

INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE



**REPORT OF THE FIFTEENTH MEETING OF THE BAY OF BENGAL
ATS COORDINATION GROUP (BBACG/15) AND THE FOURTH MEETING OF THE FANS
IMPLEMENTATION TEAM FOR THE BAY OF BENGAL (FIT-BOB/4)**

Bangkok, Thailand, 13 to 17 September 2004

The views expressed in this Report should be taken as those of the
Meeting and not of the Organization

Approved by the Meeting
and Published by the ICAO Asia and Pacific Regional Office

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Fifteenth Meeting of the Bay of Bengal ATS Co-ordination Group (BBACG/15) and the Fourth Meeting of the FANS Implementation Team for the Bay of Bengal (FIT-BOB/4) were held at the Kotaite Wing, ICAO Asia and Pacific Regional Office, Bangkok, Thailand between 13 to 17 September 2004.

2. Attendance

2.1 The meeting was attended by 34 participants from 8 States, 1 International Organization, and 1 aircraft manufacturer. A list of participants is at **Attachment 1**.

3. Officers and Secretariat

3.1 Mr. Andrew Tiede, Regional Officer ATM from the ICAO Asia and Pacific Regional Office, acted as the Moderator and Secretary for the meeting. He was assisted by Mr. David J. Moores, Regional Officer ATM.

4. Opening of the Meeting

4.1 Mr. Andrew Tiede on behalf of Mr. Lalit B. Shah, Regional Director, ICAO Asia and Pacific Regional Office welcomed the participants to Bangkok. Mr. Tiede advised the meeting that at the APANPIRG/15 meeting held on 23 - 27 August 2004, States were urged to give appropriate priority to progressing their implementation planning, in particular in the area of data link communications and ATM automated systems. At recent BBACG and FIT-BOB meetings and other ATS coordination meetings concerning the Bay of Bengal and beyond area, including the RVSM Task Force, considerable attention has been given to improving air traffic management for the major traffic flows westwards over the Bay of Bengal to Europe via Afghanistan airspace where significant bottlenecks occur. The implementation of data link services and development of a cohesive air traffic flow management plan needs to be progressed as a matter of priority. It was expected at this meeting that steps would be taken to substantially advance the implementation process, and it was encouraging to see so many of the Bay of Bengal States represented at this meeting.

5. Documentation and Working Language

5.1 The working language of the meeting and the language for all documentation was in English. Six (6) Working Papers and six (6) Information Papers were presented to the BBACG/15 meeting, and seven (7) Working Papers and one (1) Information Paper were presented to the FIT-BOB/4 meeting. The list of papers is shown at **Attachment 2**.

REPORT OF THE FIT-BOB/4 MEETING

Agenda Item 1: Adoption of Agenda

1.1 The meeting adopted the following Agenda for the meeting:

- Agenda Item 1: Adoption of Agenda
- Agenda Item 2: Review and update FIT-BOB/3 Work Plan
- Agenda Item 3: Establishment of the Central Reporting Agency
- Agenda Item 4: Data link monitoring requirements
- Agenda Item 5: Problem reports and system performance review
- Agenda Item 6: Expansion of the operational trial for the Indian Ocean airspace
- Agenda Item 7: Any other business
- Agenda Item 8: Date and venue for the FIT-BOB/5 Meeting

Agenda Item 2: Review and update FIT-BOB/3 Work Plan

2.1 The meeting reviewed the Work Plan agreed at the FIT-BOB/3 meeting (2-6 February 2004). The Work Plan was developed to include action items agreed at this meeting as shown in **Appendix A**.

Agenda Item 3: Establishment of the Central Reporting Agency

3.1 The meeting recalled that BBACG/13 (September 2003) had recognized that the establishment of a CRA was critical to enabling States to implement operational ADS and CPDLC systems. The CRA performs the essential technical analysis of the performance of these systems and undertakes the investigation of system failures and other technical malfunctions. This was essential to trace the cause of problems, whether they were in the data link, the aircraft or the ground systems, and to initiate remedial action by the responsible parties. In this regard, the tasks performed by a CRA were highly specialized and required test equipment and simulation capability that were not readily available. Also, it was important that expertise was continuously available to support the FIT-BOB programme. The BBACG/13 meeting noted that Boeing, who provided the CRA services for the Pacific Region, indicated to BBACG/13 that they would be willing to provide the CRA services for FIT-BOB to support the operational trial and subsequently for States in the Bay of Bengal area to implement ADS and CPDLC services. However, to undertake this work, it would be necessary for Boeing's cost to provide CRA services to be funded.

3.2 The BBACG/13 meeting also recognized that, as the CRA contributed to the safety requirements for implementation and ongoing operation of ADS and CPDLC services by the ATS providers, the setting up and operation of the CRA for the Bay of Bengal area was the responsibility of the States participating in the FIT-BOB. The meeting further recognized that ADS and CPDLC operations were safety critical, and the performance of the data link, airborne and ground systems, and their potential contribution to operational risk, must be thoroughly evaluated by the CRA prior to the commencement of

the ATC operational phase. In addition, airspace safety monitoring and safety assessments would need to be carried out by a regional monitoring agency to be established by FIT-BOB.

3.3 The meeting recalled that FIT-BOB/3 had agreed to accept Boeing's offer to provide CRA services for the Bay of Bengal ADS/CPDLC operational trial. Accordingly, IATA and Boeing were requested to pursue the establishment of a contract on behalf of the FIT-BOB States participating in the operational trial for Boeing to set up and operate the CRA. IATA agreed to the arrangements and would work with Boeing to evaluate the costs of operating the CRA, arrange for a contract with Boeing, and collect the funds from the airspace users concerned.

3.4 IATA was pleased to inform the meeting that it had completed the required airline arrangements to provide funding with a first year cap of not more than US\$500 thousand and was in the process of completing the legal documentation with Boeing. IATA requested the assistance of States in providing traffic data to assist with the collection of payments from participating airlines. In order to avoid the double/triple billing of flights that passed through a number of FIRs, IATA would work with States to log the identities, times of day, routes used and ACCs involved for airspace users in the trial area.

3.5 Boeing CRA confirmed that satisfactory arrangements had been made and that the finalization of the legal aspects was imminent. Boeing indicated that for all intents and purposes, the FIT-BOB should consider that the CRA would be able to commence work related to the Bay of Bengal operational trial from October 2004. Participating States were urged to provide appropriate data, contact persons, etc for use by the CRA in accordance with the details contained in the FIT-BOB task list and related CRA documentation, including the FANS 1/A Operations Manual (FOM).

3.6 Boeing CRA stressed the technical nature of the ADS/CPDLC operation, noting that the routing of each data link message required the successful interaction of ground systems provided by a number of different manufactures and operated by different States, data link networks provided by different suppliers and avionics systems from different providers. Boeing CRA gave a number of examples of the different technical problems that had been identified and rectified by operators and providers in the Pacific Region, noting that the complex and intermittent nature of some problems had taken up to a year to correct. The meeting agreed with Boeing CRA that it was critical that participants at FIT-BOB meetings involved in CRA discussions should have sufficient technical and operational knowledge to genuinely assist in problem rectification. Accordingly, the meeting identified the need for future FIT-BOB meetings to include airline representation from the operators flying in the trial airspace, and ATSU representation that included technical/engineering and air traffic controller personnel associated with the trial operations.

3.7 Boeing CRA informed the meeting that the FOM included significant technical detail regarding system issues and it was essential that States understood and followed the FOM requirements in this regard. In particular, Boeing CRA stressed the need for quick action in obtaining message logs, etc regarding a problem report, as their experience had shown that if the material was not collected within about one week, the effectiveness of the fault finding processes was diminished. Boeing CRA noted that the wealth of information and experience that had been gained during the Pacific ADS/CPDLC implementations was available to the FIT-BOB, but cautioned that the Bay of Bengal area was likely to experience a number of problems specific to the area.

3.8 The meeting expressed its appreciation to Boeing and IATA for successfully concluding arrangements to establish the CRA, which would allow the operational trial to continue leading to implementation of data link services at the end of the trial period. Now that the CRA was operating, it was important that States concerned provided the required technical performance data and problem reports to the CRA promptly so that effective follow-up action could be taken.

Agenda Item 4: Data Link monitoring requirements**FANS 1/A Operations Manual (FOM)**

4.1 The meeting recalled that FIT-BOB/3 (February 2004) had reviewed and adopted the Pacific Operations Manual (POM) as the basis for the ADS and CPDLC operational trial in the Bay of Bengal. The POM contained the FANS-1/A operating procedures and requirements being applied by States in the Pacific Region in the provision of data link services (ADS and CPDLC).

4.2 Recognizing that the POM would be adopted by other States in the Asia Region planning to implement data link services, and in the interest of safety whereby it was essential that common operating procedures were used, the Secretariat suggested that the name of the POM should be changed to the FANS-1/A Operations Manual (FOM). Subsequently, States in the Pacific Region through ISPACG and IPACG agreed to adopt the FOM as the name of the document.

4.3 In considering the implementation of data link systems, APANPIRG/15 (August 2004) agreed that States should take all relevant ICAO provisions on data link into account when establishing their operating requirements and procedures. Further, the meeting agreed that the FOM provided the necessary procedures for ATS providers and should be used as a basis to operate ADS and CPDLC with aircraft equipped with the FANS-1/A systems.

4.4 Accordingly, APANPIRG/15 adopted the following Conclusion:

Conclusion 15/7 – FANS 1/A Operations Manual (FOM)

That, the FANS 1/A Operations Manual (FOM) be used by States and users in the Asia and Pacific Regions as a basis for operating automatic dependent surveillance (ADS) and controller pilot data link communications (CPDLC) in conjunction with Annex 10 – *Aeronautical Telecommunications* Volume II – *Communications Procedures* including those with PANS status, the *Procedures for Air Navigation Services – Air Traffic Management* (PANS/ATM Doc 4444) and the *Guidance Material on CNS/ATM Operations in the Asia and Pacific Region*.

4.5 Paper copies of the FOM are not distributed. There are four “controlled copies” and they can be found at any of the following web sites:

<http://www.crasa.cra-japan.org> (the JCAB CRASA web page)

<http://www.faa.gov/ats/ato/130.htm> (the FAA’s Oceanic Procedures Branch)

<http://www.faa.gov/ats/ato/ipacg.htm> (the IPACG web page)

<http://www.faa.gov/ats/ato/ispacg.htm> (the ISPACG web page)

4.6 Copies may be freely downloaded from the web sites in a zip file, or email the FOM Editor (reed.b.sladen@faa.gov) for a zipped copy by return mail.

4.7 In regard to further development of the regional Guidance Material and the FOM, and harmonization with ICAO provisions, APANPIRG/15 recognized that additional work was required to more closely align the material of the documents concerned. In this regard, APANPIRG/15 appreciated that ICAO Headquarters was willing to undertake the lead to progress this work in coordination with the Regional Office and the States responsible for the FOM. APANPIRG/15 reiterated the importance of common data link operating procedures for global applicability and urged States to continue to support ICAO’s efforts towards achieving this goal.

Draft guidance material for end-to-end safety and performance monitoring of air traffic service data link systems in the Asia/Pacific Region.

4.8 The meeting noted that at the first meeting of RASMAG on 26-30 April 2004, draft Guidance Material for End-to-End Safety and Performance Monitoring of ATS Data Link Systems in the Asia/Pacific Region was presented for review (**Appendix B**). The guidance material was intended to provide a set of working principles for ATS data link system performance monitoring that would be applied by all States implementing these systems, as well as providing detailed guidance on the requirements for establishing and operating a FANS-1/A Implementation/Interoperability Team (FIT) and CRA. It was intended that this guidance material would help promote a standardized approach for monitoring the performance of ATS data link systems within the Region.

4.9 RASMAG/1 agreed that the guidance material would be adopted by RASMAG and developed further. In this regard, the RASMAG/2 meeting scheduled on 4-8 October 2004 would review the document and continue its development. RASMAG/1 agreed that the guidance material would be brought to APANPIRG to be approved as regional guidance material when appropriate.

4.10 The meeting agreed that the guidance material would be used to set up and operate the data link monitoring services under the CRA for the Bay of Bengal area. The meeting also noted that the role of RASMAG included reviewing and coordinating airspace safety monitoring activities in the Asia/Pacific Region, and that the CRA would be required to report on its activities to RASMAG who reports to the ATM/AIS/SAR Sub-Group and APANPIRG.

Agenda Item 5: Problem Report and System Performance Review

ADS/CPDLC operational trial - Chennai and Kolkata FIRs

5.1 India updated the meeting with regard to the problems experienced in the Chennai and Kolkata FIRs during the ADS/CPDLC operational trial, which commenced on 19 February 2004.

5.2 As many as 15 airlines continued to participate in the trials accounting for almost 45 percent of the traffic in the Bay of Bengal Area. It was very encouraging to note that Singapore Airlines, Malaysian Airlines, Qantas, Air France, United Arab Emirates, Lufthansa, Cathay Pacific and Austrian Airways had extended maximum cooperation with almost all their aircraft logging on to the systems. In addition a few other airlines like Vietnam Airlines, Dynasty, Scandinavian, etc had also participated though their operations were limited.

5.3 A number of airlines, although apparently equipped with FANS-1/A systems, had not been participating in the trials. Although there may be technical or other reasons for this non-participation, the meeting agreed that it was in the interests of all airlines to participate in the trial in order to maximize the effectiveness of the trial, and to allow the airlines to evaluate their avionics installations, and encouraged airlines to participate. IATA advised that airlines had requirements under which crews that had not been trained/assessed to use the equipment could not do so. In addition, commercial agreements required between airlines and network services providers took time to negotiate.

5.4 India reported that the default periodic reporting period was increased from 5 minutes to 27 minutes in May 2004, based on airline feedback provided through IATA. IATA thanked India for acting on the feedback, but noted that they were still seeing examples of one minute reporting periods and sought the assistance of India in further investigating the matter.

5.5 India advised that they were using the FANS-1/A Operations Manual as the basis for operational procedures, with supplementary requirements being managed by NOTAM.

Major Problems

5.6 Chennai and Kolkata ACCs were maintaining a record of the number of aircraft logging on to their systems as well as a record of the problems encountered. Since the commencement of the trial, daily problem reports have been compiled for analysis. A total of 62 problems were observed at Chennai and more than 200 at Kolkata. The problems were broadly classified in the following categories:

Problems related to ground systems

5.7 Problems were observed where data link messages were received from the aircraft but the ground system did not produce the expected result on the controller's display. In some cases there was a mis-match between the flight level displayed and actual level maintained by the aircraft.

5.8 Kolkata was experiencing difficulties in effecting transfer of control to the Yangon system. Such problems have been referred to the vendor and the problems occurring due to ground systems in India have been resolved. However, the problem of transfer of control of CPDLC to Yangon still persists, perhaps due to problems at the Yangon end. The majority of the problem reports recorded at Kolkata relate to this issue.

5.9 The meeting noted that Myanmar was not participating in the trial and their ADS/CPDLC systems were not always available, and this could account for the lack of CPDLC response from their end.

Problems related to data link

5.10 There were a number of instances when the data link was indicating operational but up-link messages were not reaching the aircraft. The reverse case was also observed wherein data link messages were received continuously while the AFN window showed that connectivity was still in progress. The data link provided by SITA had also failed on several occasions at both Chennai and Kolkata.

Problems related to avionics

5.11 There were many occasions reported where ADS/CPDLC was connected but no responses were received from the aircraft either on CPDLC or ADS. This happened more frequently with Malaysian Airlines and Sri Lankan Airlines in Chennai FIR and with Vietnam Airlines and Qatar Airways in Kolkata FIR.

Human factors

5.12 A number of instances were recorded involving a mismatch between the flight identifier in the CPDLC messages and that contained in the flight plan; for example AUS2 was indicated as AUS0002 and similarly SQ318 was indicated as SQC318 on several occasions. These problems could be attributed to human factors.

Summary of Problems

5.13 In general, it was observed that problems were mainly related to:

- a) inability to exchange messages in spite of AFN window indicating connected;

- b) inability to disconnect ADS/CPDLC when end of service was sent;
- c) inability to effect transfer of control to the next data authority (NDA) (Yangon), by Kolkata;
- d) an ADS connection was established but not CPDLC;
- e) delays in receipt of ADS Reports; and
- f) inability to uplink in spite of receiving repeated downlink messages.

5.14 Analysis of the problem reports also indicated that there were problems specific to certain airlines. Also, there were a number of airlines who logging on to the system at Kolkata while over continental airspace and sometimes over the Arabian Sea, which was not required. Although a thorough analysis of the problems was possible only with the active participation of the CRA and major airlines, in the absence of a CRA, India had made some improvements and adjustments to their ground system based on their analysis of the problem reports.

