INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE EIGHTH MEETING OF FANS IMPLEMENTATION TEAM, SOUTH-EAST ASIA (FIT-SEA/8) AND THE FIFTEENTH MEETING OF SOUTH-EAST ASIA ATS COORDINATION GROUP (SEACG/15)

Bangkok, Thailand

20 to 23 May 2008

The views expressed in this Report should be taken as those of the meetings and not of the International Civil Aviation Organization (ICAO)

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

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ATTACHMENTS TO THE REPORT

PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Eighth meeting of FANS Implementation Team, South-East Asia (FIT-SEA/8) was held at the Kotaite Wing of ICAO Asia and Pacific Office, Bangkok, Thailand on 20 May 2008. Subsequently, the Fifteenth meeting of South-East Asia ATS Co-ordination Group (SEACG/15) was held at the same venue from 21 to 23 May 2008.

2. Attendance

2.1 Thirty-eight participants attended the meetings from Cambodia, Hong Kong China, Japan, Lao PDR, Malaysia, Singapore, Thailand, Viet Nam, IATA and Boeing. A list of participants is at **Attachment 1** to this Report.

3. Officers and Secretariat

3.1 Mr. Kwek Chin Lin, Air Traffic Control Manager (Systems), Civil Aviation Authority of Singapore was elected as the Rapporteur of FIT-SEA/8. Mr. Tinnagorn Choowong, Director, Air Traffic Management Centre, Aeronautical Radio of Thailand, Ltd. served as the Chairperson of SEACG. Mr. Kyotaro Harano, Regional Officer ATM, ICAO Asia and Pacific Office acted as the Secretary for the FIT-SEA and the SEACG meetings.

4. Opening of the Meeting

4.1 Mr. Kyotaro Harano, on behalf of Mr. Mokhtar A. Awan, Regional Director, ICAO Asia and Pacific Office extended a warm welcome to the participants. During the past year, FIT-SEA had made significant progress in expanding the ADS/CPDLC services in the South China Sea area in a very active manner. Mr. Harano recalled that Viet Nam started the Phase 1 trial only last year 2007 in March with the cooperation from Singapore and made the transition to the Phase 2 five months later in August 2007. Then, finally the regular operations of ADS/CPDLC commenced on 10 April 2008. He commended all involved for this very proactive year resulting in the regular operations of ADS/CPDLC in this area. Mr. Harano also thanked Japan for their continuous support in absorbing the costs of providing central reporting agency (CRA) services for the South China Sea area. Now, the meeting would review the Phase 2 and the regular operations based on the experience of ATS providers and airlines, and the technical analysis of data by CRA-Japan.

4.2 Mr. Harano said that SEACG/15, which would be held subsequent to FIT-SEA/8, would discuss a wide range of matters related to ATS. Although ATS providers spent the past few years in implementing many major airspace projects bringing substantial benefits to operators as well as to the environment, there was still a need for States to improve their ATS. He stressed that SEACG was the group for States and international organizations, and hoped that the participants were actively involved in the discussion. In this regard, he expressed disappointment with the small number of papers received from States and no papers had been received from international organizations. He wished the meetings a fruitful success and thereby declared the meetings open.

4.3 Mr. Tinnagorn Choowong extended a warm welcome to all delegates attending the SEACG/15. He emphasized that SEACG/15 would review the results of FIT-SEA/7 and 8, and other issues such as the new CNS/ATM system, ATS routes, contingency plans, and the regional coordination plan. Toward these objectives, he expected active involvement in the discussion by the participants and wished the meeting a great success.

5. Documentation and Working Language

5.1 The working language of the meeting and the language for all documentation were English. Six (6) working papers (WPs), five (5) information papers (IPs) and two (2) presentations were presented to FIT-SEA/8, and sixteen (16) WPs and thirteen (13) IPs were presented to SEACG/15. The list of papers and presentations is shown at **Attachment 2** to this report.

FIT-SEA/8

REPORT OF FIT-SEA/8

Agenda Item 1: Provisional Agenda

1.1 The meeting unanimously elected Mr. Kwek Chin Lin, Air Traffic Control Manager (Systems) from Civil Aviation Authority of Singapore as the Rapporteur of FIT-SEA/8. Subsequently, the meeting amended the provisional agenda and adopted the following agenda:

Agenda Item 1: Adoption of Agenda

Agenda Item 2: ~~Review South China Sea ADS/CPDLC Operational Trial~~ Central Reporting Agency

Agenda Item 3: ~~Review of ADS/CPDLC Implementation~~ Review South China Sea ADS/CPDLC Operational Trial

Agenda Item 4: ~~Central Reporting Agency – South-East~~ Review of ADS/CPDLC Implementation

Agenda Item 5: Data link Guidance Materials

Agenda Item 6: Update Task Lists

Agenda Item 7: Any other business

Agenda Item 8: Date and Venue for the next meeting

Agenda Item 2: Central Reporting Agency

2.1 FIT-SEA CRA operated by CRA-Japan made two presentations under the FIT-SEA CRA Report, i.e. the statistical analyses on system performances such as CPDLC downlinks, uplinks, uplink messages success rate and auto transfer success rate for both Ho Chi Minh and the Singapore Flight Information Regions (FIRs), and the analyses of new problem reports (PR) that FIT-SEA CRA received after FIT-SEA/7 (January-February 2008, Fukuoka).

Statistical Analyses on System Performance

2.2 The CPDLC performances in both Ho Chi Minh and the Singapore FIRs met the system performance criteria specified in the *FANS Operations Manual* (FOM). At FIT-SEA/7, CPDLC downlink performances in the Ho Chi Minh FIR (for both 95 and 99 percentiles) recorded marginal figures, which had lead to a lengthy discussions and subsequent rectification measures. The latest figures provided by Ho Chi Minh indicated that the 95 percentile was at 59 seconds and the 99 percentile was 2 minutes 9 seconds.

2.3 Both Ho Chi Minh and Singapore had provided statistics on the auto transfer success rate. The average success rate in the Ho Chi Minh FIR was 97.2 % and that of the Singapore FIR was 97.5 %. For the auto transfer success rate, there are no criteria in the FOM.

Analyses of PR

2.4 FIT-SEA CRA received four new PRs after FIT-SEA/7. No PR was received for the categories of ADS, CPDLC and Connection. All the PRs were related to data link failure, and the summary of the PRs and findings on these were as follows:

PR50031 (data transmission delay) was proposed to be closed by the CRA and closed by the meeting.

PR50032 and 50033 were about the data transmission delay and FIT-SEA CRA meticulously explained each case.

PR50034 was reported by the CRA as in progress as the inquiries to those concerned were currently in progress.

2.5 The presentation provided by FIT-SEA CRA is in **Appendix A** to this Report.

Review of RASMAG List of Competent Airspace Safety Monitoring Organization

2.6 The meeting reviewed the "RASMAG List of Competent Airspace Safety Monitoring Organizations" formulated by the Regional Airspace Safety Monitoring Advisory Group. Contact Officers for FIT-SEA, IPACG/FIT and CRA-Japan were updated by the meeting as in **Appendix B** to this Report.

Agenda Item 3: Review South China Sea ADS/CPDLC Operational Trial

Review of the Phase 2 ADS/CPDLC Operations by Viet Nam

3.1 Viet Nam reported the result of the ADS/CPDLC operational trial Phase 2, which commenced on 2 August 2007 and continued until 9 April 2008 on the six RNAV routes L625, L628, M765, M768, N500 and N892 in the Ho Chi Minh FIR, as follows:

- Based on the flight plans received, the number of daily flights was 159 and most of them had data link equipment, but only half of them were equipped with both ADS and CPDLC applications.
- From 1 January to 9 April 2008, there were 4 829 flights which initiated log-on successfully and used data link services on the six RNAV routes.
- Data link transfers between Ho Chi Minh ACC and Singapore ACC had been taking place smoothly.
- Periodic Status Reports: there had been 14 Periodic Status Reports dispatched.
- PRs: There were four PRs forwarded to FIT-SEA CRA. Civil Aviation Administration of Viet Nam (CAAV) expressed appreciation to CRA-Japan for the assistance to analyze the PR reports received during the trial.
- Ground system: The system in Ho Chi Minh ACC was working satisfactorily.

3.2 Viet Nam reported that, in order to maintain the stable operations of data link, the second terrestrial link provided by ARINC was established and now that link had been used in parallel to existing VSAT data link. This led to quantifiable improvements in both CPDLC uplink and downlink performance, which now satisfies the performance criteria specified in the FOM.

Tables of ADS/CPDLC Equipage and ATS Participation Status

3.3 The meeting noted the background information of the table and updated it in terms of the trial/operational status and contact officers as in **Appendix C** to this Report.

