APANPIRG Conclusion in future.	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP132/15 (ATM) Upload of the ATS Route Catalogue V14 onto the APAC website	01 October 2015 01 October 2015
C 26/16 **A & B**	**eAIP from Digital Database**	That, States providing updated AIM transition information in accordance with Conclusion *APANPIRG/25-15* should advise whether their eAIP is generated from a digital database of aeronautical information.	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP128/15 (ATM) States to note and take action in accordance with APAC eAIP expectations	01 October 2015 No set date
C 26/17 **A & B**	**Interim AIM Transition Guidance**	That, *the Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region* be updated to include as an appendix the Interim AIM Transition Guidance appended at **APANPIRG/26/WP07/Appendix J.**	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP128/15 (ATM) Upload of the interim AIM Guidance Material onto the website to replace the outdated version	01 October 2015 01 October 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/18 **A & B**	**AIM Transition Seminars/Workshops**	That, ICAO be urged to facilitate Asia/Pacific AIM Transition Seminars/Workshops to: a) familiarize stakeholders with the new and amended ICAO publications developed by the ICAO AIS-AIM Study Group; b) assist States in developing AIM implementation plans; and c) act as a forum for further development and updating of the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region.*	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP128/15 (ATM) Conduct of Asia/Pacific AIM Transition Seminars/Workshops	01 October 2015 01 October 2016
C 26/19 **A & B**	**Volcanic Ash Information Coordination and Collaboration**	That, States are urged to: a) establish a mechanism to provide regular and timely updates of information during a volcanic eruption and/or ash cloud event to ensure all stakeholders are up to date with current information, situation reports and contingency planning; b) participate in volcanic ash exercises; and c) consider establishing an internal crisis management centre where applicable to support the collaborative and timely sharing of information such as volcanic eruptions, or other crises that will have a significant impact on airport and/or airspace management.	ICAO APAC Office APAC States	State Letter ref no.: T 3/10.0 – AP130/15 (ATM) States to note and take action in accordance with APAC expectations	01 October 2015 No specific date

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/20 **A & B**	**SAR Air Navigation Report Form**	That, the Search and Rescue (SAR) Air Navigation Report Form (ANRF) as appended at **APANPIRG/26/WP07/Appendix M** be utilised by Asia/Pacific States as a means of regional strategic SAR planning and implementation in the Asia/Pacific Region.	ICAO APAC Office APAC States	State Letter ref no.: T 3/10.0 – AP134/15 (ATM) States to note	01 October 2015 No specific date
C 26/21 **A & B**	**SAR Lessons Learnt**	That, considering the implications for Search and Rescue standards from recent events which required initiation of SAR actions, ICAO, in coordination with the IMO through the ICAO/IMO Joint Working Group on Harmonisation of Aeronautical and Maritime SAR (JWG), should consider urgently updating global SAR documents from the lessons learnt.	ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP134/15 (ATM) IOM to HQ ref no. T3/10.0 - AP-ATM0094/15	01 October 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/22 **A & B**	**Asia/Pacific SAR Plan**	That, regarding the Asia/Pacific Search and Rescue (SAR) Plan Version 1.0 attached as **APANPIRG/26/WP07/Appendix R**, ICAO be requested to: a) make the SAR Plan available on the ICAO Asia/Pacific Regional Office web site; b) reference the SAR Plan within the Asia/Pacific Seamless ATM Plan; c) add the following elements to the Asia/Pacific Seamless ATM monitoring and reporting scheme: • SAR Regulatory and Coordination Mechanisms; • SAR Facilities and Assets; • SAR Information; • SAR Improvement; and d) conduct Asia/Pacific SAR Planning and Implementation Seminars/ Workshops for Asia/Pacific States.	ICAO APAC Office ICAO APAC Office ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP134/15 (ATM) IOM to HQ ref no. T3/10.0 - AP-ATM0094/15 Upload of the SAR Plan onto the APAC website Update of the Seamless ATM Monitoring System to incorporate the four new SAR elements Conduct of Asia/Pacific SAR Planning and Implementation Seminars/ Workshops	01 October 2015 01 October 2015 01 December 2015 01 July 2017