5.15 In light of the problems experienced so far, India advised that they were not pursuing a reduction in separation standards based on ADS/CPDLC. In addition, route conformance monitoring and distance-based conflict alerts were yet to be incorporated into the ground system. India welcomed the establishment of the CRA and looked forward to the assistance that would be provided by the CRA.

5.16 Singapore reported that they had experienced some of the same problems described by India and had undertaken follow up within the CAA Singapore and at their regular airline/ATC meetings. Singapore agreed to present a suitable paper to the FIT-BOB/5 meeting to codify the problems being experienced.

Delayed ADS-C reports in Australian airspace

5.17 The meeting was advised by the Secretariat of problems observed by Australia relating to the occasional delayed receipt of ADS-C reports and/or CPDLC downlinks from aircraft in Australian airspace. Australia had conducted an analysis of ADS-C reports received by Brisbane and Melbourne Centres over a 6 month period (late 2003/early 2004) in order to:

- a) gain an indication of the relative frequency of these ‘delayed’ ADS-C reports;
- b) identify any problem locations (if any) where delayed reports were more prevalent; and
- c) identify whether the problem was possibly related to a specific airline or aircraft type.

5.18 The analysis had involved determining the transmission delay for each ADS-C basic report. The transmission delay was defined to be the difference between the time stamp contained in the ADS-C report, and the time of receipt of the ADS-C report by The Australia Advanced AIC Traffic System (TAAATS). ADS-C reports subject to minor (between 300 and 500 seconds) and major (greater than 500 seconds) delays had been stored to allow later trend analysis. A sample of 27968 ADS-C reports was analyzed, of which 105 were classified as minor delay and 138 as major delay.

5.19 Australia had reported that it appeared that the problem was related to the transition of the aircraft from one satellite ‘spot beam’ to another. This problem causes the avionics to “buffer” data link

downlink messages (ADS-C and CPDLC), and to transmit the contents of the buffer at a later time. It was noted that data link uplink messages appeared to be unaffected by this problem.

5.20 FIT and CRA analysis determined that there was certain equipment (Satellite Data Unit) from a specific avionics manufacturer that was common to the aircraft types suffering these problems. The manufacturer had been advised of the findings, however the time frame to implement a fix was unknown. Boeing explained that this was the type of work undertaken by the CRA and, in this example, had been a complex problem that had taken approximately 12 months to track and analyse. Boeing highlighted the need for swift and effective communications between all the parties involved in order to rectify system problems as soon as possible after they occurred.

ADS/CPDLC Seminar

5.21 In reviewing the operational problems so far identified by the trial and in acknowledging the remarks from the Boeing CRA regarding the complex technical nature of ADS/CPDLC, the meeting considered that a seminar would be an effective way to educate ATS providers and operators in the region about ADS/CPDLC operations. The meeting agreed that a two day seminar should be held in conjunction with the next FIT-BOB/5 meeting, and that the seminar be widely advertised in the region. The seminar should provide information from experienced operators and pilots, ATS providers and controllers, network system providers and technical background to the work undertaken by the CRA. The Regional Office agreed to coordinate the seminar.

Agenda Item 6: Expansion of the operational trial for the Indian Ocean airspace

6.1 The Secretariat advised the meeting that APANPIRG/15 noted that the planning and implementation of some elements of the “Asia/Pacific Regional Plan for the New CNS/ATM Systems” such as the ADS-C, ATN, AIDC, automated AIS systems, GNSS and ADS-B were progressing slowly. States were urged to give appropriate priority to progressing their implementation planning, in particular in the area of data link communications and ATM automated systems.

6.2 APANPIRG/15 also noted that the Air Navigation Commission recognised that work related to air navigation systems and, in particular, development and implementation continue to rank amongst the highest priority items on ICAO’s work programme. During its ongoing review of global and regional developments in the modernisation of air navigation system, the Commission noted that although good progress had been made with implementation of certain elements of CNS/ATM systems, the overall pace of implementation was understandably slower than originally expected. In this context, the Commission recalled with interest that the deliberations and recommendations of the Eleventh Air Navigation Conference (AN-Conf/11) had been helpful in the planning and implementation of air navigation systems. The Commission requested the Secretary General to invite PIRGs and States to enhance their activities in the area of planning and implementation of CNS/ATM systems.

6.3 Accordingly, the Regional Office encouraged States to continue the implementation of data link systems in accordance with the regional ANP and urged States in the Bay of Bengal area to assign a high priority towards participating in the Bay of Bengal ADS/CPDLC operational trial to the maximum extent possible. In this regard, **Appendix C** includes a table of the level of ADS/CPDLC equipage and ATS status of States in the Indian Ocean area.

6.4 The ADS/CPDLC operational trial was commenced in the Bay of Bengal area on AIRAC date 19 February 2004. The States currently participating in the trial were India, Indonesia and Thailand. During the FIT-BOB/3 meeting it was noted that all States responsible for the airspace over the Bay of Bengal area and adjacent oceanic airspace should be part of the operational trial. Of these States,

Malaysia, Myanmar and Sri Lanka had not confirmed when they would be in a position to commence the trial.

India

6.5 India informed the meeting that they intended to introduce ADS/CPDLC operations into the Mumbai FIR but would wait until the operations in the Chennai and Kolkata FIRs were well bedded in before including the Mumbai FIR.

Malaysia

6.6 Malaysia advised that they had experienced some delays resulting from adjustments in the Government, Ministry and Provider to facilitate privatisation, but the situation was now moving forward. Malaysia was not presently conducting any trials, but expected that by the middle of 2005 they would have an operational ADS/CPDLC system utilising off the shelf equipment, and proposed to join the trial in the latter part of 2005 when controller training, etc had been completed. Provision had been made in the specifications for the equipment to be integrated at a later stage, but in order to save time the equipment would be commissioned in a stand alone configuration initially.

Myanmar

6.7 Myanmar provided information regarding their significant progress with upgrading a number of their facilities. Full information regarding these enhancements has been recorded at Agenda Item 3 of the BBACG/15 report. With regard to ADS/CPDLC, it was planned to move the existing stand alone console into the new ACC facilities prior to January 2005. Following this move, Myanmar would reassess the situation regarding controller training with a view to updating FIT-BOB regarding their participation in the trial.

6.8 Myanmar noted the difficulties reported by India regarding the problems being experienced in trying to log on to Yangon and would take the information back for study.

Sri Lanka

6.9 Sri Lanka reported that they were experiencing software problems and also had problems with controller staffing levels that meant that they had only been able to train 6 controllers with regard to ADS/CPDLC. Sri Lanka would seek to arrange training with India when controller staff were available. Sri Lanka welcomed the ICAO Special Implementation Project proposed for November/December 2004 which would assist States in the Bay of Bengal with their ATM and CNS implementation issues.

Expansion into Indian Ocean airspace

6.10 The meeting noted that the Bay of Bengal area comprised only one portion of the Indian Ocean. The Secretariat encouraged States to commence planning towards the implementation of ADS/CPDLC operations throughout the entire Indian Ocean. This would necessarily involve coordination with Australia, island States in the Indian Ocean and East African States, in addition to the member States of the BBACG.

6.11 The Secretariat advised that the broader coordination meetings related to the Indian Ocean had been inactive. Responsibility for the South West Asia ATS Coordination Group (SWACG) had been transferred from the Bangkok Office to the Cairo Office and it was understood that the SWACG/10 meeting (Muscat, March 1998) had been the last meeting. Similarly, the Indian Ocean ATS Coordination Group (IOACG) had been passed to the responsibility of the Nairobi Office and it was understood that the IOACG/5 meeting in Madagascar in October 1998 was the last meeting held.

6.12 The Secretariat considered that there were a number of advantages in bringing the greater Indian Ocean area under the oversight of one body. This was particularly relevant in the context of the introduction of ADS/CPDLC operations to the area. A greater level of standardisation would be achieved and operational implementations would be more readily coordinated in order to avoid patchy implementation. The ADS/CPDLC experience of Australia and the BBACG States involved in the current operational trial would be available to the group. Boeing had indicated that they expected to be in a position to expand the services provided by the BOB CRA to cover the entire Indian Ocean if required. Similarly, RASMAG already had oversight responsibility for the Bay of Bengal and would be able to address the expanded role.

6.13 The Secretariat proposed an arrangement under which an annual meeting of the whole Indian Ocean Group would be conducted subsequent to meetings of three main subsidiary groups – an Arabian Sea Group, a Bay of Bengal Group and a southern Indian Ocean Group. IATA supported the proposal in regard to the ability to facilitate simultaneous implementations in contiguous airspaces and considered that a group of this nature would assist in accelerating the implementation process. The meeting was invited to consider this proposal and provide feedback at the next BBACG meeting.

Agenda Item 7: Any other business

Equipment specifications

7.1 The meeting noted the lack of guidance available regarding the requirements for ground based equipment for use in ADS/CPDLC operations. States were seeking information on technical requirements in order to ensure the equipment they purchased was suitable for the implementation of ADS/CPDLC to a point where the application of reduced separation minima would be achieved.

7.2 The Secretariat noted the history in relation to the introduction of FANS-1/A and the consequent lack of ICAO SARPs relating to the technical specifications of the data link. However, there were considerable ICAO provisions in Annex 10, Annex 11, the PANS-ATM and the *Manual on ATS Data Link Applications* (Doc 9694) that applied to establishing data link services. In determining the performance parameters to be achieved for the provision of ATC services using ADS and CPDLC, especially for the reduction of separation, it would be necessary to refer to the appropriate safety assessment and collision risk models. These provided the benchmark performance parameters to be achieved. Also, the separation requirements in the PANS-ATM needed to be taken into account. This material provides the reference performance material to guide ATS providers to prepare equipment specifications. The meeting agreed that it would be of assistance to States if they were able to obtain information from States who have already procured and operate these systems.

7.3 Boeing CRA informed the meeting that there was some technical information available in the FOM regarding equipment performance requirements that may be of assistance to States.

7.4 The meeting was reminded that the intent of CNS/ATM was to increase airspace capacity by allowing the safe implementation of reduced separation requirements. In this regard, ADS/CPDLC equipment purchased by States should be able to facilitate reduced lateral and longitudinal separation as low as 30 NM in the future.

Agenda Item 8: Date and venue for the FIT-BOB/5 meeting

8.1 The meeting noted the earlier discussions relating to the need to hold a 2 day ADS/CPDLC seminar in conjunction with the next FIT-BOB/5 meeting. Accordingly, the FIT-BOB/5 would be undertaken separately from the BBACG meeting and would be held over 5 days, of which 2 days would be allocated to the seminar. It was agreed that the Regional Office would make arrangements to conduct a 5-day meeting at the Regional Office facilities in Bangkok in March 2005 and would advise the final details in due course.

FIT-BOB/4
Appendix A to the Report

FIT- BOB WORK PLAN

(last updated September 2004)

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
1.	ATS providers to adopt the FOM and to review and update their ATSU operating procedures to align with the FOM.	<p style="text-align: center;">Prior to commencement of trial on 19 Feb 04</p> <p>Ongoing activity as additional States join the operational trial.</p>	All States	Ongoing	<p>Important all ATSU adopt common operating procedures.</p> <p>APANPIRG/15 (August 2004) agreed that the FANS1/A Operations Manual (FOM) be used as the basis for ADS and CPDLC operations in conjunction with Annex 10, PANS/ATM and regional guidance material.</p>
2.	ATS providers to coordinate with adjacent ACCs to review and update letters of agreement for introduction of ADS/CPDLC services on a trial basis.	<p style="text-align: center;">Prior to commencement of trial on 19 Feb 04</p> <p>Ongoing activity as additional States join the operational trial.</p>	All States	Ongoing	Ensure common ATC procedures applied.
3.	Issue NOTAM on the commencement of the operational trial in line with the model NOTAM provided by FIT-BOB/3.	<p style="text-align: center;">Immediate</p> <p>Ongoing activity as additional States join the operational trial.</p>	All States	Ongoing	Some States have already issued NOTAM on their operational trial.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
4.	Coordinate with BOB States not present at FIT-BOB/3 on implementation of the operational trial..	As soon as practicable Ongoing activity as additional States join the operational trial.	ICAO, Malaysia. Sri Lanka, Myanmar, Bangladesh	Ongoing	Determine status on trial participation Reviewed by FIT BOB
5.	Coordinate with Indian Ocean States on harmonizing implementation of operational trial.	As soon as practicable	ICAO APAC BOB and Indian Ocean States	Ongoing	Operational trial underway and to harmonize implementation.
6.	Coordinate with Middle East and East African Regional Offices on implementation of operational trial in the Arabian Sea and Indian Ocean.	As soon as practicable	ICAO APAC	Ongoing	To harmonize inter-regional implementation of ADS/CPDLC and to ensure common operating procedures established.
7.	Collecting of ADS/CPDLC problem reports and submit to CRA.	Immediate	States, operators	Ongoing	To be submitted as soon as practicable to facilitate analyzing the reports. BOB CRA (Boeing) operational from October 2004.
8.	Establish provision of monthly monitoring date ADS/CPDLC system performance data to be submitted to the CRA.	Monthly	States	Ongoing	Essential for evaluating overall system performance within the trial airspace. BOB CRA (Boeing) operational from October 2004.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
9.	Compile data on aircraft ADS/CPDLC equipped in the trial airspace.	6 monthly	States, IATA	Ongoing	To keep record of aircraft participating in the trial and determine overall benefits derived by population of aircraft operating in the trial airspace.
10.	Training of controllers and technical staff on ADS/CPDLC operational procedures based on the FOM.	Ongoing activity as additional States join the operational trial.	States	Ongoing	
11.	Nominate contact person (ATS and technical) and keep details updated.	As soon as practicable	States, operators	Ongoing	Important that CRA has contact with engineering personnel to analyze problem reports and performance data. BOB CRA (Boeing) operational from October 2004.
12.	Establish data confidentiality agreements with States and operators participating in the trial airspace.	Immediate	CRA, States and operators	As required	Necessary to establish agreement with data providers for release of data and to de-identify reports.
13.	Include on aeronautical charts logon address of ATSU's providing ADS/CPDLC services.	As soon as practicable	ICAO	Ongoing	Annex 4 amendment to be considered
14.	Update ICAO Guidance material on CNS/ATM Operations in APAC Region.	As soon as practicable	ICAO	Ongoing	Part III harmonized with FOM. ICAO Headquarters continuing the review/harmonisation of Guidance Material.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
15.	Inform operators of the implementation of the operational trial.	IATA-RCG Meeting, Feb 04	IATA	Ongoing Completed	
16.	Coordinate with FOM editorial group on request for change to the FOM.	As required	BOB FOM editor	Ongoing	BOB FOM editor to be nominated FOM includes Request for Change (RFC) processes. Send all FOM RFCs to the Regional Office.
17.	Establish CRA.	As soon as practicable	States/IATA/ Boeing	Ongoing	SCM regarding CRA funding held December 2003. Boeing & IATA coordinating funding arrangements for CRA. BOB CRA (Boeing) operational from October 2004.

**DRAFT GUIDANCE MATERIAL FOR
END-TO-END SAFETY AND PERFORMANCE MONITORING OF
AIR TRAFFIC SERVICE (ATS) DATA LINK SYSTEMS
IN THE ASIA/PACIFIC REGION**

1. Background

1.1 The Asia Pacific Airspace Safety Monitoring (APASM) Task Force established by the Asia Pacific Air Navigation Planning Implementation Regional Group (APANPIRG) noted that requirements for monitoring aircraft height-keeping performance and the safety of reduced vertical separation minimum (RVSM) operations had been more comprehensively developed than for other Air Traffic Management (ATM) services, such as reduced horizontal separation based on required navigation performance (RNP), and monitoring of Air Traffic Services (ATS) data link systems. For RVSM, a handbook with detailed guidance on the requirements for establishing and operating Regional Monitoring Agencies (RMA) was at an advanced stage of development by the International Civil Aviation Organization (ICAO) ICAO Separation and Airspace Safety Panel (SASP) and was expected to be completed early in 2004. There was no comparable document under development by ICAO for Air Traffic Control data link communication applications. The APASM Task Force agreed that there was a requirement to develop guidance material for the Asia/Pacific Region covering safety and performance monitoring for ATS data link applications, which could also serve as a basis for global guidance.

1.2 The experience gained by the Informal Pacific ATC Coordinating Group (IPACG) and the Informal South Pacific ATS Coordinating Group (ISPACG) FANS Interoperability Teams (FITs) and the supporting Central Reporting Agency (CRA) to monitor automatic dependent surveillance (ADS) and controller pilot data link communications (CPDLC) performance for both aircraft and ground systems, was used as a resource on which to develop monitoring guidance material.

2. Purpose of Guidance Material

2.1 The purpose of this guidance material is to provide a set of working principles common to all States implementing ATS data link systems. The guidance material is also intended to provide assist with detailed guidance on the requirements for establishing and operating a FIT. It is intended that this guidance material will help promote a standardized approach for implementation within the Region. This information will also help to promote interchange of information among different Regions to support common operational monitoring procedures.