Agenda Item 4: Review ADS/CPDLC Implementation

Report of the Result of Three Weeks of ADS/CPDLC Regular Operation by Viet Nam

4.1 Viet Nam reported that CAAV implemented the ADS/CPDLC regular operations on eight oceanic RNAV routes of L625, L628, L642, M765, M768, M771, N500 and N892 in the Ho Chi Minh FIR for all aircraft equipped with FANS-1/A from 0001 UTC on 10 April 2008. After FIT-SEA/7, CAAV continued the preparation for the ADS/CPDLC regular operations as follows:

a) CAAV issued the AIRAC AIP Supplement 01/08 on 28 February 2008.

b) Supplementary Letter of Agreement (SLOA) between Ho Chi Minh ACC and Singapore ACC was signed.

c) Training for air traffic controllers and technicians was conducted.

4.2 The meeting noted that the results of the ADS/CPDLC regular operations from 10 to 30 April 2008 on the RNAV routes in the Ho Chi Minh FIR were as follows:

a) There were 1 348 flights logged on (about 64 flights per day).

b) Data link transfers between Ho Chi Minh and Singapore ACCs were smooth.

c) Periodic Status Reports: three Periodic Status Reports were sent to the CRA.

d) PR: There were no problem reports.

e) Ground system: the system in Ho Chi Minh ACC was working satisfactorily.

4.3 With the results of both the Phase 2 trial and three week ADS/CPDLC regular operations, Viet Nam recognized that:

a) the coverage of communication and surveillance systems had been expanded;

b) data link provided was stable to provide ADS/CPDLC applications properly;

c) the transfer coordination between Ho Chi Minh ACC and Singapore ACC was satisfactory; and

d) CAAV would continue to implement ADS/CPDLC in the Ho Chi Minh FIR.

4.4 Viet Nam expressed that they were looking forward to further cooperation, supports and assistances from Japan for their CRA services, Singapore, ICAO, IATA and others concerned for the ADS/CPDLC operations in the Ho Chi Minh FIR.

4.5 Viet Nam informed the meeting that the information in the AIP Supplement would be incorporated into AIP. The PowerPoint presentation by Viet Nam is in **Appendix D** to this Report.

Report of ADS/CPDLC Operations by Singapore

4.6 Singapore made a presentation on the ADS/CPDLC system performance for the first quarter of 2008. The system performance met the performance criteria as specified in the FOM. Singapore presented data on the data link auto transfer between Singapore and Ho Chi Minh, which showed a great increase in such transfers after the introduction of data link operations on L642 and M771 in the Ho Chi Minh FIR. Singapore also presented data on data link logon statistics and airline data link users in the Singapore FIR. The presentation by Singapore is in **Appendix E** to this report.

Agenda Item 5: Data Link Guidance Materials

Request for Change to the FOM

5.1 Japan informed the meeting that the 15th meeting of the Informal Pacific ATC Coordinating Group FANS Interoperability Team (IPACG FIT/15) in conjunction with the 28th meeting of IPACG (May 2008, Las Vegas) was hosted by the Federal Aviation Administration (FAA). Thirteen Requests For Change (RFC) to the FOM were proposed at IPACG FIT/15. The meeting noted some of the RFC which may be of interest of FIT-SEA as follows:

RFC 08-001 Update of the logon procedures described in FOM Section 4-3-4

5.2 This would add sentences to Section 4.3.4.1 of the FOM to clarify that pilots are not required to make an initial logon prior to leaving 10 000 ft on climb out to support the "sterile flight deck below ten" environment for safety. It also changed "…prior to entering the *FIR* providing data link services…" to "…prior to entering the *airspace* providing data link services…" to allow for those rare instances where FIR boundaries do not coincide with the data link services boundary.

RFC 08-003: Proposed amendment to free text messages

5.3 This was partially accepted. The accepted portion was to modify Section 5.10.3's free text message "SECONDARY HF" to read "SECONDARY FREQUENCY", and the explanatory remarks changed, to be in line with the ICAO CPDLC message set (UM238 refers).

Agenda Item 6: Update Task Lists

6.1 The meeting reviewed the Task List updated at FIT-SEA/7. The meeting agreed the Action Item 7 to be "closed". Four other action items were "completed". The updated Task List is in **Appendix F** to this Report.

Agenda Item 7: Any Other Business

Data Link Implementation Table

7.1 The meeting reviewed and updated the table as in **Appendix G** to this Report.

CRA-Japan Activities at IPACG/28 and IPACG FIT/15

7.2 Japan made a presentation on CRA-Japan's activities as reported at IPACG FIT/15. CRA-Japan presented the CPDLC periodic status report of the Fukuoka FIR.

7.3 The CPDLC downlink performance showed good results as a whole except for a few months for 99 percentile such as October 2008. As to the uplink performance, all the data for 95 and 99 percentiles scored satisfactory values which met the FOM criteria.

7.4 The CPDLC average success rate was 98.6 % over the 12 months before IPACG FIT/15. The FOM prescribes the appropriate value to be less than 1 % of all attempted messages undelivered. The latest analysis of an unfavourable situation found that the alternate satellite channel for some failed uplink messages sent via VHF could not be chosen due to unavailable MED (media advisory). In regard to the success rates of auto transfer, the average success rate bound for Anchorage from Fukuoka was 97.8%, which indicated gradual improvement, while the rate for Oakland was 98.9%.

7.5 Subsequently, CRA-Japan reported on PRs which were related to the Fukuoka FIR. CRA-Japan received seven PRs since reported at IPACG FIT/14 (November 2007, Tokyo), which were categorised as follows:

ADS	4
CPDLC	1
Connection	0
Data link Failure	2

7.6 The presentation provided by Japan to the meeting is in **Appendix H** to this report.

MTSAT Presentation by Japan

7.7 Japan provided information on the current status and availability of MTSAT of Japan. The same information had been presented by Japan Civil Aviation Bureau (JCAB) at IPACG/28.

7.8 The meeting noted that the volume of data link communications using satellite was increasing. As the needs increases, more concerns about availability of data link communication systems would come to be regarded as a matter of great urgency.

7.9 The meeting noted that MTSAT uplink success rate was kept at 100%. MTSAT uplink delay time showed good results which met the FOM criteria.

7.10 MTSAT systems had two satellite centres in Japan, each of which had two Ground Earth Stations (GES) for MTSAT-2 as well as for MTSAT-1R. Japan informed the meeting that MTSAT-1R and MTSAT-2 were operating in parallel, and one was to serve as a backup of the other, making it possible to take over the function of the other within a few seconds in the event of malfunction.

7.11 In calculating the availability of MTSAT systems, JCAB used “similar data or parameter” of the spacecraft availability because it was difficult to obtain. Even under these circumstances, it was necessary to establish the availability calculation method endorsed worldwide or regionally.

7.12 For example, in the Atlantic area, when the following two conditions are met, the availability of 99.99 % is considered to be achieved.

a) Alphasat is launched successfully. This satellite is expected to be launched in 2012 in the Atlantic area which will make it possible to have redundancy with Inmarsat-4.

b) Change Proposal 96 (CP96) which is currently discussed at FANS/SIT should change to Change Notice 96 (CN96) to be applied to Classic Aero.

7.13 JCAB hoped for early discussions on the availability calculation method and specific configurations of satellite systems to meet 99.99 % availability,. The PowerPoint presentation by Japan for the meeting is in **Appendix I** to this Report.

