



International Civil Aviation Organization

The Thirteenth Meeting of the FANS Implementation Team for the Bay of Bengal (FIT-BOB/13) and the Fifth Meeting of the Bay of Bengal Reduced Horizontal Separation Implementation Task Force (BOB-RHS/TF/5)

Bangkok, Thailand, 07 - 11 February 2011

Agenda Item 7: Any Other Business

REPORT ON THE ACTIVITIES OF THE THIRTEENTH MEETING OF RASMAG

(Presented by the Secretariat)

SUMMARY

This paper presents an update on the general activities of the Regional Airspace Safety Monitoring Advisory Group of APANPIRG (RASMAG) since FIT-BOB/12 (March 2011, Bangkok).

This paper relates to

Strategic Objectives:

- A: Safety – Enhance global civil aviation safety*
- C: Environmental Protection and Sustainable Development of Air Transport – Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:

- GPI-2 Reduced vertical separation minima*
- GPI-5 Performance based navigation*
- GPI-6 Air Traffic Flow Management*
- GPI-7 Dynamic and flexible ATS route management*
- GPI-8 Collaborative airspace design and management*
- GPI-9 Situational awareness*
- GPI-17 Implementation of data link applications*

1. INTRODUCTION

1.1 This paper summarizes the reports of RASMAG/13 (August 2010, Bangkok) which was held after FIT-BOB/12. Copies of the full reports of RASMAG/13 is available from the website of the Asia/Pacific Regional office at <http://www.bangkok.icao.int/> under the 'Meetings' menu.

2. RASMAG/13

SASP Review of Draft Revision of Doc 9574 and Proposed RASMAG Amendment

2.1 RASMAG/13 was informed that the 17th meeting of the SASP (SASP/17, May 2010), endorsed a final draft of the proposed revision of the RVSM manual prepared by project team 2 which is responsible for vertical separation standards. However, there remained an opportunity to provide some additional amendments to the manual revision as processing to publication was not expected to be completed prior to the next SASP meeting in November 2010.

2.2 RASMAG/13 was provided with suggested wording in consideration of RASMAG task 12/1, which highlighted the benefits of establishing Scrutiny Groups as part of the safety management for RVSM airspace. As a result of discussion, additional wording was developed for the amendment and agreed to by the meeting. The meeting requested the Chairman to directly coordinate with SASP at its next meeting in November 2010. The proposed amendment is detailed below:

5. ASSESSMENT AND EVALUATION OF OPERATIONAL ERRORS AND IN-FLIGHT CONTINGENCIES

5.1 As set out in 1.1.10 and 65.3.1 to 65.3.3 of the main text of this manual, the level of collision risk resulting from errors in ATC instructions and emergency procedures in RVSM airspace needs to be assessed in addition to that resulting from technical height-keeping deviations. The types of errors and their possible consequences may vary from region to region.

5.2 To assist in the assessment of large height deviations a regional or State based Scrutiny Group should be established to support the RMA monitoring function. A Scrutiny Group is comprised of operational and technical subject matter experts that support the evaluation and classification of LHDs. A Scrutiny Group is an invaluable component of safety management as it enables the focusing of operational expertise to analyze the circumstances relevant to operational errors and to link the types of events in an airspace to trends in safety-related performance. During any analysis of the data and performance trends from an operational perspective, the Scrutiny Group should consider the effect of standing procedures and practices and review these in relation to accepted best practice.

5.3 The activities undertaken by a Scrutiny Group directly supports the principles of safety management by “completing the safety cycle”. This is accomplished by synthesizing raw data in relation to current practices into recommendations for change of policies, practices and procedures which improve the safety of the airspace. Recommendations made by a regionally established Scrutiny Group typically proceed through the hierarchy of regional groups to the relevant PIRG for action by States. Where a State-based Scrutiny Group is established, recommendations from that group will normally be coordinated directly to participants in the airspace, such as operators and relevant authorities.

5.4 The responsible RMA(s) should coordinate with the PIRG to establish a Regional Scrutiny Group, or with relevant State organizations to establish a State based Scrutiny Group. Further guidance on the establishment of a Scrutiny Group is contained in Doc XXXX, ‘*Manual of Operating Procedures and Practices for Regional Monitoring Agencies in relation to the use of a 300 (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 inclusive*’.

