INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE TENTH MEETING OF THE FANS IMPLEMENTATION TEAM, BAY OF BENGAL (FIT-BOB/10)

Mumbai, India

10 to 11 July 2008

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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HISTORY OF THE MEETING

1. Introduction

1.1 The Combined Third Meeting of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG/3) and Tenth Meeting of the FANS Implementation Team, Bay of Bengal (FIT-BOB/10) , graciously hosted by the Airports Authority of India, were held consecutively at the JW Marriot Hotel in Mumbai, India. The ASIOACG/3 meeting was held 7 to 9 July 2008 and FIT-BOB/10 meeting was held from 10 to 11 July 2008.

1.2 The ICAO Asia and Pacific Office, in consultation with the ASIOACG Secretariat, took the initiative of combining the periodic ICAO FIT-BOB meeting with the ASIOACG meeting, resulting in efficiencies and economies for many of the participants with interests in both meetings.

1.3 This report provides a summary of the outcomes of the FIT-BOB/10 meeting and is available from the website of the ICAO Asia/Pacific Regional Office at www.bangkok.icao.int. The full report of the ASIOACG/3 meeting is available from the ASIOACG website at www.ekgroup.com/raws, noting username: raws and password: r@Ws123

2. Attendance

2.1 The respective meetings were attended by a total of 69 participants from Australia, India, Indonesia, Malaysia, Maldives, Mauritius, Oman, Seychelles, Saudi Arabia, Thailand, United States, IATA, Air India, Cathay Pacific, Emirates Airlines, Etihad Airways, Singapore Airlines, Thai International Airways, IFALPA, BOEING and SITA. A delegation from the Arab Civil Aviation Commission FANS Implementation Group (AFIG) was also extended a very warm welcome to the meeting. A list of participants is at **Attachment 1**.

3. Officers and Secretariat

3.1 Mr. Brad Cornell of the BOB-CRA chaired the FIT-BOB meeting, assisted by Mr. Andrew Tiede, Regional Officer Air Traffic Management from the ICAO Asia and Pacific Regional Office, as the Secretary for the FIT-BOB/10 meeting.

3.2 Mr. Abdullah Nassar Al-Harthy, Senior Air Traffic Controller for the Directorate General of Civil Aviation and Meteorology, Sultanate of Oman continued as the Chairman of ASIOACG, supported by Mr. Ron Rigney, Emirates Airlines who acted as the Secretary to the ASIOACG/3 meeting.

4. Opening of the Meetings

4.1 In the Indian tradition, a formal inauguration ceremony was conducted to bless the opening of the combined meetings. The ceremony was led by Mr. S.R.R. Rao, Regional Executive Director, Western Region, Airports Authority of India, Mumbai and Mr. V. Somasundaram, Executive Director (ATM), Airports Authority of India, Delhi, who informed the meeting about the progress that had been made by India in relation to modernizing ATS capabilities in general and the specific advances in the case of the Mumbai FIR. Very importantly, Mr. Somasundaram informed the meeting that the legal agreements between India and IATA, and IATA and Boeing, respectively had recently been signed and this enabled formal funding arrangements to be implemented for the Bay of Bengal Central Reporting Agency (BOB-CRA).

4.2 Mr. Abdullah Nassar Al-Harthy also welcomed delegates to the meeting, thanking the Airports Authority of India for the gracious hospitality in hosting the meeting and noting the busy work programme ahead. In his opening remarks, Mr. Ron Rigney, Emirates Airline and ASIOACG Secretary drew attention to the progress that had been made since the last meeting and the relationship of this work to the ICAO Global Air Navigation Plan.

4.3 On behalf of Mr. Mokhtar A. Awan, Regional Director, ICAO Asia and Pacific Regional Office, Mr. Andrew Tiede welcomed all participants to Mumbai. He highlighted that the Bangkok Regional Office and India have enjoyed a long and mutually beneficial relationship in advancing the safe and sustainable development of civil aviation. In thanking the Airports Authority of India for their generosity in hosting the combined meetings, Mr. Tiede noted and welcomed the operational representation from all of the major operational centers of AAI, acknowledging delegates from the Mumbai, Delhi, Kolkata and Chennai ACCs. He also thanked Mr. M.G. Junghare, General Manager (ATM) at Mumbai Airport for coordinating the excellent arrangements that were in place for the meeting.

5. Documentation and Working Language

5.1 The working language of the joint meetings and the language for all documentation was English. Seven (7) Working Papers and eight (8) Information Papers were presented to the FIT-BOB/10 meeting. The list of papers for the FIT-BOB/10 meeting is shown at **Attachment 2**. Details in relation to the papers considered by ASIOACG/3 are contained in the ASIOACG/3 report.

REPORT OF THE FIT-BOB/10 MEETING

Agenda Item 1: Adoption of Agenda

1.1 The FIT-BOB/10 meeting adopted the following Agenda for the meeting:

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Central Reporting Agency

Agenda Item 3: Review Bay of Bengal ADS/CPDLC Operational Trial

Agenda Item 4: Review Arabian Sea ADS/CPDLC Operational Trial

Agenda Item 5: Review ADS/CPDLC Implementation

Agenda Item 6: Data Link Guidance Materials

Agenda Item 7: Update FIT-BOB Task List

Agenda Item 8: Any other business

Agenda Item 9: Date and venue for the next meeting

Agenda Item 2: Central Reporting Agency

Funding of BOB CRA services

2.1 The meeting recalled that matters regarding establishment and funding of CRA services for the Bay of Bengal and Arabian Sea operational ADS/CPDLC trials were discussed in earlier BBACG and FIT-BOB meetings. It had been agreed that Boeing would provide CRA services and that IATA would provide a mechanism under which a levy would be collected by IATA and paid to the Boeing CRA. Accordingly an agreement was required to be executed between the Airports Authority of India and IATA for collection of the charges for operations in the Indian FIRs and an additional agreement between IATA and Boeing to enable payment to Boeing.

2.2 IATA was pleased to inform the meeting that they have now formally entered into an agreement with the Boeing Company to establish and operate a CRA facility with a view to investigate and resolve any data-link problems in Indian FIRs. IATA has also simultaneously entered into a formal agreement with the Airports Authority of India to enable Boeing Company to establish and operate CRA facility and to collate air traffic data for the purposes of levying a CRA charge. In summary, the two agreements authorize IATA to collect a CRA charge on a per flight basis, based on traffic data to be provided by Airports Authority of India (AAI), and to pay Boeing Company for the CRA service. The scope of work for the establishment and operation of CRA service is established in accordance with ICAO guidelines and details of the establishment of the CRA have been published in India AIP Supplement 40/2008 (**Appendix A** refers). Commencement of the services will shortly be notified by India Class G NOTAM.

2.3 In welcoming the progress on establishment of CRA services the meeting recognized that having BOB-CRA services available would enable suitable technical assessment of end-to-end data link operations to be made and would assist markedly in the full implementation of data link services.

Recognizing the long term complexities that had been overcome, the meeting warmly congratulated India, IATA and Boeing for their persistence in establishing these agreements. The meeting strongly thanked IATA for its continued willingness to act as the financial agent in these matters and looked forward to an accelerated implementation of data link based improvements to ATS services in the Bay of Bengal, Arabian Sea and northern Indian Ocean areas.

2.4 The meeting recognized that although India would be the State involved in providing data to IATA for charging purposes, the remaining States of the Bay of Bengal, Arabian Sea and Indian Ocean should also be alerted to the imminent commencement of CRA services and requested to appraise affected parties accordingly. The meeting considered that the information in the India AIP Supplement 40/2008 was adequate for AIS purposes and that duplication of AIS information by other States was unnecessary. The meeting requested that the Regional Office provide suitable advice to States surrounding the Indian airspaces in this respect.

Briefing from BOB CRA

2.5 Representatives from the BOB CRA provided a briefing on the roles, functions and responsibilities of the CRA. A copy of the briefing is included as **Appendix B**. In particular the BOB CRA highlighted the importance of timely data submission to the CRA in accordance with FOM provisions, drawing specific attention to the matters below.

BOB-CRA Confidentiality Agreements

2.6 The meeting considered arrangements for data confidentiality agreements between States, Airlines, Communications Service Providers (CSPs) and the BOB-CRA. The meeting recognized that the CRA required access to detailed data link audit data in order to fully investigate and resolve problem reports. The confidentiality agreement documents the rules by which the CRA is allowed access to required information and that such information will not be used for marketing or other commercial purposes. States and operators participating in the FIT-BOB are invited to sign the confidentiality agreement (**Appendix C** refers) and send a copy to the FIT-BOB CRA (Bradley.d.cornell@boeing.com).

Submission of Problem Reports

2.7 In accordance with the provisions of the FOM, Problem Reports (PRs) from all FIT-BOB members should be submitted directly to the CRA as soon as possible on each occasion in order that the CRA could request audit data in a timely matter. The meeting recognized that key data elements such as the tail number, flight number, date, time, and brief description of the problem are essential in order to obtain required audit data. A copy of the PR form is attached in **Appendix D** to the Report.

2.8 In recognizing the importance of quick and efficient communications between the parties involved in investigating a PR, the meeting agreed that the list of contact officers contained in the Tables of ADS/CPDLC equipage and ATS Status (see Appendix K) were suitable but should be kept fully up to date.

Periodic Status Reports

2.9 The meeting noted that ANSPs should complete and submit the FANS 1/A Periodic Status Report (**Appendix E** refers) in accordance with FOM provisions at monthly intervals as agreed by the FIT-BOB, to meet requirements for the dissemination of information and as an indication of system performance. Additionally, the report should identify any trend discovered in system deficiencies, the resultant operational implications, and the resolution, if applicable.

2.10 Communications service providers (including SITA and ARINC) were also expected to submit monthly FANS 1/A Periodic Status Reports on the performance of their networks at specified intervals. These reports should also contain system outage information.

Agenda Item 3: Review Bay of Bengal ADS/CPDLC Operational Trial

Indonesian FIRs

3.1 Indonesia provided the following updated information in respect to the ADS/CPDLC arrangements in Jakarta and Ujung Pandang FIRs.

Jakarta FIR

3.2 Recently, Indonesia has commenced a programme to establish a new ADS/CPDLC facility for enhanced services at the Indian Ocean Sector. Advanced discussions are taking place with SITA as data link service provider and it is anticipated that operational trials of ADS/CPDLC will commence in late 2008. Planning is also in place to enhance the Jakarta ATSC system by commissioning the Jakarta Automated ATS System (JAATS) which is expected to be operational in 2010/2011.

Ujung Pandang FIR

3.3 The meeting considered information from Indonesia which described how Indonesia had installed ADS/CPDLC in Ujung Pandang ACC to overcome limited capability in radar surveillance and VHF-voice DCPC in eastern areas of Indonesia, and to harmonize ATS for the international flight operations in between Ujung Pandang FIR and Brisbane FIR.

3.4 The trial operations of ADS/CPDLC in Ujung Pandang FIR will be effected from 3 July – 3 October 2008 particularly for the ATS routes A461, R340/R590, B472, B473, B583, B584 and B462. The meeting noted that international flights involved in the trial and operating on these routes would use CPDLC for main communication and VHF voice communication for back up. Non data link capable flights would be managed in the same way as they were today but operators were encouraged to make maximum use of data link to enable full operational testing of the ground systems.

3.5 The meeting encouraged Indonesia to undertake early coordination with surrounding States and IATA in order to ensure their assistance and participation in these trials. Indonesia was also encouraged to contact the BOB CRA to commence coordination of testing using the Boeing test bench equipment.

Kuala Lumpur FIR - Limited Operational Trial

3.6 Malaysia informed the meeting that they had completed the installation of an ADS/CPDLC system at the Kuala Lumpur Area Control Centre (ACC). This system will provide services to all FANS 1/A equipped aircraft operating beyond the range of existing radar and VHF voice communications coverage in the Bay of Bengal area within Kuala Lumpur FIR.

3.7 The system integrates both ADS-C and Radar data to display multi surveillance tracking. The system architecture features a high level of modularity to meet the more advanced requirements of a modern ATM system. Such modularity is extremely important since the system is able to be expanded in order to support any future capability. The data link system and equipment have the capability to be totally integrated with the ATM system and can also accommodate future upgrading.

3.8 Malaysia AIC 03/2008 had been issued, initially targeting an operational trial starting 15 April 2008. However due to technical and training requirements; a Limited Operational Trial commenced from 1st June 2008 between 1500 – 1900 UTC daily. The ADS/CPDLC operational trial is being conducted on seven oceanic ATS routes, namely P628, L510, L645, A327, N571, B466 and P574 in Kuala Lumpur FIR.

3.9 Simulation testing with BOEING laboratory via the BOB-CRA was successfully carried out on 28 May 2008 and 30 May 2008. ADS/CPDLC system testing and hands on training for Air Traffic Controllers for uplink and downlink messages were also held with Malaysia Airlines System (MAS) and Singapore Airlines (SIA) from 19 – 30 May 2008.

3.10 Training for 16 Air Traffic Controllers and 32 assistant controllers was conducted from the 5th until 30th of May 2008. Training for remaining ATC personnel will be undertaken in stages from 7 July 2008 and is targeted for completion by early 2009. Following completion of training, a H24 operational trial is planned for April 2009.

3.11 The meeting noted the positive outcomes from Malaysia's work, as evidenced by the operational trial, and encouraged Malaysia to considering an early implementation if it was at all possible. Implementation for limited hours on a daily basis was also considered worthwhile, as trained staff became available.

Malaysia - Outcomes of Phase 1 trial

3.12 ADS/CPDLC services were available daily between 1500 – 1900 UTC and conducted with all appropriate FANS-1/A equipped aircraft. Detailed procedures for the operational trial have been developed based on the FANS 1/A Operations Manual (V4.0)

3.13 Data collection was undertaken between 1st – 15th June 2008, with summary results described below:

3.14 The daily number of flights through this area between 1500 – 1900 UTC was approximately 10 aircraft, most of which were equipped with both ADS and CPDLC data link equipment.

3.15 During the period of the limited operational trial, 150 flights going through the Bay of Bengal trial area were recorded and 170 logon attempts were initiated. A total of 116 flights logged on successfully (68.2%) and 54 logons were unsuccessful (31.8%). More details are included in the trial data retained as **Appendix F**.

3.16 The ADS/CPDLC system in Kuala Lumpur ACC is working satisfactorily however more testing and data collection will be undertaken in order to study the problems encountered, increase logon successful rates and ensure system stability.

Chennai FIR

3.17 Data available from the Chennai operational trial, as shown at **Appendix G**, was reviewed. Logons remained only in the order of 40-45% and a number of problem reports were still being logged in relation to the ground equipment. These issues needed to be investigated by the CRA and remedial actions identified.

Kolkata FIR

3.18 As Kolkata was using the same type of ground equipment as Chennai, the situation being experienced in Kolkata was very similar to that being reported from Chennai. Remedial actions identified for Chennai could also be implemented in Kolkata and would lead to improvements. Problems with outages of the SITA link were likely to involve the local telephone network provider and were currently being investigated jointly by SITA and AAI. Difficulties persisted in transfers with the Yangon FIR as a result of the intermittent operation of the installation in Myanmar.

Agenda Item 4: Review Arabian Sea ADS/CPDLC Operational Trial

Mumbai FIR

4.1 The meeting used the opportunity of the visit to the ATS Complex to gain an update in respect to the Mumbai FIR data link operations. The system was running smoothly, which had led to good acceptance by ATCOs. The availability of more trained staff meant that H24 CPDLC operations would be achieved by October 2008 as scheduled. Significant increase in traffic volumes had been experienced and extra airspace capacity resulting from the implementation of 50/50NM operations would be very beneficial.

Interoperability between Mumbai – Muscat FIRs

4.2 During the visit to the Mumbai ATS Complex, the delegate from the Sultanate of Oman has noted the similarities between the Raytheon equipment in Mumbai ACC and that installed in Muscat ACC. Discussions with CNS staff at Mumbai had confirmed the likelihood that automated messaging would be possible between the two stations and agreed that the matter should be further studied with a view to implementing AIDC.

4.3 Additionally, in respect of the AMHS BBIS 'backbone' works, advantage would be taken of this opportunity to investigate possibilities for Muscat and Mumbai to be linked using the new technology (ATN, AMHS) and requirements.

Agenda Item 5: Review ADS/CPDLC Implementation

FANS Satcom Improvement Team (FANS SIT)

5.1 The meeting noted the need to promote regional and global activities to improve service reliability and availability of satellite data communications in order to satisfy steadily increasing demand for data link services.

5.2 The Secretariat relayed information from the United States satellite data communications performance and the work of the FANS Satcom Improvement Team (FANS SIT) to raise awareness of the important global issues affecting the availability of satellite data link services. In response to continuing stakeholder concerns about Satcom data link performance, Inmarsat instigated formation of the FANS SATCOM Improvements Team (FSIT). Government and industry stakeholders were invited to contribute to assessing viable short, medium and long term changes to the system to improve both FANS and airline operations center (AOC) SATCOM data link network performance. Stakeholders represented at this group include FAA, Inmarsat, ARINC, SITA, Continental, British Airways, Boeing, Airbus, Japan Civil Aviation Bureau (JCAB), T & T, SED, SPCI, Honeywell, Rockwell Collins, Stratos, Vizada, IATA, Airways New Zealand, Airservices Australia, NavCanada and ICAO.

5.3 At FSIT/4 (2-3 June 2008) key points discussed by the group were; evolved performance requirements, including outages and latency; improved end-to-end monitoring; and, GES software upgrades, including availability through automated redundant architecture. The FSIT also explored solutions to performance goals including redundancy between GES, improved reliability in GES/network and capacity planning.