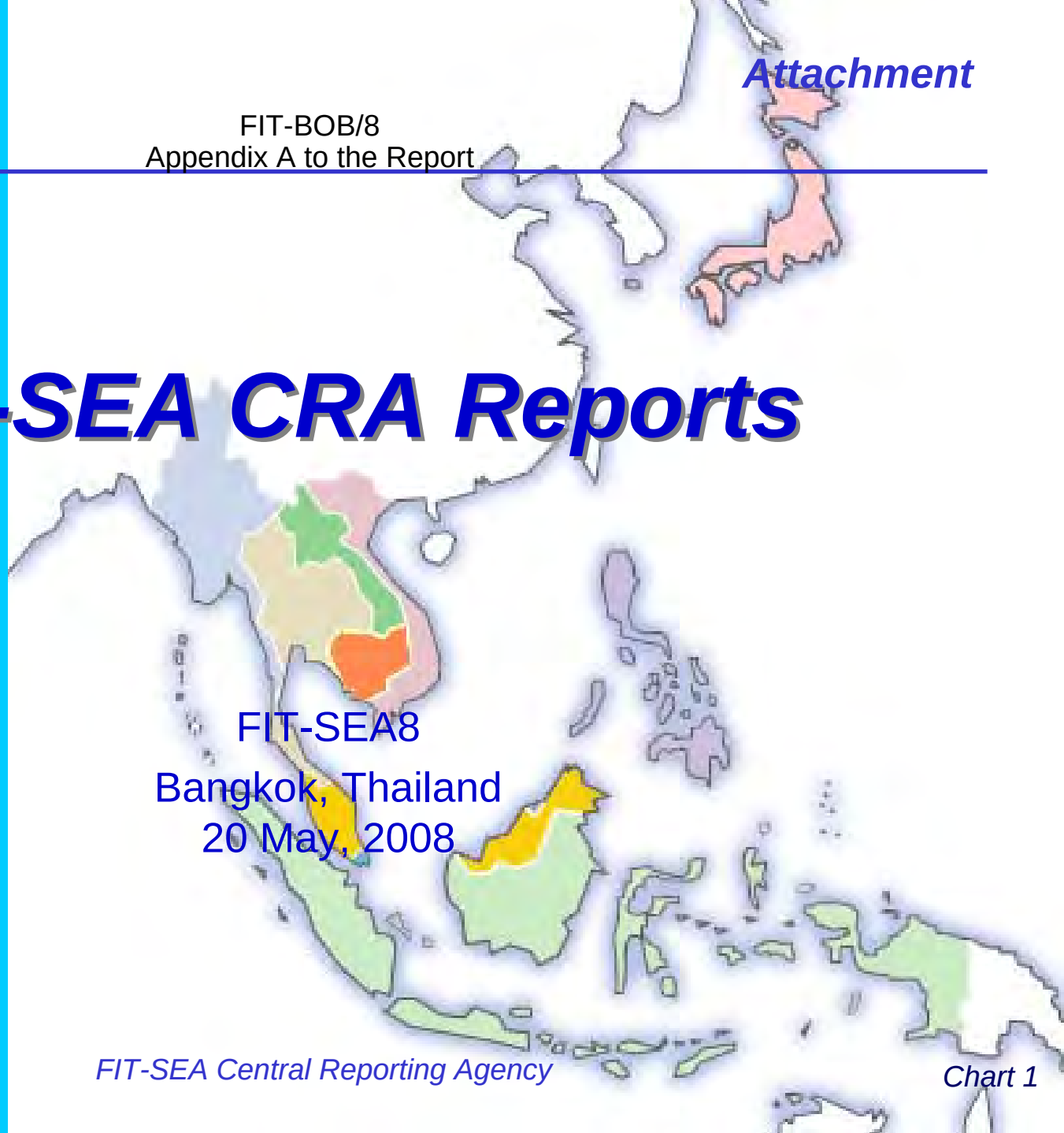
Agenda Item 8: Date and venue for the next meeting

8.1 The meeting agreed that the next FIT-SEA/9 meeting could be held one year later in conjunction with SEACG/16 at the Regional Office in 2009.

8.2 As the next meeting is one year away, the Rapporteur suggested that CRA-Japan provide Singapore and Viet Nam an interim six-monthly report of the analyses of the system performance and PRs in November 2008. CRA-Japan was agreeable to this arrangement.

APPENDICES TO THE REPORT OF FIT-SEA/8

FIT-SEA CRA Reports



FIT-SEA8

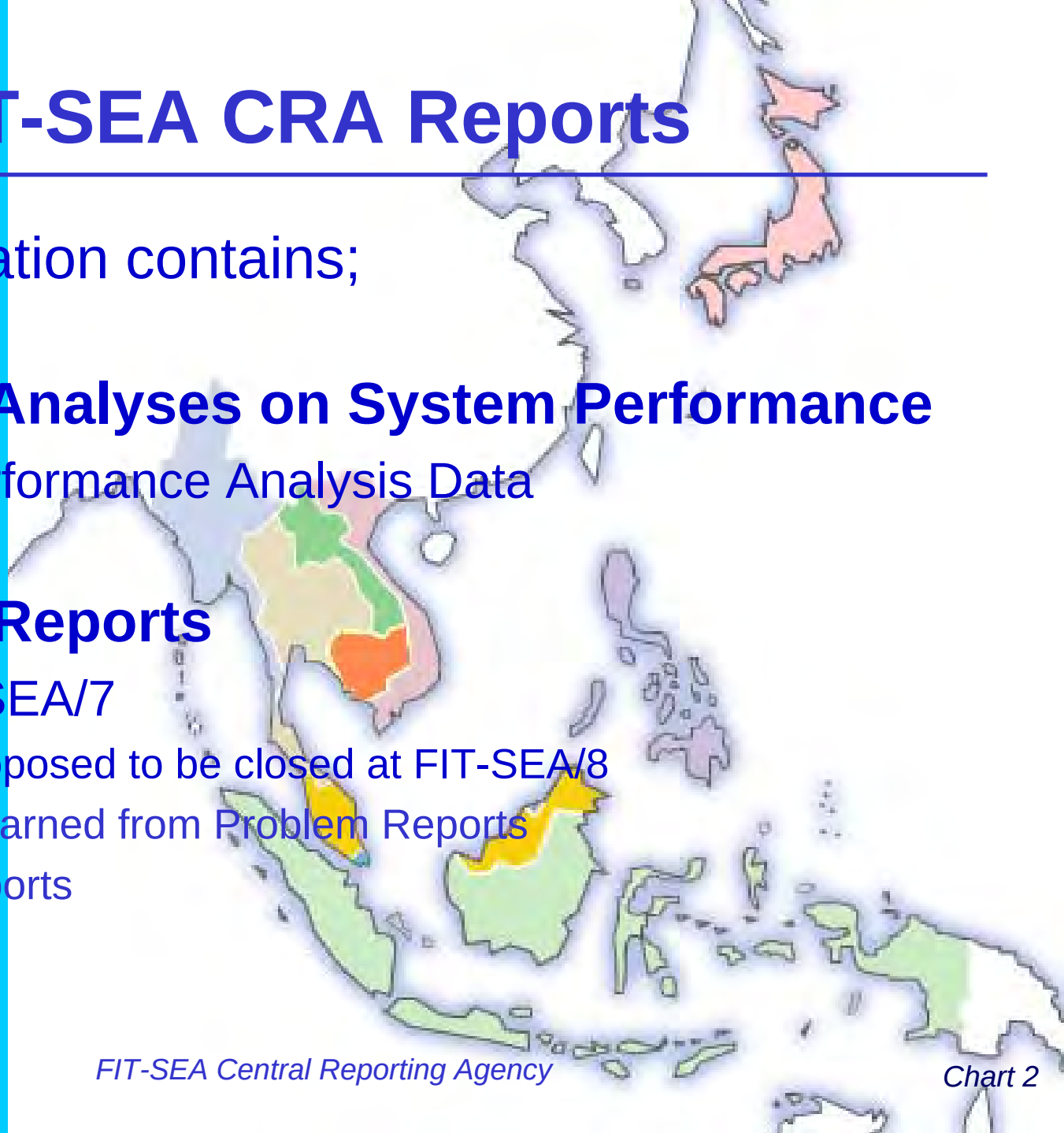
Bangkok, Thailand

20 May, 2008

FIT-SEA CRA Reports

This presentation contains;

1. **Statistic Analyses on System Performance**
   - System Performance Analysis Data
2. **Problem Reports**
   - Since FIT-SEA/7
     - Reports proposed to be closed at FIT-SEA/8
     - Lessons Learned from Problem Reports
     - Specific reports