5.5 The following briefly summarizes two approaches to ~~their~~the assessment of operational errors and in flight contingencies (that have been developed in the context of the NAT and the EUR Regions, for guidance) respectively. ~~For more information, see the regional documentation.~~

Review Outcome of Related Asia/Pacific Meetings

2.3 The meeting reviewed the outcome of the Sixth Meeting of the PBN Task Force, 12th Meeting of the FANS Implementation Team for the Bay of Bengal (FIT-BOB/12), 10th Meeting of the FANS Implementation Team for Southeast Asia (FIT-SEA/10), 17th Meeting of the South-East Asia ATS Coordination Group (SEACG/17) and ATM/AIS/SAR/SG/20. The meeting noted that ATM/AIS/SAR/SG/20 felt that a region-wide safety monitoring arrangement for data link operations with oversight by RASMAG would be preferred and has formulated the following Draft Conclusion for consideration by APANPIRG:

Draft Conclusion SG 20/13 – CRA Arrangement under RASMAG Responsibility

That, in light of the variation of the CRA arrangement across the region, RASMAG be invited to provide guidance and oversight in the arrangement for the establishment and the operations of CRA in order to achieve a sustainable mechanism for the region.

2.4 RASMAG/13 agreed that communication and surveillance capability had a vital role to play in ensuring the continuing safety of the region's airspace. The meeting, however, was of the view that while RASMAG's responsibility is to oversight safety in the region, the arrangement for the establishment and operations of CRAs is the responsibility of the FIT and ATM/AIS/SAR/SG.

Fifth Meeting of the Regional Monitoring Agency Coordination Group (RMACG/5)

2.5 RASMAG/13 was provided a brief overview of the outcomes of the fifth RMA Coordination Meeting (RMACG/5, May 2010) held in Atlantic City, USA and the main items of discussion were presented.

2.6 With regard to the revised Minimum Monitoring Requirement (MMR) agreed at RMACG/5, RASMAG/13 recalled that Conclusion 20/20 might remain in force until the Long-Term Height Monitoring (LTHM) requirements in Annex 6 become effective in November 2010. RASMAG/13 was also informed that Annex 11 provisions and those of Doc 9574 require system performance monitoring on a regional basis to provide evidence of stability of ASE. In addition, the revised MMR agreed by RMACG/5 was a means to translate the requirement of Annex 6 into the operational environment. Therefore, RASMAG decided that the revised MMR agreed by RMACG/5 would remain as the basis for the maintenance of LTHM requirements in the region after November 2010 as follows:

Decision RASMAG 13/1 – Use of the Revised MMR in LTHM for the Region

That, in order to ensure the continued safe use of RVSM airspace within Asia/Pacific region, the revised MMR endorsed by RMACG/5 be used as the regional basis for maintenance of LTHM requirements after November 2010.

2.7 The Secretariat was tasked to update the LTHM impact statement to incorporate the revised MMR. RMAs were requested to review the monitoring burden based on the revised MMR by 30 August 2010.

Global Operational Data Link Document (GOLD)

2.8 RASMAG/13 noted that the APANPIRG/20 concluded that, upon release of the GOLD by the Ad-Hoc GOLD Working Group in 2010, the *FANS-1/A Operations Manual* (FOM) be withdrawn and replaced by the GOLD as Asia/Pacific regional guidance material. The GOLD Ad-Hoc Working Group completed the first edition, which was published on 14 June 2010. It was noted that Change Proposals (CPs) could be submitted by any stakeholder participating in data link operations. The stakeholder should submit a CP to any ICAO regional office concerned. The ICAO regional office would coordinate the CP within its own region, and with other regions and ICAO Headquarters to determine the acceptability of the CP.

2.9 This document is maintained as a regional document in coordination with all ICAO planning and implementation regional groups (PIRGs) providing data link services within their region. Each participating PIRG establishes a mechanism for submitting and administering change proposals. The document is available for download on ICAO Asia and Pacific Office website: <http://www.bangkok.icao.int/edocs/index.html>.

Proposed Changes to the Asia/Pacific Regional En-Route Monitoring Agency (EMA) Handbook

2.10 RASMAG/13 was informed by Singapore that States are recommended to use the suggested form in the EMA handbook (APPENDIX E) when submitting large lateral deviation (LLD) and/or large longitudinal error (LLE) where, it was stated that deviations due to weather and other contingency events will need to be reported. However, if ATC approval for a deviation had been granted, such a deviation should not constitute a large horizontal-plane deviation.