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/23 **A & B**	**State SAR Planning**	That, States should be urged to: a) review Version 1.0 of the Asia/Pacific SAR Plan and utilise the SAR Plan to develop planning for State implementation of applicable SAR elements; b) ensure relevant decision-makers are briefed on the SAR Plan; c) submit the first SAR Plan Seamless ATM monitoring information to the ICAO Regional Office by 01 March 2016; and d) where possible, participate and contribute to SAR Plan system collaborative training and research initiatives.	ICAO APAC Office APAC States APAC States	State Letter ref no.: T 3/10.0 – AP134/15 (ATM) States to note and take action in accordance with SAR Plan expectations Submit SAR monitoring data	01 October 2015 No specific date 01 March 2016
D 26/24 **A & B**	**Asia/Pacific SAR Workgroup**	That, the Asia/Pacific Search and Rescue (SAR) Task Force be disestablished and an Asia/Pacific SAR Workgroup (APSAR/WG) be established in accordance with the Terms of Reference at **APANPIRG/26/WP07/Appendix S.**	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP134/15 (ATM) Conduct of APSAR/WG/1	01 October 2015 01 July 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/25 **A & B**	**ANS Deficiencies Relating to Data Link Performance Monitoring and Analysis**	That, an Air Navigation Deficiency should be raised against non-implementation of the provisions of Annex 11 Paragraph 2.27.5 when any FIT-Asia administration has implemented operational ADS-C/CPDLC services and: a) has not made arrangements for the reporting and analysis of data link problems to a competent CRA as identified by the Regional Airspace Safety Monitoring Advisory Group (RASMAG); or b) does not report data link problems to the CRA; or c) does not provide data link problem analysis reports to a recognized FANS Interoperability/Implementation Team (FIT); or d) does not provide data-link performance analysis reports to a recognized FIT.	ICAO APAC Office APAC FIT-Asia States	State Letter ref no.: T 3/10.0 – AP131/15 (ATM) To note and take action in accordance with data link monitoring and analysis expectations	01 October 2015 No set date
C 26/26 **A & B**	**Data Link Performance Reporting Template and Guidance**	That, the revised Data Link Performance Reporting Template and Guidance at **APANPIRG/26/WP08/Appendix A** replaces the Data Link Performance Reporting Template on the ICAO Asia/Pacific Regional Office website.	ICAO APAC Office ICAO APAC Office	State Letter ref no.: T 3/10.0 – AP131/15 (ATM) Upload of the Data Link Performance Reporting Template and Guidance onto the APAC website to replace the earlier version	01 October 2015 01 October 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/27 **A & B**	**Data Link Performance Guidelines**	That, FIT-Asia States are urged to: a) Monitor data link performance against the RCP240 and RSP180 criteria specified in Appendix B of the Global Operational Data Link Document (GOLD); and b) apply the guidelines specified in the GOLD Appendix D to determine whether fleet performance (the aggregate fleet of all data link aircraft operating in the airspace concerned, except only where it related to analysis of individual operator performance) either: i. meets the 99.9% performance level; or ii. requires submission of CRA problem reports and/or investigation that will attempt to determine the cause of the degradation. *Note: GOLD Version 2.0 Appendix D Paragraph D.2.4.7.5.2 refers.*	ICAO APAC Office APAC FIT-Asia States	State Letter ref no.: T 3/10.0 – AP131/15 (ATM) To note and take action in accordance with data link performance expectations	01 October 2015 No set date

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/28 **A & B**	**Asia/Pacific LHD Hot Spot Action Plans**	That, the following Regional Monitoring Agencies (RMAs), States and ATC units should take urgent action to establish a scrutiny group or an alternate means to address the following Large Height Deviation (LHD) hot spot areas and present Action Plans and details of progress made to the ICAO Regional Office, prior to 01 January 2016: a) **MAAR,** India, Myanmar and Malaysia – Kolkata/Chennai FIRs interface with Yangon/Kuala Lumpur FIRs; b) **PARMO**, China RMA, JASMA, MAAR, China, Japan, Republic of Korea and Taibei Area Control Centre (ACC) – Incheon FIR AKARA Corridor interface with Shanghai/Fukuoka/Taibei FIRs; c) **China RMA**, MAAR, China and Hong Kong China – Hong Kong FIR interface with Guangzhou/Sanya FIRs; d) **MAAR**, AAMA, JASMA, Hong Kong China, Indonesia, Japan and the Philippines – Manila FIR interface with Fukuoka/Hong Kong China/ Singapore/Ujung Pandang FIRs; and e) **China RMA**, MAAR, China and Pakistan – Urumqi FIR interface with Lahore FIR. *Note1: the RMAs in bold were expected to take the lead in organising the scrutiny groups or alternative means to address the issues.