1. Statistic Analyses on System Performance

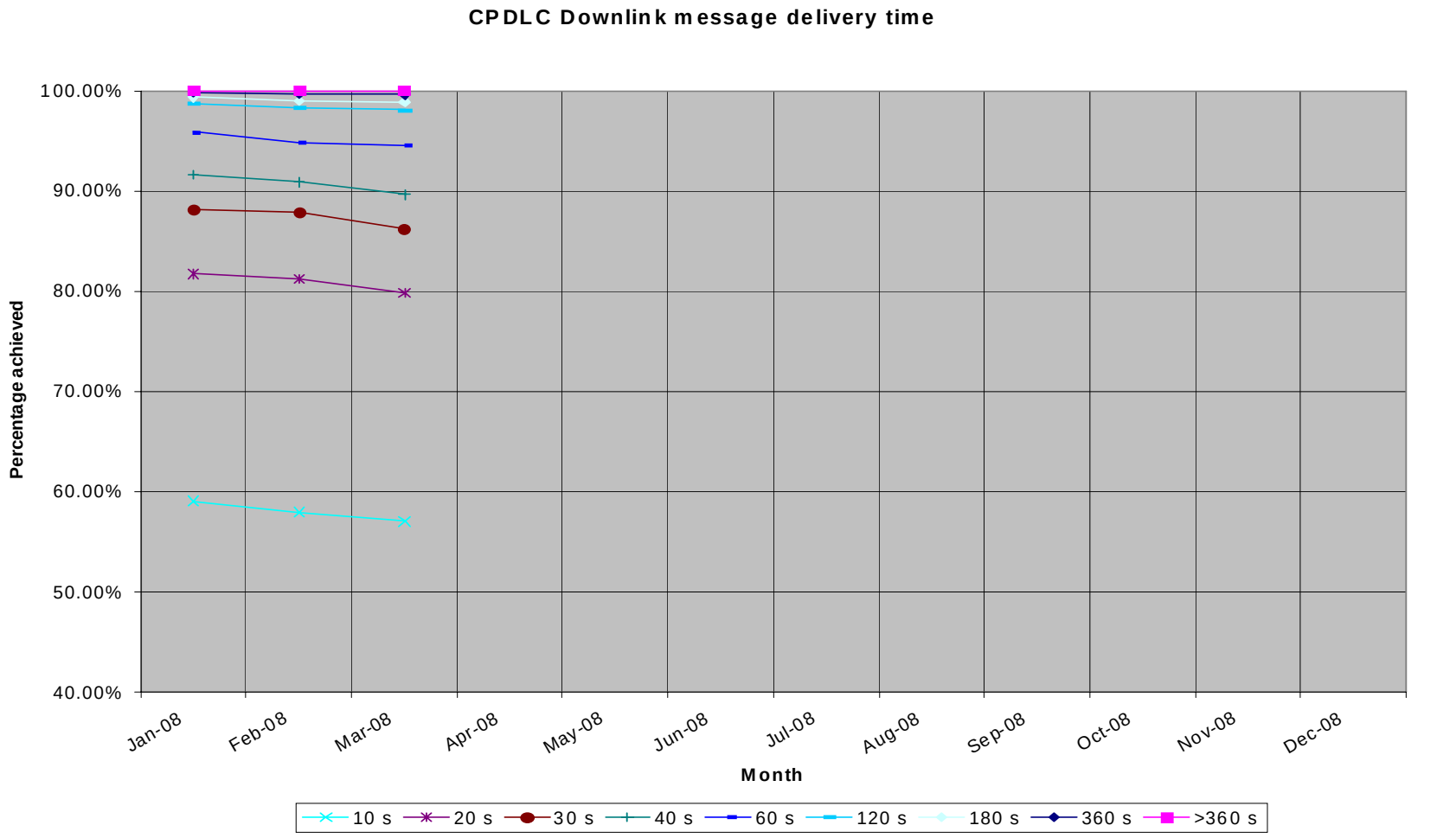
CPDLC System Performance

- In this section, we provide CPDLC system performance on:

  + CPDLC Down-link Performance
  + CPDLC Up-link Performance
  + CPDLC Up-link Message Success Rate
  + Auto Transfer Success Rate

CPDLC Down-link Performance

<SINGAPORE>

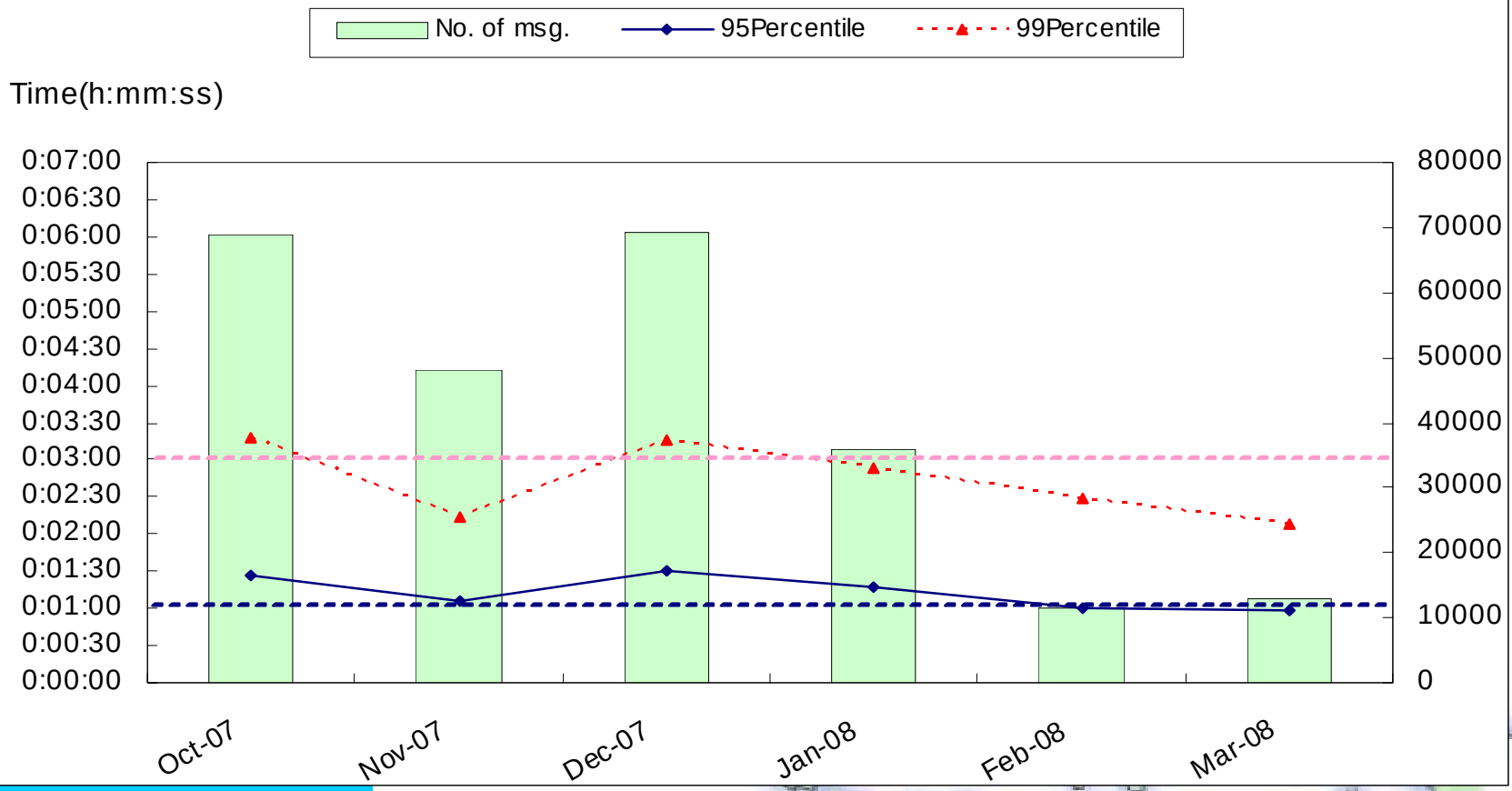


One-way Trip Time: Difference of time-stamps between the avionics and ground systems

CPDLC Down-link Performance

<VIET NAM>

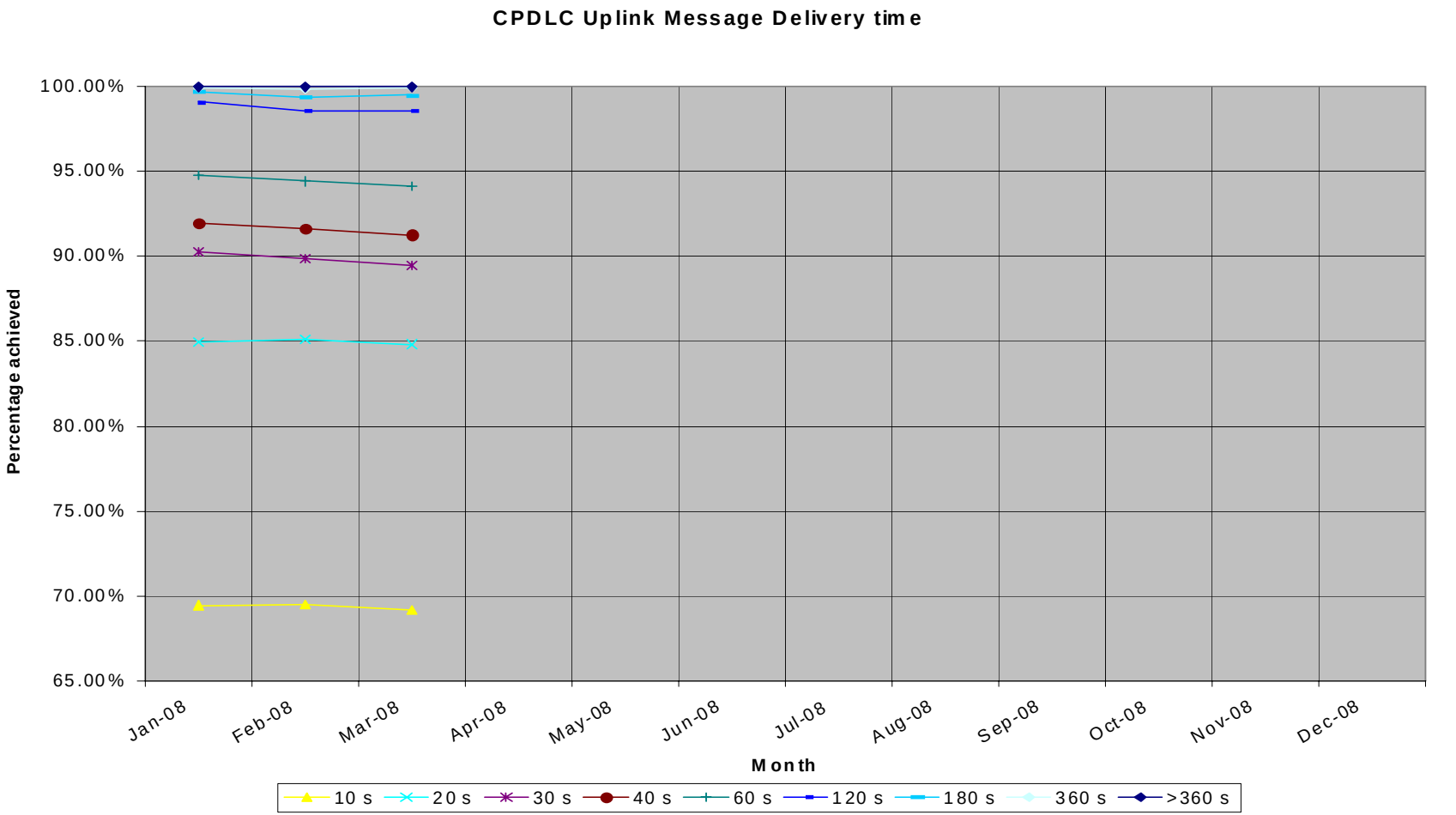
(Fig.) CPDLC Downlink 95 & 99 Percentile