5.4 Critically, FSIT/4 concluded that, with funding, the targeted Required Communication Performance (RCP) for 30/30 NM operations could be achieved subject to airlines implementing a no cost software change in parallel with enhancements to the ground infrastructure. The estimated total funding needed for all the improvements is between $15-20M to cover; ground infrastructure changes and provision of service bulletin by Honeywell and Rockwell/Collins (and endorsed by Boeing and Airbus) for software upgrades to the Satcom avionics. Cost estimates from all parties have been solicited to confirm/refine the total.

5.5 Finally, FSIT/4 came to consensus that without the necessary funding, work for the upgrades to meet RCP 30/30 performance requirements cannot proceed and as such, if funds were unavailable, FSIT had no need to continue.

5.6 The meeting was informed that the Eighteenth meeting of the ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/18, June 2008) recognized that the non-availability of satellite based communications and surveillance including CPDLC and ADS-C would make it impossible to implement reduced lateral and longitudinal separations, meaning that the Asia/Pacific region would be reliant on 10 minute longitudinal separations indefinitely. Accordingly, ATM/AIS/SAR/SG/18 agreed that early identification of funding sources was critical to the continued implementations of data link based reduced separations across the globe and requested that the CNS/MET/SG, as the region's specialist technical group, consider the matter holistically and provide appropriate guidance to APANPIRG to assist resolution.

The Arab Civil Aviation Commission FANS Implementation Group (AFIG)

5.7 The meeting was pleased to welcome delegates from the AFIG. The decision to establish AFIG was taken by the Arab Civil Aviation Commission (ACAC) General Assembly meeting in May 2006. The main objective of AFIG was to plan a co-ordinated deployment of FANS and data link services in the Arabian Region.

5.8 During the proceedings of AFIG/1, a proposed 2-phase FANS1/A timeline was presented. Phase 1 was devoted mainly to preparatory administrative training and documents approval. Among these factors were:-

- ANSP's readiness
- ANSPs and aircrew training
- Need for Safety assessments
- Inter-FIR coordination
- Civil/Military Coordination
- Review and Endorsement of the FOM
- Finalization of UPRs
- MOU (Airlines)

5.9 AFIG subsequently recognized that variances in State planning and budgeting arrangements were impediments to the adoption of a regional trial schedule. A more logical approach might be to encourage States equipped with the necessary FANS1/A ground equipment to conduct inter-state(s) trials with proper coordination with AFIG management, as a stepping stone towards the ultimate goal of the regional trial. Accordingly, Inter-state(s) trial reporting mechanisms shall be established and

such mechanism shall take into consideration the ultimate regional Central Reporting Agency (CRA). Joining existing CRAs (i.e. BOB CRA) shall be considered as an option.

5.10 The meeting supported the intention of the AFIG to commence FANS data link trials on a regional basis and invited the AFIG delegates to continue to join the FIT-BOB meetings in the expectation that the matters discussed by the FIT-BOB were likely to be of assistance to the work of the AFIG.

Agenda Item 6: Data Link Guidance Materials

Data Link Implementation Strategy

6.1 As more States in the Bay of Bengal, Arabian Sea and Indian Ocean areas proceed with implementations of ATS ground equipment to support FANS data link, the meeting recognised the value in adopting a standardised approach to implementation. Accordingly, the meeting adopted the Implementation Strategy shown as **Appendix H** as generic guidance and urged States to consider this information in commencing data link operations. The Implementation Strategy is also intended to act as a functional 'Check List' to provide assistance to States as they continue implementation of data link services.

6.2 Noting the value of the step-by-step checklist, the meeting requested that the Secretariat also consider including the implementation strategy as an appendix to the GOLD.

Data Link Procurement Guidance Material

6.3 The Secretariat drew attention to the work of the Regional Airspace Safety Monitoring Advisory Group of APANPIRG (RASMAG) in trying to assist States entering the area of data link service provision for ATM operations, including reduced horizontal separation applications. RASMAG had recognized the need for 'new starter' States to better understand the procurement and implementation processes for the ground based data link systems forming the ATM end of the data link messaging chain.

6.4 In this context, RASMAG had prepared the *Guidance Material for the Asia/Pacific Region ADS/CPDLC/AIDC Ground Systems Procurement and Implementation,* which was adopted under APANPIRG Conclusion 18/5 as regional guidance material. Copies of the *Guidance Material* are available from the website of the ICAO Asia/Pacific Office at http://www.bangkok.icao.int/ under the "APAC e-Documents" menu.

FANS 1/A Operations Manual (FOM)

6.5 The Asia/Pacific region maintains the *FANS-1/A Operations Manual (FOM),* as the data link operational procedures document. The FOM has been adopted by 47 FIRs throughout the Asia/Pacific Region, including some of the Middle East and North Africa FIRs. A current version of the FOM (Version 5, August 2007) was provided to the meeting.

End-to-End Monitoring of Data Link Systems

6.6 The ICAO Asia/Pacific Regional Office maintains the *Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service (ATS) Data Link Systems in the Asia/Pacific Region.* Editorial responsibility for this guidance material lies with the Regional Airspace Safety Monitoring Advisory Group (RASMAG). RASMAG has recently adopted a Version 3 (May 2008) version of the End-to-End guidance material, a copy of which was provided to the meeting. Additional copies are available from the website of the ICAO Asia/Pacific Office.

RTCA/EUROCAE Oceanic SPR

6.7 The *RTCA DO-306/EUROCAE ED-122, Safety and Performance Standard for Air Traffic Data Link Services in Oceanic and Remote Airspace* (generically termed the Oceanic SPR Standard) has also been recently released. This document forms an important component of the rewrite/combination of the FOM and North Atlantic guidance material that has been commenced under the auspices of the GOLD drafting group (as described below). A final draft copy of the Oceanic SPR Standard was provided to the meeting.

Ad Hoc Working Group on Global Operational Data Link Document

6.8 The meeting noted that the North Atlantic (NAT) and Asia Pacific have agreed to develop a global operational data link document to align and harmonize the guidance material and procedures for data link operations that can be used within the Asia Pacific and the NAT, as well as other regions of the world. Terms of Reference and Points-of-contact (POCs), as shown in **Appendix I**, have been identified to serve an Ad-Hoc Working Group to produce a Global Operational Data Link Document (GOLD) targeted for completion by the end of 2008.

6.9 The meeting was informed that the ATM/AIS/SAR Sub Group of APANPIRG recognized the initiatives taken so far by both the Asia/Pacific and North Atlantic regions, in coordination with the ICAO Regional Offices in Bangkok, Paris and ICAO HQ in Montreal, to work towards a single, globally applicable procedures document for FANS data link operations; and endorsed the following draft Conclusion for consideration by APANPIRG/19 in September 2008:

Draft Conclusion SG/18/2 – Support for Ad-Hoc GOLD Working Group

That, recognizing the many benefits to be gained from the global application of harmonized FANS data link operational procedures, APANPIRG supports the work being undertaken under the auspices of the Ad-Hoc GOLD Working Group to produce a FANS Global Operational Data Link document (GOLD) and invites the Asia/Pacific Regional Office to act as the regional focal point for the Ad-Hoc GOLD Working Group.

6.10 The support of the Asia/Pacific FITs would be sought in reviewing and providing feedback to the GOLD document as soon as advanced drafts became available for circulation.

6.11 **The meeting noted that the FOM was the existing Guidance Material that had been adopted by APANPIRG (Conclusion 15/7 refers) for the Asia/Pacific region and therefore was currently applicable for Asia/Pacific operations until formally superseded by the GOLD in due course.**

Agenda Item 7: Update FIT-BOB Task List

7.1 The meeting reviewed and updated the Task List for the FIT-BOB, incorporating information provided during the meeting. In relation to task list item 4 requiring compilation of data on aircraft in the trial airspace which are ADS/CPDLC equipped, the meeting recalled discussion during ASIOACG/3 in which broader data gathering initiatives had been agreed. The BOB-CRA informed the meeting that they were in a position to provide significant data about original equipage for both Airbus and Boeing fleets. The Secretariat suggested that combining this data from the BOB-CRA with the annual December traffic sample from Asia/Pacific States that is required by APANPIRG would provide a useful one month data for analysis by ASIOACG and FIT-BOB. A point of contact officer would need to

be identified by ASIOACG to receive and compile this data. Airservices will nominate such a point of contact and will advise the ASIOACG Secretariat accordingly.

7.2 On this basis, the meeting agreed to close the task list item for FIT-BOB as ASIOACG would take responsibility.

7.3 The updated Task List is shown at **Appendix J**.

Tables of ADS/CPDLC Equipage and ATS Status

7.4 Recognizing that up-to-date information was important in the planning and conduct of operational trials, the meeting reviewed and updated the Tables of ADS/CPDLC Equipage and ATS Status for the Bay of Bengal/Arabian Sea/Indonesian FIRs etc as shown in **Appendix K.** The Secretariat stressed the importance of maintaining the list of contact officers up to date in order to facilitate timely and efficient communications in relation to operational trial activities.

SATCOM Capacity/Performance Planning Process

7.5 The meeting recalled that SITA had briefed FIT-BOB/7 in relation to a global satellite capacity/performance planning initiative to obtain from customer airlines and ANSPs their expectations of traffic evolution and feed it into a performance model that will identify the resources needed to provide the required level of performance. Ongoing global capacity planning by all stakeholders is necessary to draw up a plan for maintaining the availability of the classic aeronautical service at an acceptable level of performance through 2018.

7.6 To provide a basis for long term satellite traffic load estimates to assist data link service provider (DSP) network planning, FIT-BOB/7 had drafted a table of ADS/CPDLC implementation planning for all FIT-BOB and FIT-SEA FIRs including estimated dates for implementation of CPDLC communications, ADS/CPDLC full implementation, 50NM reduced longitudinal separation using CPDLC and 30/30 NM reduced separation using ADS & CPDLC. The meeting reviewed and updated the table, as shown in **Appendix L**.

Agenda Item 8: Any other business

8.1 The meeting thanked Mr. M.G. Junghare, General Manager (ATM) at Mumbai Airport for arranging a visit for delegates to the ATS Complex at Mumbai Airport. As well as inspecting the ACC and Tower, the visit had spent time in the Oceanic Control Centre observing the use of ADS-C and CPDLC in the context of existing operations in the Mumbai FIR.

Agenda Item 9: Date and venue for the next meeting

9.1 The meeting noted that the finalization of funding arrangements for the BOB-CRA would enable the commencement and continuation of full CRA services in support of Bay of Bengal, Arabian Sea and northern Indian Ocean data link operations. The progress that had been reported by many States during the meeting in terms of installation of ground based data link equipment was encouraging and it was important that the FIT-BOB continue to support these activities.

9.2 The meeting also noted the importance of the data link seminar activities that had been proposed by the BOB-CRA and that it was logical to combine a Seminar with the next FIT-BOB meeting. Accordingly the Regional Office was requested to make arrangements for a 2-day data link seminar, followed by a one day FIT-BOB meeting to be held at the Regional Office premises in Bangkok, Thailand during 2-4 December, 2008.

10. Closing of the meeting

10.1 Mr. M.G. Junghare summarized the outcomes of the meetings, highlighting the valuable progress that had been made. He thanked all national and international delegations for their attendance and contribution to the proceedings of the meetings.

10.2 Mr. S.R.R. Rao, in closing remarks, noted that the closing of the meetings simply represented the 'ending of the beginning'. He considered that the real work started now and urged all delegates to move quickly in actively pursuing the agreed outcomes of the respective meetings.

10.3 Many delegates offered their thanks to India for the excellent facilities provided for the conduct of the meeting and the kind hospitality throughout. The social events that had been arranged outside the meeting hours had provided opportunity for delegates to discuss relevant matters in a more relaxed atmosphere. In general, the meetings reflected very positively on India and implementation of the decisions agreed as a result of discussions during the meetings would provide quantifiable benefits to airspace users.

10.4 On behalf of Mr. Mokhtar A. Awan, ICAO Regional Director, Mr. Andrew Tiede thanked the Airports Authority of India for hosting the combined meetings of ASIOACG/3 and FIT-BOB/10. The Bangkok Regional Office was very appreciative of the support from India in assisting with the important work of ICAO. In particular, the signing of the formal agreements for the funding of the CRA was a milestone event in the Asia/Pacific region and would help to give States the confidence and capability to move forward quickly with datalink implementation.

10.5 The event had run very smoothly and the excellent arrangements put in place by AAI had allowed the meetings to properly focus on the matters at hand. In particular, Mr. Tiede considered that the opportunity to hold such meetings in India had provided many benefits that would not otherwise have been possible. The visit to the ATS Complex at Mumbai had been extremely beneficial in educating participants about the Mumbai operation. Importantly, national delegations from all of the major Enroute ATC centres of India had been able to join the meetings in Mumbai and take maximum advantage of the opportunity to interact with both national and international delegates.

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AIP SUPPLEMENT

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File No. AAI/NAD/09-09/03/AIP-SUPP (Part-AIS)

Following supplement is issued for information, guidance and necessary action.

K. RAMALINGAM
CHAIRMAN
AIRPORTS AUTHORITY OF INDIA

[EFFECTIVE DATE TO BE NOTIFIED BY G-SERIES NOTAM]

SUB: ESTABLISHMENT AND OPERATION OF A CENTRAL REPORTING AGENCY FOR DATA LINK SERVICES

INTRODUCTION

1. In accordance with regional planning agreements made under the auspices of International Civil Aviation Organization (ICAO) to enhance the safety and efficiency of air navigation, data-link capabilities have been installed in the Chennai, Delhi, Mumbai, and Kolkata Flight Information Regions (FIRs) within the jurisdiction of the State of India.

2. In co-operation with ICAO and the International Air Transport Association (IATA), a Central Reporting Agency (CRA) facility has been established to provide routine system and specific problem analyses for the progressive implementation of data link operations within the Kolkata, Chennai, Mumbai and Delhi (FIRs). The CRA facility shall be provided by Boeing Company through Boeing Technology Services (Boeing) in accordance with an agreement between IATA and Boeing under which Boeing will establish and operate the CRA facility in collaboration with IATA with a view to investigate and resolve any data-link problems in the above FIRs.

3. Automatic Dependent Surveillance (ADS) and Controller/Pilot Data Link Communication (CPDLC) is now available at Kolkata and Chennai for the Bay of Bengal oceanic airspace of Kolkata and Chennai FIRs, at Mumbai for the oceanic airspace of Mumbai FIR and at Delhi for Delhi FIR.

4. It order to fund the cost of the CRA facility, the Airports Authority of India, on behalf of the State of India, authorized IATA to defray such cost in the form of an aeronautical charge from all operators entering Indian airspace of Kolkata, Chennai, Mumbai, and Delhi FIRs. To that end,

data on daily flight movements operating in the above airspace will be provided to IATA by the Airports Authority of India.

5. All operators operating aircrafts through the above mentioned FIRs are required to cooperate and comply with the CRA requirements as per this AIP supplement, as may be amended from time to time. Relevant operators will be advised of the CRA reports of investigation and any action recommended by CRA to remedy the failure of airborne equipment.

PROBLEM REPORTING

6. In accordance with the provisions of the FANS 1/A Operations Manual, all operators using the above airspace should submit problem reports arising from, or in connection with, the use of data link to the CRA facility at:

The Boeing Company
Email: dung.q.nguyen@boeing.com
For the attention of: Mr. Dung Nguyen, Senior Engineer

Cc Email: Bradley.D.Cornell@boeing.com
For the attention of: Mr. Bradley Cornell

Mailing address: The Boeing Company
P O Box 3707 MC 07-25
Seattle
WA 98124-2207 United States

THE CRA CHARGE

7. With effect from the date which will be notified through a NOTAM, all operators entering Indian airspace shall pay an aeronautical charge for the establishment and operation of the CRA facility (the CRA Charge). The CRA Charge, at the rate of USD4 per flight movement, shall be levied on all aircraft entering Indian airspace of Mumbai, Delhi, Chennai and Kolkata FIRs.

8. The CRA Charge shall be invoiced by and in the name of IATA and shall be payable to IATA.

9. The invoices to be submitted by IATA to the operators shall be denoted and settled in United States Dollars and will state:

i. The period for which they are applicable;
ii. In relation to the operators who are members of the IATA Clearing House (ICH) that the invoice shall be settled through the ICH in accordance with the ICH Regulations;
iii. In relation to operators who are not members of the ICH, that the invoices shall be settled within thirty (30) days of receipt, and payments shall be made to:

Bank: Union Bank of Switzerland UBS- AG
Rue du Rhone
1211 Geneva
Switzerland

Account Name:	International Air Transport Association
Account Number:	332.208.53K
SWIFT	UBSWCHZH12A
IBAN	CH65 0024 0240 3322 0853K

iv. That all amounts remaining unpaid after thirty (30) days of the invoice's receipt shall be subject to a late payment fee denominated in USD and computed monthly using the prime rate in effect as published and defined in the Wall Street Journal on the 15th day of the month as adjusted month to month, plus two percent (2%) on any outstanding balance;

v. That any dispute arising from or in connection with a invoice shall be notified promptly by the operator to IATA setting out the nature of the dispute and that the operator shall cooperate with AAI and IATA to resolve the dispute as soon as possible.

10. The provisions of this AIP Supplement are valid until otherwise modified through a NOTAM, if required.

FIT-BOB/10
Appendix B to the Report

Brad Cornell

Associate Technical Fellow

787 Flight Deck Crew Operations

FANS History

The Future Air Navigation System was endorsed by ICAO in late 80s.