2.11 The meeting agreed that a large horizontal-plane deviation did not include ATC approved deviations or other contingency events, and adopted the proposed changes to the EMA Handbook which clarifies that large horizontal-plane deviations identified in the monitoring process would not include ATC-approved deviations or other contingency events unless the deviation magnitude is greater than the approved deviation.

RASMAG List of Competent Airspace Safety Monitoring Organizations

2.12 RASMAG/13 reviewed and updated the “RASMAG List of Competent Airspace Safety Monitoring Organizations” (shown at **Attachment** to this paper) for use by States requiring airspace safety monitoring services as required by its Terms of Reference.

Establishment of PBN Approval Database

2.13 RASMAG/13 recalled that at RASMAG/12, New Zealand proposed combining and linking the RVSM and the PBN databases. JCAB RMA had been inspired by the proposal, and combined the PBN database with the RVSM database. JCAB RMA has also combined the RMA F2/F3 forms and EMA A2/A3 forms.

2.14 RASMAG/13 noted that as an RMA, RVSM-related data shall be exchanged with the other RMAs, whereas this is currently not the case with PBN-related data. The database established by JCAB RMA is the combination of the globally shared RVSM data and the locally required PBN data. JCAB RMA foresees lasting improvement of the database format according to the development of PBN operations.

2.15 RASMAG/13 congratulated Japan on their initiative with developing the means to capture PBN approvals information. Singapore also thanked Japan and both agreed to share PBN data that they had captured. The Chairman suggested that possibly other RMAs could review their F2/F3

forms to capture this information and this was supported by the meeting. The United States commented that the sharing of PBN data between EMAs is a good outcome which should be strived for.

Analysis to Determine the Potential of the First Height Monitoring Unit (HMU) in Japan

2.16 Japan had indicated its intention to deploy three HMUs in Japan, with the first one (Okayama HMU: HMU-1) targeted to become operational in the third quarter of 2011. Japan provided an analysis undertaken by JCAB RMA to determine the future potential of HMU-1 as the first ground-based height-keeping performance monitoring system in Japan. The meeting thanked Japan for the information and noted the significant progress made in establishing height monitoring capability.

PARMO Assessment of the Monitoring Responsibility Associated with the Long-Term Height Monitoring Requirements

2.17 The United States provided an update to the assessment of LTHM requirements for States under PARMO monitoring responsibility with the December 2009 TSD and the updated MMR table, and correlated the resultant burden to the monitoring infrastructure proposed at RASMAG/12. The intent was that the revised assessment be incorporated with the revised assessments conducted by the other Asia/Pacific Region RMAs. The meeting thanked the United States for the updated information and asked the Secretary to ensure that the Long Term Height Monitoring Impact Statement was updated with this information.

Updated Analysis of RVSM Approval Aircraft Equipage of ADS-B and its Potential for Use as a Height-Keeping Monitoring System in Australian FIRs

2.18 Australia reminded the meeting that at RASMAG/12, an infrastructure plan was developed to assist APANPIRG to make decisions on the best height monitoring systems and their location to acquit the regions responsibilities in relation to the new long term height monitoring requirements being implemented from November 2010. As proposed by RASMAG, AAMA had taken steps to identify the number of aircraft types by operator that could potentially be monitored using ADS-B in the period from December 2010 to 12 December 2013, The meeting was informed that as a first step, the analysis identified the operators using the Australian RVSM airspace.

2.19 The meeting thanked Australia for the detailed analysis and encouraged the AAMA to continue its excellent work with the United States in establishing the viability of ADS-B as a height monitoring means. The United States congratulated the AAMA on the effort in providing this analysis. They also explained that the NAARMO was keen to use ADS-B to measure changes in ASE.

Monitoring Progress of China RMA

2.20 China reported that China RMA had two sets of EGMUs to conduct the aircraft height keeping performance monitoring. China RMA has submitted preliminary results for the ground-based monitoring station site selection in China to the fifth RMA Coordination Meeting (RMA CG/5). The meeting was informed that the China RMA is also considering the possibility of buying the COTS ground-based monitoring system. China RMA is promoting the Long Term Monitoring program and since the beginning of 2010, China RMA has provided monitoring service to 54 domestic aircraft.