One-way Trip Time: Difference of time-stamps between the avionics and ground systems

CPDLC Up-link Performance

<SINGAPORE>

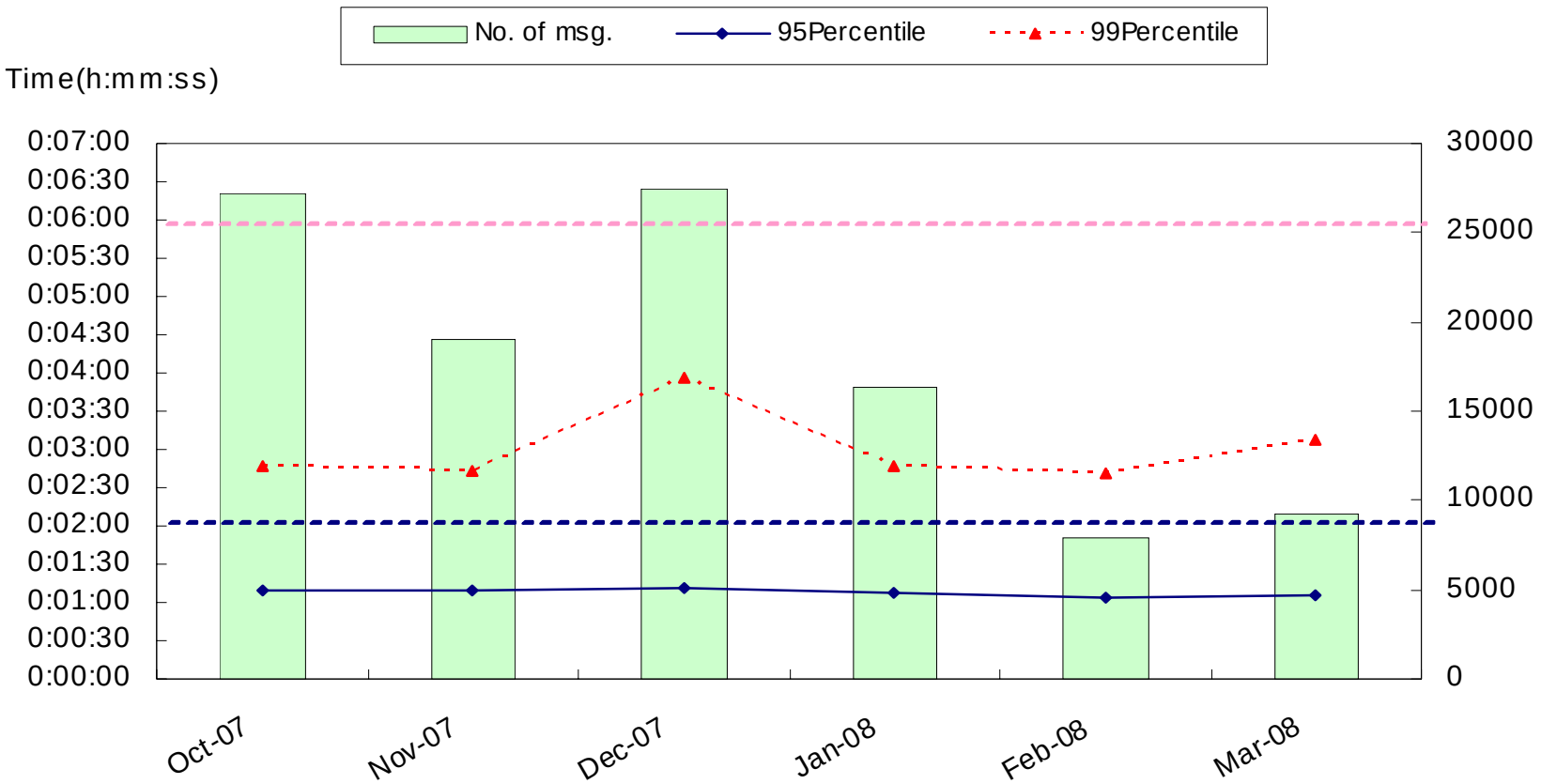


Round Trip Time: Transit-delay-time from time-stamp of up-link to receipt time of MAS

CPDLC Up-link Performance

<VIET NAM>

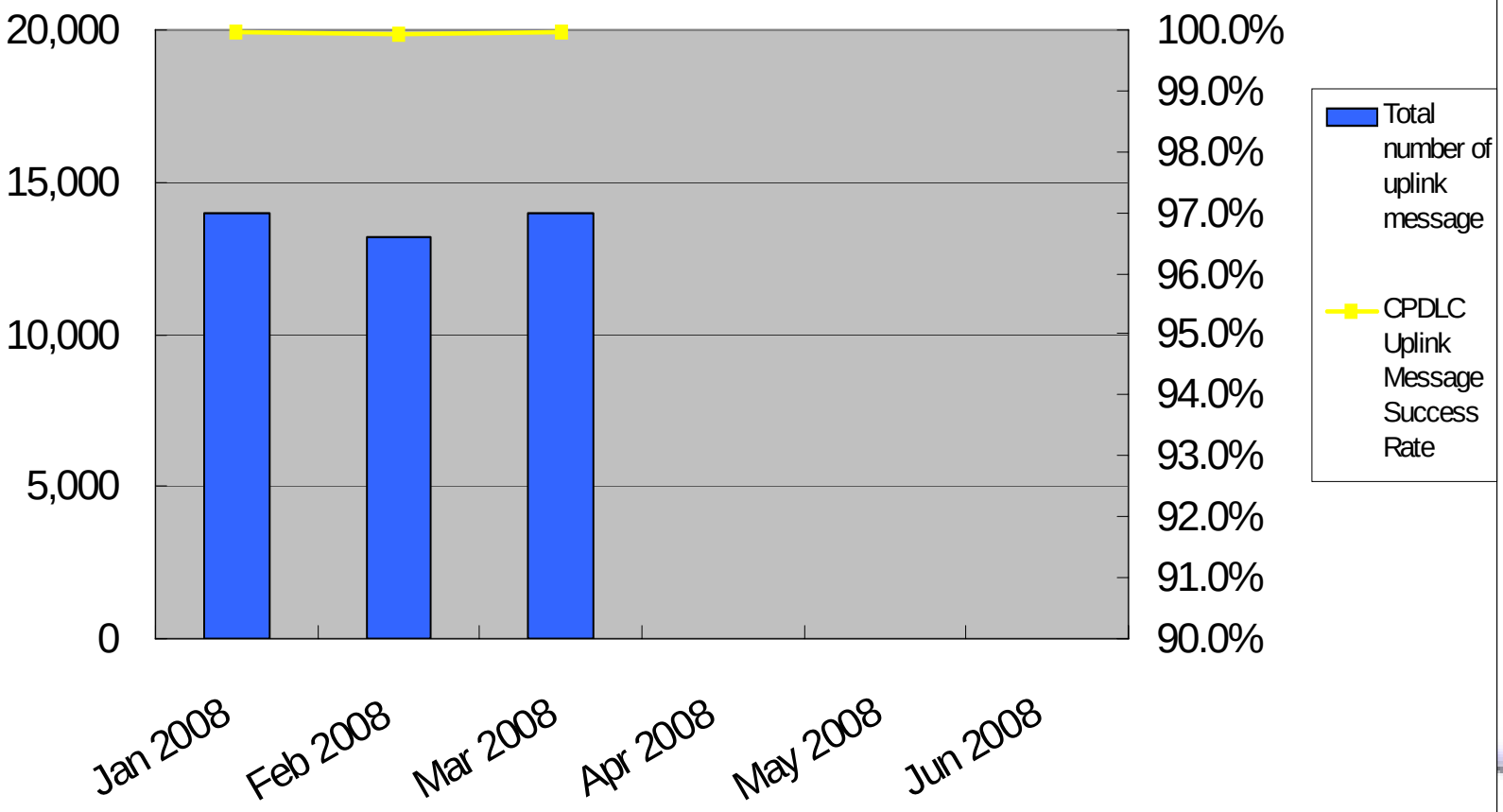
(Fig.) CPDLC Uplink 95 & 99 Percentile



Round Trip Time: Transit-delay-time from time-stamp of up-link to receipt time of MAS