* *Note 2: BOBASIO (Bay of Bengal Arabian Sea Indian Ocean) in agreement with MAAR has been identified as a scrutiny group for BOBASIO States in respect of the BOBLHD Hot spot Action Plan.*	ICAO APAC Office Relevant APAC States, MAAR, PARMO, China RMA, JASMA, AAMA	State Letter ref no.: T 3/10.0 – AP133/15 (ATM) Conduct of Hot Spot Scrutiny Groups	01 October 2015 01 July 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/29 **A & B**	**Revised AMHS Naming Plan**	That, the revised AMHS Naming Plan provided in **Appendix B** to WP/9 is adopted.	ICAO APAC Office	State Letter and publishing on APAC Web.	September 2015
C 26/30 **A & B**	**Second Iteration of CRV Cost Benefit Analysis (based on RFI)**	That, the second iteration of the CRV Cost Benefit Analysis provided in **Appendix C** (with password to access) to WP/9 is adopted and distributed to States/ Administrations for their reference.	ICAO APAC Office	State Letter	September 2015
C 26/31 **A & B**	**CRV preliminary Safety Analysis**	That, CRV Participating States/Administrations be urged to consider the CRV safety specified in the CRV Preliminary Safety Analysis v1.0 provied in **Appendix D** to WP/9 as a basis for their local safety case, perform their local safety case, and report to CNS SG.	ICAO APAC Office States concerned	State Letter Report of result	September 2015 July 2016
C 26/32 **A & B**	**CRV Cost Arrangement Framework**	That, noting that cost arrangements on current telecommunications exist between some States/Administrations and considering the result of the second iteration of the CRV Cost Benefit Analysis, APAC States/Administrations be advised to: - make their own local Cost benefit analysis as needed; - start discussions of possible new or improved cost arrangement frameworks with other ICAO Member State(s)/Administration(s), based on the Request For Information results; and - endeavor to establish arrangements for mid 2016.	ICAO APAC Office States concerned	State Letter Report status of arrangements	September 2015 July 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/33 **A & B**	**Recommendations for AIDC Implementation**	That, a list of recommendations provided in **Appendix E** to WP/9 is adopted and distributed to States/Administrations for AIDC Implementation guidance.	ICAO APAC Office	State Letter	October 2015
C 26/34 **A & B**	**Use of Pan regional ICD for AIDC**	That, States/Administrations in the Asia/Pacific Regions are encouraged to use the Pan Regional ICD for AIDC for any planned new ATM automated system or updating ATM automated systems for AIDC function.	ICAO APAC Office	State Letter	October 2015
C 26/35 **A & B**	**PBN in a page**	That, the PBN-in-a-page document provided in **Appendix 1A** to the Report under Agenda Item 3.4 is adopted as a regional supporting material and published on the ICAO Regional Office's website.	ICAO APAC Office	State Letter	October 2015
C 26/36 **A & B**	**PBN Procedure Safety Assessment Checklist and Record of Hazard Template**	That, the PBN Procedure pre-implementation Safety Assessment Checklist and Record of Hazard Template provided in **Appendices 1B and 1C** to the Report under Agenda Item 3.4 are adopted as regional supporting materials and published on the ICAO Regional Office's website.	ICAO APAC Office	State Letter	October 2015
C 26/37 **A & B**	**Need for ionospheric models in the APAC Region**	That, considering that extreme ionospheric gradients were observed in parts of APAC Region through data collection, the need for GBAS threat model is confirmed.	ICAO APAC Office	Information to ISTF & CNS SG	July 2016
C 26/38 **A & B**	**Standard for exchange and sharing of GNSS data in the APAC Region**	That, considering the need for sharing GNSS data to study the ionospheric effects on navigation systems, the SCINTEX and GTEX Formats are adopted as ICAO APAC standard for exchange of GNSS data and these formats be posted on the ICAO APAC Regional Website.	ICAO APAC Office	Letter to States concerned	November 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/39 **A & B**	**Revised Navigation Strategy for the Asia/Pacific Region**	That, the revised Navigation Strategy for APAC Region provided in **Appendix G** to WP/9 is adopted.	ICAO APAC Office	State Letter & publication on APAC Web.	October 2015