2.21 RASMAG/13 noted the excellent work undertaken by China RMA in progressing the establishment of ground-based monitoring systems. The United States commented that China has the largest number of indigenous aircraft in the region, and that the plans that China is making to

implement ground based monitoring is a welcome enhancement to assist in the safety of aviation in the region.

Sample Letter Templates for Use by Asia/Pacific RMAs

2.22 The letter templates were drafted using the sample letter templates contained in the RMA Manual and actual letters sent by the PARMO, EUROCONTROL, and North Atlantic (NAT) Central Monitoring Agency (CMA) RMAs. After some amendments to wording, the meeting agreed to standardise on all the letters for use by Asia Pacific RMAs. The United States suggested that possibly they could establish an Asia/Pac folder on the KSN site where copies of the templates could be stored. This was readily agreed by the meeting.

2.23 MAAR then raised an issue regarding the fact that previous letters sent by them to States have been ignored while letters from ICAO have generated a response. They suggested that in sending the letter in Appendix A of WP/16, that it would be more effective to have this sent from the ICAO Regional office. The Secretary acknowledged that there may be issues with that process but if the RMA could complete the required areas of the standardized letter, he would arrange for it to be sent by ICAO if possible.

ADS-C/CPCLC Data Link Performance Monitoring

2.24 United States presented observed CPDLC/ADS-C performance measures as specified in the Global Operational Data Link Document (GOLD) from operational data collected in the Oakland and New York FIRs. The data highlighted the difference in communication performance observed between two separate regions. The United States noted the Oakland data reflects the improvements to the system from the implementation of the CRA function. The United States also provided a summary of observed errors in the estimated time of arrival at the next compulsory waypoint contained in ADS-C position reports received at Oakland and New York oceanic centers. The analysis concentrates on ADS-C reports with the current position time equal to the estimate of time over next compulsory waypoint (e.g. the time interval to next waypoint given as zero). The results show a pattern associated with the time of day for ADS-C reports originating from a specific aircraft manufacturer. The FAA has notified the aircraft manufacturer of the problem and the aircraft manufacturer has responded and indicated that the problem has been identified and plans a fix for 2012.

2.25 RASMAG/13 thanked the United States for the detailed analysis. The United States noted that a lot of monitoring of this type of data already takes place in the NAT and through the FITs in the Pacific. As a result the EMAs will need to become more active in undertaking this type of monitoring particularly where separation standards require specific communications requirements are met. New Zealand commented that this type of analysis is essential in being able to pinpoint issues with operators, aircraft types or even specific airframes, and therefore allowing follow-up to resolution. New Zealand also noted some concerns with regards to future availability and needs for satellite communication systems and the level of protection being provided to band width available to aviation industry. The meeting agreed these issues would need to be monitored by RASMAG.

India's Progress towards Establishment of Enroute Monitoring Agency (EMA) – BOBASMA

2.26 The meeting was informed that India is progressing in establishment of En-route Monitoring Agency for airspace over the Bay of Bengal, Arabian Sea and Indian Ocean with assistance and guidance of the FAA. Airports Authority of India has formed a Team of experts from Air Traffic Management, Safety, avionics and mathematical/statistical background. The team will visit the FAA Technical Center, Atlantic City, USA in August 2010 to understand the safety monitoring establishment and its operation.

2.27 RASMAG/13 thanked India for the information and encouraged them to continue their work to develop capabilities that would enable them to be endorsed as an EMA. The Chairman also reminded India of the need to present their credentials to RASMAG in relation to establishing their capability to undertake the required technical work of an EMA.

Review of Membership of RASMAG

2.28 RASMAG/13 discussed the current membership arrangements of RASMAG noting that the Secretary advised that invitations to meetings are only issued to those members who had attended the previous meeting. Further discussion saw the meeting agree that in line with other subgroups, invitations to attend RASMAG meetings should be provided to all States in the region. The Secretary agreed to adjust the notification process accordingly.