3. Description of an ATS Data Link Regional Monitoring Agency

3.1 Unlike many other systems, the technologies adopted to provide ATS data link functionality exist in several different domains (e.g. aircraft, space, ground network, air traffic service units, human factors) and the elements in all domains must be successfully integrated. Avionic and ground equipment from many different vendors, as well as the sub-systems of several different communication networks, must inter-operate to provide the required end-to-end system performance. In addition, procedures must be coordinated among many different airlines and countries to provide the desired operational performance. Technical and operational elements must then coalesce to allow the environment to demonstrate mature and stable performance. Only then can essential benefits be realized.

3.2 Realization that an interoperability team approach was essential to the success of any ATS data link implementation was an important lesson learned by the ISPACG, who first implemented CNS/ATM applications using FANS 1/A systems. Stakeholders had worked together well during the initial development and subsequent certification of FANS-1/A. ISPACG members expected benefits from FANS-1/A soon after in-service operations began even though a problem-reporting system was in place when FANS-1/A operations commenced, many problems went unresolved and it was not immediately possible to adopt the new operational procedures that would result in higher traffic capacity and more economic routes. Therefore, a FANS Interoperability Team was formed to address both technical and procedural issues and help to ensure that benefits would result. However, the ISPACG also realized that a traditional industry team approach would not be effective. Daily attention and/or significant research were required if the many issues were to be adequately resolved. To address these concerns, the FIT created a dedicated sub-team, the CRA, to perform the daily monitoring, coordination, testing, and problem research tasks outlined by the FIT. This approach is similar to that taken for RVSM implementations where supporting groups provide aircraft height keeping monitoring services.

3.3 Although the monitoring process described above was first developed for FANS-1/A based CPDLC and ADS applications the monitoring process is identical for Aeronautical Telecommunications Network (ATN) based ATS applications as well. This was validated during the Preliminary Eurocontrol Test of Air/ground data Link (PETAL) implementation of ATN based ATS data link services in Maastricht Area Control Center.

3.4 The principal members of an interoperability team are the major stakeholders of the systems that must interoperate to achieve the desired system performance and end-to-end operation. In the case of ATS data link systems, such as FANS-1/A or ATN, the major stakeholders are aircraft operators, ATS providers, communications network service providers, and airframe manufacturers. Other stakeholders such as regulators, pilot and controller associations, as well as international organizations, also play an important role.

3.5 Interoperability teams should be established to oversee the problem reporting and end-to-end system performance monitoring processes. They monitor system performance for a given region and act on reported problems. Any safety-related issues discovered by the team should be referred to the appropriate State or regulatory authorities for action. These processes were designed to ensure that the ATS data link systems meet established performance and interoperability requirements and to confirm that operations and procedures are working as planned. As a result of these aims and of subsequent evolution, the terms of reference for an interoperability team monitoring ATS data link systems are the following:

Problem Identification and Resolution

- establishing a problem reporting system;
- reviewing de-identified problem reports, and determining appropriate resolution;
- identifying trends;
- developing interim operational procedures to mitigate the effects of problems until such time as they are resolved;
- monitoring the progress of problem resolution; and
- preparing summaries of problems encountered and their operational implications for regional dissemination.

System Performance

- determining and validating system performance requirements;
- establishing a system performance monitoring system;
- assessing system performance based on information in CRA monthly reports;
- authorizing and coordinating system testing;
- identifying accountability for each system element. Developing, documenting and implementing a quality assurance plan that will provide a path to a more stable system;
- identifying configurations of the end-to-end system that provide acceptable data link performance, and ensuring that such configurations are maintained by all stakeholders.

Achieving Benefits

- formulating plans for long-term procedural enhancements that take advantage of ATS data link benefits;
- coordinating testing in support of implementation of enhanced operational procedures such as:
 - reduced separation;
 - Dynamic Airborne Route Planning (DARP) procedures, such as those which have been implemented on South Pacific routes providing some of the first tangible benefits from FANS-1/A; and
 - user-preferred routing, in which operators define their own flexible tracks, promises to provide greater incremental economic benefits than DARP.

Note. — *Benefits available from ATS data link systems will differ from region to region. The benefits listed above are an example of benefits being sought by the South Pacific FIT.*

Reporting

- providing annual summary reports to appropriate steering groups; and
- Forward reports from the FIT to other interested industry teams.

4. CRA Description

4.1 In order for an interoperability team to achieve its important goals of problem resolution, system performance assurance, and planning and testing of operations that will enable benefits, work must be done on a daily basis. To address these concerns a dedicated sub-team, such as the CRA, is required to do the daily monitoring, coordination, testing, and problem research tasks outlined by the terms of reference for the interoperability team.

4.2 CRA Resource Requirements

4.2.1 To be effective, the CRA must have two main components: dedicated staff and adequate tools. Staffing requirements will vary depending on the complexity of the region being monitored. There are several factors that affect regional complexity from an ATS monitoring standpoint such as dimensions of the airspace, variety in operating procedures, number of airlines, number of different airborne equipment variants, number of air traffic service providers, number of different ground equipment variants and number of communications network service providers.

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4.2.2 The CRA must have the tools to be able to simulate an ATS ground station to the extent of exercising all combinations and ranges of CPDLC uplinks and ADS reports. The CRA must also have access to airborne equipment. For the airborne side, a test bench is adequate; however, engineering simulators that can be connected to either the ARINC or SITA communication network can offer additional capability. In support of the data link audit analysis task, the CRA must have software that can decode data link service provider audit data and produce usable reports. Without these tools it is virtually impossible for a CRA to resolve problems or monitor system performance.

4.2.3 Coordination is also a large part of the CRA's job. In the pursuit of problem resolution, action item resolution, monitoring, and testing, many issues arise that require coordination among many stakeholders. The CRA has the primary responsibility to provide this coordination function as delegated by the interoperability team.

4.3 CRA Task and Resource Requirements Table

4.3.1 Following is a list of CRA tasks and associated resource requirements.

CRA Task	Resource Requirement
<ul style="list-style-type: none"> • Manage data confidentiality agreement with all FIT members who provide problem reports 	Legal services, technical expertise
<ul style="list-style-type: none"> • Develop and administer problem report process <ul style="list-style-type: none"> • de-identify all reports • enter de-identified reports into a data base • keep the identified reports for processing • request audit data from data link service providers • assign responsibility for problem resolution where possible • analyze the data • Identify trends 	Problem reporting data base, ATS audit decode capability, airborne test bench as a minimum, simulator highly recommended, ATS simulation capability (CPDLC and ADS)
<ul style="list-style-type: none"> • Schedule, coordinate procedures testing 	Airborne test bench as a minimum, simulator capability highly recommended, ATS simulation capability (CPDLC and ADS), ATS audit decode and report capability, technical expertise, operational expertise
<ul style="list-style-type: none"> • Administer and monitor an informal end-to-end configuration process. 	Technical expertise
<ul style="list-style-type: none"> • Develop (as recommendations) new end-to-end system performance requirements. 	Technical expertise, operational expertise
<ul style="list-style-type: none"> • Receive, decode, and process monthly end-to-end system performance reports from the air traffic service providers 	Database tools, technical expertise
<ul style="list-style-type: none"> • Coordinate and test the implementation of proposed benefit enhancing procedures resulting from ATS data link systems for a given region (i.e. Dynamic Airborne Route Planning and or User Preferred Routes) 	Technical expertise, operational expertise

5. Standards for Establishment and Operation of an ATS Data Link FIT and CRA

5.1 Recognizing the safety oversight responsibilities necessary to support the implementation and continued safe use of ATS data link systems, the following standards apply to any organization intending to fill the role of an FIT:

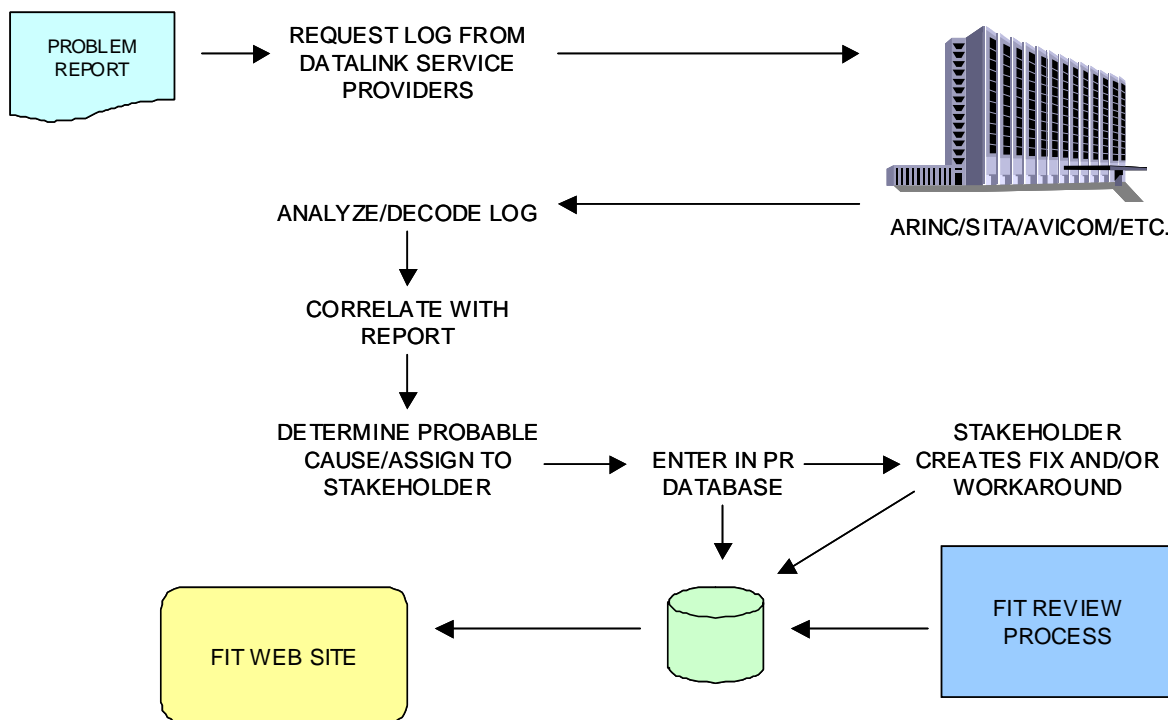
- a) the organization must receive authority to act as an FIT as the result of a decision by a State, a group of States or a regional planning group, or by regional agreement;
- b) the organization acting as an FIT should appoint a CRA the has the required tools and personnel with the technical skills and experience to carry out the following CRA functions:
 - 1. develop and administer problem report process
 - 2. de-identify all reports
 - 3. enter de-identified reports into a database
 - 4. keep the identified reports for processing
 - 5. request audit data from data link service providers
 - 6. assign responsibility for problem resolution where possible
 - 7. analyze the data
 - 8. receive, decode, and process monthly end-to-end system performance reports from the air traffic service providers,
 - 9. coordinate and test the implementation of proposed benefit enhancing procedures resulting from ATS data link systems for a given region,
 - 10. administer and monitor an informal end-to-end configuration process,
 - 11. manage data confidentiality agreements with all RMA members who provide problem reports,
 - 12. identify trends.
- c) the FIT should ensure that the CRA is adequately funded to carry out their required functions.

6. Working Principles Common to all Interoperability Team Agencies

6.1 As stated, the intent of this guidance material is to introduce a common set of working principles for FITs. These principles have been agreed as the result of the combined experience of the North Atlantic FANS Implementation Group, South Pacific FANS Interoperability Team, Pacific FANS Interoperability Team, the FANS Action Team for the Bay of Bengal, and the ATN implementation in Maastricht ACC.

6.2 Problem Identification and Resolution

6.2.1 The problem identification and resolution process, as it applies to an individual problem, consists of a data collection phase, followed by problem analysis and coordination with affected parties to secure a resolution, and interim procedures to mitigate the problem in some instances. This is shown in the diagram below.



6.2.2 The problem identification task begins with receipt of a report from a stakeholder, usually an operator, ATS provider or communication service provider. If the person reporting the problem has used the problem reporting form provided in the appropriate regional manual, then data collection can begin. If not, additional data may have to be requested from the person reporting the problem.

6.2.3 The data collection phase consists of obtaining message logs from the appropriate parties (which will depend on which service providers were being used and operator service contracts). Today, this usually means obtaining logs for the appropriate period of time from ARINC and SITA (occasionally other service providers, such as AVICOM and AEROTHAI will be involved), but in future, with ATN development, additional providers (which should comply with EUROCAE ED-111), will become involved and airborne recordings should become available (as per EUROCAE ED-112). Usually, a log for a few hours before and after the event that was reported will suffice, but once the analysis has begun, it is sometimes necessary to request additional data, (sometimes for several days prior to the event if the problem appears to be an on-going one).

6.2.4 Additionally, some airplane specific recordings may be available that may assist in the data analysis task. These are not always requested initially as (doing so would be an unacceptable imposition on the operators), but may occur when the nature of the problem has been clarified enough to indicate the line of investigation that needs to be pursued. These additional records include:

- aircraft maintenance system logs;
- Built In Test Equipment data dumps for some airplane systems; and
- SATCOM activity logs.

6.2.5 Logs and printouts from the flight crew and recordings/logs from the ATS provider (s) involved in the problem may also be necessary. It is important that the organization collecting data for the analysis task requests all this data in a timely matter, as much of it is subject to limited retention.

6.2.6 Once the data has been collected, the analysis can begin. For this, it is necessary to be able to decode all the message types involved. Obviously, a tool that can decode all the ATS data link messages of the type used in that region is necessary. These tools would include:

- AFN (ARINC 622), ADS and CPDLC (RTCA DO-258/EUROCAE ED-100) in a region operating FANS-1/A;
- Context Management, ADS and CPDLC applications ICAO Doc 9705 and RTCA DO-280/ED-110) in a region using ATN; and
- FIS or ARINC 623 messages used in the region.

6.2.7 Once the messages have been decoded, the analysis requires a thorough understanding of the complete message traffic, including:

- media management messages;
- relationship of ground-ground and air-ground traffic; and
- message envelope schemes used by the particular data link technology (ACARS, ATN, etc).

6.2.8 It is also important for the analyst to have a good understanding in how the aircraft systems operate and interact to provide the ATS data link functions, as many of the reported problems are airplane system problems.

6.2.9 All this information will enable the analyst to determine a probable cause by working back from the area where the problem was noticed to where it began. In some cases, this may entail manual decoding of parts of messages based on the appropriate standard to identify particular encoding errors. It may also require lab testing using the airborne equipment (and sometimes the ground networks) to reliably assign the problem to a particular cause.

6.2.10 Once the problem has been identified, then the task of coordination with affected parties begins. The stakeholder who is assigned responsibility for fixing the problem must be contacted, and a corrective action plan agreed.

6.2.11 This information (the problem description, the results of the analysis, and the plan for corrective action) is then entered in a database covering data link problems, both in a complete form to allow continued analysis and monitoring of the corrective action, as well as in a de-identified form for the information of other stakeholders. These de-identified summaries are reported at the appropriate regional management forum.

6.2.12 The CRA's responsibility does not end with determining the cause of the problem and identifying a fix. As part of that activity, procedural methods to mitigate the problem may have to be developed while the solution is being coordinated (software updates to a fleet may take a considerable period before all aircraft have the fix).