C 26/40 **A & B**	**Amendment to ADS-B Implementation and Operations Guidance Document (AIGD)**	That, the consolidated amendment to the AIGD provided in **Appendix H** to WP/9 is adopted.	ICAO APAC Office	State Letter & publication on APAC Web.	October 2015
C 26/41 **A & B**	**Approval and Monitoring Requirements for Operation using ADS-B**	That, States: a) do not require operational approval for the operational use of ADS-B OUT by ATC; b) note that operational approval may be required for ADS-B IN applications where there is a safety case; c) monitor ADS-B transmissions from aircraft and take action to ensure compliance with Regional Supplementary Procedure MID/ASIA Section 5.5; and d) provide capabilities to either: - reject ADS-B data from aircraft which are known to transmit misleading ADS-B data until corrective actions have been successfully conducted; or - implement procedures to ensure that such aircraft are safely managed.	ICAO APAC Office	State Letter	October 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/42 **A & B**	**Template for Promulgation of ADS-B Avionics Equipage Requirements**	That, based on APANPIRG Conclusion 20/54, States intending to implement ADS-B based surveillance service for a defined airspace and having not published regulations be urged to promulgate mandating rules for ADS-B Avionics Equipage Requirements as soon as possible using the following template: On and after dd/mm/yyyy, if an aircraft operates on airways (insert routes)……at or above FLXXX……(or in defined airspace boundaries ……. at or above FLXXX): the aircraft must carry serviceable 1090 MHz ES ADS-B transmitting equipment that has been certificated as meeting EASA AMC 20-24, or FAA AC No. 20-165A – Airworthiness Approval of ADS-B, or meets the equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia. *Note: This Conclusion supersedes APANPIRG Conclusion 21/39 (i.e. removes any requirement for operations approval)*	ICAO APAC Office	State Letter	October 2015
C 26/43 **A & B**	**Guidelines for Airworthiness Approval for ADS-B Avionics Equipage**	That, States be advised to use the guidelines provided in **Appendix I** to WP/9 for Airworthiness Approval for ADS-B OUT Avionics Equipage. *Note: This Conclusion supersedes APANPIRG Conclusion 21/40*	ICAO APAC Office	State Letter	October 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/44 **A & B**	**ADS-B OUT Forward Fit Equipage**	That, States/Administrations in APAC Region be strongly encouraged to mandate that registered aircraft with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots, with a date of manufacture on or after 8 June 2018 (two years after the European forward fitment mandate is effective) be equipped with ADS-B avionics compliant with Version 2 ES (equivalent to RTCA DO260B) or later version.	ICAO APAC Office	State Letter	November 2015
D 26/45 **A & B**	**Surveillance Implementation Coordination Group**	That, the Surveillance Implementation Coordination Group (SURICG) be established with Terms of Reference provided in **Appendix K** to WP/9.	ICAO APAC Office	State Letter	March 2016
C 26/46 **A & B**	**Inter-regional ADS-C Reporting Interval Task Force**	That, a) the Terms of Reference of the inter-regional ADS-C Reporting Interval Task Force provided by NAT Implementation Management Group at **Appendix M** to WP/9 is endorsed; and b) States in Asia/Pacific Regions with experience of ADS-C implementation and in a position to do so, are encouraged to participate in the Task Force to contribute the study.	ICAO APAC Office	State Letter	September 2015
C 26/47 **A & B**	**Strategic planning and tactical use of VHF frequencies in the APAC Region from 2015 onwards**	That, the guidance on Strategic planning and tactical use of VHF frequencies in the APAC Region from 2015 onwards provided in **Appendix 1D** to the Report under Agenda Item 3.4 is adopted.	ICAO APAC Office	State Letter	December 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/48 **A & B**	**Transition to the new global database**	That, considering that Frequency Finder and the global database were a necessary toolkit for efficient frequency management across ICAO Regions, and training on using it is needed, a) ICAO be invited to secure the resources to maintain the tool and organize a seminar/workshop on Frequency Finder in 2016; b) States secure the attendance of their Subject Matter experts to the Seminar/workshop.	ICAO APAC Office	State Letter	December 2015