4. SUMMARY OF SIGNIFICANT POINTS

4.1 RASMAG convened a meeting since FIT-BOB/12 - RASMAG/13 in August 2010. During the meeting, RASMAG:

- 1) agreed with suggested wording for the amendment proposal to the RVSM manual in consideration of RASMAG task 12/1, which highlighted the benefits of establishing Scrutiny Groups as part of the safety management for RVSM airspace;
- 2) noted that ATM/AIS/SAR/SG/20 felt that a region-wide safety monitoring arrangement for data link operations with oversight by RASMAG would be preferred and has formulated a Draft Conclusion for consideration by APANPIRG, however, was of the view that while RASMAG's responsibility is to oversight safety in the region, the arrangement for the establishment and operations of CRAs is the responsibility of the FIT and ATM/AIS/SAR/SG;
- 3) decided that the revised MMR agreed by RMACG/5 would remain as the basis for maintenance of LTHM requirements in the region after November 2010 and adopted the group Decision;
- 4) agreed that a large horizontal-plane deviation did not include ATC approved deviations or other contingency events, and adopted the proposed changes to the EMA Handbook which clarifies that large horizontal-plane deviations identified in the monitoring process would not include ATC-approved deviations or other contingency events unless the deviation magnitude is greater than the approved deviation;
- 5) noted JCAB RMA had combined the RMA F2/F3 forms and EMA A2/A3 forms;
- 6) noted that Japan had indicated its intention to deploy three HMUs in Japan, with the first one (Okayama HMU: HMU-1) targeted to become operational in the third quarter of 2011;
- 7) noted that the letter templates were drafted using the sample letter templates contained in the RMA Manual and actual letters sent by the PARMO, EUROCONTROL, and NAT CMA RMAs, and agreed to standardise on all the letters for use by Asia Pacific RMAs;

- 8) with regard to the proposal to establish the India EMA, reminded India of the need to present their credentials to RASMAG in relation to establishing their capability to undertake the required technical work of an EMA;
- 9) agree that in line with other subgroups, invitations to attend RASMAG meetings should be provided to all States in the region.

4. ACTION BY THE MEETING

4.1 The meeting is invited to

- a) note the activities of RASMAG/13 as reported in this paper;
- b) note the summary of significant points; and
- c) consider the matters arising, especially in regard to safety issues, and any further action to be taken by FIT-BOB.

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APANPIRG Asia/Pacific Airspace Safety Monitoring

RASMAG LIST OF COMPETENT AIRSPACE SAFETY MONITORING ORGANIZATIONS

The Regional Airspace Safety Monitoring Advisory Group of APANPIRG (RASMAG) is required by its terms of reference to recommend and facilitate the implementation of airspace safety monitoring and performance assessment services and to review and recommend on the competency and compatibility of airspace monitoring organizations. In order to assist in addressing these requirements, RASMAG updates and distributes the following list of competent airspace safety monitoring organizations for use by States requiring airspace safety monitoring services. In the context of the list, abbreviations have meanings as follows:

- RMA – Regional Monitoring Agency – safety assessment and monitoring in the vertical plane (i.e. RVSM);
- EMA – En-route Monitoring Agency – safety assessment and monitoring in the horizontal plane (i.e. RVSM, RNAV10, RNP4);
- CRA – Central Reporting Agency – technical performance of data link systems (i.e. ADS/CPDLC); and
- FIT – FANS 1/A Interoperability/Implementation Team – parent body to a CRA.

(Last updated 17 December 2009)

Organisation <i>(including contact officer)</i>	State	Competency	Status	Airspace assessed (FIRs)
Australian Airspace Monitoring Agency (AAMA) - Airservices Australia http://www.airservicesaustralia.com/organisations/aama/default.asp Mr. Robert Butcher, Operational Analysis Manager, Safety and Environment Group email: robert.butcher@airservicesaustralia.com or aama@airservicesaustralia.com	Australia	APANPIRG RMA	Current	Brisbane, Honiara, Jakarta, Melbourne, Nauru, Port Moresby and Ujung Pandang FIRs.
		EMA	Current	Brisbane, Melbourne FIRs.