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Indian Ocean, Bay of Bengal - ADS/CPDLC equipage and ATS Status

STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf- acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS	REMARKS
AUSTRALIA Airservices Australia	Melbourne Brisbane	YMMM YBBB	Thales	SITA	YES	YES	YES	YES	Operational	YES	NO	Geoff Whitely, Operations Manager Melbourne Centre, Tel 61 3 9235 7378, Fax 61 3 9235 2471, E-mail: geoff.whitely@airservicesaustrali a.com	Integrated System, ADS - B in 2005/06
BANGLADESH	Dhaka		NO	NO	NO	NO	NO	NO	NO	NO	NO		2005/06 New CNS/ATM equipment
INDIA Airport Authority of India	Chennai	VOMM	ECIL	SITA	YES	YES	NO	YES	Ops Trial	A1783/03, NOTAM A0700/03 and A1177/03	YES	Sh. B.M.N. Rao GM (CNS) ACS, Chennai Tel: 044-22560444; E-mail: gmcnschen_aai@vsnl.net Sh. N.U.B. Rao GM (ATC) Chennai Tel: 044-22561740; E-mail: gmasr_aai@vsnl.net	ADS-C Integrated with DPS, work in progress to integrate with RDPS
	Kolkata	VECC	ECIL	SITA	YES	YES	NO	YES	Ops Trial	A1278/00 NOTAM A0700/03 and A1177/03	YES	Sh. P.K. Bandopadhaya Addl. G.M. (CNS) ACS, Kolkata Tel: 33-25118722 E-mail: gmce_aai@vsnl.net Sh. Raj Kumar Addl. G.M. (ATC) Kolkata Tel: 033-25119428; Mob: 9830354337 E-mail: gmae_aai@vsnl.net agm_snp_kol@indiatimes.com	ADS-C Integrated with DPS, work in progress to integrate with RDPS

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STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf- acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS	REMARKS
	Mumbai								India will wait until ADS/CPDLC issues are fully resolved for the Chennai and Kolkata FIRS before proceeding with ADS/CPDLC in the Mumbai FIR.		NO		
INDONESIA Directorate General of Air Communications	Jakarta	WIIZ	ARINC	ARINC	YES	YES	NO (Sep 04)	YES	Ops Trial	AIP Sup Nr:03/01 17May01	YES	Mr. Nanang S. Taruf Deputy Director System & Procedure Air Navigation Directorate of Aviation Safety E-mail: cns-atm@telkom.net Wi Yono Tel: 6221 5506178 E-mail: dss97@centrin.net.id	
MALAYSIA Department of Civil Aviation	Kuala Lumpur	WMFC		ARINC			NO	YES	Malaysia is installing new off the shelf equipment and will commission as stand alone in mid/late 2005. Will integrate after commissioning.		NO	Mr. Ir Dato Kok Soo Choon E-mail: vausuv@yahoo.com	2005 New Equip Stand alone
	Kota Kinabalu	WBKK		ARINC			NO	YES		NO		NO	
MALDIVES	Male		NO	NO	NO	NO	NO	NO	NO	NO	NO		
MYANMAR Department of Civil Aviation	Yangon	VYYF	Thales	SITA	YES	YES	NO	NO	Ops Trial	AIC A1/99 (10.1.99)	NO	U Yoa Shu Director ATS Myanmar Tel: 95 1 663838 E-mail dca.myanmar@mptmail.net.mn	Stand alone. Moving to new facilities, consider trial after mid 205.
SINGAPORE Civil Aviation Authority of Singapore	Singapore	WSJC	Thales	SITA	YES	YES	NO	YES	Operational	YES	NO	yeo_cheng_nam@caas.gov.sg	Ops Trial completed 1999, integrated system
SRI LANKA Airport & Aviation Services (AASL) Ltd	Colombo	VCCC	Thales	SITA	YES	YES	NO	YES	Ops Trial	AIC-A020F- 2001	NO	Mr Dyan Srilal Subasinghe, Senior ATC, Bandaranaike International Airport, hrd@airport.lk tel: 94 11 2252861-5	Stand alone
THAILAND AEROTHAI	Bangkok	VTBB	ARINC	ARINC	YES	YES	YES	YES	Ops Trial	3 monthly NOTAM	YES	Bangkok ACC Director	

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STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf- acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS	REMARKS
ARINC												Mr. Sarawut Assawachaichit Program Manager, Globalink Asia Tel: 66 2 2859435-6 Fax: 66 2 2859437 E-mail: sassawac@arinc.com	
CENTRAL REPORTING AGENCY (CRA)												Mr. Bradley Cornell Boeing Tel: 1 525 2668206 E-mail: bradley.d.cornell@boeing.com	
IATA												Soon Boon Hai Assistant Director Safety Operations & Infrastructure Tel: 65 62397267 Fax: 65 65366267 E-mail: soonbhd@iata.org	
IFALPA												Capt. Toby Gursansky Regional Vice President South Pacific Tel: 61 2 99487532 E-mail:	
SITA												Ms. Karen Stephenson Business Manager ATS Tel: 61 2 92401427 Fax: 61 2 92479330 E-mail: karen.stephenson@sit.aero	
ICAO												Mr. Andrew Tiede Regional Officer ATM Tel: 66 2 5378189, ext. 152 Fax: 66 2 537 8199 E-mail: atiede@bangkok.icao.int icao_apac@bangkok.icao.int	

REPORT OF THE BBACG/15 MEETING

Agenda Item 1: Adoption of Agenda

1.1 The meeting adopted the following agenda as the Agenda for the meeting:

- Agenda Item 1: Adoption of Agenda
- Agenda Item 2: Review and update BBACG/14 Work Plan
- Agenda Item 3: Review current operations across the Bay of Bengal and identify problem areas
- Agenda Item 4: Air traffic flow management plan
- Agenda Item 5: ATS route developments
- Agenda Item 6: Any other business
- Agenda Item 7: Date and venue for the BBACG/16 meeting

Agenda Item 2: Review and update BBACG/14 Work Plan

2.1 The meeting reviewed and updated the Work Plan agreed upon at the BBACG/14 meeting held in Bangkok, Thailand on 2-6 February 2004. The Work Plan is shown at **Appendix A**.

2.2 In regard to Item 9 of the Work Plan (Contingency Planning), the meeting was informed that issues related to ATS Contingency Planning had been the subject of discussion during APANPIRG/15.

2.3 APANPIRG/15 had noted that APANPIRG/10 (Conclusion 10/37) had required States to revise their contingency plans by 2003 and to update the Regional Office. In addition, APANPIRG/12 (Conclusion 12/6) had requested the Regional Office to undertake a survey to determine the status of contingency planning and the extent to which contingency plans were exchanged between neighbouring States.

2.4 As requested by APANPIRG/15, the Regional Office would undertake a survey and report the results to APANPIRG/16. The meeting was urged to complete arrangements for contingency plans in preparation for the forthcoming survey. A model National ATS Contingency Plan framework has been provided in **Appendix B**.

Agenda Item 3: Review current operations across the Bay of Bengal and identify problem areas

Myanmar - Update

3.1 While reviewing the work plan formulated by BBACG/14, the meeting was pleased to note that a high level ICAO mission visited Yangon, Myanmar on 15-17 March 2004 in order to draw the attention of Government authorities to the need to resolve the long standing air-ground communication deficiencies in Yangon FIR identified by APANPIRG since 1998. Despite remedial actions already taken by the Department of Civil Aviation (DCA) Myanmar, the deficiencies continued to have an adverse affect on flight operations. It was recognized that further action should be taken on a complete systems basis to correct the communication deficiencies and Myanmar was in the process of taking the following actions:

- VHF system to be completely replaced with a new systems of 5 RCAG stations;
- provision of reliable power supply system with solar power system as a main system with a back up of the city supply;
- VSAT link to be established between RCAG sites and Yangon ACC with the back up of the MPT links; and
- relocation of Yangon ACC to the new operations building as soon as possible.

3.2 The meeting was pleased to note that the DCA Myanmar had obtained required funds from the Government and was proceeding with implementation of the action plan developed in consultation with the Regional Office based on the systems approach as stated above. Myanmar planned to complete actions by early 2005. It was further noted that DCA Myanmar was establishing VHF RCAG stations at Myeik, Patheingyi and Sitwew in addition to upgrading the existing stations at Yangon, Mandalay and Lashio. The DCA Myanmar was also planning to replace the existing antiquated HF air ground system with a new system with SELCAL by early 2005.

Nepal – CNS/ATM Current status and future implementation strategy

3.3 Nepal informed the meeting that air transportation was essential to Nepal due to the mountainous terrain. The Civil Aviation Authority of Nepal (CAAN) operated the sole international airport, Tribhuvan International Airport (TIA), which played a significant role in the development of international and domestic air transport in Nepal.

3.4 Nepal's air routes passed through India and China. In this regard Nepal was also strategically placed to provide ATS for trans-Himalayan air routes. With the development of such long-haul routes across Nepal, this would reduce the traffic congestion currently experienced in Indian airspace while increasing efficiency for users.

Communication

3.5 To improve air - ground communication, CAAN had implemented a programme to provide alternate sites in western Nepal in order to establish another RCAG extended VHF station, which would extend the coverage of the Phulchoki RCAG, leading to greater communication reliability and efficiency for the proposed international routes.

3.6 In accordance with the Asia Pacific ATN Transition Plan, CAAN was considering upgrading the existing ATN to AMHS from 50 bauds to 9600 bps. A task force had been formed to study this issue.

Navigation

3.7 A new D-VOR facility with a co-located DME had been installed at Nepalgunj to enhance navigation reliability.

3.8 In order to get early benefit from the implementation of the GNSS component of CNS/ATM system, CAAN developed GPS based instrument flight procedure for TIA and nine other domestic airports for GNSS supplemental air navigation.

Surveillance

3.9 In order to extend the existing radar coverage, another secondary surveillance radar (SSR) at Mt. Pholchowki would be installed.

3.10 CAAN was also considering implementation of an ADS/B system outside radar coverage to provide the required level of surveillance in areas lacking ground-based facilities, and to provide surveillance of the proposed RNAV routes. A cost benefit analysis would be undertaken in the near term.

Air traffic management

3.11 The Nepalese airspace and air route structure was being revised in preparation for the implementation of RNAV, whilst RVSM had already been implemented in the level band FL290 - FL410 inclusive. Preliminary work had been undertaken by CAAN in preparation for discussions with other aviation authorities.

Recent Developments

3.12 The Airports Authority of India (AAI) had informed CAAN that the alignment of ATS Route A473 between Kathmandu and Delhi via Mahendranagar Pantanagar/Sikandrabad was acceptable and proposed to make this an RNAV route.

3.13 The People's Republic of China has given positive consent to allowing airline operations between Europe and Hong Kong via Kathmandu and for the realignment of the air route between Kathmandu and -Shanghai/Beijing.

Special Implementation Project for the Bay of Bengal

3.14 The meeting was advised by the Secretariat that ICAO establishes Special Implementation Projects (SIPs) under a special budget of the ICAO Assembly. SIPs were designed to assist States in overcoming problems of implementation, which may have significant adverse effects on the safety, regularity, or efficiency of international civil aviation.

3.15 The Asia/Pacific Regional Office, recognizing the significant airspace changes that had occurred in the Bay of Bengal area in recent times, successfully obtained approval from the Council to implement a SIP in the Bay of Bengal area. The terms of the approval meant that the SIP must be conducted and completed during 2004.

3.16 The States/facilities under consideration for the SIP were Bangladesh (Dhaka), India (Chennai and Kolkata), Malaysia (Kuala Lumpur), Myanmar (Yangon) and Sri Lanka (Colombo). The SIP would be undertaken by an ATM and a CNS specialist travelling on mission to the above locations. The SIP was planned to commence during November 2004.

3.17 The Terms of Reference (TOR) for the SIP would cover the following points:

- a) evaluate CNS/ATM integration/automatic systems;
- b) evaluate ATS communications capabilities (ground-ground and air-ground);
- c) ascertain any current capability for an operational trial of CPDLC/ADS;
- d) identify any impediments to a trial e.g. lack of equipment, staff training issues, etc;
- e) ensure that States were aware of the FANS-1/A Operations Manual and would be using this as the basis for ADS/CPDLC operations;

- f) ensure that appropriate airspaces have been identified and classified correctly;
- g) ascertain if safety management activities have been considered/conducted to justify the reductions in separation standards e.g. to 50 NM/30 NM;
- h) evaluate the mechanisms in place to update Letters of Agreement etc; and
- i) identify any ability to establish/improve ATM Flow management.

Agenda Item 4: Air traffic flow management plan

4.1 The meeting considered the ongoing problems surrounding the implementation of effective air traffic flow management (ATFM) in the Bay of Bengal, noting that as well as the RVSM Task Force and BBACG meetings that had considered the issue, several special meetings had taken place over the past two years in an effort to develop a flow management system or traffic orientation scheme to overcome these serious problems.

4.2 The meeting reviewed the deliberations of APANPIRG/15, who had noted that the route network capacity was constrained by restrictions in the Kabul FIR, including the loss of levels due to RVSM not being implemented. APANPIRG/15 recognized that whilst the route system had sufficient capacity to meet present demand, inefficiencies in making use of available slots were a contributing factor to delays from airports in South-East Asia during the peak night time period for westbound traffic. However, the primary problem was the inadequate air navigation services in the Kabul FIR. The military authority responsible for Afghanistan airspace was making major upgrades to the Kabul Flight information Centre (FIC), and by January 2005 it was anticipated that an ATC service would be provided and the Kabul ACC established. The communications systems were expected to be restored by the end of this year.

4.3 APANPIRG/15 noted the considerable effort being made by States to collaborate together and with IATA and the airlines to improve the air traffic flow management over the Bay of Bengal. It was recognized that considerable constraints on the airspace were beyond the control of the States concerned. All parties were encouraged to continue their efforts and to take into account the benefits to be derived from ATM automated systems.

4.4 Thailand advised the meeting that, notwithstanding the serious issues for aircraft planning via the Kabul FIR, it should not overlook the other situations over the Bay of Bengal that also require ATFM solutions. The problem of crossing routes needs to be addressed by some Bay of Bengal States each night. Secondly, there were other routes to either Europe or the Middle East which did not operate over Afghanistan but also experienced heavy track loading.

4.5 Thailand also reminded the meeting that with the onset of the winter airline schedules in October, coupled with the periodic withdrawal of FL280 from use in the Kabul FIR by the Coalition Forces, the present situation was expected to worsen unless a solution was found. In addition, the traffic in the Asia and Pacific Regions was expected to increase by approximately 6 percent per annum, which would have the effect of doubling the present traffic numbers within 12-13 years.

4.6 Thailand advised that it would give its full support and assistance by working with ICAO, other States concerned and IATA to quickly move forward on this important issue, which was currently detrimental to the operational efficiency of the international aviation community as well as ATS providers in this area.

4.7 The meeting was informed by IATA of difficulties being experienced both by air traffic control and airlines with the westbound traffic flows across the Bay of Bengal to Europe through Afghanistan airspace during peak periods. In IATA's view, this was primarily because there was no air

traffic management programme in place that looked at the total flow with the capability to ensure that all traffic would fit through the known bottlenecks in the system. The traffic flow mainly originated from Singapore, Kuala Lumpur and Bangkok and merged over India with traffic departing from Indian airports and traffic joining the routes from Pakistan airports.

4.8 Airlines departing from these ports regularly experienced long ground delays and, at times, aircraft required costly reroutes resulting in technical stops to take on additional fuel. The full benefits of the EMARSSH route implementation on 28 November 2002 and RVSM on 27 November 2003 had not been realized, as rather than the envisaged four independent Asia – Europe flows across the northern half of the Bay of Bengal and through India, Pakistan and Afghanistan, there were still the same two primary independent flows (via TIGER or SAMAR at the India/Pakistan FIR boundary) that existed prior to EMARSSH. In addition, all flights that fly to Europe via Russia must flight plan over SAMAR, which adds further strain to the system capacity. A new third parallel option would be completed soon as the ASOPO to Rahim Yar Khan (RK) segment was implemented this year and the RK – Kandahar leg, which would shorten the existing route by 57 NM, would be implemented by year's end. However, only 2 viable levels were permanently available for westbound traffic (FL310/350). FL280 was also available on a limited basis during a daily four hour period (2000-2400 UTC) on L759, N644 and A466, however this arrangement could be withdrawn by the military authority from time to time. For example, recently, FL280 was withdrawn for several days for use on N644.

4.9 The IATA Asia Pacific Regional Coordination Group (RCG) was extremely concerned with the lack of air traffic management provided for this traffic flow and requested IATA to take a closer look at available options for a collaborative decision making (CDM) means of slot control. Consequently, the Federal Aviation Administration (FAA) of the United States and Airservices Australia provided information to the RCG regarding their automated systems that would allow airlines to collaborate and manage the slots over Afghanistan. These systems are summarised as follows:

US FAA Dynamic Ocean Track System Plus (DOTS+). DOTS+ and its Online Track Advisory service is capable of managing the westbound departures across the Bay of Bengal. DOTS+ does this by designating metered gateway fixes for each traffic flow on the BOB westbound tracks. Aircraft operators would submit gateway requests (with a provision to submit a 1st, 2nd and 3rd choice) via the Internet for each departure to Europe, which includes track selection, requested altitude and an ETA at the gateway fix for each flight. DOTS+ would then create a gateway reservation list that would take into account any constraints like flow and altitude restrictions for each track. Airlines would then refrain from asking ATC for a departure clearance until their DOTS+ generated slot for departure. This system could be owned and operated by a State ATS Provider(s) or by IATA and its member airlines.

Airservices Australia's SKYFLOW. Airservices Australia gave a presentation to IATA of their Central Traffic Management System that is being used to manage traffic into Sydney, using software called SKYFLOW, and described how this system could be modified to manage departures that fly across the Bay of Bengal. Although the existing SKYFLOW system at Sydney could not be quickly modified for a Bay of Bengal paper test, the proposed system would operate as follows:

- Airline schedules would be loaded daily via internet going through a defined gateway to Afghanistan
- Capacity at gateways would be decided by ATC
- Programme is run and results made available by agreed time
- Information sent to stakeholders via chosen predetermined means (internet, fax, etc.)
- Flight planning submitted based on final programmed time

- Flights depart on programmed time
- Tactical control still required for final management

4.10 In summary, either system should be capable of addressing the requirement to manage the traffic flows through Afghanistan. Based on the positive results of the tests, IATA urgently requested that the Bay of Bengal ATS providers adopt a collaborative decision making programme to manage the traffic flows to Europe during the night time peak period.