CPDLC Up-link Message Success Rate

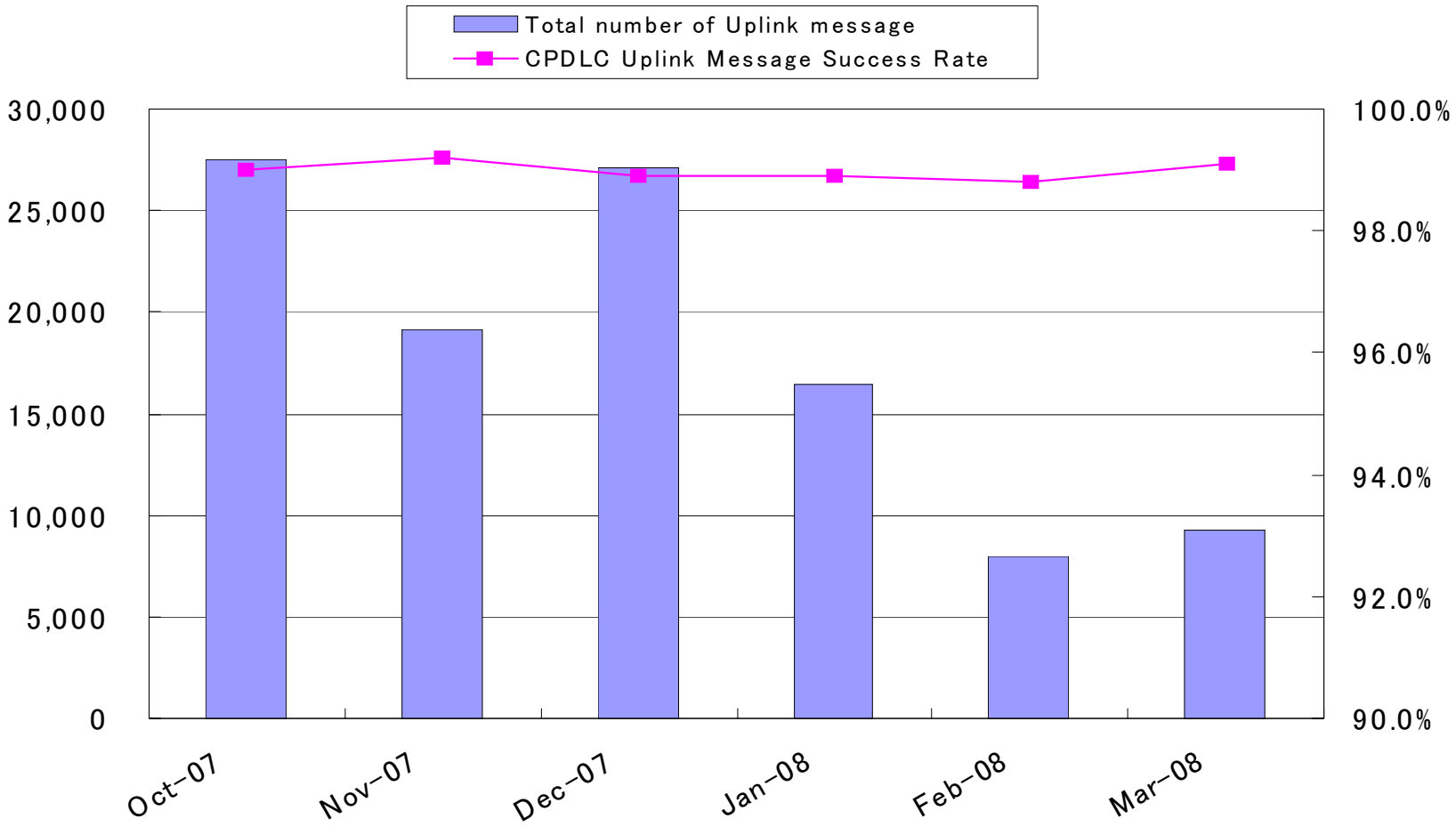
<SINGAPORE>



CPDLC Up-link Message Success Rate

<VIET NAM>

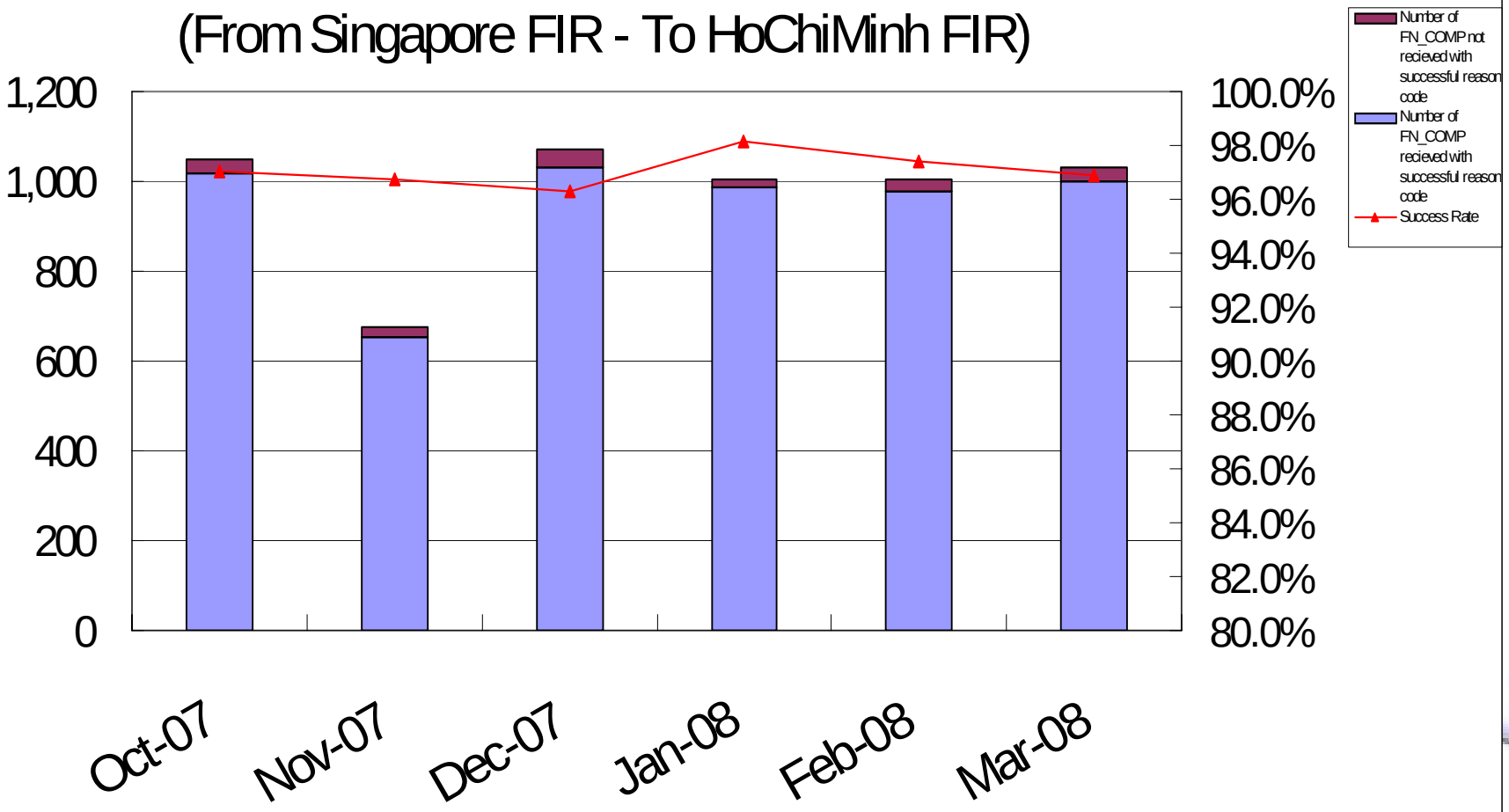
(Fig.) CPDLC Uplink Mmessage Success Rate