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Organisation <i>(including contact officer)</i>	State	Competency	Status	Airspace assessed (FIRs)
<p>China RMA - Air Traffic Management Bureau, (ATMB) of Civil Aviation Administration of China (CAAC)</p> <p>http://www.chinarma.cn (secure site)</p> <p>Mr. Tang Jinxiang, Engineer of Safety and Monitoring Technical Group, ATMB email: tangjx@adcc.com.cn</p>	China	APANPIRG RMA	Current	Beijing, Guangzhou, Kunming, Lanzhou, Shanghai, Shenyang, Urumqi Wuhan Sanya and Pyongyang FIR.
<p>JCAB RMA - Japan Civil Aviation Bureau</p> <p>Mr. Noritoshi Suzuki, Special Assistant to the Director, Flight Procedures and Airspace Program Office, email: suzuki-n248@mlit.go.jp</p>	Japan	APANPIRG RMA	Current	Fukuoka FIR
		EMA	Available fourth quarter – 2009	Fukuoka FIR
<p>Monitoring Agency for the Asia Region (MAAR) – Aeronautical Radio of Thailand LTD</p> <p>http://www.aerothai.co.th/maar</p> <p>Mr. Nuttakajorn Yanpirat, Executive Officer, Systems Engineering, Aeronautical Radio of Thailand Ltd. email: nuttakajorn.ya@aerothai.co.th or maar@aerothail.co.th</p>	Thailand	APANPIRG RMA	Current	Bangkok, Kolkatta, Chennai, Colombo, Delhi, Dhaka, Hanoi, Ho Chi Minh, Hong Kong, Karachi, Kathmandu, Kota Kinabalu, Kuala Lumpur, Lahore, Male, Manila, Mumbai, Phnom Penh, Singapore, Taipei, Ulaan Bataar, Vientiane, Yangon FIRs

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Organisation <i>(including contact officer)</i>	State	Competency	Status	Airspace assessed (FIRs)
<p>Pacific Approvals Registry and Monitoring Organization (PARMO) – Federal Aviation Administration (US FAA)</p> <p>http://www.faa.gov/air_traffic/separation_standards/parmo/</p> <p>Mr. Dale Livingston, Manager, Separation Standards Analysis Team, FAA, email: dale.livingston@faa.gov or aparmo@faa.gov</p>	USA	APANPIRG RMA	Current	Anchorage Oceanic, Auckland Oceanic, Incheon, Nadi, Oakland Oceanic, Tahiti FIRs
		EMA	Current	Anchorage Oceanic, Oakland Oceanic
<p>South East Asia Safety Monitoring Agency (SEASMA) - Civil Aviation Authority of Singapore (CAAS)</p> <p>Mr. Kuah Kong Beng, Chief Air Traffic Control Officer, email: KUAH_Kong_Beng@caas.gov.sg</p>	Singapore	EMA for South China Sea	Current	Hong Kong, Ho Chi Minh, Kota Kinabalu, Kuala Lumpur, Manila, Sanya and Singapore FIRs
<p>FIT - SEA</p> <p>(ICAO Regional Office email icao_apac@bangkok.icao.int &</p> <p>CRA Japan Mr. Mitsuo Hayasaka, Deputy Director, Air Traffic Control Association Japan, email: hayasaka@atcaj.or.jp</p>	ICAO Regional Office & CRA Japan	FIT & CRA	Current	South China Sea FIRs

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Organisation <i>(including contact officer)</i>	State	Competency	Status	Airspace assessed (FIRs)
IPACG/FIT Mr. Takahiro Morishima, JCAB Co-Chair email: morishima-t2zg@mlit.go.jp & Mr. Reed Sladen, FAA Co-Chair, email: reed.b.sladen@faa.gov	Japan & USA	FIT & CRA	Current	North & Central Pacific (Oceanic airspace within Fukuoka FIR, and Anchorage & Oakland FIRs)
CRA Japan Mr. Mitsuo Hayasaka, Deputy Director, Air Traffic Control Association Japan, email: hayasaka@atcaj.or.jp	Japan	CRA	Current	Fukuoka FIR for IPACG/FIT Ho Chi Minh, Manila, Singapore FIRs for FIT- SEA
FIT - BOB ICAO Regional Office email icao_apac@bangkok.icao.int & Mr. Bradley Cornell, Boeing Engineering email: Bradley.D.Cornell@Boeing.Com	ICAO Regional Office & Boeing USA	FIT & CRA	Current	Bay of Bengal FIRs, Ujung Pandang and Jakarta FIRs, provides assistance to the members of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG)
ISPACG/FIT Mr. Bradley Cornell, Boeing Engineering email: Bradley.D.Cornell@Boeing.Com	Boeing USA	FIT & CRA	Current	South Pacific FIRs and members of the Informal South Pacific ATS Coordination Group (ISPACG)