CNS elements - CPDLC, GPS, ADS-C

- **Boeing worked together with industry to ensure future oceanic airspace capacity and to enable more efficient operations – 1995 cert on 747-400**
- **FANS systems are installed on ~2700 aircraft**
- **FANS is key to reducing separation and increasing efficiency in oceanic / remote airspace – we need it now more than ever.**
- **ATC automation, SATCOM, Aircraft equipage, and following correct procedures are key components to successful operation and achieving benefits**

FANS Interoperability Teams - FIT

- **Primary certification of FANS 1 package on a QF flight was achieved in 1995**
- **During the ISPACG meeting in 1996 many technical and procedural problems were reported and the FANS system was in jeopardy of being shut down**
- **A new approach was required deal with the issues identified post certification**
  - **An implementation team called the FANS Interoperability Team "FIT" was established**
  - **The FIT is made up of key stakeholders with the goal of addressing technical, procedural and performance issues inhibiting full implementation of FANS and thereby achieving the associated benefits a full implementation would bring**

Central Reporting Agency - CRA

- **ISPACG/FIT realised that the traditional “industry team” approach would not work due to the complexity of resolving issues in this new “end-to-end” system and required additional support to manage the daily work and in-depth research required to resolve the many issues identified**

- **A FIT sub-team called the – Central Reporting Agency (CRA) was established**

- **The initial CRA for the South Pacific is chaired by Boeing and was funded by Boeing for ~5 years before industry funding was required to keep the progress moving forward and funding was provided by the FAA**

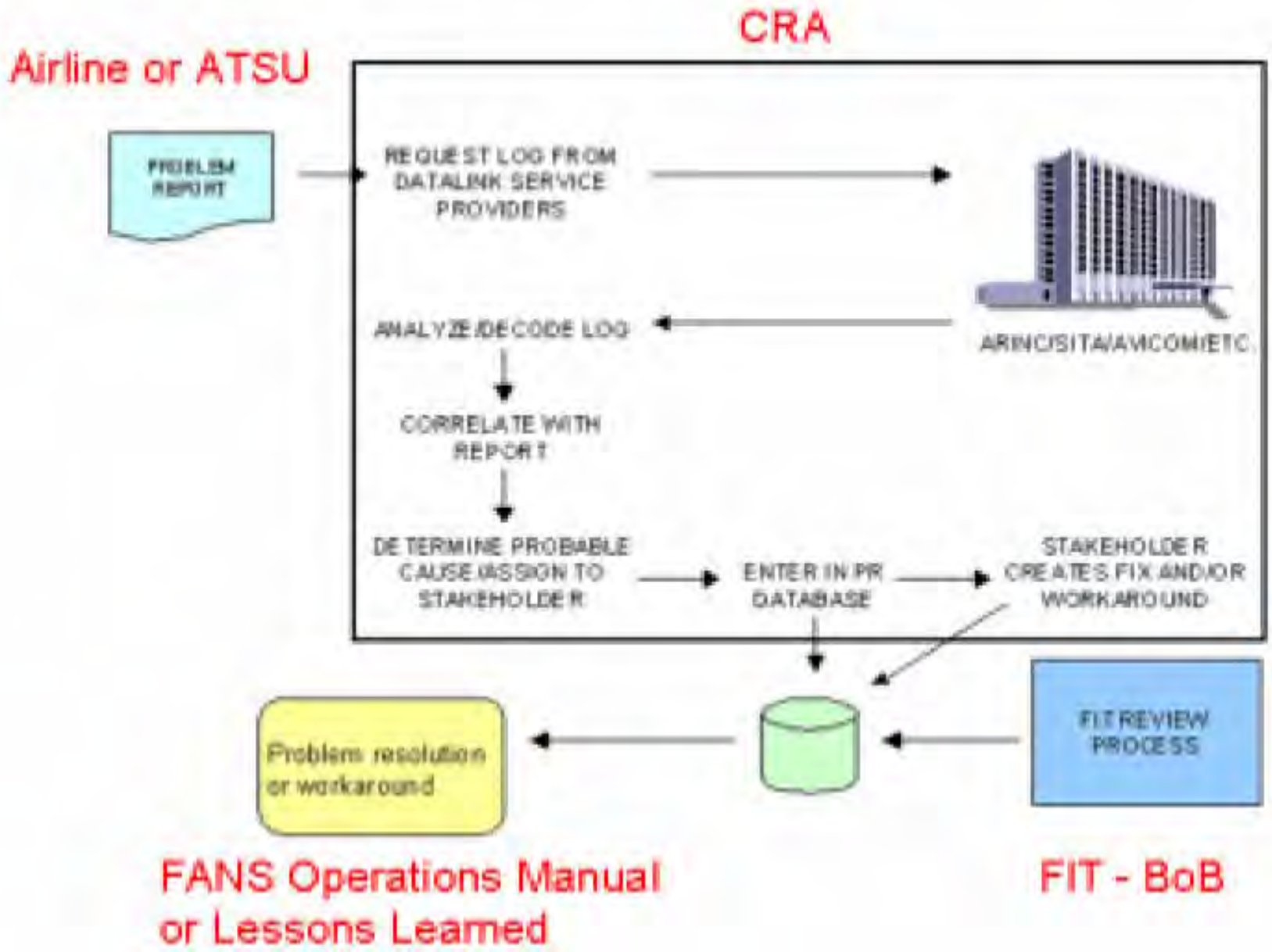
Purpose of the FIT

- **Problem identification and resolution**
  - **Reviewing de-identified problem reports provided by the CRA**
  - **Recommending interim operational procedures until problems are resolved as guided by the CRA**
  - **Review summaries of problems encountered**
- **System Performance**
  - **Monitoring actual system performance and comparing against requirements – latency and availability**
- **Achieving Benefits**
  - **Planning for longer term procedural enhancements**
  - **Co-ordinating implementation of enhanced operational procedures (UPR, DARP, Tailored Arrivals)**

Purpose of the CRA

- **Manage data confidentiality agreement with all FIT members who provide PRs – key to receiving problem reports and resolving issues.**
- **Develop and administer problem report process:**
  - **De-identify all reports**
  - **Process all reports (analyse problems using unique software tools and actual airplane avionics systems (test bench), add PRs to data base)**
  - **Identify trends.**
- **Process, analyse, and record monthly status reports from ATSUs.**
- **Coordinate new procedures in support of enhanced operations (UPR, DARP, Tailored Arrivals).**

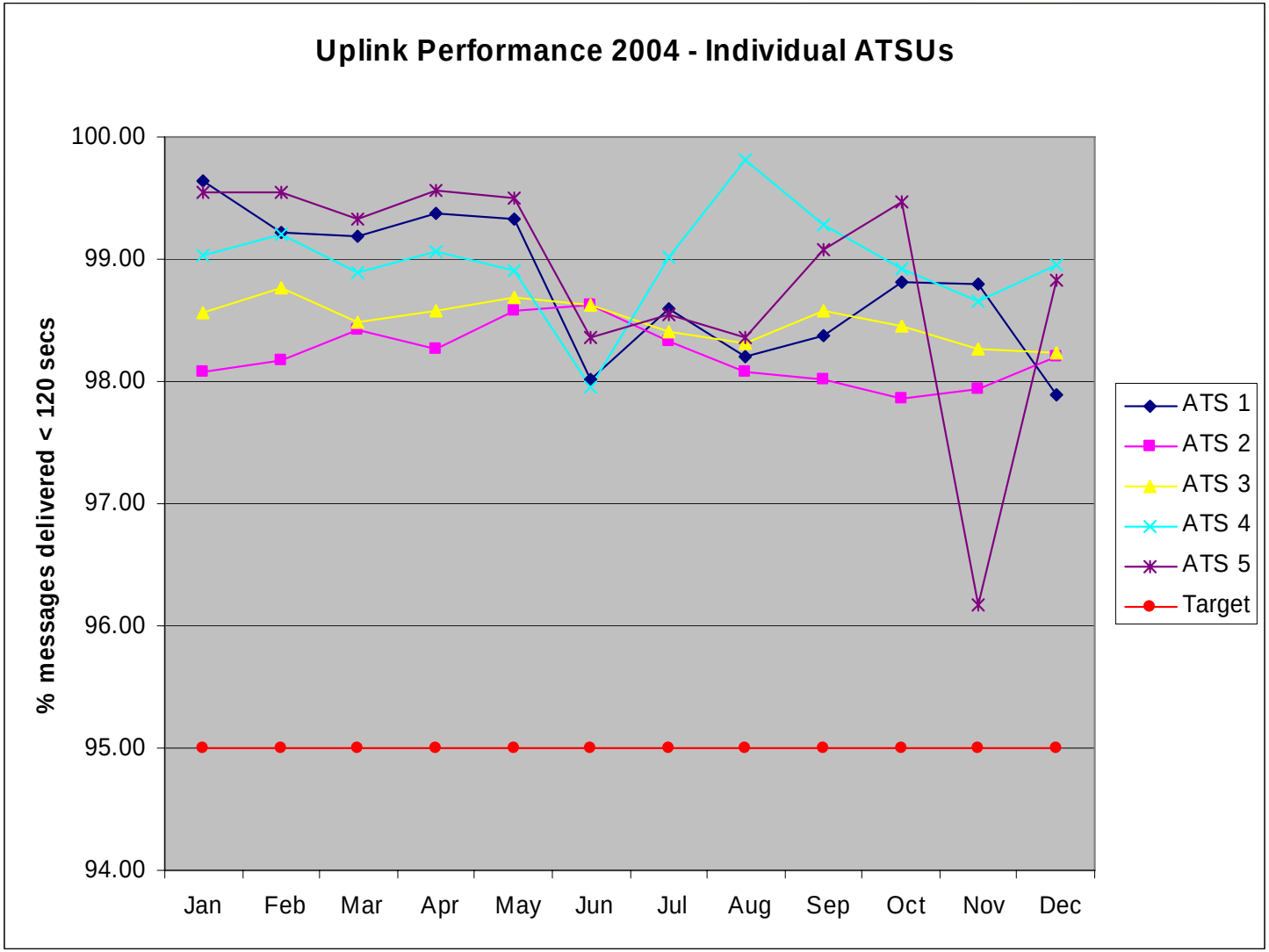
CRA Process


CRA
Airline or ATSU
PROBLEM REPORT
REQUEST LOG FROM DATALINK SERVICE PROVIDERS
ARINC/SITA/AVICOM/ETC.
ANALYZE/DECODE LOG
CORRELATE WITH REPORT
DETERMINE PROBABLE CAUSE/ASSIGN TO STAKEHOLDER
ENTER IN PR DATABASE
STAKEHOLDER CREATES FIX AND/OR WORKAROUND
Problem resolution or workaround
FIT REVIEW PROCESS
FANS Operations Manual or Lessons Learned
FIT - BoB

Problem Reporting Database Example

PR	Title	Region	Air or Ground	Comments/Notes/Description	Status	Discuss at FIT
466	**Message sent to wrong aircraft**	**SOPAC**	**Ground**	**The flight crew had requested and been granted climb to FL370. Approx 3 minutes later they received uplink indicating "ATCA UNABLE DUE TO CROSSING TRAFFIC. REQUEST ON FILE". There was concern as to whether or not they had been cleared to FL 370. A free text message was received confirming cleared FL370 and backed up with voice. The crew suspected the message had been sent to them in error. There was no explanation provided as to reason for message.**	**In Progress**	Yes
467	**747-400 - The 41-downlink salute**	**NOPAC**	**Air**	**The same CPDLC Position Report was repeatedly down linked 41 times over about five hours, at an interval of three minutes or thirteen minutes. It is suspected that the ACARS MU was at fault. The brand installed on that aircraft is known for sending duplicate downlinks. (Though, this case was extreme).**	**OPEN**	**No**
468	**A340 - Loss of ADS**	**SOPAC**	**Air**	**Despite several attempts, ATC was unable to establish an ADS contract with the airplane.** **This issue is corrected with the FANS A+ standard.**	**Ready for FIT**	**No**

Regional System Performance Monitoring Example



System Message Monitoring - Example

787 DREAMLINER

Uplink Msg Element	Msg#	Bris	Melb	Oakl	Auck	Total	% Used
UNABLE	0	5478	1985	51185	1095	59743	2.823
STANDBY	1	13514	4736	1964	205	20419	0.965
REQUEST_DEFERRED	2	1086	284	31870	20	33260	1.571
ROGER	3	1098	510	786	116	2510	0.119
AFFIRM	4	172	229	552	13	966	0.046
NEGATIVE	5	160	171	140	3	474	0.022
EXPECT_level	6	68	3	13	0	84	0.004
EXPECT_CLIMB_AT_time	7	480	18	29	0	527	0.025
EXPECT_CLIMB_AT_position	8	332	5	491	0	828	0.039
EXPECT_DESCENT_AT_time	9	14	2	0	0	16	0.001
EXPECT_DESCENT_AT_position	10	3	0	4	0	7	0.000
EXPECT_CRUISE_CLIMB_AT_time	11	3	1	1	0	5	0.000
EXPECT_CRUISE_CLIMB_AT_position	12	1	0	77	0	78	0.004
AT_time_EXPECT_CLIMB_TO_level	13	47	4	20	0	71	0.003
AT_position_EXPECT_CLIMB_TO_level	14	55	8	12	0	75	0.004
AT_time_EXPECT_DESCENT_TO_level	15	6	0	0	0	6	0.000
AT_position_EXPECT_DESCENT_TO_level	16	5	0	0	0	5	0.000
AT_time_EXPECT_CRUISE_CLIMB_TO_level	17	1	1	0	0	2	0.000
AT_position_EXPECT_CRUISE_CLIMB_TO_level	18	2	0	0	0	2	0.000
MAINTAIN_level	19	1197	1145	7164	1180	10686	0.505
CLIMB_TO_AND_MAINTAIN_level	20	27317	14173	240604	11935	294029	13.892
AT_time_CLIMB_TO_AND_MAINTAIN_level	21	159	25	32	145	361	0.017
AT_position_CLIMB_TO_AND_MAINTAIN_level	22	512	312	265	31	1120	0.053
DESCEND_TO_AND_MAINTAIN_level	23	1292	626	4458	493	6869	0.325
AT_TIME_DESCEND_TO_AND_MAINTAIN_level	24	9	0	0	16	25	0.001