Auto Transfer Success Rate

<SINGAPORE>

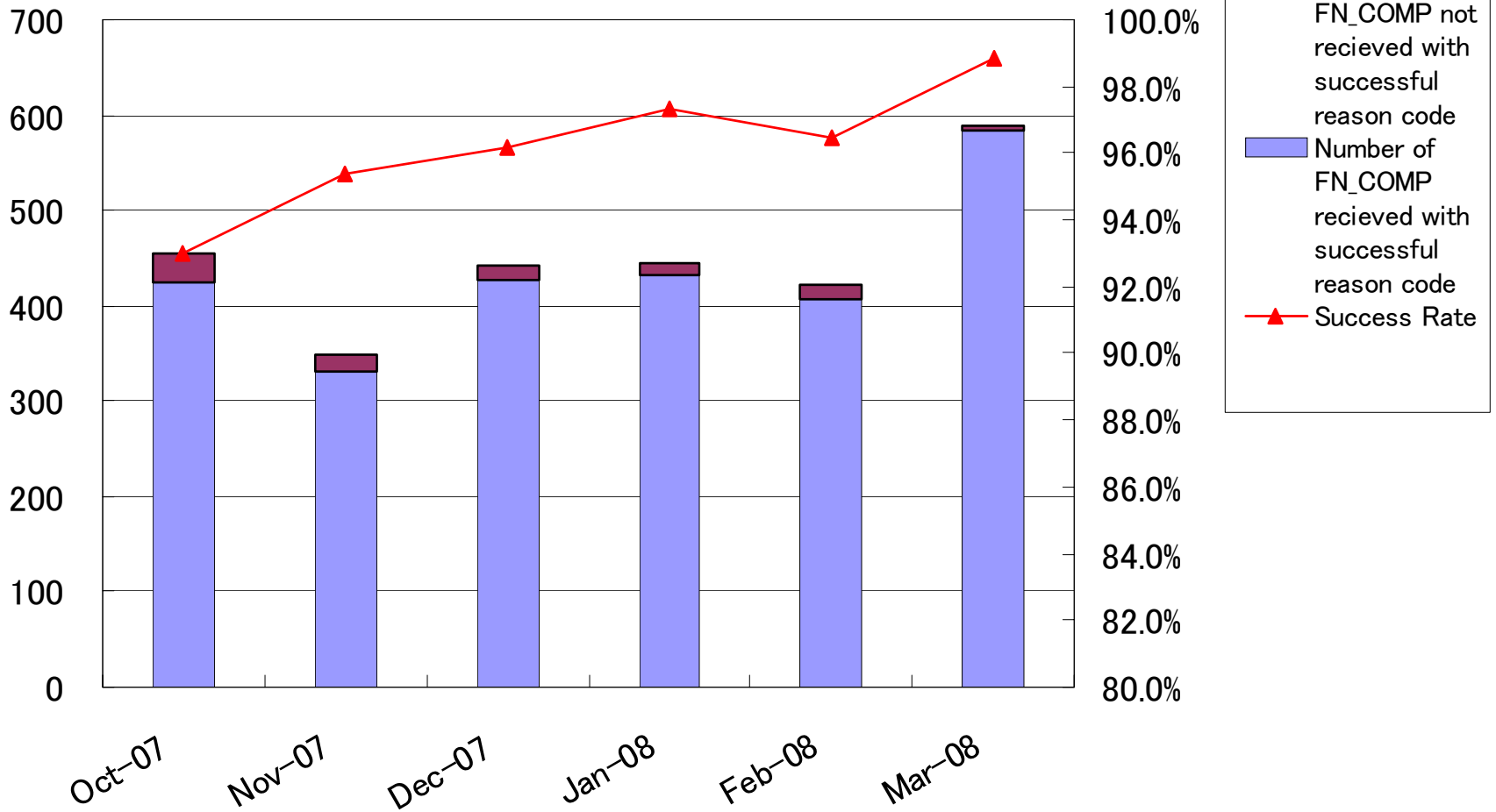
(Fig.) Auto Transfer Success Rate
(From Singapore FIR - To HoChiMinh FIR)



Auto Transfer Success Rate

<VIET NAM>

(Fig.) Auto Transfer Success Rate
(From HoChiMinh FIR – To Singapore FIR)



2. Problem Reports

Categories of new Reports

- of the 4 Reports;

- **ADS 0**
- **CPDLC 0**
- **Connection 0**
- **Datalink failure 4**

New Reports since FIT-SEA/7 (1)

(1) Datalink, General Problem

PR NO.	Problem Report Title	Comments/Notes/Description	Status	Discuss at FIT-SEA/8?
50031	Data transmission delay	Due to DSP's scheduled outage.	Ready for FIT-SEA8	Y
50032	Data transmission delay	CRA has been referring to the aircraft manufacturer and DSPs about the problem event.	Waiting	Y
50033	Data transmission delay	The aircraft avionics accumulated down link messages and delivered them when data link has become available.	Lesson	Y
50034	Data transmission delay	Still under investigation	In progress	N

PRs to be closed at FIT-SEA/8

- Data transmission delay(PR50031)

Data transmission delay

PR Number: 50031

PR Status: Ready for FIT-SEA(Technical)

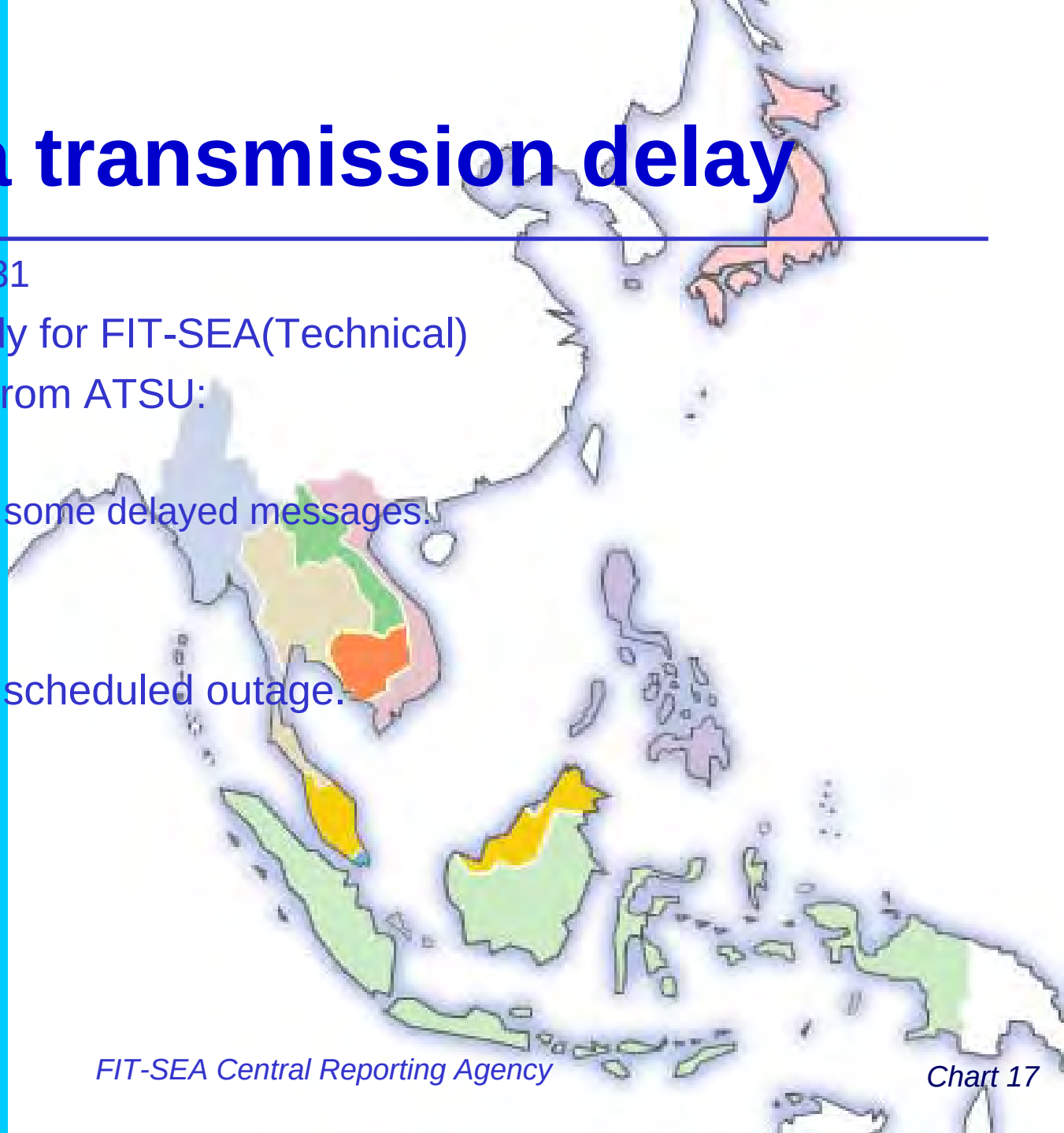
Problem Report from ATSU:

<EVENTS>

- ATSU received some delayed messages.

<ANALYSIS>

- Due to DSP's scheduled outage.



Lesson learned PRs at FIT-SEA/8

- Data transmission delay(PR50033)

Data transmission delay

PR Number: PR50033

PR Status: Lesson learned (Technical)

Problem Report from ATSU:

<EVENTS>

- ATSU received MAF messages indicating No ACK(311).
- Subsequently, the ATSU received series of delayed messages.

