



*International Civil Aviation Organization*

**The Eleventh Meeting of the FANS Implementation Team for South-East Asia (FIT-SEA/11) and the Eighteenth Meeting of the South-East Asia ATM Coordination Group (SEACG/18)**

Bangkok, Thailand, 3 – 6 May 2011

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**Agenda Item 2: Review of ADS/CPDLC Implementation**

**OUTCOMES OF RASMAG/13 and 14**

(Presented by the Secretariat)

**SUMMARY**

This paper presents outcomes of the 13<sup>th</sup> and 14<sup>th</sup> meetings of the Regional Airspace Safety Monitoring Advisory Group (RASAMG/13 and 14, August 2010 and February 2011, respectively) in regard to data link operations, for the meeting's review.

**1. INTRODUCTION**

1.1 RASMAG/13 was held at the Regional Office, Bangkok, Thailand in August 2010 and RASMAG/14 was held in February 2011. The outcomes of RASMAG/13 and 14 in terms of data link operations and FIT/CRA are recorded in the report as follows:

**2. DISCUSSION**

**RASMAG/13**

ADS-C/CPDLC Data Link Performance Monitoring

2.1 The United States presented observed ADS-C/CPDLC performance measures as specified in the *Global Operational Data Link Document* (GOLD) from operational data collected in the Oakland and the New York Flight Information Regions (FIRs). Overall, the observed data link performance in the Oakland FIR was better than that observed in the New York FIR. The communication data observed in the Oakland FIR represented operations in the Pacific where data link issues have been examined over a number of years with an active Central Reporting Agency (CRA). The United States noted the Oakland data reflected the improvements to the system from the implementation of the CRA function.

2.2 The United States noted that a lot of monitoring of this type of data already took place in the North Atlantic (NAT) and through the FANS Interoperability Teams (FITs) in the Pacific. As a result, the En-route Monitoring Agencies (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 was 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.

#### **RASMAG/14**

##### Airspace Safety Monitoring Documentation and Regional Guidance Material

###### *Amendments to the Guidance Material*

2.3 New Zealand proposed amendments to the *Guidance Material for End-To-End Safety and Performance Monitoring of Air Traffic Service (ATS) Datalink Systems in the Asia/Pacific Region* which was prepared by the RASMAG and adopted by the 16<sup>th</sup> Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/16, August 2005). The current version of the document is Version 4, dated February 2011.

###### *Update Estimate of RVSM Long Term Height Monitoring Burden for the Australia Airspace Monitoring Agency*

2.4 A review of the most recent RVSM approvals databases determined that the monitoring burden continues to vary, specifically in the case of Australian and Indonesian operators. The former has seen a decrease of 18 in the total number of airframes required to be monitored to a total of 124. The latter increased by 11 to a total of 72. Overall, the revised monitoring burden for the Australian Airspace Monitoring Agency (AAMA) was expected to be approximately 200 airframes over the two year period commencing November 2010. While the AAMA has responsibility for airspace of both the Solomon Islands and Nauru, aircraft utilised by operators within the States are Australian registered aircraft and therefore included in the count for the State.

2.5 The meeting reviewed the information of the monitoring burden and used the information to update the current monitoring burden anticipated for the Asia/Pacific Regional Monitoring Agencies (RMAs). The Secretariat undertook to update the Long-Term Height Monitoring (LTHM) statement.

2.6 The meeting also discussed the extent to which application of the LTHM monitoring requirement can best be standardised in an operational sense. The Pacific Aircraft Registry and Monitoring Organisation (PARMO) commented that their intention was to use the most recent date of monitoring projected two years forward, noting it would be more focussed on US registered aircraft, but would possibly follow up with States if monitoring is falling behind. After some further discussion it was agreed that the best means for scheduling monitoring is to set November 2010 as the baseline, and anything monitored prior to 2008 will need to be monitored now and then stagger the remainder according to their last successful monitoring after November 2008.

##### Airspace Safety Monitoring Activities/Requirements in the Asia/Pacific Region

###### *RASMAG List of Competent Airspace Safety Monitoring Organizations*

2.7 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 monitoring organizations. Accordingly, the meeting 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.

### *Data Link Performance Monitoring Results*

2.8 The meeting was informed that Informal South Pacific ATS Coordination Group (ISPACG) CRA had for some time published a collection of data link monitoring data on its website at <http://www.ispacg-cra.com/performance.asp>. De-identified information is presented by aircraft type and by operator, and provides a useful overview of data link performance in the South Pacific. The data refers to the Auckland Oceanic FIR and is presented on a monthly basis.

2.9 New Zealand stated that they had reworked some of the data to reflect performance trends rather than monthly performance. The GOLD requires an availability of 99.9% for safety, but adds the more stringent availability of 99.99% for traffic efficiency for air navigation service providers (ANSPs) operating reduced separations in areas of high traffic density. In terms of outages, the safety target was a maximum of 520 min total outage in a 12 month period, and the efficiency target was a maximum of 52 min total outage with no more than four outages of greater than 10 min in a 12 month period.

2.10 Continuity is the required probability that an operational communication transaction can be completed within the communication transaction time, either expiration time (ET) or nominal time (TT 95%), given that the service was available at the start of the transaction. The 95% figure in each case represents the TT within which 95% of all transactions must be completed; the 99.9% figure is the ET, which is the maximum time for the completion of the operational communication transaction after which the initiator is required to revert to an alternative procedure.