Regional Air Traffic Flow Management Plan

4.11 In considering the issues raised by APANPIRG/15, Thailand and IATA, the meeting agreed that there were two distinct problems to be dealt with – a regional ATFM Plan and the ATC coordination arrangements. In regard to traffic flow into the Kabul FIR resulting from the lack of an ATFM Plan, the meeting recognized that although the restrictions in the Kabul FIR acted as a severe choke on traffic flow, the application of suitable flow management measures prior to the traffic reaching Kabul would allow the maximum possible flow rate to be achieved through Afghanistan. The meeting agreed that further work should be undertaken by the BBACG with a view to formulating a regional ATFM Plan as soon as practicable. With this in mind, the meeting agreed that the proposals presented by IATA utilising automated applications warranted further study.

4.12 As a result of the discussions regarding suitable automated traffic flow systems, the meeting agreed that a special coordination meeting (SCM) should be held as soon as possible at which detailed information about automated systems could be made available by suppliers. IATA agreed to undertake the technical arrangements for the meeting and would coordinate with the Regional Office with a view to holding a 2 or 3 day SCM in late November or early December this year. Arrangements would be made as soon as possible in order to provide the maximum notice to States in order that they could attend. IATA also advised the meeting that they would consider demonstrating the DOTS tool on site at various locations and would coordinate directly with States to make individual arrangements.

4.13 The Secretariat considered that the forthcoming 41st Conference of Director Generals of Civil Aviation (DGCA), Asia and Pacific Region scheduled on 1-4 November 2004 in Hong Kong, China should be informed of the efforts that had been made by States and users over several years and many meetings to address the problem of flow management for the Bay of Bengal. The Secretariat noted that there were a large numbers of States involved and that the arrangements required for an ATFM Plan would be facilitated by ensuring that the DGCA's concerned were made aware of the seriousness of the problem in order that they could encourage sufficient political will to assist wherever possible.

ATC coordination arrangements

4.14 The meeting recognized that ATC coordination arrangements in place between the ACCs serving traffic from Bangkok, Kuala Lumpur and Singapore were complex and restrictive, and the No Pre-Departure Clearance (No-PDC) procedures should be improved. The States involved India, Malaysia, Myanmar, Singapore and Thailand discussed the problems and considered a draft proposal (**Appendix C** refers) for application of coordination procedures between 1330-1930 UTC with a view to improving the situation. The proposal suggested variations to the existing PDC arrangements and introduced requirements for ATS providers to coordinate to achieve the maximum use of all available flight levels.

4.15 Some minor amendments to the ATC procedures were also proposed and the meeting agreed to instigate a 6 month trial of the new procedures commencing from the 1 October 2004, with a review meeting to be held about 3 months into the trial to assess the progress and make any adjustments that may be required.

4.16 The meeting also considered the issues raised by India regarding the problems encountered during the application of the ATFM trial procedures put in place by India to decongest conflict points in Indian airspace. In particular, the flow of traffic along L759 had exceeded that specified by India, thereby negating the trial. The States involved agreed to review and re-issue the relevant NOTAMs, make any adjustments to the procedures that were required, and to fully support the Indian trial. It was agreed to re-commence the Indian trial concurrently with the trial of the new ATC procedures on the 1 October 2004 and to align the review meetings so that both trials would be reviewed simultaneously. The meeting dates would be arranged between the States involved in consideration of the FIT-BOB/5 meeting and seminar in March 2005 and the BBACG/16 meeting in June 2005.

4.17 The meeting also considered other ATC aspects of the traffic flow problems and agreed arrangements with India that would allow the same level to be used for traffic on L759 and M770 in circumstances where the planned routing of the aircraft beyond Delhi meant that they would not converge in Indian airspace.

L759 – Mach Number Technique

4.18 The meeting recalled that much discussion had taken place concerning the use of a fixed Mach number on L759, which had been introduced to overcome the problem of optimizing the traffic flow with a faster aircraft following when applying 10 minute longitudinal separation using the Mach number technique (MNT).

4.19 IATA updated the meeting with regard to the speeds that were achievable in the application of the MNT. The meeting noted that although M0.82/320KTS indicated air speed (IAS) was effectively the minimum cruise speed for the B747 series at FL280, this speed was suitable for the majority of other aircraft in airline usage in the region. Accordingly, the meeting agreed to consider the implementation of M0.82 as the common speed for use at FL280 on L759, whilst retaining M0.83 for FL300 and above. The meeting noted that individual pilots in command may refuse to fly at any speed that they considered unsafe, and that speed requirements would change during periods of adverse weather. Details of the speeds achievable by common airline aircraft are attached as **Appendix D**.

Agenda Item 5: ATS route developments

General Developments

5.1 Arrangements to improve the transition procedures between the Kunming FIR and the Yangon FIR were being coordinated between China and Myanmar. Under the arrangements agreed between the two States, Yangon ACC would carry out the transition from China metric levels to RVSM FLs 320, 360 and 380 in the Yangon FIR. An RVSM transition area had been established on A599 between Lashio VOR (LSO) and LINSO for the implementation of RVSM on 27 November 2003. A suitable letter of agreement between Kunming ACC and Yangon ACC was in preparation and was expected to be signed and implemented shortly.

5.2 Pakistan was continuing with efforts to improve traffic flows on the EMARSSH routes. In particular, agreement has been reached with all parties including the Combined Forces Air Component Commander (CFACC) for the establishment of a direct route between RK and Kandahar as an extension of the recently implemented ASOPO to RK route segment. Documentation was being prepared to facilitate an implementation of this route segment.

ATS Route Network Review Task Force

5.3 The meeting was updated regarding the progress of the ATS Route Network Review Task Force (ARNR/TF), noting that the Task Force was established under the terms of APANPIRG/14 (August 2003) Conclusion 14/2 to undertake a review of the Asia/Pacific ATS route network. The first meeting of the ARNR/TF was held on 6 -10 September 2004.

5.4 In preparation for the ARNR/TF/1 meeting, it was agreed that States and users would undertake a thorough review of their ATS route requirements, provide details to the Task Force of any changes made to existing routes, and notify future route requirements. As part of this process, the Regional Office provided details of the BBACG route requirements to ARNR/TF/1 for their consideration. During ARNR/TF/1, it was agreed that although ARNR/TF activities would be undertaken to clarify the route structures required, the respective States and ATS coordination groups would retain responsibility for the implementation of routes.

5.5 ARNR/TF/1 also agreed, rather than wait to progress all issues, that States should continue to process the implementation of the route proposals on an ongoing basis in the normal manner through bi-lateral coordination between States and through the relevant ATS coordination groups.

5.6 IATA presented very comprehensive details of their member airlines' route requirements to ARNR/TF/1. The IATA submission is available at the Regional Office.

5.7 APANPIRG/15 considered the proposed activities of the ARNR/TF and, in support of the work of the Committee on Aviation Environmental Protection (CAEP), included a requirement that the Task Force include processes to quantify the environmental savings achieved by the introduction and realignment of routes.

5.8 ARNR/TF/1 included in its work programme a requirement to produce a regional route catalogue that would contain diagrams of the routes, details of route waypoints etc and additional information regarding the services available on the routes and track distance saved if applicable, in order to quantify environmental benefits. The catalogue would be broken down into a number of chapters that would include user and State requirements, routes contained in the Asia/Pacific Basic Air Navigation Plan (BANP) and routes not implemented in accordance with the BANP.

Nepal - Air Route Development Proposal

5.9 Nepal updated the meeting in regard to the air route development proposals being undertaken by the CAAN, as follows:

- a) coordination was underway with AAI on the revision of ATS routes including the establishment of ATS route A473. A proposal to establish an RNAV route between Kathmandu - Delhi via Pantanagar in place of proposed route via Nepalgunj-Jalalabad-Delhi is under consideration;
- b) discussions being held with China to establishing direct air routes between Beijing/Shanghai-Kathmandu and Hong Kong-Kunming-Kathmandu;
- c) CAAN reaffirmed its commitment to open its air space for international over flights and the agreed to continue discussions in the APANPIRG and BBACG meetings;
- d) discussions were being held with Bangladesh for bi directional route between Biratnagar/ Bhadrapur and Saidpur; and

- e) the outstanding issues on the proposed Kathmandu Kuming and Kathmandu - Nepalgunj-Delhi/Isalmbad, which were the most direct routes for flights from/to Middle East/Europe and to/from Asia, South of the Himalayas to be further discussed.

Agenda Item 6: Any other business

Implementation of 2 NM offset right of centre line procedures

6.1 The use of lateral offsets as a safety measure to reduce the risk of collision in the event of loss of vertical separation were developed by the Separation and Airspace Safety Panel (SASP), and originally the subject of State letter AN 13/11.6-00/96 dated 3 November 2000, which provided guidelines on the subject. At that time, the guidelines allowed for the use of a 1 NM offset where the minimum lateral separation was 50 NM in an RNP 10 non-radar environment.

6.2 The SASP undertook a review of the lateral offset guidelines in late 2001, and these were amended by State letter AN 13/11.6-02/21 dated 31 May 2002, to allow for the application of offset procedures of up to 2 NM right of centre line provided that a specific safety analysis for the particular airspace had shown that the proposed procedures would meet appropriate safety criteria. Further work was undertaken by SASP in this regard, with a view to obviating the need for specific safety analysis by States for particular implementations of 2 NM offset procedures.

6.3 The meeting was informed that SASP had completed its work to provide global guidelines on the use of 2 NM lateral offsets to the right of centre line. A State letter was issued on 27 August 2004 (ref AN 13/11.6-04/85) that circulated the guidelines for the application of the 2 NM lateral offset procedures to States and international organizations. In this regard, application of 2 NM lateral offset procedures achieved greater safety benefit than 1 NM offsets and also incorporated wake turbulence procedures. The 2 NM lateral offset procedures could also be applied where 30 NM lateral separation was used based on RNP 4. ICAO Headquarters was progressing an amendment to the PANS-ATM (Doc 4444) to incorporate the lateral offset procedures, including the wake turbulence offset, as contained in the guidelines. The State letter and 2 NM lateral offset procedures are provided in **Appendix E**.

6.4 APANPIRG/15 had noted that when implementing 2 NM offset procedures, this should be done in a coordinated manner over contiguous airspaces. APANPIRG/15, in agreeing to the following Conclusion 15/8, recognized that the Asia/Pacific Region should adopt a coordinated approach to implementing the 2 NM offset to the right of centre line procedures simultaneously and that the Regional Office should coordinate an implementation date coincident with an AIRAC date as soon as practicable.

Conclusion 15/8 – Implementation of a 2 NM lateral offset procedures in the ASIA/PAC Region

That, States in the ASIA/PAC Region implement the 2 NM lateral offset to the right of route procedures in accordance with ICAO guidance on a common AIRAC date to be coordinated by the ICAO Regional Office with States, ATS Coordination Groups and users concerned.

6.5 As the studies undertaken by SASP showed that application of these procedures would result in an overall increase in the safety of operations in remote and oceanic airspace, all States who were responsible for the provision of air traffic services in such airspace were urged to authorize the use of strategic lateral offsets in accordance with these guidelines at the earliest opportunity.

6.6 In implementing these procedures, it was anticipated that there would be minimal charting changes required and that training requirements for ATS staff and flight crews would not be complex. Although some adjustments may be required to automated systems (e.g. ATS route conformance warning parameters), States and international organizations should be able to facilitate the early introduction of the 2 NM offset procedures.

6.7 IATA noted that time was required for States to prepare their AIP amendments and that these documents were required in order to prepare crew briefing materials. The Secretariat advised the meeting that the offset procedures would be authorized for the airspace and individual airlines could participate at any time thereafter. The meeting agreed, in view of the safety enhancements offered and the minimal amount of text required, that implementation should proceed via NOTAM in order to minimize the delay. In support of the implementation, a draft AIP Amendment text is provided in **Appendix F**.

6.8 Accordingly, the meeting agreed that the AIRAC date 25 November 2004 should be the date for implementation of these procedures throughout the Asia/Pacific Region. The Regional Office would undertake coordination with States to verify the earliest date for implementation and to ensure a wide implementation of the procedures on the date proposed.

IATA's Shortcoming and Deficiency Programme

6.9 IATA provided information on its Asia Pacific Shortcoming and Deficiency Programme, which was in its final stages of development and should be implemented later this year. IATA intended to complement ICAO's programme with an additional perspective on areas of high concern to the airspace user. IATA would continue to offer its full support to the ICAO Deficiency Programme.

6.10 The meeting noted IATA's development of a systematic approach to users reporting shortcomings and deficiencies according to IATA's definition. ICAO recognized that IATA, along with IFALPA and IFATCA, were primary sources of information on operational and related occurrences that impacted on safety and welcomed this development that would complement ICAO's programme. The meeting encouraged States' to fully cooperate with the user groups to take prompt action on reported occurrences in the interest of enhancing the safety of the air navigation system.

Language Proficiency

6.11 The meeting was informed of ICAO provisions on language proficiency in Annex 1 – *Personnel Licensing*, Annex 6 – *Operation of Aircraft*, Annex 10 – *Aeronautical Telecommunications* and Annex 11 – *Air Traffic Services* applicable on 27 November 2003. The language proficiency requirements clarified and extended existing provisions

6.12 The increasing concern over the number of airline accidents in which investigators determined that language problems had played a contributory role resulted in new ICAO requirements for controllers and pilots involved in international operations to demonstrate a minimum level of English language proficiency. The ICAO language requirements focus on the assessment of communicative proficiency, that is, an individual's speaking and listening skills. In addition, the proficiency requirements apply to native or non-native speakers alike, in order to identify other issues (e.g. any speech impediment) that would affect an individual's capacity to operate safely.

6.13 Amendment 164 includes an Attachment specifying the criteria for the requirements and assessment of language proficiency. This rating scale describes 6 levels of proficiency and would be used to guide the assessment of an individual's language ability. The extract from the Attachment relating to the Level 4 criteria required for pilot and controller proficiency is reproduced in **Appendix G**.

6.14 The meeting was informed of ICAO's worldwide educational and awareness campaign to introduce ICAO language proficiency requirements and to provide practical information to facilitate implementation of the new SARPs. A three-day symposium on the new ICAO language proficiency requirements was held at ICAO Headquarters, Montreal, from 1 to 3 September 2004. The symposium had noted the importance of standardized voice phraseologies and identified the need to harmonize the CPDLC message set with the voice phraseologies. During the Symposium, ICAO and IATA agreed to work closely together with suitable private providers of English language training/assessment in order to develop standardized materials to assist the implementation of the language proficiency SARPs.

Asia Pacific Regional Seminar - Tokyo

6.15 The first ICAO language proficiency regional seminar would be held in the Asia/Pacific Region at Tokyo, Japan on 8 - 10 December 2004, hosted by the Japanese Civil Aviation Bureau. Participants would receive practical advice on how to comply with the ICAO SARPs concerning language proficiency. Details on this seminar would be provided in due course by the Regional Office.

6.16 The meeting urged States to take full advantage of the regional seminar, as it would be of considerable benefit to assist States to understand and apply the language proficiency requirements.

Manual on the Implementation of the ICAO Language Proficiency Requirements

6.17 The *Manual on the Implementation of the ICAO Language Proficiency Requirements* (Doc 9835-AN/453), which addresses the various training and evaluation issues related to the implementation of ICAO language proficiency Standards was published in September 2004.

MAAR Traffic Sample Data (TSD)

6.18 The meeting was updated on the level of compliance by States in the Bay of Bengal area on the request made by the Monitoring Agency for the Asia Region (MAAR) at the RVSM/TF/21 meeting (March 2004, 90-day post implementation review) for States to provide a traffic sample data (TSD) necessary for updating the RVSM safety assessment for the Bay of Bengal RVSM airspace. Although the majority of States had provided data to MAAR in accordance with their request for a TSD for the month of July 2004, a number of States had not yet provided data.

6.19 The Secretariat reminded the meeting that the implementation of reduced separation minima based on RVSM and RNP 10 was justified by the application of a collision risk modeling (CRM) and the ongoing attainment of the established target level of safety (TLS), which required safety assessments to be performed, periodically updated and for ongoing monitoring of the airspaces concerned. APANPIRG's recognition of the importance and complexity of these requirements had led to the formation of the Regional Airspace Safety Monitoring and Advisory Group (RASMAG), which would provide an oversight and ongoing review of the airspace safety monitoring programmes in the Asia/Pacific Region.