C 26/49 **A & B**	**Assignment of back up frequencies in APAC Region**	That, considering that the assigned number of backup frequencies should be kept to a minimum, 1) the guidance material placed at **Appendix N** to WP/9 is adopted as regional guidance; 2) States/Administrations requiring back up frequencies, where operationally feasible: - share backup frequencies either between different services (at the same ATC center) or between different facilities (e.g. different aerodromes or different APP/ACC/FIS serves from different ATC centers); - follow the regional guidance for the backup frequencies to be assigned; and - re-coordinate the backup frequencies already assigned as necessary.	ICAO APAC Office	State Letter	December 2015

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Strategic Objective*</th><th>Title of Conclusion/Decision</th><th>Text of Conclusion/Decision</th><th>Responsibility</th><th>Deliverable</th><th>Target date</th></tr>
<tr><td>C 26/50

A & B</td><td>Amendment to the APAC frequency allotment plan</td><td>That, considering the effect of the reduction of the guard band around the frequency 121.500 MHz and the four new channels that can be used for ATC communications and the necessity to map services previously defined in APAC Region under ASIA/PAC/3 RAN meeting Recommendation 11/4,

a) the frequency allotment plan for the APAC Region be modified as follows:

<table><tr><th>Current allotment</th><th>Current frequency band</th><th>New frequency band</th></tr><tr><td>APP-I</td><td>121.100 – 121.400 MHz</td><td>121.100 – 121.450 MHz</td></tr><tr><td>AS (aerodrome surface)</td><td>121.600 – 121.975 MHz</td><td>121.550 – 121.975 MHz</td></tr></table>
b) coordination be undertaken with ICAO HQ to update the ICAO Doc 9718 Volume II accordingly.

c) the mapping between the services and designated operational coverages previously defined in APAC Region under ASIA/PAC/3 RAN Meeting Recommendation 11/4 and those defined in the global Database as per Appendix O to WP/9 is adopted.</td><td>ICAO APAC Office</td><td>State Letter

IOM to HQ</td><td>December 2015</td></tr>
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Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/51 **A & B**	**SIGMET Training**	That, ICAO, in coordination with the WMO and relevant States and organizations, considers facilitating urgent, targeted training for aeronautical meteorological service providers designated by States in the APAC Region to improve the quality, reliability and availability of SIGMET information, particularly in States with identified SIGMET deficiencies. *Notes: the following specific recommendations are provided:* *1) Follow-up training programme on SIGMET provision for the Solomon Islands (similar to the TAF training programme conducted on a bilateral basis in 2014);* *2) Follow-up on recommendations from previous investigations into SIGMET provision in Pacific Island States (e.g., the diagnostic of MET service provision in Papua New Guinea conducted on a bilateral basis in 2014);* *3) Encourage APAC States, in particular Papua New Guinea and the Solomon Islands, to participate in the Japan/WMO SIGMET Seminar planned for 2016, in coordination with WMO RAII/RAV; and* *4) Coordinate with WMO on the inclusion of possible additional training on SIGMET issuance in the training workshop under the WMO Severe Weather Forecasting Demonstration Project (SWFDP) program.*	ICAO, WMO and States	Training programme proposal	March 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/52 **A & B**	**SADIS user States and SADIS users to prepare for cessation of SADIS 2G**	That, ICAO be invited to urge SADIS user States and SADIS users to ensure that they are prepared for the cessation of SADIS 2G. *Notes:* *1) For those users not yet using, or who have not yet arranged accounts for, Secure SADIS FTP, it is strongly recommended that they undertake actions to migrate to the Secure SADIS FTP service at the earliest opportunity;* *2) Although the SADIS 2G service will continue until 31 July 2016, it is recommended that user's transition is complete and that SADIS 2G is not being used operationally after 1 June 2016; and* *3) Users are encouraged to establish and regularly test backup accounts with the alternative provider to be used in the rare event that their normal service (Secure SADIS FTP or WIFS, as specified by the APAC Regional Air Navigation Plan, FASID Table MET 6) is unavailable.*	ICAO	State letter	September 2015