Lab – 747-400 / -800 Test Bench

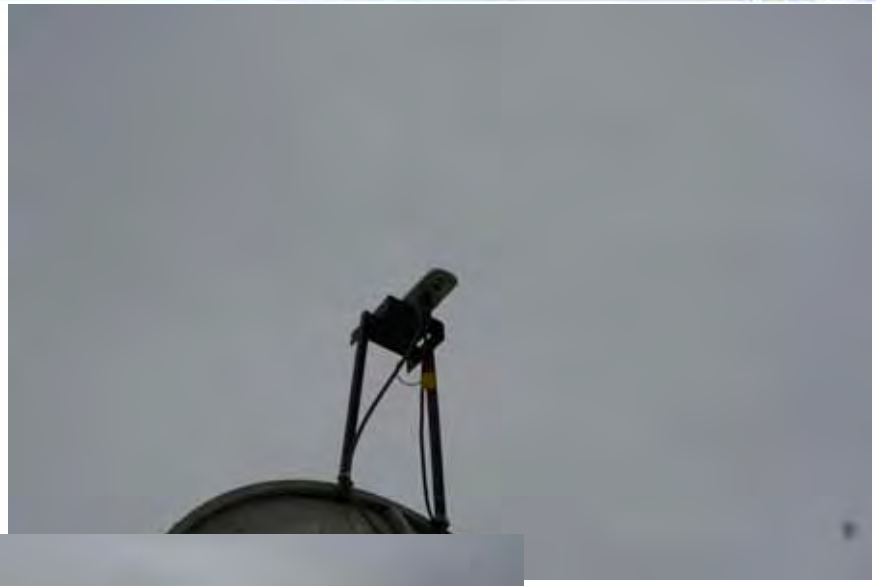
Lab – 777 Test Bench

787 DREAMLINER

Lab – 787 Test Bench

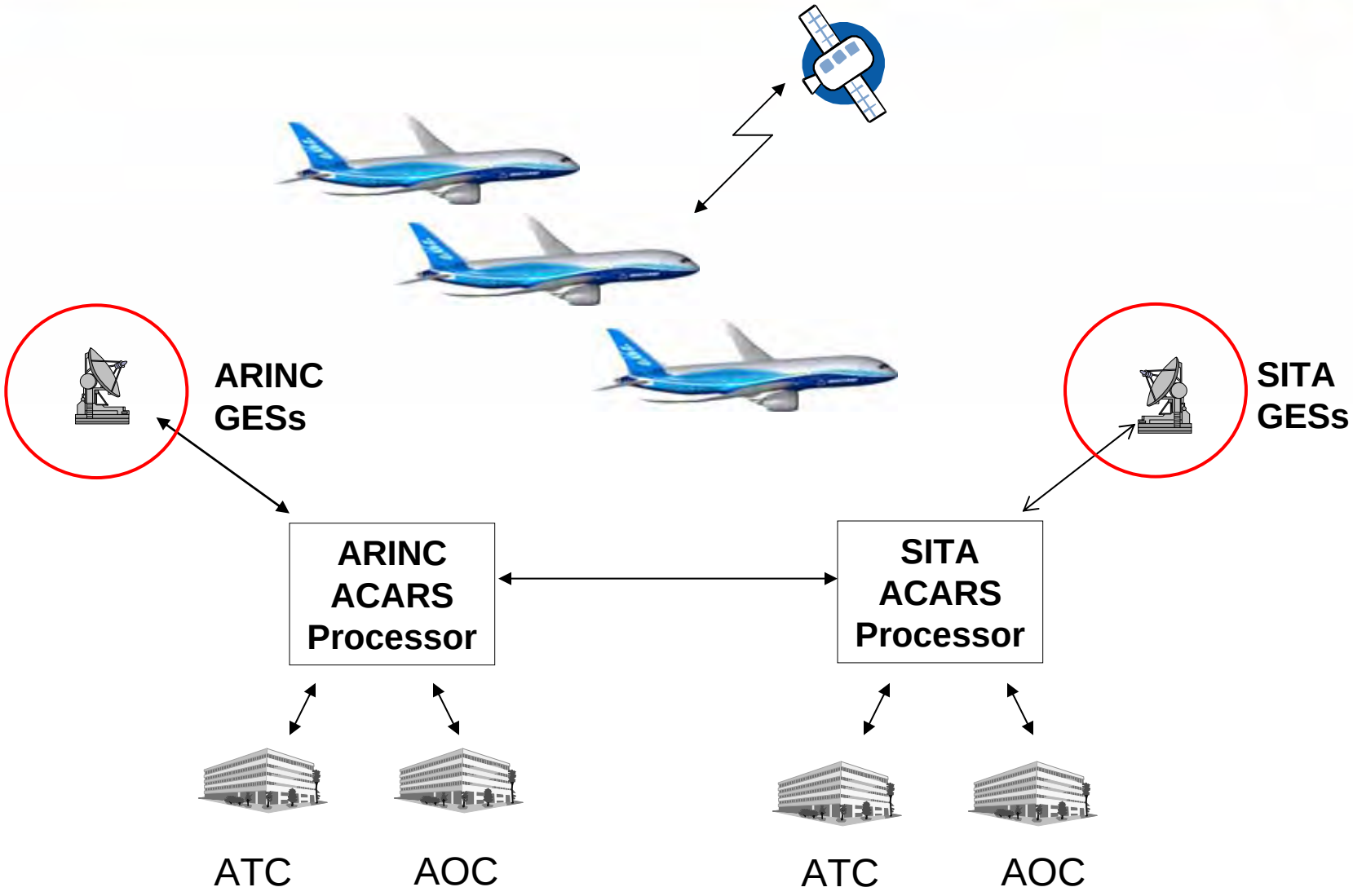
Antenna Configuration on the Roof

787 DREAMLINER

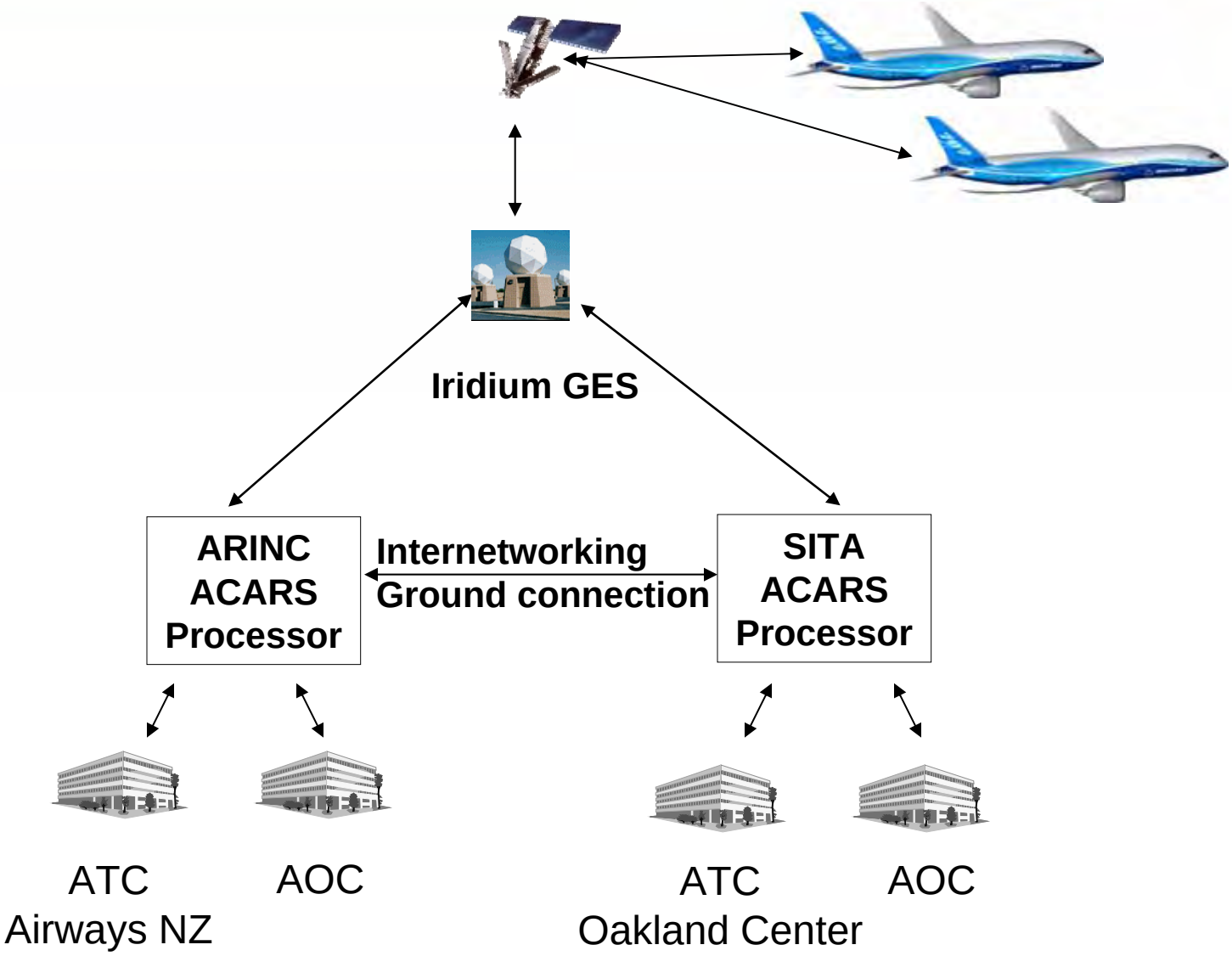


Antenna Configuration on the Roof

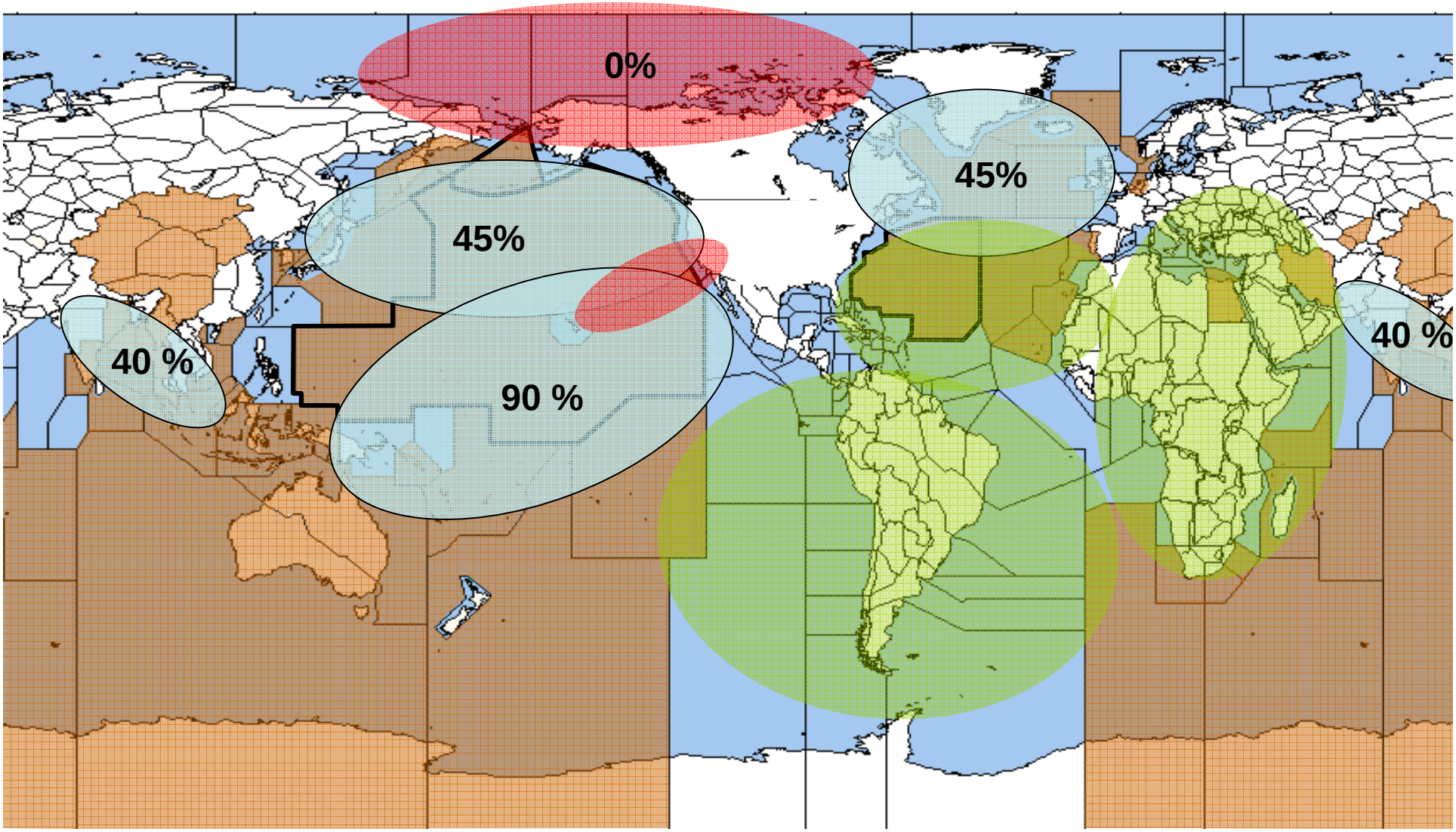
INMARSAT FANS network configuration



Iridium FANS network configuration



% Traffic Using FANS today



Key elements to making FIT-BoB Successful

FIT meetings are "working level" meetings

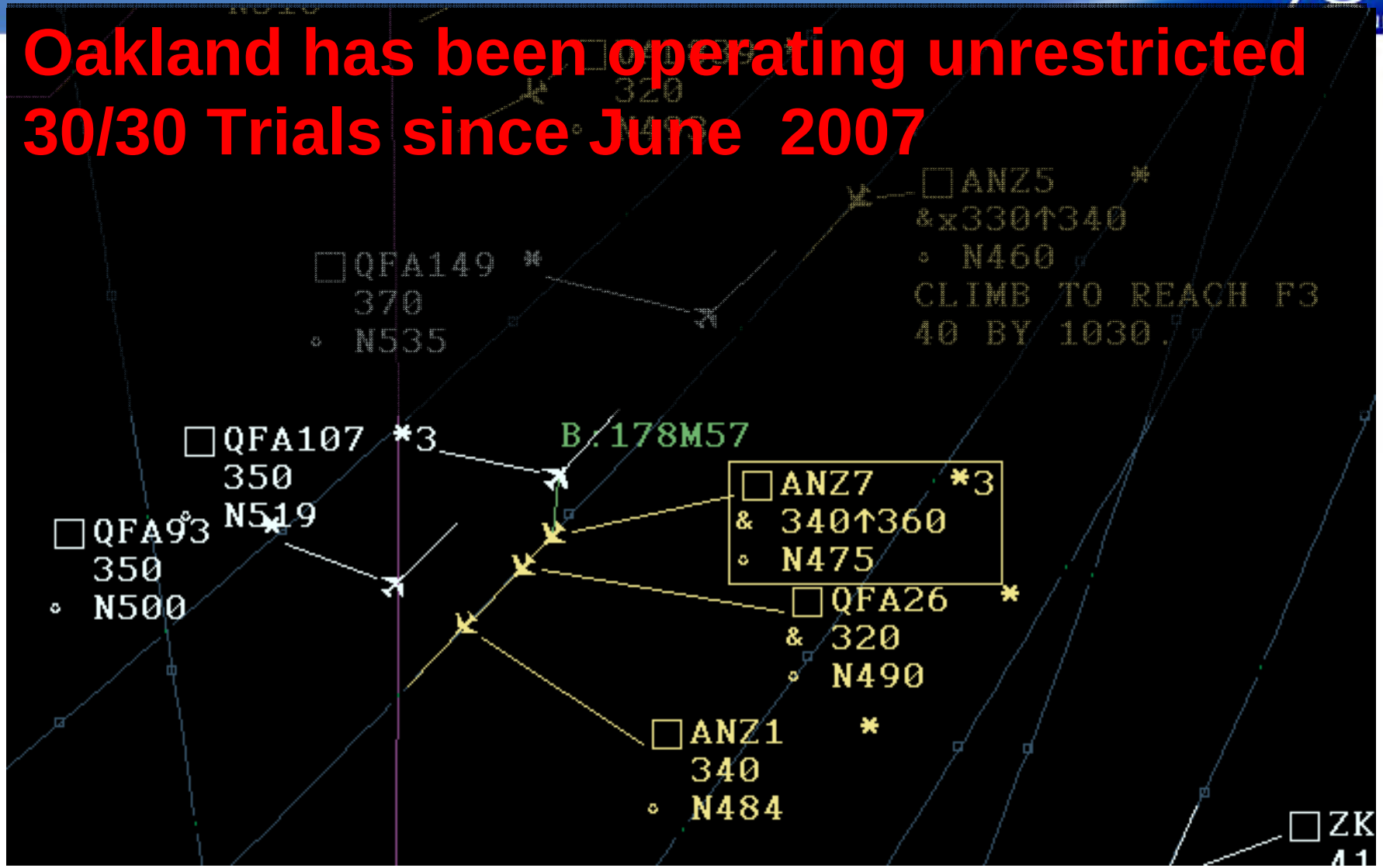
- **Flight crews who routinely fly though airspace**
- **Controllers who use the automation systems**
- **Dispatchers**
- **Technical automation specialists**

- **Problem Reports**
  - **Without problem reports we have no way of improving system operations**
  - **Operators (preferably right off the airplane) and ATSUs**

- **Monthly Monitoring performance data**
  - **Absolutely essential**
  - **Required to manage the "global network resource"**

Oakland ADS D50 & 30/30 Trials

Oakland has been operating unrestricted 30/30 Trials since June 2007



Asia – New Zealand/Caledonia UPRs

- **Air New Zealand projects an annual savings of over 1 million kg of fuel.**
- **ATC constraints are limiting the savings.**

Japan – Hawaii UPRs

- **December 1-15, 2007 Paper Trial**
- **Overall the paper trial projected a savings of:**
  - **Over 2.27 million kg of fuel annually based on the operators that participated**
  - **6.8 million kg of reduced CO_2 emissions**
  - **2 million US dollars in annual operator savings**

RJAA to YSSY/YBBN UPRs

- Potential 4100 lbs of fuel savings for a flight.
- The ANSPs have agreed to conduct a Paper Trial to test operational feasibility and efficiencies.
- Need to select Trial date.

User Preferred Routes to RTE Routes

Shocking News

UPRs to the RTE entry points saved one flight 40 minutes flying time and allowed 21,000 pounds of additional payload.

Typical savings are 3000-5000 pounds of fuel for a flight.

Oceanic Tailored Arrivals

Oceanic Tailored Arrivals

- Since beginning the Tailored Arrival on 12/4/07 we have conducted
  - ~50 Full Tailored Arrivals
  - ~120 Partial Tailored Arrivals
- The fuel savings benefits are significant
  - ~1400 lbs - 777
  - ~2200 lbs - 747
- Controller workload is reduced
- Reductions in operational errors

Central Reporting Agency Data Responsibilities Agreement

What follows is a detailed process setting forth the manner by which Boeing, as the Central Reporting Agency (CRA), will handle problem report data received from FANS Interoperability Team (FIT) members.

Boeing agrees to fulfill the functions of the CRA as defined in the process description below. Boeing's use of both the Protected Data and the Release Data will be for purposes of advancing the use of FANS only and will not be used for any other commercial or marketing purpose or for Boeing-instituted litigation. It should be understood, however, that Boeing is legally obligated to respond to subpoenas and, in the event Boeing receives a subpoena for FANS Protected Data, it will provide notice to the owning FIT member prior to production under the subpoena.

This agreement will be valid for a period of five years.

Please evidence your concurrence to Boeing's use of the FANS data by signature in the space provided below and return to the undersigned.

Respectfully,

David Allen

BOEING®

Concurrence / Date

Name: _____

Company: _____

Cotact Information: _____

CRA Program Engineering Coordinator: Brad Cornell
Please email a signed copy of the CRA Data Responsiablities Agreement to Bradley.D.Cornell@Boeing.Com

Central Reporting Agency Responsibilities

Definitions

ATSU - Air Traffic Service Unit. An organization responsible for airspace and capable of exchanging FANS messages with aircraft.

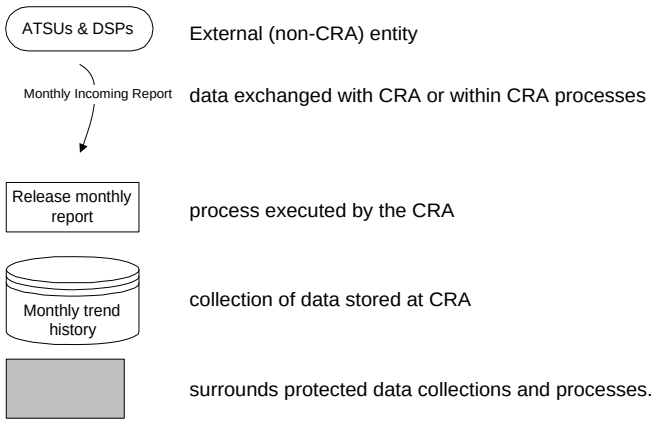
FIT - Future Air Navigation System (FANS) Interoperability Team. Team members include ATSUs, Operators (airlines), Datalink Service Providers (DSP), Pilot Unions, Equipment Manufacturers, and Regulatory Agencies.