6.20 MAAR had an essential role as the RVSM Regional Monitoring Agency appointed by APANPIRG to analyze of safety related data and required the collection of periodic TSD from the States concerned in order to be able to perform these calculations. States that have not yet provided data to MAAR for the sample month (July 2004) were urged to do so as soon as possible. A copy of the current MAAR TSD reporting format is attached as **Appendix H** to facilitate this reporting.

Developments to improve air navigation services in Afghanistan

6.21 The Secretariat provided information on the rehabilitation of Afghanistan's air navigation services. The Asia and Pacific Regional Office has been involved in assisting Afghanistan through ICAO's Technical Cooperation (TC) projects since ICAO's involvement in December 2001. Since October 2003, ICAO has established an on-going CNS/ATM technical cooperation project in Afghanistan to support rehabilitation in the civil aviation sector. An ICAO TC project to prepare a master plan for civil aviation was undertaken in April to July 2004. Under this plan, the air navigation system and civil aviation infrastructure would be restored and a basis provided for the development of Afghanistan's future civil aviation requirements.

6.22 To date, significant progress was being made to reinstate air navigation facilities and services. At Kabul Airport, a DVOR/DME has been installed and a Category I ILS installed on runway 29. Flight tests were conducted in February 2004 and the DVOR/DME was fully operational. GPS non-precision approach procedures have been developed for the airports and airstrips in Afghanistan. Instrument approach procedures for ILS/DME, DVOR/DME and GPS non-precision approaches are expected to be published on 28 October 2004.

6.23 New VHF communications equipment and VSAT stations were being installed at Kabul FIC and in Herat, Mazar and Kandahar. In addition, a new high power HF station was planned to be installed at Kabul before the end of 2004. An invitation to tender for the installation of HF and VHF stations at 15 regional airports, together with power supply generators, has been issued. AFTN communications were fully operational, although presently routed via Karachi. However, not all ground-ground coordination links were operational. Commissioning of the new VSAT stations would allow direct AFTN and voice links with adjacent Area Control Centres (ACCs).

6.24 A training programme has been initiated for Afghan ATM and CNS personnel. Presently, 15 Afghan students were attending a basic air traffic controller training course and 12 air traffic controllers were attending an 8 week refresher course at the Civil Aviation College, Allahabad, India. In addition, 20 CNS technicians were attending a 6 month basic training course.

6.25 NATO who has responsibility for air traffic operations at Kabul International Airport has provided 13 international controllers to operate the FIC. It was expected that in January 2005, the FIC would be upgraded to an ACC and ATC services provided. Longer term planning was also underway to implement RVSM and radar services in the Kabul FIR.

ATM Safety Management Seminar - Beijing

6.26 The Secretariat brought to the attention of the meeting the ATM Safety Management Seminar hosted by the General Administration of Civil Aviation of China (CAAC) scheduled to be held in Beijing on 15-19 November 2004. This seminar was the first major regional event of this kind that would address matters related to Annex 11 provisions on ATS Safety management. It would also cover the safety of the operational ATM environment over a wide range of safety related activities, in particular runway safety and human factors.

Civil Military Seminar – Bangkok

6.27 The meeting was informed that the Regional Office was planning to hold a seminar on civil/military coordination on 14-17 December 2004. A seminar on this subject had not been held in this region since 1998, and it was important that civil/military coordination matters were given priority in light of events in recent times involving military action in the Middle East Region that led to the short notice closure of strategic airspaces used by international civil aviation. Also, it was recognized that the application of "due regard" practices by the military caused concern for the civil air traffic operations. The

military had expressed their keen interest to cooperate and work with civil authorities for the benefit of safe and efficient civil flight operations.

Agenda Item 7: Date and Venue for the BBACG/16 meeting

Venue for the Meeting

7.1 The meeting noted that as the next FIT-BOB/5 meeting included a two-day seminar/workshop related to ADS/CPDLC implementation issues, this meeting would be held over 5 days during March 2005. The meeting also recognized that some of the BBACG States would be involved in additional meetings in January and April 2005 in relation to the ATFM trial that would commence from the 1 October 2004. BBACG States would also be attending a Special Coordination Meeting that was expected to be scheduled in late November or early December 2004 regarding the implementation of a Regional ATFM Plan.

7.2 Accordingly, it was agreed that the BBACG/16 meeting would be held over 3 days during June 2005. The Regional Office would coordinate the final details for the meeting in due course.

Closing of the meeting

8.1 Mr. Tiede, in closing the meeting, thanked States and international organisations for their excellent cooperation and participation in progressing the matters raised. He noted the meeting had been informed that the Bay of Bengal CRA arrangements had been agreed between IATA and Boeing, allowing the CRA to begin operations from October 2004, ATS route issues were moving forward with the assistance of the ARNR/TF and agreement had been reached to implement the 2 NM right of centre line offset procedures in the region on the 25 November 2004, subject to coordinate with States. Mr. Tiede further noted the progress of the ADS/CPDLC operational trial and endorsed the positive approach of the meeting in establishing a seminar to increase the knowledge of providers and operators in this regard. Valuable progress had also been made regarding the flow management issues with agreement reached to further investigate automated flow systems and States collaborating to vary the ATC coordination procedures in order to allow the coordinated use of all available levels.

8.2 Mr. Tiede thanked participants and administrations for their support for the implementation programmes of the BBACG and FIT-BOB.

BBACG/15 — WORK PLAN

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
1. (ATS)	ATS route B203 (Amendment Proposal APAC 93/8-ATS)	Mid-Term	ICAO, Myanmar, China	On-going	<p>APAC 93/8 approved on 9/2/99 and States to implement the route. ICAO to coordinate with States on implementation progress.</p> <p>Referred to the ARNR/TF for BANP processing.</p> <p>Update by Bangladesh, India, and Myanmar.</p> <p>At BBACG/15 States involved agreed to coordinate to ensure immediate action on this item.</p>
2. (ATS)	CNS/ATM route Gawahati - Kunming ICAO to advise China of the need for a CNS/ATM route Gawahati to Kunming, in addition to the Imphal - Kunming route, and request China to investigate the feasibility of such a route.	Long-Term	ICAO, China, India, Myanmar,	On-going	<p>India has approved implementation. ICAO to coordinate with other States on implementation progress.</p> <p>Referred to the ARNR/TF for BANP processing. ICAO to follow up with China during Safety Seminar (Beijing) November 2005.</p>

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
3. (ATS)	Yangon/Chennai FIR boundary	Immediate	ICAO, India, Myanmar	On-going Completed	ICAO to coordinate with States. Designator for crossing point between P762/L759 assigned. Waypoint LADER assigned during BBACG/15.
4. (ATS)	Chennai/Colombo FIR boundary India and Sri Lanka will advise ICAO of the result of a bi-lateral meeting regarding: a) the withdrawal of delegation of airspace in the western portion of Chennai FIR; and b) the realignment of the FIR boundary between the Colombo and Chennai FIRs so that all the domestic airspace of Sri Lanka is encompassed by the Colombo FIR.	Immediate	ICAO, India, Sri Lanka	On-going	ICAO to coordinate with States for update. India is considering a proposal to change the FIR boundary. BBACG/15 advised that State providers have agreed a change and provided details to respective Governments for ratification.
5. (ATS)	Chiang Rai-PONU-K-SAGAG route-A581 a) Lao PDR will continue co-ordinating with China for implementation of the Chiang Rai-PONU-K-SAGAG route; and ICAO will, recognizing difficulties in implementing this route segment, assist Lao PDR in co-ordination as required.	Mid-Term	Lao PDR, China and ICAO	On-going Referred to ATS Route Review Task Force Completed	Chiang Rai-PONU-K sector implemented. Fully implemented.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
6. (ATS)	<p>ATS route B345, Beijing—Huairou—Huailai—Baotou—Yinchuan— Lanzhou—Yushu—Lhasa</p> <p>Lhasa - Kathmandu – Lucknow</p>	<p>Long Term</p> <p>Immediate</p>	China, Nepal and ICAO	<p>Discussions to be held in the short term to progress implementation</p> <p>■</p> <p>Ongoing</p> <p>Implemented</p>	<p>ICAO to coordinate with China and Nepal for implementation of the Baotou—Kathmandu route segment of B345.</p> <p>Referred to ATS Route Network Review Task Force.</p> <p>Amendment APAC 99/4 changed the requirement to Kathmandu-Lucknow only. Lhasa – Kathmandu was implemented as B345 and Lhasa – Chengdu as B213 on 7/7/04. ICAO to coordinate with China and Nepal to amend the BANP for B345 segment.</p>
7. (ATS)	<p>ATS routes B579 and R209</p> <p>a) ICAO will co-ordinate with Malaysia for replacing the route indicator W525 of the Langkawi—Penang route with B579; and,</p> <p>ICAO will draft an amendment proposal for ANP, on behalf of Thailand and Malaysia, to include the new requirement for R209 and to delete the requirement for the Penang—Kuala Lumpur from B579.</p>	Mid Term	ICAO	<p>ANP amendment APAC 98/2-ATS approved 9/3/99. States to implement the route</p>	<p>a) and b) completed</p> <p>Subject to ICAO confirmation with States that routes are implemented, the item closed.</p> <p>Referred to ARNR/TF.</p>

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
8. (ATS)	ATS route G211 Penang—ANOKO	Mid Term	ICAO	On-going Closed	ICAO to co-ordinate with Malaysia for implementation of ATS route G211. Referred to ARNR/TF.
9. (ATS)	Contingency Planning a) in the light of events which have occurred subsequent to the formulation of a Framework for Contingency Plans, agreed to at a Special ATS Coordination Meeting held at the ICAO Bangkok Office in June 1997, ICAO will revise the document where necessary and distribute to States for their comment; and, b) each State in co-ordination with its neighbouring State, develop a contingency plan or plans for their airspace, taking into account the ICAO Framework for Contingency Plans mentioned in a) above.	Immediate	ICAO and all States	On going.	Action in a) completed. BBACG/15 updated regarding request from APANPIRG/15 that Regional Office undertake survey of States in regard to contingency planning.
10. (ATS)	Search and Rescue Agreements between States a) States, in conjunction with their neighbouring State (s), will develop Search and Rescue Agreements, for the purpose of providing a more efficient response to a search and rescue action and increase the possibility of a successful search and rescue mission; States conduct joint training and exercises, as appropriate, to maximize proficiency; b) a State, together with a neighbouring State, establish common SAR procedures, where	Long-Term	All States and ICAO	On-going	Regional Office maintains a SAR register of agreements between States who are requested to notify the APAC Office when agreements are signed. A Seminar/SAREX planned for the Bay of Bengal area in Nov 2004 March 2005 . An ICAO Seminar will be held in conjunction with the Hong

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
	practicable; and a State, together with a neighbouring State, establish common SAR procedures, where practicable.				Kong, China annual SAREX, 24-28 November 2003 .
11. (ATS)	Revised ATS Route Structure – Southeast Asia – Middle East/Europe, South of the Himalayas EMARSSH routes implemented 28 November 2002	Long Term	ICAO, IATA and All States	Closed	Referred to the ARNR/TF for future developments.
12. (ATS)	Interim Revised Route Structure over the Bay of Bengal Area	Mid Term (AIRAC 2 Nov 2000)	India, Myanmar and Thailand	Closed.	EMARSSH routes implemented 28 November 2002.
13. (ATS)	ATS route A473 India will co-ordinate with Nepal for implementation of JALALABAD-NEPALGUNJ-KATHMANDU as A473 with necessary adjustment.	Immediate	India and Nepal	On-going	India unable to implement and Nepal has developed new route. ICAO to coordinate with States. Referred to the ARNR/TF. BBACG/15 advised that Nepal and India have reached agreement on modifications to proposal, documentation to be prepared and circulated by Nepal.
14. (ATS)	Update the meeting on ARNR/TF route developments involving the Bay of Bengal area	BBACG/15	ICAO	On-going Completed	BBACG/15 updated regarding outcomes of the first meeting of the ARNR/TF/1 on 6-10 September 2004.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
15. (ATS)	Refer route requirements identified at BBACG/14 to ARNR/TF	ARNR/TF/1	ICAO	On-going Completed	Route requirements from BBACG/14 Work Plan referred to the ARNR/TF.
16. (ATS)	Coordinate with India on ICAO SAREX/Seminar for the Bay of Bengal area	As soon as practicable	ICAO and India	On-going	SAREX/Seminar planned for November 2004-March 2005.
17. (ATS)	Coordinate holding an Inter-regional Coordination Meeting on Afghanistan airspace operations	As soon as practicable	ICAO ASIA/MID Offices	On-going Closed	Meeting planned for late April 2004 tentatively hosted by Pakistan in Islamabad. Meeting unable to be arranged. NATO presence in Afghanistan has accelerated improvements. Issues are being aggressively addressed in other forums.
18. (ATS)	Matters arising from BBACG/14 regarding ATM operations to be referred to the Thailand/Malaysia Aviation Consultation Committee Meeting in Phuket, Thailand	As scheduled	Malaysia and Thailand	On-going Closed, superseded by work plan item 22.	IATA Mach Number proposal to be reviewed by the meeting. Not discussed during Phuket meeting.
19. (ATS)	Provide traffic movement data on the Bay of Bengal routes to the RVSM 90-Day Review meeting	8 March 2004	All States	On-going Completed	90-day review meeting conducted March 2004.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
20. (ATS)	Introduce flexible use of FL300 on Bay of Bengal routes	2 February 2004	Thailand, Malaysia, Singapore		<p>Thailand, Malaysia and Singapore to establish a common flight plan database for the peak westbound traffic flow.</p> <p>Trial is operating, BBACG/15 to provide update.</p> <p>BBACG/15 agreed to trial of new ATS arrangements for 6 month commencing 1 October 2004 providing new NO-PDC levels and requirement for ACCs to coordinate to ensure use of all available levels.</p>
21. (ATS)	Implement new segment on P628 ASOPO to RK	NOTAM 22 January 2004	India and Pakistan	On-going	<p>Pakistan to coordinate lowering of the MEA to FL300.</p> <p>Route implemented, FL310 being used as MEA, by Pakistan due military restriction.</p>
22. (ATS)	Review the fixed mach number procedure using of Mach 0.84 on L759	Immediate	IATA		<p>Fixed MNT to be applied only when required by ATC. Consideration to be given to aircraft Mach number display in the B777.</p> <p>IATA to update BBACG/15.</p>

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
					At BBACG/15 IATA update resulted in procedures for M0.82 for FL280 and above and M0.83 for FL300 and above being adopted for 6 month trial, commencing 1 October 2004.
23. (ATS)	Pursue additional flight levels in Kabul FIR	On-going	ICAO	On-going	Coalition considering approval of FL280. FL280 granted, but withdrawn on N644 by NOTAM for approx 1 month during Aug/Sept 2004 for military reasons.
24. (ATS)	Use of L759/L750 and M770/A466 and N644 as separate routes	2 February- 28 March 200	Thailand, Malaysia, Singapore, India and Pakistan		To enhance traffic management in the BOB and reduce ground delays. Update BBACG/15. At BBACG/15 agreed to finalise arrangement with India that allows same level on L759 and M770 where planned routing beyond Delhi does not converge.
25. (ATS)	Develop a westbound Air Traffic Flow Management Plan (ATFMP)	On-going	All concerned States, ICAO, IFATCA, IFALPA, IATA		States/IATA to review progress and report to BBACG/14 Review progress and report to BBACG/15. BBACG/15 agreed trial of amended ATC coordination arrangements and India Flow