C 26/53 **A & B**	**Tropical Cyclone Advisory (TCA) and SIGMET messages**	That, ICAO be invited to consider updating the templates for advisory messages for tropical cyclones [Annex 3, Table A2-2] and SIGMET [and AIRMET] messages [Annex 3, Table A6-1A] to facilitate clarity and consistency of the information.	ICAO	Decision on development of Annex 3 amendment proposal	September 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/54 **A & B**	**Improvement of OPMET data availability**	That, ICAO be invited to urge APAC States to continue efforts to improve the availability of OPMET data for aerodromes listed in FASID Table MET 2A, as soon as possible, including specifically to: a) Achieve 95% availability on the SADIS/WIFS broadcast of OPMET data for the FASID Table MET 2A aerodromes listed in AOP Tables; b) Achieve 90% availability on the SADIS/WIFS broadcast of OPMET data for the FASID Table MET 2A aerodromes not listed in AOP Tables; and c) Support harmonized availability on the SADIS/WIFS broadcast of OPMET data for the FASID Table MET 2A aerodromes.	ICAO	State letter	September 2015
C 26/55 **A & B**	**IWXXM and AMHS Survey**	That, ICAO be invited to urge States to complete the survey, located at APANPIRG/26 WP/10 Appendix D, prior to 30 October 2015 to provide information on the status of planning and implementation of IWXXM and AMHS in support of MET service for international air navigation.	ICAO	State letter	September 2015
C 26/56 **A & B**	**Capacity building workshop to facilitate planning and implementation of digital exchange of aeronautical meteorological information**	That, ICAO, in coordination with the WMO, be invited to organize and conduct an inter-regional workshop in the first half of 2016 to build capacity in States for digital exchange of aeronautical meteorological information. The workshop should facilitate intra- and inter-regional planning and implementation activities.	ICAO	Workshop – digital exchange of MET	Q2 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/57 **A & B**	**Survey of State Meteorological Information Supporting Air Traffic Management**	That, ICAO be invited to urge States to respond to the survey, located at APANPIRG/26 WP/10 Appendix F, to gauge the types of meteorological information provided by MET services to support Air Traffic Management including Air Traffic Flow Management operations.	ICAO	State letter	September 2015
C 26/58 **A & B**	**Competency of aeronautical meteorological personnel**	That, ICAO be invited to consider inclusion in Annex 3 of a new provision on the competency of aeronautical meteorological personnel, similar to paragraph 3.7.4 in Annex 15 (2013) on the competency of AIS personnel, with appropriate reference to relevant WMO material on competency and qualification of aeronautical meteorological personnel, in order to align the provisions concerning the required competency of operational personnel.	ICAO	Decision on development of Annex 3 amendment proposal	September 2016
C 26/59 **A & B**	**SIGMET Pamphlets**	That, ICAO be invited to adopt the SIGMET Pamphlets, provided in APANPIRG/26 WP/10 Appendix F, as Regional guidance material and distribute to States to facilitate improved format of SIGMET information.	ICAO	State letter	September 2015
C 26/60 **A & B**	**Updates to Regional guidance material (ROBEX Handbook, ICD and SIGMET Guide)**	That, ICAO be invited to publish the updated ROBEX Handbook and ICD and the new [5th Edition] Asia/Pacific Regional SIGMET Guide, as provided in APANPIRG/26 IP/07, IP/08 and IP/09 (including additional updates provided in Flimsy No.1 and No.3), in accordance with the established procedures and to urge States to review the operations of the designated meteorological offices to ensure that OPMET information is issued in accordance with the updated Regional guidance material.	ICAO	State letter	September 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/61 **A & B**	**MET-ATM Collaboration at National and Sub-Regional Levels**	That, States/Administrations are encouraged to strengthen MET-ATM collaboration at national and sub-regional levels, by engaging Meteorological Authorities at suitable ATM coordination meetings with a view to enhance MET support for ATM and develop harmonised requirements for MET to support ATM.	ICAO	State letter	September 2015