CRA - Central Reporting Agency. An organization tasked with the regular dissemination of de-identified statistical data based on monthly status reports received from FIT members. The CRA will also track problem reports and publish de-identified information for dissemination to FIT members. Problem resolution will be the responsibility of the appropriate FIT members.

Protected Data - information which is held by the CRA for a limited time for the purpose of executing CRA responsibilities. This information is available only to the CRA and to those FIT member(s) directly involved in the problem.

Release Data - information, derived from Protected Data, which has been de-identified as to its source (including, but not limited to the operator, ATSU, DSP and Airframe Manufacturer) and affected member(s). This information will be stored for an indefinite period and will be available to all FIT members.

Data Context diagram - a figure used to show the processes and data used by the CRA. A legend is shown below:



CRA Program Engineering Coordinator: Brad Cornell
Please email a signed copy of the CRA Data Responsiablities Agreement to Bradley.D.Cornell@Boeing.Com

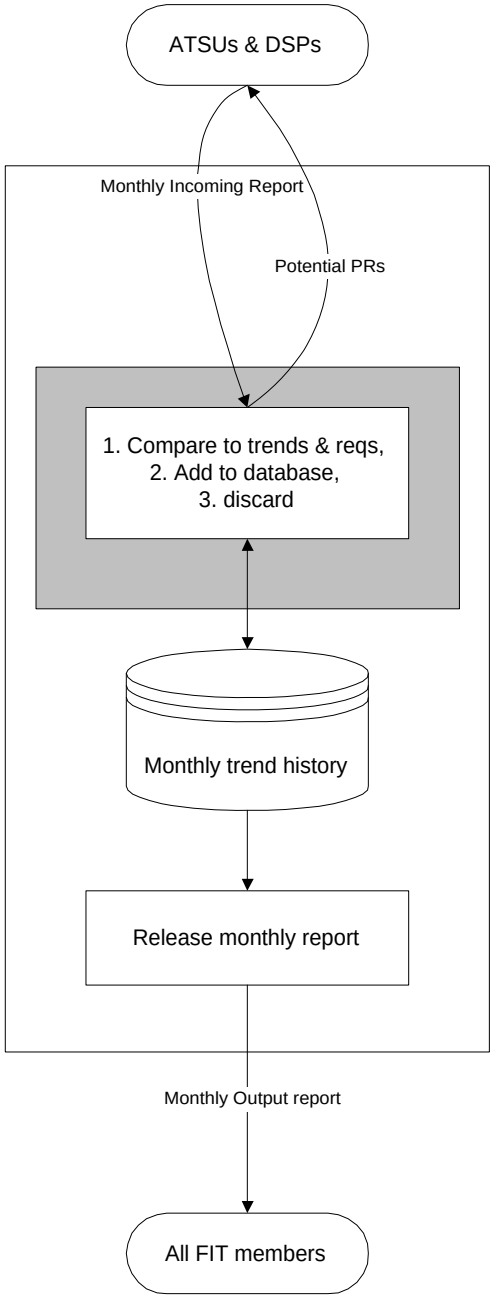
Monthly Trend Reports

Protected Monthly Trend Data
Reference the FANS Operations Manual for a copy of the monthly report form.

Released Monthly Trend Data

Each month, the data provided in the monthly report forms will be summed and averaged.

Processing of Monthly Trend Data



The CRA will compare the incoming monthly report received from each ATSU and DSP against identified performance requirements and against the aggregate monthly trend data. If any datum of the incoming report is outside required values or is radically different from the aggregate trend, then the FIT will investigate the cause and may create a new Problem Report.

The CRA will add the incoming monthly report received from each ATSU and DSP to the aggregate trend data.

The CRA will destroy the incoming monthly report received from each ATSU and DSP as soon as possible, after the data are added to the aggregates and (if required) are inserted into a Problem Report.

The CRA will release the aggregate monthly trend data to FIT members each month.

Problem Reports

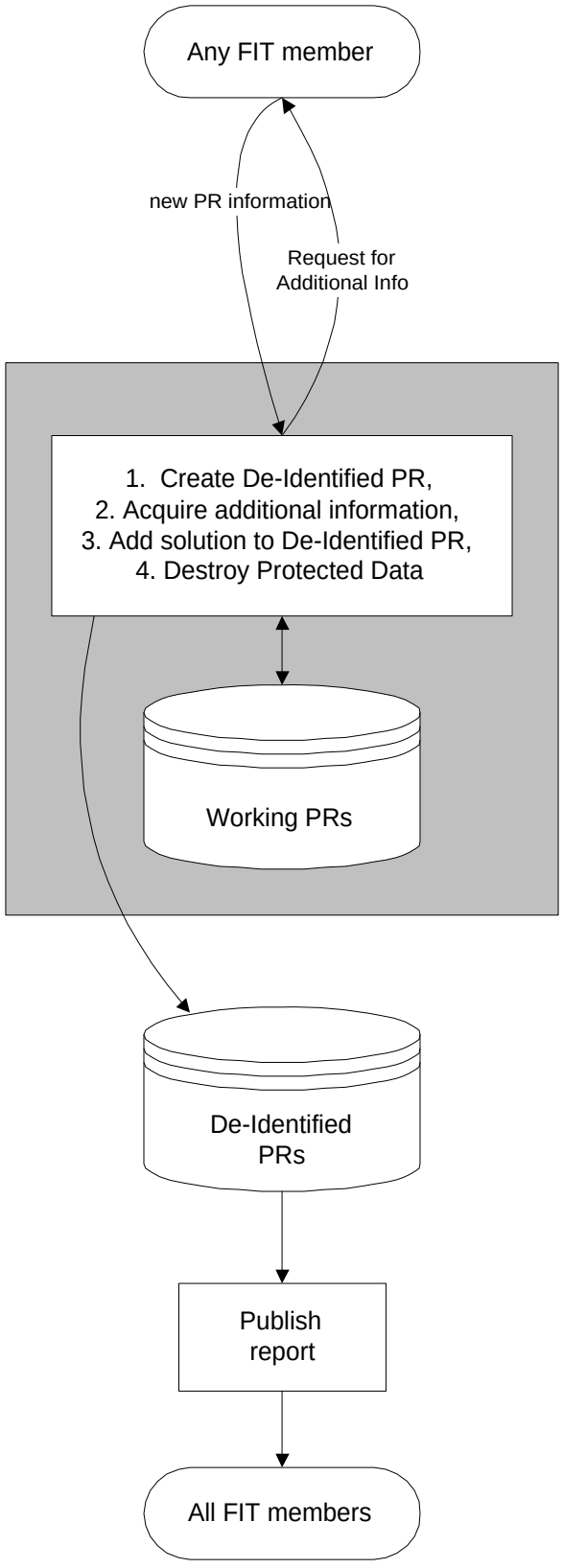
Protected Problem Report Data

Reference the South Pacific Operations Manual for a copy of the problem report form.

Release Problem Report Data

- Description of event without reference to actual time or affected parties
- Analysis of root cause of problem
- Recommended resolution
- Status of FIT progress in resolving the PR
- Status of FIT progress in implementing the solution

Processing of Problem Report Data



The CRA will accept a new problem report from any FIT member. The CRA will then create a new De-identified Problem Report.

All incoming information will be stored in the protected PR. The information will be kept in a central area. All protected information will be destroyed after problem resolution.

The CRA may need to request additional information regarding the problem from the originating FIT member and/or from other FIT members. All of this additional information will be kept in the protected PR.

When the FIT determines an appropriate resolution to the problem, a de-identified version of the resolution will be added to the Release Data.

The CRA will publish the release PR data for access by all FIT members.

FANS-1/A Problem Report

The monitoring process

When problems or abnormalities are discovered, the initial analysis should be performed by the organization(s) identifying the problem. In addition, a copy of the problem report should be sent to the Central Reporting Agency (CRA) which will assign a tracking number. As some problems or abnormalities may involve more than one organization, the originator should be responsible for follow-up action to rectify the problem and forward the information to the CRA. It is essential that all information relating to the problem is documented and recorded and resolved in a timely manner.

The parties who need to be involved in this monitoring process and problem tracking for the review and analysis of the data collected are:

a) ATS service providers or organizations responsible for ATS system maintenance (where different from the ATS provider);
b) State regulatory authorities;
c) Communication service providers;
d) Aircraft operators; and
e) Aircraft and avionics manufacturers.

FANS-1/A problem reports

Problem reports may originate from many sources, but most will fall within two categories; reports based on observation of one or more specific events, or reports generated from the routine analysis of data. For example, a problem report could arise from an incident where there was confusion about the meaning of a clearance, as the result of inappropriate use of free text. The user would document the problem, resolve it with the appropriate party and forward a copy of the report to the CRA for tracking. This one incident may appear to be an isolated case, but the receipt of numerous similar reports by the CRA that could indicate an area that needs more detailed examination.

To effectively resolve problems and track progress, the forms should be sent to the nominated point of contact at the appropriate organization and the CRA. The resolution of the identified problems may require:

a) Re-training of system operators, or revision of training procedures to ensure compliance with existing procedures;
b) Change to operating procedures;
c) Change to system requirements, including performance and interoperability; or
d) Change to system design.

FANS-1/A Problem Report

Number

Date UTC		**Time UTC**	
Registration		**Flight Number**	
Sector			
Originator		**Aircraft Type**	
Organization			
Active Center		**Next Center**	
Position			
Description			

Description of fields

Field	Meaning
Number	A unique identification number assigned to this problem report. Organizations writing problem reports are encouraged to maintain their own internal list of these problems for tracking purposes. Once the problems have been reported to the CRA and incorporated in the database, a number will be assigned by the CRA and used for tracking by the FIT.
Date UTC	UTC date when the event occurred.
Time UTC	UTC time (or range of times) at which the event occurred..
Registration	Registration number (tail number) of the airplane involved. This should be in exactly the same format as was used for the logon to the ATC Center, including any dashes used.
Flight Number	Flight identifier (call sign) of the flight involved. This should be in exactly the same format as was used for the logon to the ATC Center, including any leading zeros in the number.
Sector	The departure airport and destination airport for the sector being flown by the airplane involved in the event. These should be the ICAO identifiers of those airports.
Originator	Point of contact at the originating organization for this report (usually the author).
Aircraft Type	The airplane model involved (e.g. B777 or MD11. Where a dash number records a significant change to the equipment fit (e.g. B747400), the dash number should be provided as well.
Organization	The name of the organization (airline, ATS provider or datalink service provider) that created the report.
Active Center	ICAO identifier of the ATC Center controlling the airplane at the time of the event.
Next Center	If the problem involves a handover between ATC Centers, or occurs close to the time of a handover, then this should contain the ICAO identifier of the Center to which control was being handed over.
Position	Location of the airplane at the time of the event. This could be the latitude and longitude, but could also be specified relative to a waypoint on the route or an FIR boundary.
Description	This should provide as complete a description of the situation leading up to the problem as is possible. Where the organization reporting the problem is not able to provide all the information (e.g. the controller may not know everything that happens on the airplane), it would be helpful if they would coordinate with the other parties to obtain the necessary information. The description should include: • A complete description of the problem that is being reported • The route contained in the FMS • Any flight deck indications, including EICAS messages that occurred • Any MCDU scratchpad messages that occurred • Any indications provided to the controller when the problem occurred • Any problems being experienced with other datalink systems (such as AOC), or indications that those other systems were unaffected • Any additional information that the originator of the problem report considers might be helpful but is not included on the list above IF NECESSARY TO CONTAIN ALL THE INFORMATION, ADDITIONAL PAGES MAY BE ADDED, AND IF THE ORIGINATOR CONSIDERS IT MIGHT BE HELPFUL, DIAGRAMS AND OTHER ADDITIONAL INFORMATION (SUCH AS PRINTOUTS OF MESSAGE LOGS) MAY BE APPENDED TO THE REPORT.

FANS-1/A periodic status report

The monitoring process

When problems or abnormalities are discovered, the initial analysis should be performed by the organization(s) identifying the problem. In addition, a copy of the problem report should be sent to the Central Reporting Agency (CRA) which will assign a tracking number. As some problems or abnormalities may involve more than one organization, the originator should be responsible for follow-up action to rectify the problem and forward the information to the CRA. It is essential that all information relating to the problem is documented and recorded and resolved in a timely manner.

The parties who need to be involved in this monitoring process and problem tracking for the review and analysis of the data collected are:

a) ATS service providers or organizations responsible for ATS system maintenance (where different from the ATS provider);
b) State regulatory authorities;
c) Communication service providers;
d) Aircraft operators; and
e) Aircraft and avionics manufacturers.

FANS-1/A periodic status report

The ATS Providers should complete the FANS-1/A Periodic Status Report at specified intervals agreed by the regional FANS Interoperability Team (FIT) for the dissemination of information and as an indication of system performance. Additionally, the report should identify any trend discovered in system deficiencies, the resultant operational implications, and the resolution, if applicable.

Communications service providers are also expected to submit FANS-1/A Periodic Status Reports on the performance of their networks at specified intervals. These reports may contain planned or current upgrades to the systems and may not be required as often as the reports from ATS providers.

1.1 FANS- 1/A Periodic Status Report Form

Originating Organization			
Date of submission		**Originator**	
Status for [Month/Year]			
Performance Measure	**Data**		
DELAY	**All times will be calculated "less than" < the time band to the right.**		
Uplinks: Round-trip transit delay time (ATS Provider - delay between the time a message is sent and the time the Message Assurance (MAS) referring to this message is received) (Network provider - delay between the time a message arrives at the router and the time the MAS referring to this message arrives back at the router) Note: If access to individual message delivery media (VHF, SATCOM, HF) is not available to an individual ATSP then a report containing the total uplinks per time bands, total messages sent, and total lost messages for all media combined is acceptable. **Downlinks:** (ATS Provider - difference between embedded message time stamp and time message received from Network provider) Lost messages determined by: • Message assurance failure is received. After trying both VHF and SATCOM. Depending on reason code received, the message might, in fact, have made it to the aircraft. • No message assurance or flight crew response is received by ATSU after 900 seconds Note: If access to individual message delivery media (VHF, SATCOM, HF) is not available to an individual ATSP then a report containing the total uplinks per time bands, total messages sent, and total lost messages for all media combined is acceptable.	**Number of messages with a round trip transit delay time of less than X seconds:** VHF Data Link (Individual records for CPDLC and ADS messages if possible) X= 10s 20s 30s 60s 90s 120s 180s ≥180s Total number of VHF uplink messages: Total number of VHF lost uplink messages: SATCOM Data Link (Individual records for CPDLC and ADS messages if possible) X= 10s 20s 30s 60s 90s 120s 180s ≥180s Total number of SATCOM uplink messages: Total number of SATCOM lost uplink messages: HF Data Link (Individual records for CPDLC and ADS messages if possible) X= 10s 20s 30s 60s 90s 120s 180s ≥180s Total number of HF uplink messages: Total number of HF lost uplink messages: **Number of messages with a downlink transit delay time of less than Y seconds:** VHF Data Link (Individual records for CPDLC and ADS messages if possible) Y= 10s 15s 30s 45s 60s 90s ≥ 90s Total number of VHF downlink messages: Total number of VHF lost downlink messages: SATCOM Data Link (Individual records for CPDLC and ADS messages if possible) Y= 10s 15s 30s 45s 60s 90s ≥ 90s Total number of SATCOM downlink messages: Total number of SATCOM lost downlink messages: HF Data Link (Individual records for CPDLC and ADS messages if possible) Y= 10s 15s 30s 45s 60s 90s ≥ 90s Total number of HF downlink messages: Total number of HF lost downlink messages:		

UNAVAILABILITY **(Actual time windows of scheduled outages)** **(Actual time windows of unscheduled outages)** **(ATS**Error! Bookmark not defined. **Providers - Instances of inability to communicate with individual aircraft)**	For each window of unavailability, list start and end **times and dates**. Denote if notification was given to operators in each case. **From: To: Notification (Y/N) Partial (Y/N)**
OPERATIONAL INDICATORS **Total number of aircraft with connections** **Total number of successful connections at first attempt** **Total number of flights unable to connect** **Significant system changes and impact on performance.**	**CPDLC** **ADS**
GENERAL COMMENTS	

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 01/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/1/2008	16:16:37	MAS20	B772	9M-MRQ	P628	N	N
2	6/1/2008	16:18:06	QFA5	B744	VH-OJI	P628	N	N
3	6/1/2008	16:18:13	MAS2	B744	9M-MPP	P628	N	N
4	6/1/2008	16:18:15	DLH779	B744	D-ABVB	P628	N	N
5	6/1/2008	16:46:49	MAS6	B772	9M-MRI	P628	N	N
6	6/1/2008	16:48:47	SIA334	B77W	9V-SWG	P628	N	N
7	6/1/2008	17:01:02	SIA324	B772	9V-SVE	P628	N	N
8	6/1/2008	17:01:06	MAS6	B772	9M-MRI	P628	N	N
9	6/1/2008	17:33:29	MAS16	B744	9M-MPK	P628	N	N
10	6/1/2008	18:21:18	SIA348	B772	9V-SVI	N571	N	N
11	6/1/2008	18:34:00	SIA348	B772	9V-SVI	N571	N	N
12	6/1/2008	18:40:30	QFA10	B774	VH-OEB	P628	N	N

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		9
TOTAL LOGON INITIATED		12
CONNECTION	Y	0
	N	12