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
					<p>Procedures commencing 1 October 2004 for 6 months.</p> <p>BBACG/15 agreed to a SCM in late 2004 to study automated flow systems available, IATA to do the technical coordination with suppliers.</p>
26. (ATS)	Establishment of route segment RK to KN	Immediate	ICAO	Pakistan approved introduction of route segment in Pakistan airspace RK-BIRJAND and will coordinate for RK-KN	<p>Coordination with all parties concerned for extension of the route in Afghanistan airspace.</p> <p>Agreements reached between all parties including CFACC, documentation being prepared, expect implement early 2005.</p>
27. (ATS)	Collect traffic movement data for the Bay of Bengal routes	As determined by MAAR	All States in Bay of Bengal	On-going	<p>Lateral safety assessment requires update re SMA to be established by RASMAG/2 (Oct 04).</p> <p>Format TSD to be determined by MAAR.</p> <p>TSD required for month of July 2004.</p>
28. (ATS)	Implement 2NM Offset to the right procedures in accordance with APANPIRG Conclusion 15/8 and State Letter AN 13/11.6-04/85 (27 August 2004)	25 November 2004	All States/ICAO	On-going	Regional Office to coordinate with States to meet AIRAC 25 November 2004.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
29. (COM)	Myanmar's communication infrastructure problems to be brought to the attention of the Myanmar Government	Immediate	ICAO/Myanmar	A high level ICAO mission was conducted. An Action Plan was developed to upgrade equipment at all RCAG stations, provide VSAT links, improve power supply system and shift the ACC to the new location. All actions to be completed by end of 2004.	Urgent action required to overcome deficiencies in the reliability and availability of ATS communications. Implementation planned for end 2004.
30. (COM)	Kolkata/Dhaka ATS Direct Speech Circuits	Immediate	Bangladesh and India	On-going Action completed. Official notification of implementation status also received.	AFTN 64 Kbps circuit implemented. ICAO to coordinate with Bangladesh to use circuit for DSC. An IDD hotline has been implemented for ATS DSC and is operating satisfactorily. A 64 Kbps channel leased for AFTN circuit is also going to be used for voice communication as well in the immediate future.
31. (COM)	Kolkata/Dhaka ATS Direct Speech Circuit IDD Hotline	Immediate	Bangladesh and India	Closed	Dhaka/Kolkata ATS DSC has been implemented with a dedicated telephone and automatic dialling capability.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
	Bangladesh and India take urgent action to enhance the performance of the existing IDD service used for the Calcutta/Dhaka ATS direct speech communication by providing a dedicated telephone and automatic dialling capability—IDD Hotline at both ends.				IDD Hotline at both ends since May 2003. The communications can be established within 15 seconds.
32. (COM)	Agartala/Dhaka and Dhaka/Guwahati ATS Direct Speech Communication That, Bangladesh and India provide IDD service at Agartala, Dhaka and Guwahati to support ATS direct speech communication until requirements justify for establishment of dedicated ATS direct speech circuits between Agartala/Dhaka and Dhaka/Guwahati.	Mid Term	Bangladesh and India	Closed	IDD hotlines established between Agartala/Dhaka and Dhaka/Guwahati using dedicated telephones and automatic dialling capability and the links are operating satisfactorily.
33. (COM)	Kunming/Yangon ATS Direct Speech and AFTN Circuits Myanmar take action to reactivate the Kunming/Yangon ATS direct speech circuits and implement the Kunming/Yangon AFTN circuit using the existing VSAT link between China and Myanmar. Since China had expressed readiness to implement the circuit Myanmar to initiate co-ordination action with China for implementation without further delay. ICAO to co-ordinate with Myanmar for update.	Mid Term	Myanmar	On going Implementation completed	VSAT link between China and Myanmar reactivated and Kunming/Yangon ATS speech circuit also reactivated. AFTN circuit between Beijing and Yangon has been tested with satisfactory result. AFTN circuit will be in normal operations from/on AFTN was implemented on 10 September 2003.

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
34. (COM)	<p>VSAT Application to Upgrade AFS Communications</p> <p>India pursue with their telecommunication regulatory authority, the possibility of VSAT application to upgrade AFTN and ATS direct speech circuits with neighboring countries availing the service of the Indian VSAT service providers or AEROTHAI or any other VSAT service providers.</p> <p>ICAO to coordinate on establishment of services between India and adjacent States.</p>	Mid Term	India	<p>On-going</p> <p>Closed</p> <p>Requirements implemented using other means</p>	<p>Ground/ground AFS communications are established and improved with International Private Leased Circuits (IPLC).</p> <p>Indian VSAT service provider agreement in place with other service providers and action in-hand to provide VSAT links with neighbouring States.</p>
35. (COM)	<p>Implementation of Noted Shortcomings and Deficiencies</p> <p>Reliable communications between Kolkata-Dhaka.</p>	Long Term	Bangladesh and India	<p>On-going</p> <p>Closed</p>	<p>Reliable air/ground VHF.</p> <p>Reliable ground/ground 64 kbps data circuit already implemented as primary channel.</p> <p>Reliable backup circuit via Mumbai and Bangkok in operation as secondary circuit (previous primary circuit).</p> <p>Reliable speech circuit. IDD hotline established and working satisfactorily.</p> <p>AFTN communications established and back up system being installed to be completed by November 2004.</p>

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
36. (COM)	<p>Bangladesh ER VHF</p> <p>Bangladesh takes urgent action to implement an ER VHF station to provide adequate VHF coverage in the southern part of Dhaka FIR by June 2001.</p>	Mid Term	<p>Bangladesh</p> <p>The airspace has been delegated to Kolkata FIR for the provision of ATS until Dhaka ACC can provide VHF coverage in the southern part of Dhaka FIR. No operational problem nor any adverse impact on flight safety experienced. This deficiency is also included in the list of deficiency developed by APANPIRG. It will be deleted from the list upon receiving a formal notification of current arrangement from Bangladesh</p>	<p>On-going</p> <p>Closed</p>	<p>Bangladesh installing one RCAG station in southern Dhaka FIR by end of 2003 has plan to provide VHF coverage throughout the Dhaka FIR by end 2006.</p> <p>To expedite implementation of RCAG stations an interim agreement made for implementation of one RCAG site in southern part of Dhaka FIR. Technical arrangement being finalized with service provider.</p> <p>ICAO to obtain update.</p>

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	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
37. (COM)	Reliable VHF communication Unreliable communications infrastructure.	Immediate	Myanmar	On-going Closed, superseded by Action Item 21	Further action required by Myanmar to improve reliability of VHF communications in the Yangon FIR. ICAO to coordinate and seek urgent action.
38. (Admin)	Determine date for the FIT-BOB/5 and BBACG/16 joint meeting and inform participants.	As soon as practicable	ICAO	On-going	FIT-BOB/5 meeting - 5 days in March 2005, to include seminar/workshop re ADS/CPDLC for States and operators. SCM on automated flow equipment in Nov/Dec 2004, Regional Office to coordinate BBACG/16 – 3 day meeting June 2005. Regional Office to confirm dates.
39. (Admin)	Progress MID/ASIA SUPP amendment on the FIRs in the Bay of Bengal area where RVSM was implemented on 27 November 2003	As soon as practicable	ICAO	On-going Completed	Coordinate agreement for the proposal with States not present at BBACG/14.

NATIONAL ATS CONTINGENCY PLANNING FRAMEWORK

Amendments

Amendments to this planning document must be by page replacement, addition and deletion or by complete re-issue.

Staff amending this document must complete the Amendment Record Sheet below and ensure that all pages are current according to the Checklist of Effective Pages.

Amendment Number	Amendment Date	Amended By	Date Amended
Initial Issue			

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Introduction

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Checklist of Effective Pages

Subject	Pages	Issue Date
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Development of Contingency Plans		

Development of contingency plans

Introduction

ATS Contingency Planning is necessary to ensure the continuing safety of air navigation within *[insert state]* FIRs and to minimise effects on the traveling public in the event of facility failures, natural disasters, civil unrest (demonstrations), personnel shortages or industrial action. This document provides guidelines for the development of ATS Contingency Plans.

This document outlines the framework of Contingency Planning. The National ATS Contingency Plan follows on from this document. Individual Centre then group plans follow on from the National ATS Contingency plan.

Contingency plan objectives

The objective of contingency plans is to provide a timely, ordered and structured response to and recovery from, any catastrophic degradation or failure to provide Air Traffic Services. Whilst circumstances may vary, contingency plans provide for the worst case scenario. Depending on the availability of resources, a greater level of air traffic services may be provided.

Airways Contingency Committees

When necessary, Airways Contingency Coordination Committees (ACCC) will be formed to implement contingency plans, allocate times for the operation of individual flights and manage traffic restrictions. These committees may be at a National and/or Local level. Each contingency plan shall outline the ACC responsibilities and communication requirements between the ATS service provider, government agencies, aircraft operators and any other relevant party.

National Airways Contingency Coordination Committee

The National Airways Contingency Coordination Committee (NACCC) will be convened to implement the national contingency plan or during any other significant event. If any contingency plan is activated, the *[insert responsible authority]* shall be notified.

Testing and review

Regular review (biannually) and testing (annually) of contingency plans shall be undertaken to ensure validity of the plans.

Following activation of any ATS contingency plan, *[insert responsible Manager]* shall ensure that formal revision is undertaken involving consultation with all affected organisations (ATS, Regulator, Military and Industry).

Air Traffic Services

In ICAO Annex 11, ATS comprises:

1. an air traffic control service;
2. a flight information service; and
3. an alerting service.

Airspace over the high seas

Only an airspace classification (Classes A – G) or a Danger Area should be declared beyond Australia's Territorial Limits, however it is recognised that airspace management is necessary in the vicinity of major airports.

Considerations

Staffing

- Staff availability and manning arrangements;
- Licensing status of available staff;
- Additional resources such as briefing officers to provide particular attention to airspace, frequency and clearance requirements.

Procedures

- Consider the need to increase traffic spacing to ensure the minimum is not infringed; and
- Need to temporarily suspend the application of certain procedures , eg traffic information in Class G airspace;
- Minimise the impact on existing airspace arrangements, pilot / ATS procedures;
- The preparation of diagrammatic presentation of affected airspace changes, including frequency change details and SID / STARs suitable for transmission via AVFAX and NAIPS;
- Develop a methodology to facilitate special operations.

Facilities

- Availability of NAVAIDS and communications facilities;
- The use of other units facilities, including towers;
- The use or assistance of military ATS facilities.

Demand/Capacity

- Determine anticipated traffic levels;
- Need to limit or “flow” traffic eg:
 - by means of gate spacing at sector boundaries;
 - route restrictions to initiate a simplified network;
 - controlled departures times; and
 - enroute holding.

Individual plans will outline use of a time allocation system where necessary.

Options

When developing a contingency plan, the preferred options, in order, are:

- a. Consolidate functions to alternate operating positions (subject to availability of appropriately licensed staff) and, if required, implement traffic metering; or
- b. Transfer responsibility for services to another Unit / Centre and if required, implement traffic metering; or
- c. Implement traffic metering, to reduce traffic congestion, and / or
- d. Reclassify the airspace to another classification (eg Class C to Class A or Class C to Class D); or
- e. Re-designate the airspace to Restricted area; and
 - (1) implement TIBA;
 - (2) implement MBZ at certain aerodromes; or
- f. Reclassify as Class G airspace; or

Where airspace is reclassified as Class G or the normal services of Class G airspace are affected, [eg SAR alerting], issue NOTAM to define what services are not available.

Transfer of Responsibility

Where a transfer of responsibility for airspace occurs, formal Letters of Agreement shall be exchanged between Unit/Centre Managers to clearly state requirements for the transfer of responsibility. Additionally, all ATS personnel shall be trained in appropriate aspects of the responsibilities they may be required to assume under any Contingency Plan Letter of Agreement (LOA). When necessary, the LOA shall indicate training and competency requirements. When responsibility for airspace cannot be absorbed or transferred, then **Options c-g** (above) will apply. LOAs shall contain, but are not limited to the following:

- a. notification procedures where an event can be foreseen, the transfer should take place prior to any risk of failure of communications facilities;
- b. areas of responsibility with training and competency requirements;
- c. procedures and coordination arrangements;
- d. relevant Local Instructions;
- e. lateral separation diagrams; and
- f. details of a formal amendment process of the foregoing.

Procedures documentation shall detail contingency arrangements with military ATS units.

Where appropriate, en-route Centres, in conjunction with the Office of the HATC, shall establish LOAs with neighbouring States for route restrictions or the provision of services (to the extent possible) for international air traffic over the high seas or for domestic operations.

Contingency Services

During contingency periods, where a level ATS staffing is available it may be deemed necessary to provide basic services in the form of basic flight monitoring operations.

Flight monitoring service

Where it is determined that an enroute flight monitoring service can be provided, contingency services, when available, will acknowledge the following:

- when initial contact is made on the frequency;
- emergency communications; and
- when advised of changing to another frequency.

This flight monitoring system along with radar and ADS/CPDLC information will be used to assist in establishing aircraft positions during recovery from the contingency and return to the provision of normal air traffic services.

The ATS provider may not be able assure the provision of aerodrome control services. Limited aerodrome information may be provided from selected control tower locations.

Local contingency plans will detail the specific availability.

Resumption of service

Individual plans will outline the process followed to resume normal service.

Authorisation

This document is authorised by:

<i>[Insert authority]</i>	Date

BAY OF BENGAL FLOW CONTROL COORDINATION

ROLES AND RESPONSIBILITIES	
Special Coordination Procedure for Bay of Bengal ATFMP	
<ul style="list-style-type: none"> ❖ All FPL concern to be distributed to VTBBZRZX by 1300 UTC for the ATS/RNAV routes; L759, M770, P628, N895, L301 and P762 ❖ <i>The following NO-PDC arrangement below will be used during 1330-1930 UTC as an internal coordination agreed in the meeting among the various FIRs namely Singapore, Kuala Lumpur, Bangkok, Yangon, Kolkatta and Chennai.</i> 	
ATS Routes	Flight Level
L301 N895	FL300 FL340
P762 L645 A327	FL300
M770 L759 P628 N877	FL280 FL320
<ul style="list-style-type: none"> ❖ <i>This flight level assignment is to facilitate westbound departing and over-flying flights from Bangkok, Kuala Lumpur, and Singapore FIRs to cater for peak international traffic flows from 1330 UTC to 1930 UTC.</i> ❖ <i>ATS providers shall coordinate to achieve the maximum use of all available flight levels.</i> ❖ <i>Pre-departure coordination shall be effected for level other than those assigned in the No-PDC arrangement to maximize the flow of traffic on each route.</i> 	
The following procedures should be applied between 1330 -1930 UTC	
KUALA LUMPUR ACC	
1. Ensure the estimated of aircraft under No-PDC FLAS on R325 and B579 for L759 M770 is passed to BACC Sector 5 ASAP	
2. Ensure FPL for flight operates on P628 is sent to VTBBZRZX	
3. Ensure information at IGREX of P628 is passed to BACC Sector 5, including the revision for westbound flight	
4. Flight will be launched according to the new No-PDC arrangement	
5. FL300 or other FLs will be accessed and advised by BACC	
6. The 3 th aircraft maybe coordinated when FL280 and FL320 are fully utilized	
BANGKOK ACC	
1. Flight will be launched according to the new No-PDC arrangement	
2. Initial evaluate traffic on L301 P762 M770 L759 P628 and N895 according to the information received from KL and BKK ACCs	
3. Examine traffic at BUBKO SADUS MABUR URKOK M770XP762 (LULDA) and PPB	
4. The required Separation 15 mins or more at the crossing point shall be provided	
5. Longitudinal separation (same track) 10 mins or more with same Mach Number or 80 NM RNAV may be applied	
6. Shuffle flight level allocation as appropriate according to the traffic situation and coordination to maximize traffic flow and capacity	
7. Approval request may be in effect when the flight density is over the no-PDC FL assignment demand and share use of FL in the other route is possible.	
8. ADS maybe use to monitor traffic situation	
YANGON ACC	
1. Access traffic as coordinated by BACC	
2. Examine traffic situation at the crossing point	
3. Advise BACC of any additional requirement may need	
4. ADS/CPDLC maybe use to monitor traffic situation	

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KOLKATTA/CHENNAI ACCS

- | |
|---|
| 1. Access traffic as coordinated by Yangon ACC |
| 2. Monitor traffic situation |
| 3. Responsible for de-conflicting, traffic from L301 and N877 at VVZ |
| 4. Advise Yangon ACC of any additional requirement may need |

NOTAM

FOR BANGKOK

ACTIVITY FLIGHT PLAN SUBMISSION FOR WESTBOUND FLIGHT INTO THE BAY OF BENGAL

BETWEEN 0410010001 TO 0503311830, A TRIAL WILL BE CONDUCTED TO FACILITATE AIR TRAFFIC PLANNING AS WELL AS MAXIMISE THE ROUTE CAPACITY OVER THE BAY OF BENGAL, WESTBOUND FLIGHTS DEPARTING OR OVERFLYING BANGKOK FIR INTO THE BAY OF BENGAL AREA INTENDING TO OPERATE ON ATS ROUTES N895, L301, P762, L515/M770 AND L759 BETWEEN 1530UTC AND 1830UTC SHALL;

- A) SUBMIT FLIGHT PLANS BY 1300UTC. AND AMENDMENTS TO THE FILED FLIGHT PLAN, IF ANY, SHALL BE FILED BY 1400UTC.
- B) OPERATORS SHOULD FILE FPL FOR AIRCRAFT OPTIMUM FL OTHER THAN THAT SPECIFIES IN THE NO-PDC ARRANGEMENT
- C) ALL FLIGHT PLANS OPERATING DURING THIS PERIOD OVER THE MENTIONED ROUTES SHALL BE ADDRESSED TO VTBBZRZX.
- D) FLIGHT LEVEL MAYBE ALLOCATED AS APPROPRIATE TO THE TRAFFIC SITUATION
- E) MACH SPEED SHALL BE INDICATED IN FPL AND MNT MAY BE REQUIRED BY ATC
- F) MACH NUMBER REQUIREMENT ON ATS ROUTE L759 SHOULD BE AS FOLLOWS;
 - 1. FL 280, M.82 OR EQUIVALENT TO IAS 320 KT OR GREATER
 - 2. FL300 OR HIGHER, M.83 OR GREATER AT FL300 OR ABOVE