2.11 The continuity for surveillance Types 400 and 180 easily met the target for surveillance nominal delivery time (DT) 95%, but did not achieve the target for surveillance overdue delivery time (OT). The data available did not enable the outages and service delays to be attributed to specific elements of the data link path, i.e. ANSP, communication service provider, VHF/HF/satellite, aircraft system.

2.12 The meeting noted that while the safety targets for network availability were being achieved at present, it was clear that considerable improvement was necessary if the efficiency target is to be met. The efficiency target supports operational efficiency and orderly flow of air traffic. The nominal times for ADS-C and CPDLC continuity were being achieved, but some improvement is necessary to reach the target for expiration time.

2.13 The meeting discussed whether States understood that this type of performance monitoring was an on-going post-implementation requirement. The United States indicated that Appendix D of the GOLD was based on post-implementation monitoring and corrective action. They noted that the Federal Aviation Administration (FAA) was doing some work to automate the charting of GOLD formatted data and would share that with States on request. Further discussion indicated that there was a need to take some action to encourage ANSPs to provide data link performance data to the CRAs. The Secretary advised that he had personally discussed such issues with those States that had not been providing data in an attempt to educate them to the requirements. New Zealand suggested that possibly the FITs should be asked to undertake such an education program. The meeting agreed to this suggestion and indicated that this may also occur at the SEACG meetings. The Secretary was tasked with conveying RASMAG's concern to relevant coordination groups and FITs.

### *ADS-C/CPDLC Data Link Performance Monitoring*

2.14 New Zealand advised the meeting while the *Guidance Material for End-To-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia/Pacific Region* includes information on the performance data that air navigation service providers (ANSPs) are expected to provide to the CRAs, to date the CRAs have received very little

such data. Consequently, little is known of data link performance in much of the Region, with the inevitable corollary that poor performance may not be detected or corrected.

2.15 It is therefore most important that all ANSPs, whether state agencies or independent organisations, collect the required data link performance data and pass it to the appropriate CRA for analysis, investigation and initiation of any required corrective action. The secretariat agreed with New Zealand's observation and informed the meeting that there had been no data provided from States to FIT for the Bay of Bengal (FIT-BOB). This lack of data hinders FIT-BOB from examining the data link system performance data to allow for the reduced longitudinal separation to 50 NM, thus pending the implementation. In the South China Sea area, data are adequately provided to FIT for Southeast Asia (FIT-SEA).

2.16 The meeting discussed the information presented and recommended appropriate action to encourage ANSPs to provide data link performance data to the CRAs. Accordingly, the meeting proposed a recommendation as follows:

**Recommendation RASMAG 14**

*Noting the pre- and post-implementation system performance monitoring required by Annex 11 – Air Traffic Service (Para 2.26.5), the Global Operational Data Link Document (GOLD) and the Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service Data Link Systems in the Asia/Pacific Region, States are invited to ensure that the appropriate data link performance monitoring is undertaken and reported to CRAs/FITs, as required, in a timely manner.*

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to note the outcomes of RASMAG/13 and 14.

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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 23 February 2011)*

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

<b>Organisation</b> <i>(including contact officer)</i>	<b>State</b>	<b>Competency</b>	<b>Status</b>	<b>Airspace assessed (FIRs)</b>
<p><b>China RMA - Air Traffic Management Bureau, (ATMB) of Civil Aviation Administration of China (CAAC)</b></p> <p><a href="http://www.chinarma.cn">http://www.chinarma.cn</a> (secure site)</p> <p>Mr. Tang Jinxiang, Engineer of Safety and Monitoring Technical Group, ATMB            email: <a href="mailto:tangjx@adcc.com.cn">tangjx@adcc.com.cn</a></p>	<p>China</p>	<p>APANPIRG RMA</p>	<p>Current</p>	<p>Beijing, Guangzhou, Kunming, Lanzhou, Shanghai, Shenyang, Urumqi Wuhan Sanya and Pyongyang FIR.</p>
<p><b>JCAB RMA - Japan Civil Aviation Bureau</b></p> <p>Mr. Noritoshi Suzuki, Special Assistant to the Director, Flight Procedures and Airspace Program Office,            email: <a href="mailto:suzuki-n248@mlit.go.jp">suzuki-n248@mlit.go.jp</a></p>	<p>Japan</p>	<p>APANPIRG RMA</p>	<p>Current</p>	<p>Fukuoka FIR</p>
		<p>EMA</p>	<p>Available fourth quarter – 2011</p>	<p>Fukuoka FIR</p>
<p><b>Monitoring Agency for the Asia Region (MAAR) – Aeronautical Radio of Thailand LTD</b></p> <p><a href="http://www.aerothai.co.th/maar">http://www.aerothai.co.th/maar</a></p> <p>Mr. Nuttakajorn Yanpirat,            Executive Officer, Systems Engineering, Aeronautical Radio of Thailand Ltd.            email: <a href="mailto:nuttakajorn.ya@aerothai.co.th">nuttakajorn.ya@aerothai.co.th</a> or <a href="mailto:maar@aerothail.co.th">maar@aerothail.co.th</a></p>	<p>Thailand</p>	<p>APANPIRG RMA</p>	<p>Current</p>	<p>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, Taibei, Ulaan Bataar, Vientiane, Yangon FIRs</p>

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

<b>Organisation</b> <i>(including contact officer)</i>	<b>State</b>	<b>Competency</b>	<b>Status</b>	<b>Airspace assessed (FIRs)</b>
<b>IPACG/FIT</b>  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)
<b>CRA Japan</b>  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
<b>FIT - BOB</b>  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)
<b>ISPACG/FIT</b>  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)