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 02/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/2/2008	15:28:31	SIA376	B743	9V-SYL	N571	Y	Y
2	6/2/2008	16:05:51	JST28	A332	VH-EBA	A464	Y	N
3	6/2/2008	16:07:06	JST28	A332	VH-EBA	A464	Y	N
4	6/2/2008	16:15:16	QFA9	B744	VH-OEB	P628	Y	Y
5	6/2/2008	16:29:54	MAS14	B744	9M-MRH	N571	Y	Y
6	6/2/2008	16:35:44	BAW16	B772	G-YMMK	P628	Y	N
7	6/2/2008	16:38:52	MAS20	B772	9M-MRC	P628	Y	Y
8	6/2/2008	17:01:33	SIA322	A388	9V-SKB	P628	N	N
9	6/2/2008	17:01:45	SIA324	B772	9V-SVN	P628	N	N
10	6/2/2008	17:04:49	SIA26	B744	9V-SMU	N571	N	N

Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		9
TOTAL LOGON INITIATED		10
CONNECTION	Y	7
	N	3

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 03/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/3/2008	15:17:04	KLM838	B772	PH-BQF	A457	Y	Y
2	6/3/2008	16:08:00	BAW16	B772	G-YMMJ	P628	N	N
3	6/3/2008	16:23:24	SIA490	B773	9V-SYG	N571	Y	Y
4	6/3/2008	16:37:07	SIA378	B77W	9V-SWI	P574	Y	Y
5	6/3/2008	16:51:50	SIA324	B772	9V-SVA	P628	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		5
TOTAL LOGON INITIATED		5
CONNECTION	Y	4
	N	1

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 04/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
2	6/4/2008	15:37:06	DLH779	B774	D-ABVO	P628	Y	Y
3	6/4/2008	15:52:43	QFA9	B774	VH-OJP	P628	Y	Y
4	6/4/2008	15:54:51	JST28	A332	VH-EBE	A457	Y	Y
5	6/4/2008	16:07:58	KLM838	B772	PH-BQI	N571	Y	Y
6	6/4/2008	16:10:28	MAS20	B772	9M-MRD	P628	Y	Y
7	6/4/2008	16:25:08	SIA324	B772	9V-SVL	P628	N	N
8	6/4/2008	16:34:09	SIA328	B772	9V-SVG	P628	N	N
9	6/4/2008	16:34:28	SIA26	B744	9V-SPI	P628	N	N
10	6/4/2008	17:11:24	SIA378	B77W	9V-SWE	N571	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		9
TOTAL LOGON INITIATED		9
CONNECTION	Y	6
	N	3

LOGON AND CONNECTION STATUS REPORTS

From 1500 - 1900 UTC 05/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
5	6/5/2008	15:50:25	DLH779	B744	D-ABVU	P628	Y	Y
6	6/5/2008	15:59:09	MAS14	B772	9M-MRQ	N571	Y	Y
7	6/5/2008	16:00:19	SIA490	B773	9V-SYC	N571	Y	Y
8	6/5/2008	16:13:03	SIA322	A388	9V-SKD	P628	Y	Y
9	6/5/2008	16:24:23	SIA324	B772	9V-SVD	P628	Y	Y
10	6/5/2008	16:25:58	SIA378	B77W	9V-SWF	P574	Y	Y
11	6/5/2008	16:30:47	MAS20	B772	9M-MRN	P628	Y	Y
12	6/5/2008	16:30:51	SIA328	B772	9V-SVB	P628	Y	Y
13	6/5/2008	16:57:56	UAE349	B77W	A6-EBH	P574	Y	Y
14	6/5/2008	17:56:55	UAE343	B77W	A6-EBF	P574	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		10
TOTAL LOGON INITIATED		10
CONNECTION	Y	10
	N	0

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 06/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/6/2008	15:25:34	KLM838	B772	PH-BQH	A457	Y	Y
2	6/6/2008	15:27:58	MAS14	B772	9M-MRD	N571	Y	Y
3	6/6/2008	15:48:32	DLH779	B744	D-ABVM	P628	Y	Y
4	6/6/2008	15:56:13	AFR257	B773	F-GSQY	A457	Y	Y
5	6/6/2008	16:02:59	MAS6	B772	9M-MRO	A457	Y	Y
6	6/6/2008	16:18:07	SIA334	B77W	9V-SWN	A457	Y	Y
7	6/6/2008	16:19:42	MAS20	B772	9M-MRE	P628	Y	Y
8	6/6/2008	16:44:08	MAS16	B744	9M-MPL	P628	Y	Y
9	6/6/2008	16:45:40	SIA26	B744	9V-SPL	P628	Y	Y
10	6/6/2008	16:51:48	QFA31	B744	VH-OJU	P628	Y	Y
11	6/6/2008	16:53:24	QFA9	B744	VH-OJL	P628	Y	Y
12	6/6/2008	17:08:40	QFA5	B744	VH-OJE	P628	Y	Y
13	6/6/2008	17:12:57	QTR622	A333	A7-AEO	N571	Y	Y
14	6/6/2008	17:13:25	JST28	A332	VH-EBF	A464	Y	Y
15	6/6/2008	17:21:39	SIA324	B772	9V-SVL	P628	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		15
TOTAL LOGON INITIATED		15
CONNECTION	Y	15
	N	0

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 07/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/7/2008	15:53:44	DLH779	B744	D-ABVH	P628	N	N
2	6/7/2008	15:55:49	KLM838	B772	PH-BQN	A457	N	N
3	6/7/2008	16:06:16	MAS2	B734	9M-MPN	A457	Y	Y
4	6/7/2008	16:09:46	BAW16	B772	G-YMMN	P628	Y	Y
5	6/7/2008	16:11:20	MAS16	B744	9M-MPP	P628	Y	Y
6	6/7/2008	16:13:33	KLM838	B772	PH-BQN	P628	Y	Y
7	6/7/2008	16:19:49	SIA322	A388	9V-SKD	P628	Y	Y
8	6/7/2008	16:26:41	SIA324	B772	9V-SVE	P628	Y	Y
9	6/7/2008	16:32:32	QFA9	B744	VH-OEC	P628	Y	Y
10	6/7/2008	16:37:39	MAS6	B772	9M-MRH	A457	Y	Y
11	6/7/2008	17:09:07	SIA378	B77W	9V-SWM	N571	Y	Y
12	6/7/2008	18:17:19	SIA366	B772	9V-SVI	N571	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		11
TOTAL LOGON INITIATED		12
CONNECTION	Y	10
	N	2

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 08/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/8/2008	15:42:36	MAS88	B772	9M-MRN	G582	Y	Y
2	6/8/2008	15:56:21	MAS20	B772	9M-MPO	P628	Y	Y
3	6/8/2008	16:38:11	MAS6	B772	9M-MRG	P628	Y	Y
4	6/8/2008	16:40:13	SIA490	B773	9V-SYD	N751	Y	Y
5	6/8/2008	16:50:04	MAS16	B744	9M-MPK	P628	Y	Y
6	6/8/2008	16:56:28	QFA5	B744	VH-OJC	P628	Y	Y
7	6/8/2008	17:12:45	SIA378	B77W	9V-SWB	P628	Y	Y
8	6/8/2008	17:34:47	UAE352	B77W	A6-ECB	N751	Y	Y
9	6/8/2008	17:50:51	SIA346	B77W	9V-SWA	P628	Y	Y
10	6/8/2008	17:54:12	QFA9	B744	VH-OJN	P628	Y	Y
11	6/8/2008	18:32:46	SIA348	B772	9V-SVK	N751	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		11
TOTAL LOGON INITIATED		11
CONNECTION	Y	11
	N	0

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 09/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/9/2008	16:06:48	QFA5	B744	VH-OJJ	P628	N	N
2	6/9/2008	16:07:24	QFA5	B744	VH-OJJ	P628	N	N
3	6/9/2008	16:29:43	MAS14	B772	9M-MRC	N571	N	N
4	6/9/2008	16:30:12	MAS14	B772	9M-MRC	N571	N	N
5	6/9/2008	16:31:13	SIA324	B772	9V-SVE	P628	N	N
6	6/9/2008	16:39:12	SIA324	B772	9V-SVE	P628	N	N
7	6/9/2008	16:54:24	QFA5	B744	VH-OJJ	P628	N	N
8	6/9/2008	17:03:03	SIA378	B77W	9V-SWQ	N571	N	N
9	6/9/2008	17:07:46	SIA378	B77W	9V-SWQ	N571	N	N
10	6/9/2008	17:08:17	SIA324	B772	9V-SVE	P628	N	N
11	6/9/2008	17:23:37	SIA328	B772	9V-SVI	P628	N	N
12	6/9/2008	17:24:15	SIA328	B772	9V-SVI	P628	N	N

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		7
TOTAL LOGON INITIATED		12
CONNECTION	Y	0
	N	12

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 10/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/10/2008	15:58:38	MAS6	B772	9M-MRE	A457	N	N
2	6/10/2008	16:27:50	MAS20	B772	9M-MRB	P628	N	N
3	6/10/2008	16:29:24	ARF257	B773	F-GSQB	P628	N	N
4	6/10/2008	16:30:41	MAS20	B772	9M-MRB	P628	N	N
5	6/10/2008	16:33:54	MAS20	B772	9M-MRB	P628	N	N
6	6/10/2008	16:35:45	MAS20	B772	9M-MRB	P628	N	N
7	6/10/2008	16:38:21	MAS6	B772	9M-MRE	A457	N	N
8	6/10/2008	16:42:30	AFR257	B773	F-GSQB	P628	N	N
9	6/10/2008	16:45:51	MAS20	B772	9M-MRB	P628	N	N
10	6/10/2008	16:50:49	SIA328	B772	9V-SVJ	P628	N	N
11	6/10/2008	16:53:18	SIA490	B773	9V-SYA	N571	N	N
12	6/10/2008	16:57:07	SIA490	B773	9V-SYA	N571	N	N
13	6/10/2008	16:59:52	SIA490	B773	9V-SYA	N571	N	N
14	6/10/2008	17:04:30	SIA490	B773	9V-SYA	N571	N	N
15	6/10/2008	17:18:14	SIA378	B77W	9V-SWI	N571	N	N
16	6/10/2008	17:22:59	SIA378	B77W	9V-SWI	N571	N	N
17	6/10/2008	17:30:36	SIA26	B744	9V-SPL	P628	N	N
18	6/10/2008	18:12:36	UAE352	B773	A6-EBX	N571	N	N
19	6/10/2008	18:45:18	SIA492	B772	9V-SVA	N571	N	N

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		9
TOTAL LOGON INITIATED		19
CONNECTION	Y	0
	N	19

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 11/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/11/2008	15:57:12	SIA376	B773	9V-SYB	N571	N	N
2	6/11/2008	16:12:49	MAS20	B772	9M-MRO	P628	Y	Y
3	6/11/2008	16:14:40	SIA322	A388	9V-SKD	A457	Y	Y
4	6/11/2008	16:22:40	DLH779	B744	D-ABVC	P628	Y	Y
5	6/11/2008	16:51:40	SIA324	B772	9V-SVN	A457	Y	Y
6	6/11/2008	16:56:44	SQC7378	B744	9V-SFI	P628	Y	Y
7	6/11/2008	17:10:48	QFA5	B744	VH-OJC	P628	Y	Y
8	6/11/2008	17:26:24	SIA26	B744	9V-SPA	N571	Y	Y
9	6/11/2008	17:29:52	MAS6160	B744	9M-MPS	N571	Y	Y
10	6/11/2008	17:41:32	SQC7488	B744	9V-SFN	N571	Y	Y
11	6/11/2008	18:21:14	SIA352	B772	9V-SVL	P628	Y	Y
12	6/11/2008	18:24:10	SIA346	B77W	9V-SWM	P628	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		12
TOTAL LOGON INITIATED		12
CONNECTION	Y	11
	N	1

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 12/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/12/2008	15:58:28	DLH779	B744	D-ABVM	P628	Y	Y
2	6/12/2008	16:20:22	SIA490	B773	9V-SYC	N571	Y	Y
3	6/12/2008	16:21:17	BAW16	B772	G-YMMN	P628	Y	Y
4	6/12/2008	16:23:49	MAS20	B772	9M-MRC	P628	Y	Y
5	6/12/2008	16:39:59	MAS14	B772	9M-MRE	P628	Y	Y
6	6/12/2008	16:40:31	MAS6	B772	9M-MRI	P628	Y	Y
7	6/12/2008	16:41:44	MAS16	B744	9M-MPO	P628	Y	Y
8	6/12/2008	17:22:09	UAE343	B773	A6-EBL	N571	Y	Y
9	6/12/2008	17:25:09	MAS203	B772	9M-MRF	P574	Y	Y
10	6/12/2008	18:44:32	SIA366	B772	9V-SVC	N571	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		10
TOTAL LOGON INITIATED		10
CONNECTION	Y	10
	N	0

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 13/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/13/2008	16:03:28	QFA9	B744	VH-OJS	P628	Y	Y
2	6/13/2008	16:33:07	MAS14	B772	9M-MRQ	P628	Y	Y
3	6/13/2008	16:33:09	SIA324	B772	9V-SVF	P628	Y	Y
4	6/13/2008	16:36:16	SQC7374	B744	9V-SFB	A457	Y	Y
5	6/13/2008	16:47:57	SIA26	B744	9V-SPQ	A457	Y	Y
6	6/13/2008	16:52:04	MAS16	B744	9M-MPJ	P628	Y	Y
7	6/13/2008	17:11:33	SIA334	B77W	9V-SWN	N571	Y	Y
8	6/13/2008	18:05:36	UAE343	B773	A6-EBH	P574	Y	Y
9	6/13/2008	18:09:35	MAS20	B772	9M-MRP	P628	Y	Y
10	6/13/2008	18:25:10	SIA352	B772	9V-SVM	P628	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		10
TOTAL LOGON INITIATED		10
CONNECTION	Y	10
	N	0

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 14/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/14/2008	15:41:04	QFA9	B744	VH-OJQ	A457	N	N
2	6/14/2008	15:53:14	KLM838	B772	PH-BQK	A457	Y	Y
3	6/14/2008	16:12:38	MAS20	B772	9M-MRO	P628	Y	Y
4	6/14/2008	16:22:22	AFR257	B773	F-GSQH	P628	Y	Y
5	6/14/2008	16:23:08	DLH779	B744	D-ABVD	P628	Y	Y
6	6/14/2008	16:36:15	SIA322	A388	SQ322	A457	Y	Y
7	6/14/2008	16:45:42	SIA324	B772	9V-SVJ	P628	Y	Y
8	6/14/2008	16:45:42	MAS14	B772	9M-MRE	N571	Y	Y
9	6/14/2008	16:51:44	SIA26	B744	9V-SPE	A457	Y	Y
10	6/14/2008	16:52:03	SIA328	B772	9V-SVC	A457	Y	Y
11	6/14/2008	16:52:12	SIA378	B77W	9V-SWJ	N571	Y	Y
12	6/14/2008	17:24:25	QTR622	A333	A7-AEB	N571	Y	N
13	6/14/2008	18:40:09	UAE405	B773	A6-EMU	N571	Y	Y

NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

TOTAL AIRCRAFT FLYING		13
TOTAL LOGON INITIATED		13
CONNECTION	Y	12
	N	1

LOGON AND CONNECTION STATUS REPORTS
From 1500 - 1900 UTC 15/06/08

NO.	DATE	TIME	CALLSIGN	TYPE	REG.NO.	ROUTE	ADS	CPDLC
1	6/15/2008	15:37:02	MAS20	B772	9M-MRG	P628	Y	Y
2	6/15/2008	15:47:31	KLM838	B772	PH-BQM	A457	Y	Y
3	6/15/2008	15:48:55	AFR257	B773	F-GSQB	A457	Y	Y
4	6/15/2008	15:49:36	DLH779	B744	D-ABVX	P628	Y	Y
5	6/15/2008	16:34:24	SIA26	B744	9V-SPG	A457	Y	Y
6	6/15/2008	16:38:04	SIA328	B772	9V-SVE	A457	Y	Y
7	6/15/2008	16:52:19	MAS6	B772	9M-MRP	P628	Y	Y
8	6/15/2008	16:57:08	SIA490	B773	9V-SYJ	N571	Y	Y
9	6/15/2008	17:24:20	SIA348	B772	9V-SVG	N571	Y	Y
10	6/15/2008	17:35:08	SQC7393	B744	9V-SFF	N571	Y	Y

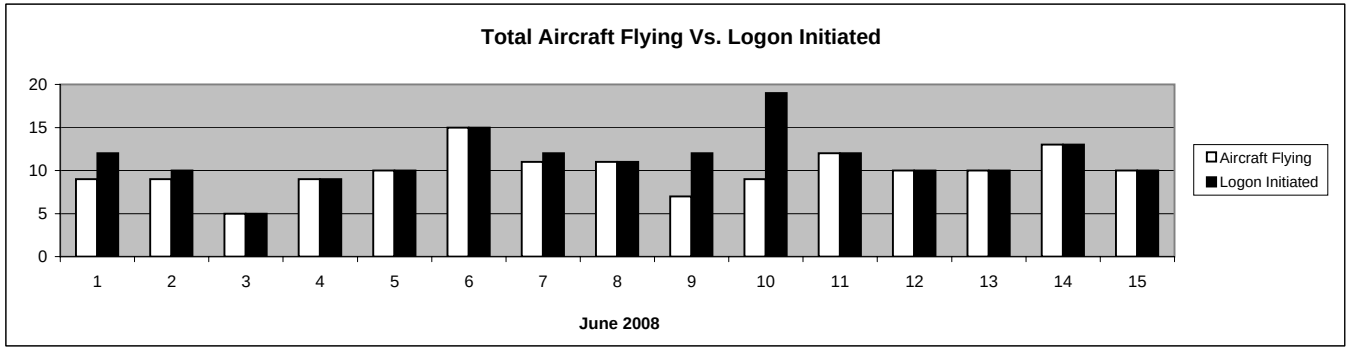
NOTE : Y - YES/CONNECTED
N - NO/NOT CONNECTED