PERIOD OF ACTIVITY 0410010001 TO 0503311830

FOR MALAYSIA

(Axxxx NOTAMN

Q) WMFC/QXXXX/I/NBO/A/000/999

A) WMKK B) 0410010001 C) 0503311800

D) DAILY BTN 1500/1800

E) TO FACILITATE ATC PLANNING AS WELL AS TO MAXIMISE THE ROUTE CAPACITY, WESTBOUND FLIGHTS OPERATING OVER THE BAY OF BENGAL INTENDING TO OPERATE ON THE ATS ROUTES L759, L515/M770 AND P628, DEPARTING KUALA LUMPUR/PENANG BTN 1500UTC AND 1800UTC SHALL;

- A) SUBMIT FLIGHT PLANS BY 1300UTC AND AMENDMENTS TO THE FILED FLIGHT PLAN, IF ANY, SHALL BE REFILED BY 1400UTC.
- B) ALL FLIGHT PLANS OPERATING DURING THIS PERIOD SHALL BE ADDRESSED TO VTBBZRZX, WMFCZQZX AND WSJCZRZX.
- C) FLIGHT LEVEL MAYBE ALLOCATED AS APPROPRIATE TO THE TRAFFIC SITUATION
- D) MNT MAY BE REQUIRED BY ATC
- E) FLIGHT OPERATING ON ATS ROUTE L759 SHOULD BE CAPABLE OF THE FOLLOWING MNT REQUIREMENTS;

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Appendix C to the Report

1. M.82 OR EQUIVALENT TO IAS 320 KT OR GREATER AT FL 280
2. M.83 OR GREATER AT FL300 OR ABOVE

PERIOD OF ACTIVITY 0410010001 TO 0503311800

FOR SINGAPORE

(Axxxx/Bxxxx/Cxxxx NOTAMN

Q) WSJC/QXXXX/I/NBO/A/000/999

A) WSSS B) 0410010001 C) 0503311730

D) DAILY BTN 1430/1730

E) TO FACILITATE ATC PLANNING AS WELL AS TO MAXIMISE THE ROUTE CAPACITY, WESTBOUND FLIGHTS OPERATING OVER THE BAY OF BENGAL INTENDING TO OPERATE ON THEVATS ROUTES L759, L515/M770 AND P628, DEPARTING SINGAPORE BTN 1430UTC AND 1730UTC SHALL;

- A) SUBMIT FLIGHT PLANS BY 1300UTC AND AMENDMENTS TO THE FILED FLIGHT PLAN, IF ANY, SHALL BE REFILED BY 1400UTC.
- B) FLIGHT PLAN OPERATING DURING THIS PERIOD SHALL BE ADDRESSED TO VTBBZRZX, WMFCZQZX AND WSJCZRZX
- C) FLIGHT LEVEL MAYBE ALLOCATED AS APPROPRIATE TO THE TRAFFIC SITUATION
- D) MNT MAY BE REQUIRED BY ATC
- E) FLIGHT OPERATING ON ATS ROUTE L759 SHOULD BE CAPABLE OF THE FOLLOWING MNT REQUIREMENTS;
 1. M.82 OR EQUIVALENT TO IAS 320 KT OR GREATER AT FL 280
 2. M.83 OR GREATER AT FL300 OR ABOVE

PERIOD OF ACTIVITY 0410010001 TO 0503311730

**AIRCRAFT CRUISE SPEED CAPABILITY AT FL 280
FOR APPLICATION OF THE MACH NUMBER TECHNIQUE**

(Based on max takeoff off weight ISA+10)

AIRCRAFT TYPE	CRZ IAS	Equivalent MACH NUMBER	Equivalent TAS	VMO/MMO (Max IAS)	MINIMUM MN/IAS
B747-400	330	0.84	510	364 (M0.87)	0.82/328
(0.86)	328 (LRC)	0.83	495	364 (M0.87)	
B777-200 (0.84)	316 (LRC)	0.80	484	330 (M0.83)	0.76/298
B777ER (0.84)	325 (LRC)	0.81	496	330 (M0.83)	0.81/317
B777-300 (0.84)	325 (LRC)	0.81	496	330 (M0.83)	0.82/320
A340-300 (0.82)	320 (LRC)	0.80	494	330 (M0.83)	0.80/310
A340-500 (0.83)	322 (LRC)	0.81	496	330 (M0.83)	0.80/310

STATE LETTER

REVISED GUIDELINES ON THE USE OF STRATEGIC LATERAL OFFSETS

Tel.: +1 (514) 954-8219 ext. 6711

Ref.: AN 13/11.6-04/85

27 August 2004

Subject: Revised guidelines on the use of strategic lateral offsets

Action required: As indicated in paragraphs 5 and 6

Sir/Madam,

1. I have the honour to invite your attention to the attached revised guidelines on the use of strategic lateral offsets as a safety measure to reduce the risk of collision in the event of loss of vertical separation. On 3 August 2004, the Commission approved the circulation of these guidelines to States and international organizations.
2. You will recall that the use of lateral offsets has been the subject of two previous State letters, AN 13/11.6-00/96 of 3 November 2000 and AN 13/11.6-02/21 of 31 May 2002. The guidelines contained in these letters were, in both cases, based on safety studies undertaken by the Separation and Airspace Safety Panel (SASP). Work has continued in the panel to evaluate the safety of the application of strategic lateral offsets in circumstances other than those permitted by the previous guidelines. As a result of these studies, it has been possible to develop revised guidelines which are less restrictive than the guidelines contained in the previous two State letters.
3. The previous guidelines restricted the offset to 1 NM to the right of track, and limited the use of offsets to global navigation satellite system (GNSS) equipped aircraft. The further safety analyses showed that, in oceanic and remote continental airspace under the conditions specified in the revised guidelines, the application of offsets of up to 2 NM right of track and the use of offsets by all suitably equipped aircraft were acceptable.
4. Annex 2 — *Rules of the Air*, Chapter 3, paragraph 3.6.2.1.1, states: “Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable: a) when on an established ATS route, operate along the defined centre line of that route; or b) when on any other route, operate directly between the navigation facilities and/or points defining that route”. As a consequence, the application of strategic lateral offsets in controlled airspace requires authorization by the appropriate air traffic services (ATS) authority. This can be achieved by initial publication of the approved offset procedures by NOTAM, followed subsequently by their incorporation in the Aeronautical Information Publication (AIP).

5. As it is desirable that offset procedures be standardized to the maximum extent possible, in order to reduce the likelihood of pilots inadvertently applying procedures different from those specified for the airspace in which they are operating, it is recommended that these strategic lateral offset procedures be implemented on a regional basis, after coordination between all States involved. Action should also be taken to incorporate the procedures and details of the airspace where the procedures will be applied in the *Regional Supplementary Procedures* (Doc 7030).

6. As the studies undertaken by SASP showed that the application of these procedures would result in an overall increase in the safety of operations in remote and oceanic airspace, all States who are responsible for the provision of air traffic services in such airspace are urged to authorize the use of strategic lateral offsets in accordance with these guidelines.

Accept, Sir/Madam, the assurances of my highest consideration.

Taïeb Chérif
Secretary General

Enclosure:

Revised guidelines on the use of lateral
Offsets and the effect on airspace safety

ATTACHMENT to State letter AN 13/11.6-04/85

**REVISED GUIDELINES ON THE USE OF STRATEGIC LATERAL OFFSETS AND
THE EFFECT ON AIRSPACE SAFETY**

1. INTRODUCTION

1.1 These guidelines are based on studies carried out by the ICAO Separation and Airspace Safety Panel (SASP) to address airspace safety issues associated with pilots applying lateral offsets when operating aircraft with automatic offset tracking capability. The intent of offset procedures is to reduce the risk of collision due to a loss of planned vertical separation. The impact of the use of lateral offsets on overall airspace safety has been evaluated and SASP has carried out a technical analysis of safety-related issues. These guidelines are based on the results of this analysis and are provided to assist States and regional planning groups to identify air traffic services (ATS) routes and airspace where authorization of the use of strategic lateral offsets would enhance existing levels of safety.

1.2 The SASP studies took into account the effects of lateral offsets on the safety of parallel routes with a 60 NM route spacing where compliance with the minimum navigation performance specification (MNPS) is required; with a 50 NM route spacing where RNP 10 is specified; and a 30 NM route spacing where RNP 4 is specified, as well as in crossing track situations where navigational accuracies ranging from RNP 4 to RNP 20 were assumed.

1.3 In accordance with Annex 2 — *Rules of the Air*, intentional deviation from the centre line of an ATS route requires authorization. Annex 2, Chapter 3, paragraph 3.6.2.1.1, states:

“Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable:

- a) when on an established ATS route, operate along the defined centre line of that route; or
- b) when on any other route, operate directly between the navigation facilities and/or points defining that route.”

1.4 As a consequence of this, the implementation of strategic lateral offset procedures requires authorization by the appropriate ATS authority.

2. AIRCRAFT NAVIGATION PERFORMANCE AND AIRSPACE SAFETY

2.1 ICAO separation minima, including lateral route spacings, are based on the assumption that aircraft operate on the centre line of a route. In general, unauthorized deviations from this requirement could compromise safety. However, the use of highly accurate navigation systems (such as global navigation satellite system (GNSS)) reduces the magnitude of lateral deviations from the route centre line and consequently increases the probability of a collision if a loss of vertical separation between aircraft on the same route occurs.

2.2 By using offsets to provide lateral spacing between aircraft, the effect of this reduction in random lateral deviations can be mitigated, thereby reducing the risk of collision.

These guidelines provide information on how such a strategic lateral offset procedure should be implemented.

2.3 As the application of strategic lateral offsets, limited in magnitude and direction as prescribed in these guidelines, has the potential to reduce the risk of collision due to a loss of planned vertical separation, ATS authorities are encouraged to authorize the use of such offsets in oceanic and remote continental airspace.

3. **IMPLEMENTATION CONSIDERATIONS FOR ATS AUTHORITIES**

3.1 The following considerations shall be taken into account when planning authorization of the use of strategic lateral offsets in a particular airspace:

- a) strategic lateral offsets shall only be authorized in en-route oceanic or remote continental airspace. Where part of the airspace in question is within radar coverage, transiting aircraft should normally be allowed to initiate or continue offset tracking;
- b) strategic lateral offsets may be authorized for the following types of routes (including where routes or route systems intersect):
 - 1) uni-directional and bi-directional routes; and
 - 2) parallel route systems where the spacing between route centre lines is not less than 55.5km (30 NM);
- c) in some instances it may be necessary to impose restrictions on the use of strategic lateral offsets, e.g. where their application may be inappropriate for reasons related to obstacle clearance;
- d) these offset procedures should be implemented on a regional basis after coordination between all States involved;
- e) the routes or airspace where application of strategic lateral offsets is authorized, and the procedures to be followed by pilots, shall be promulgated in aeronautical information publications (AIPs); and
- f) air traffic controllers shall be made aware of the airspace within which strategic lateral offsets are authorized.

4. **LATERAL OFFSET PROCEDURES TO BE APPLIED BY PILOTS**

4.1 In the application of strategic lateral offsets, pilots should take the following points into consideration:

- a) offsets shall only be applied in airspace where this has been approved by the appropriate ATS authority;
- b) offsets shall be applied only by aircraft with automatic offset tracking capability;

- c) the decision to apply a strategic lateral offset is the responsibility of the flight crew;
- d) the offset shall be established at a distance of one or two nautical miles to the right of the centre line relative to the direction of flight;
- e) the strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, one of the three available options (centreline, 1 NM or 2 NM right offset) shall be used;
- f) in airspace where the use of lateral offsets has been authorized, pilots are not required to inform air traffic control (ATC) that an offset is being applied; and
- g) aircraft transiting areas of radar coverage in airspace where offset tracking is permitted may initiate or continue an offset.

DRAFT AIP AMENDMENT

IMPLEMENTATION OF STRATEGIC 2 NM LATERAL OFFSET PROCEDURES

X. STRATEGIC LATERAL OFFSETS IN OCEANIC AIRSPACE

- X.1 Offsets are only applied in the oceanic (or remote continental) airspace in the XXX FIR.
- X.2 Offsets are applied only by aircraft with automatic offset tracking capability.
- X.3 The following requirements apply to the use of the offset:
 - a. The decision to apply a strategic lateral offset is the responsibility of the flight crew.
 - b. The offset shall be established at a distance of one or two nautical miles to the right of the centre line relative to the direction of flight.
 - c. The strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, one of the three available options (centreline, 1NM or 2NM right offset) shall be used.
 - d. In airspace where the use of lateral offsets has been authorized, pilots are not required to inform air traffic control (ATC) that an offset is being applied.
 - e. Aircraft transiting areas of radar coverage in airspace where offset tracking is permitted may initiate or continue an offset.

LANGUAGE PROFICIENCY

ICAO RATING SCALE FOR OPERATIONAL LEVEL 4

Pronunciation: (Assumes a dialect and/or accent intelligible to the aeronautical community)

Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding.

Structure: (Relevant grammatical structures and sentence patterns are determined by language functions appropriate to the task)

Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.

Vocabulary:

Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work-related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.

Fluency:

Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers or connectors. Fillers are not distracting.

Comprehension:

Comprehension is mostly accurate on common, concrete, and work related-topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.

Interactions:

Responses are usually immediate, appropriate, and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming, or clarifying.

(Note: For complete information on the ICAO language proficiency rating scales, please refer to the Attachment to Annex I.)

Asia Pacific Region - RVSM & RNP DATA COLLECTION TEMPLATE

MANDATORY FIELDS												CONDITIONAL FIELDS						
FIR IDENTIFICATION:												CHANGES OF TRACK/LEVEL						
DATE	AIRCRAFT CALL SIGN	AIRCRAFT TYPE	ORIGIN AERODROME	DESTINATION AERODROME	ENTRY FIX INTO RVSM/RNP AIRSPACE	TIME (UTC) AT ENTRY FIX	FL AT ENTRY FIX	AIRWAY AT ENTRY FIX	EXIT FIX FROM RVSM/RNP AIRSPACE	TIME (UTC) AT EXIT FIX	FL AT EXIT FIX	FIX 1	TIME AT FIX 1	FL AT FIX 1	FIX 2	TIME AT FIX 2	FL AT FIX 2	DESCRIBE EVERY CHANGE THAT OCCURRED

LIST OF PARTICIPANTS

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BBACG/15 & FIT-BOB/4
Attachment 1 to the Report

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Attachment 1 to the Report

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BBACG/15 & FIT-BOB/4
Attachment 1 to the Report

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BBACG/15 & FIT-BOB/4
Attachment 1 to the Report

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FIT-BOB/4 – LIST OF PAPERS

WORKING PAPERS

WP/No.	Agenda Item	Subject	Presented by
1	-	Provisional Agenda for FIT-BOB/4	Secretariat
2	2	Work Plan from FIT-BOB/3	Secretariat
3	3	Delayed ADS Reports in Australian Airspace	Secretariat/Australia
4	4, 8	FANS 1/A Operations Manual (FOM)	Secretariat
5	4	Draft Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia/Pacific Region	Secretariat
6	7	ADS/CPDLC Equipage and Participation of States in Operational Trials of ADS/CPDLC	Secretariat
7	4	FANS 1/A Operational Trial in Bay of Bengal	India

INFORMATION PAPER

IP/No.	Agenda Item	Subject	Presented by
1	3	Progress Report on the establishment of the CRA for Bay of Bengal	IATA

BBACG/15 – LIST OF PAPERS

WORKING PAPERS

WP/No.	Agenda Item	Subject	Presented by
1	-	Provisional Agenda for BBACG/15	Secretariat
2	2	Work Plan from BBACG/14	Secretariat
3	6	Implementation of 2NM Lateral Offset Procedures in the Non-Radar Oceanic Airspace of the ASIA/PAC Region Target Date 25 November 2004	Secretariat
4	4	The need to manage the traffic flows across the Bay of Bengal to Europe	IATA
5	4	APANPIRG/15 regarding air traffic flow management over the Bay of Bengal	Secretariat
6	5	Recent developments on ATS routes implementation	Secretariat

INFORMATION PAPERS

IP/No.	Agenda Item	Subject	Presented by
1	3	Special Implementation Project for the Bay of Bengal	Secretariat
2	6	Update Developments to Improve the Air navigation Services in Afghanistan	Secretariat
3	6	Language Proficiency	Secretariat
4	6	IATA's Shortcoming and Deficiency Programme	IATA
5	5	CNS/ATM activities and air route development in Nepal	Nepal
6	4	Air Traffic Flow Management through Kabul FIR	Thailand