C 26/62 **A & B**	**Cross-border MET Collaboration and Coordination**	Recognizing the presence of SIGMET weather phenomena that straddles across boundaries, States/Administrations are encouraged to promote cross-border collaboration and coordination to harmonise the MET products of such phenomena between Meteorological Authorities to enhance MET support for ATM in the Asia/Pacific Region.	ICAO and MET/S WG (of MET SG)	Proposal for update/s to relevant guidance material (e.g. SIGMET Guide) as necessary	March 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
C 26/63 **A & B**	**International Aviation and Climate Change**	That, States/Administrations in APAC Region are invited to: a) continue to consider environmental issues in the planning and implementation of regional air navigation systems; b) bring to the attention of the ICAO Secretariat specific areas where additional guidance on environmental benefits would be valuable; c) promote further collaboration with State action plan national focal points for all the operational measures that States wish to develop, implement and/or include in their action plans; d) inform State action plan national focal points of the availability of further assistance, to be provided by the ICAO Secretariat, related to the preparation and submission of States' action plans; and e) note that the ICAO Secretariat will keep PIRGs informed of its future activities and developments related to environmental protection.	ICAO APAC Office	State Letter	November 2015
C 26/64 **A & B**	**Update of ATM/AIS/SAR, AOP, CNS and MET Deficiency List**	That, the list of Air Navigation Deficiencies reported and identified in ATM/AIS/SAR, AOP, CNS and MET Deficiency List be updated as detailed in Appendices A to D to APANPIRG Working Paper 11.	ICAO APAC Office States	State Letter Update Deficiency list	January 2016

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
D 26/65 **A & B**	**Revised APANPIRG Structure, Terms of Reference and APANPIRG Sub Group Empowerment**	That, in accordance with APANPIRG Decision 25/50, and to promote a more project-management-driven approach to regional air navigation planning and implementation which is guided by and aligned with regional priorities and the Global Air Navigation Plan/ASBU Strategy: a) the new structure of the APANPIRG and its Sub Groups is adopted as presented in **Appendix B** to the Report on Agenda Item 5; b) the revised Terms of Reference of APANPIRG Sub Groups placed at **Appendix C** to the Report on Agenda Item 5 is adopted; c) to enhance the efficiency of APANPIRG approval process, the Sub Groups are empowered to adopt Conclusions and Decisions on technical matters (especially those concerning guidance to States in the implementation of ICAO SARPs, GANP, RANP, Seamless ATM Plan) that do not have additional economic, environmental or political effects, which should be considered at a higher level at APANPIRG; and d) the APANPIRG Procedural Handbook be amended in accordance with the new APANPIRG Structure, Terms of Reference, project management principles [Appendix D to the Report on Agenda Item 5] and procedures to be followed for the processing of Sub Group- endorsed Conclusions and Decisions. *Note: (1) the new structure of APANPIRG Sub Groups, revised Terms of Reference and empowerment shall become effective from 2017 meeting year with 2016 being used for transitional arrangement; the empowerment would be subject to further review in 2018 based on the experience gained in 2017; and (2) the amendment to the APANPIRG Procedural Handbook shall be submitted to APANPIRG/27 for endorsement.*	ICAO APAC Office	State Letter	November 2015

Conclusion/ Decision No --- Strategic Objective*	Title of Conclusion/Decision	Text of Conclusion/Decision	Responsibility	Deliverable	Target date
D 26/66 **A & B**	**Review Terms of Reference of Contributory Bodies under the APANPIRG Sub Groups**	That, the Secretariat, in consultation with Chairs of the existing Task Forces and Working Groups under the APANPIRG Sub Groups, reviews the TOR as necessary, and submits to the respective Sub Groups and APANPIRG/27 for further review and adoption.	ICAO APAC Office/ Working Group & Task Force Chairs	Revised TOR	July 2016
D 26/67 **A & B**	**Dissolution of ABSRTF**	That, the ABSRTF having completed its task as set out in its Terms of Reference, is dissolved.	ICAO APAC Office	State Letter	October 2015

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