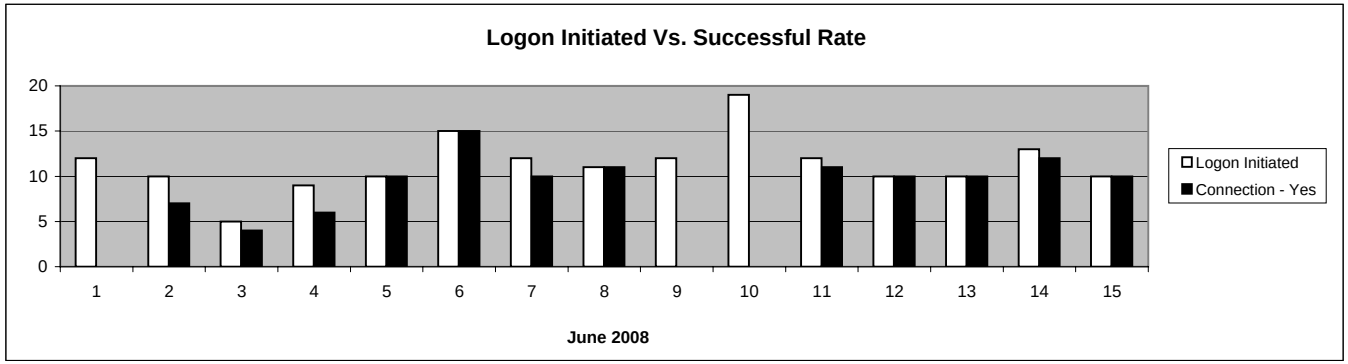
TOTAL AIRCRAFT FLYING		10
TOTAL LOGON INITIATED		10
CONNECTION	Y	10
	N	0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Aircraft Flying	9	9	5	9	10	15	11	11	7	9	12	10	10	13	10
Logon Initiated	12	10	5	9	10	15	12	11	12	19	12	10	10	13	10

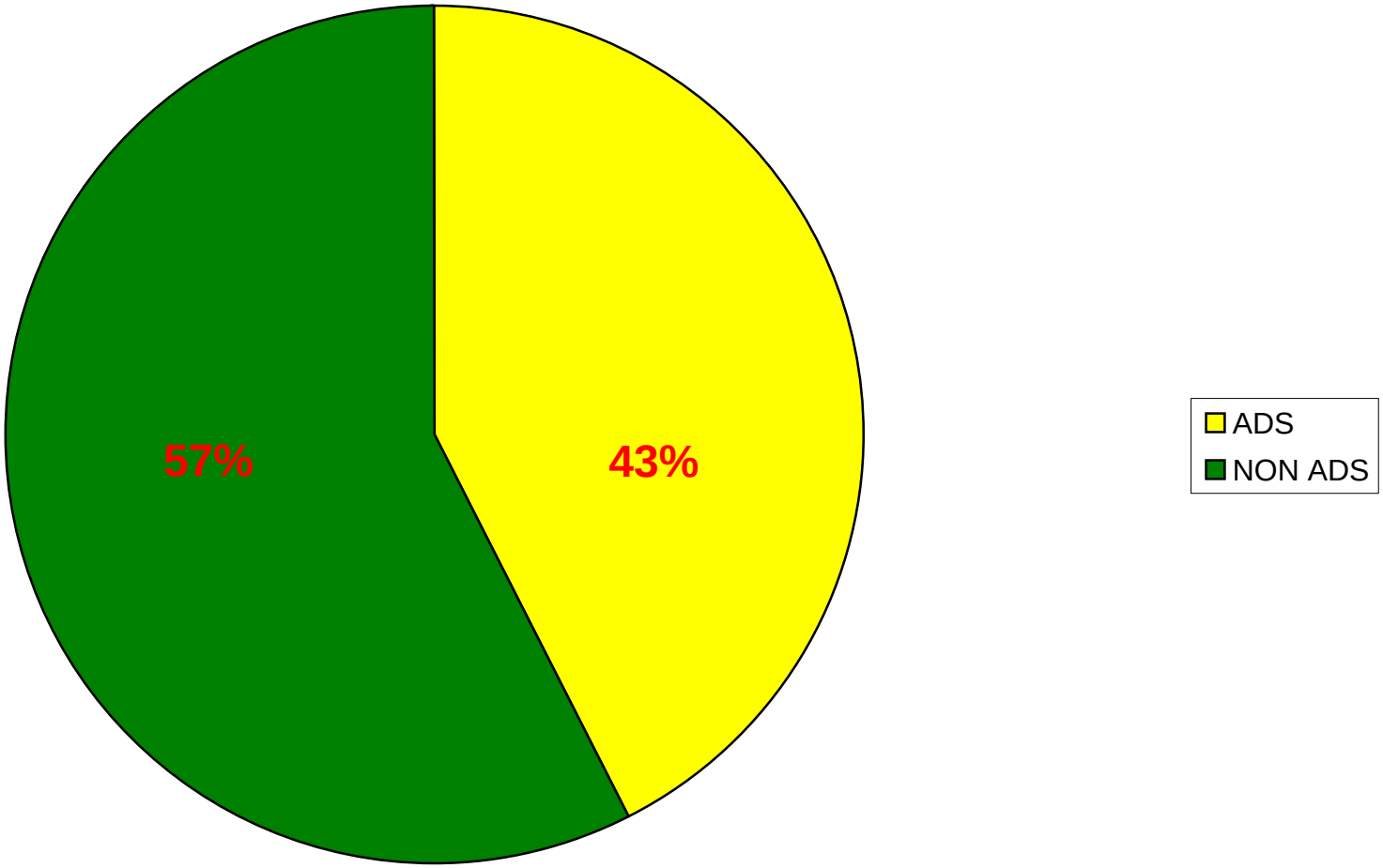
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Logon Initiated	12	10	5	9	10	15	12	11	12	19	12	10	10	13	10
Connection - Yes	0	7	4	6	10	15	10	11	0	0	11	10	10	12	10

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Logon Initiated	12	10	5	9	10	15	12	11	12	19	12	10	10	13	10
Connection - No	12	3	1	3	0	0	2	0	12	19	1	0	0	1	0





YEARLY COMPARISON OF ADS ACFT WITH NON ADS ACFT



FIT-BOB – Suggested Data link Implementation strategy

Define CPDLC Concept of Operations

- Where will CPDLC be used (i.e. what airspace)

- Will CPDLC be used for primary communications?

- What services will CPDLC be used for?
  - Vertical clearances?
  - Route clearances?
  - Weather deviations?
  - Issuing SSR codes?
  - etc

- What services will ADS-C be used for?
  - Flight following
  - Separation service
  - etc

- What separation standards will be supported by ADS-C
  - 15 minutes
  - 10 minutes
  - 50NM
  - 30NM
  - Establishing lateral separation
  - etc

Procedures

- Will the procedures as defined in the FOM (FANS Operations Manual) be implemented (FOM currently adopted in 47 States)?
  - Yes ==> update FOM to include relevant State data, contacts, procedures etc

- Define logon procedures – these will be affected by:
  - Where is CPDLC to be used (see Concept of Operations)
  - Will the use of PDC by ACARS be implemented?
  - Will the use of PDC by CPDLC be implemented?

- Develop specific CPDLC procedures in accordance with local requirements. Airlines will expect these to be in accordance with existing procedures in other regions

- Develop specific ADS-C procedures in accordance with local requirements.

- Allow *some* flexibility in procedures to allow airlines to adapt their existing procedures to your requirements (e.g. allow logons from aircraft airborne or on the ground)

- Phraseologies for transferring aircraft to CPDLC

Documentation

- AIP
  - Publish logon codes?
  - Publish logon procedures
  - Publish airline procedures
  - Position reporting procedures
  - Any specific messages not supported?

- Controller documents
  - Publish ATC procedures

  Sample ATC procedures for controller documentation:

  1. When using CPDLC distance reports for the purposes of separation, only information received in the downlink report message element "AT [time] [distance] TO/FROM [position]" must be used.

  2. When level information is received in a CPDLC downlink report, only that information relating to flight levels must be used for the provision of separation. Altitude information must not be used.

  3. When issuing a vertical clearance, such as "CLIMB TO [level]", and a CPDLC confirmation of maintaining the level is required, controllers must add the pre-formatted uplink message element "REPORT LEVEL [level]" to allow flight crews to arm the appropriate downlink report.

Eurocat data definition(s)

Eurocat data needs to be defined in order to support the CPDLC Concept of Operations. Some specific Eurocat data to consider include:

- ACARS address will need to be defined

- Are CPDLC Connections to be established automatically or manually?
  - Manual ==> ATC controls who uses CPDLC and when
  - Automatic ==> reduced ATC workload, but also means it is more difficult to control when CPDLC is used by pilot

- Will data link transfers be effected to adjoining units?
  - Yes ==> Need to define ACARS addresses of surrounding units

- Will data link transfers be a manual or automatic process?
  - Manual ==> Controller training/scanning issue
  - Automatic ==> Data needs to be defined (NDA & Address Forwarding)

- Will CPDLC termination be automatic or manual?
  - Manual ==> Controller training/scanning issue
  - Automatic ==> Data needs to be defined (Auto EOS). Note that this would also require an AIDC TOC/AOC exchange

- CPDLC Editor – define layout:
  - Message categories
  - Message elements within each message category. Will the entire message set be available?
  - Define "local" messages
  - Determine "standard free text" message elements
  - Define standard free text messages in AIP

- ADS-C data
  - Define ADS-C general data – numerous parameters
  - Define ADS-C mosaic data – ensure "reasonable" reporting rates are used

- Data must be 'controlled'
  - Changes must be properly authorised
  - Prevent proliferation of non-standard 'stored free text' messages
  - Prevent changes to data whose affect may be undesirable

Coordination

- Airlines
  - To assist in a smooth transition to data link operations, the major data link operators throughout the region should be contacted directly
  - Are LOAs currently held with airlines? If so, do they need to be updated?
  - Determine appropriate points of contact with airlines to rapidly address data link related problems

- Adjoining data link capable ATSUs
  - Are data link transfers from adjoining units for inbound aircraft required? If so, adjoining ATSUs will need to update their data to include adjacent unit ACARS addresses, and define automatic transfers to adjacent units
  - LOAs may need to be updated
  - Determine appropriate points of contact with adjoining units to rapidly resolve data link transfer problems

- Regulator
  - Is liaison with the regulator required?

  - Is approval from the regulator required?
  - Is regulator approval required for other State aircraft to operate data link in the airspace?

- HF operators
  - Need to be aware of how this will affect them
  - Are SELCAL checks still required?

Controller training

- All aspects of ADS-C and CPDLC must be covered in controller training
  - Standardisation is critical

Licencing

- Will data link be included in the existing controller licence, or an addition to it?
  - Does licence structure need to be updated?

- Update any controller rating paper questions

- Update check controller procedures to include data link

Data link Service Provider

- Determine preferred data link service provider
  - Sign contract
  - Establish connection to DSP

Performance monitoring

- Technical performance
  - Routine performance data analysis
  - Decoding CPDLC ACARS data
  - Decoding ADS-C ACARS data
  - Data link problem reporting

- Controller performance
  - CPDLC routine sampling?

International Fora

- Establish contacts with other data link user groups
  - Lots of lessons to be learned (The FANS Operations Manual contains a number of them)

- Establish contact with one of the established Central Reporting Agencies (CRA) to report data link problems

GOLD Ad Hoc WG – WP/01
2-Jun-08

Ad Hoc Working Group on Global Operational Data Link Document (GOLD)

Work Program, Terms of Reference and Working Practices

Summary

This paper provides the background on establishing an Ad Hoc Working Group to develop a global operational data link document (GOLD). It provides the work program, terms of reference and working practices for the group. This paper will be updated during the course of the group's work, as necessary.

1 Introduction

1.1 The North Atlantic (NAT) Region and the Asia-Pacific Region (ASIA PAC) maintain separate documents within each region to standardize on procedures for the future air navigation system (FANS) data link services. The NAT maintains Guidance Material for ATS Data Link Services in North Atlantic Airspace, currently at version 17, dated June 2008. The guidance material has been officially adopted by 6 flight information regions (FIRs) throughout the NAT. The ASIA PAC maintains the FANS-1/A Operations Manual (FOM), currently at version 5.0, dated August 2007. The FOM has been officially adopted by 47 FIRs throughout the ASIA PAC, including some of the Middle East and North Africa FIRs.

1.2 Through various regional forums, the NAT and ASIA PAC have agreed to develop a global operational data link document to "link" the guidance material and procedures for data link operations that can be used within the ASIA PAC and the NAT, as well as other regions of the world. Points-of-contact (POCs) have been identified to serve on an Ad Hoc Working Group to produce a global operational data link document (GOLD) targeted for completion by the end of 2008. The POC list will be updated as it becomes necessary to coordinate with other regions.

2 Establishing the GOLD Ad Hoc Working Group

2.1 The following meetings endorsed the work and provided POCs to establish an Ad Hoc Working Group to develop a global operational data link document (GOLD):

a) Meeting Report of the 15th meeting of the ISPACG FANS Interoperability Team (FIT/15), Papeete, Polynésie Française, 11th – 12th March 2008, (Refer to paragraph 5.0)

b) Summary of Discussion of the Twenty Second Meeting of the Informal South Pacific Air Traffic Services Coordinating Group (ISPACG/22), Papeete, Tahiti, 12-14 March 2008, (Refer to paragraphs 3.9.3, 3.9.4, and 3.9.6).

c) Summary of Discussions of the North Atlantic Future Air Navigation Systems Implementation Group (NAT FIG), Seventeenth Meeting, Ayr, 21 to –25 April 2008, (Refer to paragraph 5.0).

d) Summary of Discussions of the NAT Implementation Management Group Thirty Second Meeting (NAT IMG/32), Limerick, Ireland, 13 – 16 May 2008, (Refer to paragraphs 2.5, and 2.6).

e) Summary of Discussions of the Twenty-Seventh Meeting of the Informal Pacific Air Traffic Control Coordinating Group (IPACG/27), Tokyo, Japan, 5-9 November 2007, (Refer to paragraphs 9.1 and 9.2).

2.2 The United States (FAA) has accepted the responsibility to coordinate the group's activities across regions via the GOLD Coordinator.

2.3 The following POCs have been identified:

Name	Surname	Representation	Telephone	eMail
Chris	Dalton	ICAO Montreal – International coordinator	+1-514-954-8219, ext 6710	cdalton@icao.int
Norm	Dimock	NAT FIG – North Atlantic coordinator		dimockn@navcanada.ca
Hiroshi	Inoguchi	JCAB – IPACG coordinator	+81-3-5253-8739	inoguchi-h2hh@mlit.go.jp
Tom	Kraft	FAA – GOLD Coordinator	+1-202-369-2168	tom.kraft@faa.gov
Paul	Radford	ANZ – ISPACG coordinator via Data Link Working Group	+64-213-34806	paul.radford@airways.co.nz
Andrew	Tiede	ICAO Bangkok – Asia-Pacific coordinator	+66-2-5378189 ext 152 Mob: +66-087-1240875	atiede@bangkok.icao.int
Jacques	Vanier	ICAO Paris – North Atlantic coordinator		jvanier@paris.icao.int

3 Work program and terms of reference

3.1 The GOLD Ad Hoc Working Group will prepare a global operational data link document that:

a) takes account of ICAO provisions;

b) where possible, refers to RTCA DO-306/EUROCAE ED-122, Safety and Performance Standard for Air Traffic Data Link Services in Oceanic and Remote Airspace (Oceanic SPR Standard);

c) considers the FANS Operations Manual in Asia Pacific Airspace;

d) considers the Guidance Material for ATS Data Link Services in North Atlantic Airspace;

e) provides performance requirements for new means of communication for intervention as well as for surveillance;

f) includes guidelines and requirements for the application of the required communication performance (RCP) type(s) to support regional planning and implementation initiatives;

g) includes guidelines and requirements for aircraft data link equipage, aircraft operator eligibility, procedures and air traffic service provision;

h) includes guidelines and requirements for post-implementation monitoring;

i) is globally adoptable;

j) identifies regional differences only as absolutely necessary; and

k) enables planning and implementation regional groups to adopt the GOLD.

3.2 The GOLD is targeted to be complete by the end of 2008.

3.3 After the group has completed the GOLD, the group will consider how it will affect regional and other (e.g., ICAO and RTCA/EUROCAE) documentation. The POCs intend to provide recommendations to the appropriate bodies within their respective region and/or organization for further action.

4 Working practices

4.1 The work will generally be conducted via email and teleconferences/net meetings. Face-to-face meetings may be held, but only as deemed necessary and agreed by the members of the GOLD Ad Hoc Working Group.

4.2 The POCs identified in paragraph 2.3, will

a) participate in developing material for the GOLD;

b) coordinate within their respective region and/or organization any actions from the GOLD Ad Hoc Working Group, such as requests for draft GOLD review and comment;

c) participate in resolving comments received from reviews of the GOLD;

d) coordinate within their region and/or organization to identify and resolve cross-regional differences;

e) notify the group of any formal change activity on regional documents under review by the GOLD Ad Hoc Working Group;

f) provide email addresses for broader distribution of materials prepared by the GOLD Ad Hoc Working Group; and

g) participate in teleconferences/net meetings, as necessary.

4.3 The GOLD Coordinator will capture the results of the work using the following:

a) *GOLD master comments* to track the status of issues, changes, and resolutions (See form and instructions for use at Appendix A of this paper);

b) *GOLD draft versions* (multiple, as necessary), consistent with the resolutions provided in the master comment matrix;

c) *results of comparative assessments* among the different documents, i.e., FOM, NAT Guidance Material, DO-306/ED-122, and the GOLD, as necessary; and

d) *other documents*, such as action item lists and teleconference/net meeting summaries, on an as needed basis.

4.4 The work will start with the Asia-Pacific FANS 1/A Operations Manual, version 5.0, first aligning it with DO-306/ED-122, and then taking into account the North Atlantic Guidance Material for ATS Data Link Services, version 17.

4.5 If suggestions to improve DO-306/ED-122 are identified during the course of this work, they will be tracked in a separate document for further disposition upon completion of the terms of reference.

5 Action

5.1 The Group is invited to:

a) agree to the work program, terms of reference and working practices as outlined in this paper, or

b) provide to the GOLD Ad Hoc Working Group forum comments and suggested changes to this paper.

Appendix A: Comment matrix form and instructions.

COMMENTS DUE NO LATER THAN [INSERT DATE HERE by GOLD Master Comments Coordinator].

Legend for Cat Column:

E Editorial
C Confusing, clarification, erroneous information, inconsistency, or invalid argument
A Additional material
S Serious – resolution of comment requires special attention

[To be completed by comment author(s). The GOLD master comment matrix will list all that submitted comments.]

Name	Represenatation	Telephone	eMail

Paragraph reference	Comment Number	Comment Author	Description of comment and proposed resolution	Cat	Resolution Status	Status
[Completed by comment author. Always use paragraph reference, then table or figure number, if applicable. Comment matrix is sorted by this column]	[Completed by coordinator of the GOLD master comments]	[Comment author enters their name]	[this column used exclusively by the comment author to provide rationale for the change together with suggested change. Two subheadings are provided to encourage comment author to provide both the argument/reason AND the change] **COMMENT:** **SUGGESTED CHANGE TO DOCUMENT:**	[Optional, see legend]	[Reserved for any GOLD Ad Hoc Working Group point-of-contact. POCs should precede their entry with date when entry was made followed by initials in bold text, e.g., **25-May-08-TK -** . All entries should be placed sequentially starting at the top of the cell and moving downward. When resolution is complete, the last entry will indicate resolution complete.]	[Used by coordinator. A "C" is entered to signify when the change in the resolution status has been incorporated into the GOLD engineering version. As the comment matrix is worked, it will be resorted so that the closed comments appear at the end.]

-END-

FIT-BOB TASK LIST

(last updated FIT-BOB/10, 11 July 2008)

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
1.	Coordinate with FIT-BOB States on harmonizing implementation of operational trial.	As soon as practicable	ICAO Regional Office, BBACG FIT-BOB, ASIOACG and Indian Ocean States, IATA	Ongoing	Operational trials underway in BOB since February 2004 , Arabian Sea since July 2006 FIT-BOB will also provide FIT and CRA services for Informal Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG) and all Indonesian FIRs
2.	Collecting of ADS/CPDLC problem reports and submit to CRA.	Immediate	States, operators	Ongoing	To be submitted to CRA as soon as practicable to facilitate analyzing the reports.
3.	Establish provisions for monthly ADS/CPDLC system performance data from ANSP to be submitted to the CRA.	Monthly	States	Ongoing	Essential for evaluating overall system performance within the trial airspace, to be submitted on a monthly basis for each FIR.
4.	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.

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
8/2	Prepare and promulgate by AIP Supplement/AIC/NOTAM a set of standardised procedures for the operational trials in the Bay of Bengal, Arabian Sea and Indian Ocean areas	FIT-BOB/10 July 2008	India, Sri Lanka, Indonesia, Malaysia, IATA, Regional Office	Ongoing	Review existing procedures in conjunction with the Ho Chi Minh procedures for March 2007 operational trial in order to optimise & standardise procedures
9/1	Networking problems are being experienced; the CSPs providing service in the BOB region are encouraged to work together to resolve internetworking issues.	FIT-BOB/10 July 2008	SITA ARINC AEROTHAI Boeing	Ongoing	The resources of the Boeing CRA are available to CSPs if specific internetworking testing is required.
9/2	In relation to funding mechanisms for the CRA, IATA to explore possibility of 2 party agreement (IATA & Boeing) to cover existing and anticipated area of responsibility of BOB-CRA	FIT-BOB/10 July 2008	IATA Boeing Regional Office	Ongoing	IATA to continue with 3 party agreements until outcomes of 2 party model are available.
9/3	States to comply fully with the provisions of the FOM in respect to provision of data to the CRA.	FIT-BOB/10 July 2008	States	Ongoing	
9/4	FIT-BOB and BBACG to accelerate planning for implementation of 50NM longitudinal separation using CPDLC communications with target date 2009 in as many areas of the Bay of Bengal as possible.	FIT-BOB/10 July 2008	States Regional Office IATA CSPs Boeing CRA	Ongoing	
10/4	Regional Office to issue State Letter drawing attention to commencement of CRA services as described in India AIP Supplement 40/2008	August 2008	Regional Office	Ongoing	

Indian Ocean, Bay of Bengal, Arabian Sea incl ASIOACG, Indonesia- ADS/CPDLC equipage and ATS Status

(last updated FIT-BOB/10, 11 July 2008)

STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf-acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS ATM contacts in **bold** text	REMARKS
AUSTRALIA Airservices Australia	Melbourne Brisbane	YMMM YBBB	Thales	SITA	YES	YES	YES	YES	Operational	YES	NO	**Warren Beeston** National ATC Systems Manager Tel,+61 7 3866 3720 Mobile, +61 403 274 701 Fax,+61 7 3866 3833 E-mail: warren.beeston@airservicesaustralia.com	Integrated System, ADS - B in 2006/07
INDIA Airport Authority of India	Chennai	VOMF	ECIL	SITA	YES	YES	NO	YES	Ops Trial	A1783/03, NOTAM A0700/03 A1177/03 A1796/05, updated 3 monthly AIP SUP 7/2006 published 2006	YES	**Mr. A. K. Rao** General Manager (ATM) Airports Authority of India Tel: +91 44 22561740 Fax: +91 44 22561740 E-mail: akrao@aai.aero	ADS-C Integrated with DPS, work in progress to integrate with RDPS
	Kolkata	VECF	ECIL	SITA	YES	YES	NO	YES	Ops Trial	A1278/00 NOTAM A0700/03 A1177/03 A1276/05, updated 3 monthly AIP SUP 6/2006 published 2006	YES	**Mr. L. P. Menezes** General Manager (ATM) Airports Authority of India Tel: +91 33 2511 9966 Fax: +91 33 2511 8873 E-mail: gmatmkol@aai.aero	ADS-C Integrated with DPS, work in progress to integrate with RDPS
	Mumbai	VABF	Raytheon	SITA	YES	YES	NO	YES	Ops Trial commenced from1st July 2006	A0894/06	Arabian Sea/Mumbai FIR Trial YES	**Mr. M. G. Junghare** General Manager (ATM) Airports Authority of India Telfax: +91 22 26828010 E-mail: gma.mumbai@gmail.com	India commenced Ops Trial in Arabian Sea portion of Mumbai FIR from 1st July 2006

STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf-acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS ATM contacts in **bold** text	REMARKS
	Delhi	VIDF	Raytheon	SITA	YES	YES	NO	YES	Ops Trial commenced from 1st July 2006	A0403/06	Delhi FIR Trial YES	**Mr. Bakhshish Singh** General Manager (ATM) Airports Authority of India Telfax: +91 11 2565 4367 E-mail: gmatmpalam@aai.aero	India commenced Ops Trial in portion of Delhi FIR from 1st July 2006
INDONESIA Directorate General of Civil Aviation Note: All datalink matters for the Jakarta and Ujung Pandang FIRs are managed by the FIT-BOB and BOB-CRA	Jakarta	WIIF	Raytheon		YES	YES	NO	NO	Ops trial planned from late 2008			**Novie Riyanto** Deputy Director System & Procedure of Air Navigation Directorate of Aviation Safety DGCA Indonesia E-mail: novierianto@telkom.net **Mr. Asoka Wardhana** ATC System Specialist Soeta Itnl Airport Tel: 62 21 5506152 E-mail: asoka.wardhana@angkasapura2.co.id **Mr. Marzuki Battung** CNS System Specialist Soeta Itnl Airport Tel: 62 21 5505086 E-mail: marzuki.batung@angkasapura2.co.id	
	Ujung Pandang	WAAF	Thales	SITA	YES	YES	Trial	YES	Test May 2008; Ops Trial from 3 July 2008	YES, AIP SUPP 07/2008	NO	**Mr. Eddy Amiruddin** General Manager MAATS E-mail: maats@angkasapura1.co.id **Mr. Wahyundi Tuggiyono** Manager ATC, MAATS E-mail: maats@angkasapura1.co.id, wahyundi13@angkasapura1.co.id, tugiyono_w@yahoo.co.id	

STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf-acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS ATM contacts in **bold** text	REMARKS
MALAYSIA Department of Civil Aviation	Kuala Lumpur	WMFC	SELEX	SITA	YES	YES	NO	YES	Limited operational trials commenced 1 June 2008	YES, AIC 03/2008	Apr-09	**Mr. Ahmad Nizar Zolfakar** Director ATM Tel: 603-88714000 Fax: 603-88714290 Mob-6012-330-3752 E-mail: ahmadnizar@dca.gov.my **Mr Omran Zakaria** Deputy Director ATM Email:omran@dca.gov.my	Malaysia does not expect to implment datalink for Kota Kinabalu FIR due existing extensive radar coverage.
MALDIVES	Male		NO	SITA	NO	NO	NO	NO	NO	NO	NO	**Mr. Abdulla Zakariyya** Senior Air Traffic Control Officer Maldives Airports Company Limited Male International Airport Hulhule'2200 Maldives Tel: +960 777 1384 Fax: +960 331 3258	
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 of ATS, DCA Myanmar Tel: 95 1 663838 Fax: 95 1 665124 E-mail ats@dca.gov.mm	Stand alone. Moved to new ATS Centre 2006, intermittent participation in BOB trial
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	Operational	YES	NO	**Mr. P. Ranjith Perera** Senior Air Traffic Controller Colombo Airport, ratmalana Sri Lanka Mobile Tel: 94 71 2730661 Tel/Fax: 94 11 2635105 E-mail: ranpravi@slt.lk	Stand alone system, intermittent participation in BOB trial

STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf-acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS ATM contacts in **bold** text	REMARKS
THAILAND AEROTHAI	Bangkok	VTBB	ARINC	ARINC	YES	YES	YES	YES	Ops Trial	3 monthly NOTAM	DEFER	**Mr. Tinnagorn Choowong** Tel: 66-2-285 9975 Mobile: 66-09-816 6486 Fax: 66-2-285 9077 E-mail: tinnagorn.ch@aerothai.co.th	Stand alone system, intermittent participation in BOB trial.Further study on the suitable ADS/CPDLC equipage for the new ACC in progress.
OMAN												**Mr Abdullah Nasser Al-Harthy** Senior Air Traffic Controller, Directorate General of Civil Aviation and Meteorology, Sultanate of Oman E-mail: abdullah_nasser@dgcam.gov.om	
YEMEN													
SEYCHELLES												**Mr. David Labrosse** General Manager Air Navigation Services Seychelles Civil Aviation Authority P.O. Box 181 Victoria, Mahe Seychelles Tel: 248 384042 Fax: 248 527204 E-mail: dlabrosse@scaa.sc	
MAURITIUS			Thales		YES	YES	YES	YES	Operational		NO	**Mr. Rajanah K. Guruvadoo** Chief Officer Department of Civil Aviation Sir Seewoosagur Ramgoolam International Airport Plaine Magnien Republic of Mauritius Tel: +230-603 2000 Fax: +230-637 3164 E-mail: civil-aviation@mail.gov.mu	

STATE/ ORGANIZATION	FIR	LOGON CODE	Ground Station Manuf-acturer	DSP	ADS	CPDLC	AIDC	FDP	Test, Ops Trial or Operational	Procedures Published	BOB TRIAL	CONTACTS ATM contacts in **bold** text	REMARKS
ARINC											YES	**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)											YES	**Mr. Bradley Cornell** Boeing Tel: 1 425 2946520 E-mail: bradley.d.cornell@boeing.com	
IATA											YES	**Soon Boon Hai** Assistant Director Safety Operations & Infrastructure Tel: 65 62397267 Fax: 65 65366267 E-mail: soonbhd@iata.org	
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DATALINK CAPACITY PLANNING TABLE

Bay of Bengal, Arabian Sea and Indian Ocean data link implementation

(last updated FIT-BOB/10, 11 July 2008)

STATES	FIR	ESTIMATED DATE	DATE COMPLETED	NOTES
Implement CPDLC – Controller Pilot Data Link Communications				
India	Chennai Kolkata Delhi Mumbai	2004 2004 2006 2006	Commenced 19 Feb 2004 Commenced 19 Feb 2004 Commenced 1 July 2006 Commenced 1 July 2006	All FIRs partially operational, Mumbai: Operating 17 hours daily – Target H24 by October 2008. Chennai: H24, Route Specific as per NOTAM
Indonesia	Ujung Pandang Jakarta	2008 2008	Commenced 3 July 2008	Ujung Pandang (Makassar) commenced operational trials 3 July 2008, AIP Supp 07/08 Jakarta has stand alone system, will attempt to join BOB trials late 2008, new ATS Centre in Jakarta under construction & will include integrated equipment,
Malaysia	Kuala Lumpur	First quarter 2008		Commenced limited operational trials for Kuala Lumpur FIR from 1 June 2008 using integrated equipment. No data link planned for Kota Kinabalu FIR due extensive radar coverage
Maldives	Male	TBA		
Mauritius	Mauritius		Operational from 2004	As of July 2008 was arranging ‘voiceless’ coordination trials with Australia
Myanmar	Yangon	Intermittent from 2006		Conducting intermittent activity as part of BOB Trial

STATES	FIR	ESTIMATED DATE	DATE COMPLETED	NOTES
Seychelles	Seychelles	Target 2010		
Sri Lanka	Colombo		Operational H24 from January 2007	
Singapore	Singapore		Operational	
Thailand	Bangkok	2008		Had previously participated in BOB trials, some equipment issues. New ACC under construction for commissioning 2008/09
Implement 50 NM longitudinal separation based on RNP 10		**(*Note: BBACG established target date 2009 for large areas of Bay of Bengal)***		
India	Delhi Mumbai Chennai Kolkata	2010, all FIRs		
Indonesia	Ujung Pandang Jakarta	TBA TBA		To be reviewed after implementation of ADS/CPDLC
Malaysia	Kuala Lumpur	TBA		
Maldives	Male	TBA		
Mauritius	Mauritius	TBA		Using RNAV 80 NM longitudinal
Myanmar	Yangon	TBA		
Seychelles	Seychelles	TBA		With regional implementation within AFI region
Sri Lanka	Colombo	TBA		
Singapore	Singapore	2008, in South China Sea	50/50 operations on L642 & M771 commenced on 3 July 2008	
Thailand	Bangkok	TBA		
Implement 30/30 NM lateral/longitudinal separation based on RNP 4				
India	Delhi Mumbai Chennai	TBA		

STATES	FIR	ESTIMATED DATE	DATE COMPLETED	NOTES
	Kolkata			
Indonesia	Ujung Pandang Jakarta	TBA TBA		
Malaysia	Kuala Lumpur	TBA		
Maldives	Male	TBA		
Mauritius	Mauritius	TBA		
Myanmar	Yangon	TBA		
Seychelles	Seychelles	TBA		
Sri Lanka	Colombo	TBA		
Singapore	Singapore	2010, in South China Sea		
Thailand	Bangkok	TBA		

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LIST OF WORKING AND INFORMATION PAPERS

WORKING PAPERS

WP/No.	Agenda Item	Title	Presented by
WP/01	1	Provisional Agenda for FIT-BOB/10	Secretariat
WP/02	6	FANS Operations Manual Version 5, Oceanic SPR Standard and updated End-to-End Guidance Material	Secretariat
WP/03	5	Update ADS/CPDLC Status and Capacity Enhancements Tables	Secretariat
WP/04	3	Implementation of an ADS/CPDLC System and Commencement of Limited Operational Trial within Kuala Lumpur FIR	Malaysia
WP/05	5	Data Link Implementation Strategy	Secretariat
WP/06	7	Update FIT-BOB Task List	Secretariat
WP/07	2	Establishment of Central Reporting Agency for data-link services in Indian airspace	IATA

INFORMATION PAPERS

IP/No.	Agenda Item	Title	Presented by
IP/01	1	List of Working and Information Papers	Secretariat
IP/02	8	Summary Reports of the Bay of Bengal ATS Coordination Group (BBACG/19), FANS Implementation Team for Bay of Bengal (FIT-BOB/9) and Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG/2)	Secretariat
IP/03	6	Ad-hoc Working Group on Global Operational Datalink Document	Secretariat
IP/04	5	Satellite Data Communications Performance in Oceanic and Remote Regions and the work of the FANS Satcom Improvement Team (FANS SIT)	Secretariat
IP/05	5	Implementation Plan of ADS-CPDLC in Jakarta FIR	Indonesia
IP/06	5	Implementation Plan of ADS-CPDLC in Ujung Pandang FIR	Indonesia
IP/07	5	Summary Reports of the FANS Implementation Team South-East Asia (FIT-SEA)	Secretariat
IP/08	5	Inter-States Trials leading to coordinated Regional FANS 1/A Trial	AFIG Coordinator

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