<ANALYSIS>

- The ATSU was communicating with the aircraft via VHF and the aircraft was successful in AFN logon. Any CPDLC logon or ADS contract were never established.
- The ATSU repeatedly sent CR(Connection Request) but CC(Connection Confirm) was never observed but MAS(Message Assurance) received. Afterwards MAF(311) were sent back.
- During the time the ATSU received the delayed messages, no downlink messages were delivered.
- The MED(Media Advisory) notifying “Lost VHF” were frequently down linked. Judging from the above it is surmised that the aircraft was flying over unstable communication area.
- Due to air to ground unstable communication trouble, many downlinked messages were accumulated on the avionics system which is considered that those messages came to be downlinked when the communication proved available.

Specific PRs (New)

- Data transmission delay(PR50032)

Data transmission delay

PR Number: 50032

PR Status: Waiting for info (Technical)

Problem Report from ATSU:

<EVENTS>

- ATSU received MAF messages indicating No ack(311).
- Subsequently, the ATSU received series of delayed messages.

<ANALYSIS>

- When the event happened, the ATSU was communicating via SATCOM with the aircraft.
- About the past 40 minutes repeated MAF(No ACK) were brought about.
- The symptom differs from PR50033 in that downlink messages were delivered.
- This event will be inquired to concerned DSP and the aircraft manufacturer.

Thank you for your attention!

APANPIRG Asia/Pacific Airspace Safety Monitoring

RASMAG LIST OF COMPETENT AIRSPACE SAFETY MONITORING ORGANIZATIONS

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

- RMA – Regional Monitoring Agency – safety assessment in the vertical plane (i.e. RVSM);
- SMA – Safety Monitoring Agency – safety assessment in the horizontal plane (i.e. RHSM, RNP10, RNP4); and
- CRA – Central Reporting Agency – technical performance of data link systems (i.e. ADS/CPDLC)
- FIT – FANS 1/A Interoperability/Implementation Team – parent body to a CRA.

(Last updated ~~11 January~~ 26 May 2008)

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
Australian Airspace Monitoring Agency (AAMA) - Airservices Australia Mr. Robert Butcher, Manager Human Factors and Analysis, Safety Management Group, email robert.butcher@airservicesaustralia.com	Australia	APANPIRG RMA	Current	Brisbane, Melbourne, Port Moresby, Nauru and Honiara FIRs.
		SMA	Current	Brisbane, Melbourne FIRs.
China RMA, Air Traffic Management Bureau, China Mr. Tang Jinxiang, Engineer of Safety and Monitoring Technical Group, ATMB e-mail: tangjx@adcc.com.cn	China	RMA	Current	Beijing, Guangzhou, Kunming, Lanzhou, Shanghai, Shenyang, Urumqi and Wuhan FIRs and Sector 01 (airspace over Hainan Island) of the Sanya FIR.

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
JCAB RMA **Japan Civil Aviation Bureau** (Mr. Masao Kondo, Special Assistant to the Director, Flight Procedures and Airspace Program Office, email kondou-m2pd@mlit.go.jp)	Japan	APANPIRG RMA	Current	Fukuoka FIR
		SMA	Available second quarter – 2009	Fukuoka FIR
Monitoring Agency for the Asia Region (MAAR) (Dr. Paisit Herabat Executive Officer, Systems Engineering,Aeronautical Radio of Thailand Ltd. email: paisit@aerothai.co.th	Thailand	APANPIRG RMA	Current	Bangkok, Kolkatta, Chennai, Colombo, Delhi, Dhaka, Hanoi, Ho Chi Minh, Hong Kong, Jakarta, Karachi, Kathmandu, Kota Kinabalu, Kuala Lumpur, Lahore, Male, Manila, Mumbai, Phnom Penh, Sanya FIR, Singapore, Taibei, Ujung Pandang, Ulaan Bataar, Vientiane, Yangon FIRs

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
Pacific Approvals Registry and Monitoring Organization (PARMO) – FAA Mr. Brian Colamosca Manager, Separation Standards Analysis Group, FAA, email: brian.colamosca@faa.gov	USA	APANPIRG RMA	Current	Anchorage Oceanic, Auckland Oceanic, Incheon, Nadi, Oakland Oceanic, Tahiti FIRs
Civil Aviation Authority of Singapore (CAAS) (Mr. Kuah Kong Beng, Chief Air Traffic Control Officer, email: KUAH_Kong_Beng@caas.gov.sg)	Civil Aviation Authority of Singapore (CAAS)	Monitoring Authority for Gross Navigation Error (GNE) in South China Sea	Current	Hong Kong, Ho Chi Minh, Manila, Sanya, Singapore FIRs,
		SMA	From 3rd quarter 2008	Hong Kong, Ho Chi Minh, Manila, Sanya, Singapore FIRs
~~**FIT/SEA**~~**FIT-SEA** (ICAO Regional Office email icao_apac@bangkok.icao.int & CRA Japan (Mr. ~~Yoshiro Nakatsuji~~Masashisa Hayashi, Deputy Director, Air Traffic Control Association Japan, email: ~~naka@atcaj.or.jp~~hayashi@atcaj.or.jp)	ICAO Regional Office & CRA Japan	FIT & CRA	Current	South China Sea FIRs

Organization *(including contact officer)*	State	Competency	Status	Airspace assessed (FIRs)
IPACG/FIT (Mr. ~~Hiroshi Inoguchi~~Takahiro Morishima, JCAB Co-Chair, email: ~~Inoguchi-h2hh@mlit.go.jp~~morishima-t2zg@mlit.go.jp & Mr. Reed Sladen, FAA Co-Chair, email reed.b.sladen@faa.gov)	Japan & USA	FIT & CRA	Current	North & Central Pacific (Oceanic airspace within the Fukuoka FIR, and Anchorage & Oakland FIRs)
CRA Japan (Mr. ~~Yoshiro Nakatsuji~~Masashisa Hayashi, Deputy Director, Air Traffic Control Association Japan, email: ~~naka@atcaj.or.jp~~hayashi@atcaj.or.jp)	Japan	CRA	Current	Fukuoka FIR for IPACG/FIT Ho Chi Minh, Manila, Singapore FIRs for FIT-SEA
FIT/BOB (ICAO Regional Office email icao_apac@bangkok.icao.int & Mr. Bradley Cornell, Boeing Engineering, email Bradley.D.Cornell@Boeing.Com)	ICAO Regional Office & Boeing USA	FIT & CRA	Current	Bay of Bengal FIRs, Ujung Pandang and Jakarta FIRs, provides assistance to the members of the Arabian Sea/Indian Ocean ATS Coordination Group (ASIOACG)
ISPACG/FIT (Mr. Bradley Cornell, Boeing Engineering, email Bradley.D.Cornell@Boeing.Com)	Boeing USA	FIT & CRA	Current	South Pacific FIRs and members of the Informal South Pacific ATS Coordination Group (ISPACG)

Southeast Asia - ADS/CPDLC Equipage and ATS Status

(last update - May ~~2007~~ 2008)

STATE/ ORGANIZATION	**FIR**	**LOGON CODE**	**Ground Station Manuf-acturer**	**DSP** (e.g. SITA, ARINC)	**ADS**	**CPDLC**	**AIDC**	**FDP**	**Test, Ops Trial or Operational**	**Procedures Published**	**ADS/CPDLC TRIAL**	**CONTACTS** (ATM contact in **bold)**	**REMARKS**
CHINA CAAC - General Administration of Civil Aviation of China	Sanya FIR												
HONG KONG, CHINA CAD - Civil Aviation Department	Hong Kong FIR				YES (trial equipment)	YES (trial equipment)	~~YES (trial equipment)~~	YES	Stopped	NO	conducted from 1997 to 2002	~~Mr.W Y Leung Assistant Director-General of Civil Aviation (Engineering & Systems) Tel: (852) 2591 5000 Fax: (852) 2845 7160 email: wyleung@cad.gov.hk~~Mr. P F Wong Assistant Director-General of Civil Aviation (Air Traffic Engineering and Standards) Tel: (852)2591 5000 Fax: (852)2845 7160 Email: phwong@cad.gov.hk	
JAPAN JCAB - Civil Aviation Bureau of Japan	Fukuoka FIR	RJJJ		SITA	YES	YES	YES (with Oakland & Anchorage)	YES	Operational	PUBLISHED	completed in July 2006	~~**Mr. Hiroshi Inoguchi**~~ **Mr. Takahiro Morishima** Special Assistant to the Director, JCAB ATS Systems Planning Division, Tel: +81-3-5253-8111 ext 51128 Fax: +81-3-5253-1663 E-mail: ~~inoguchi-h2hh@mlit.go.jp~~morishima-	FUKUOKA FIR Oceanic participating in the IPACG FIT

STATE/ ORGANIZATION	**FIR**	**LOGON CODE**	**Ground Station Manuf-acturer**	**DSP** (e.g. SITA, ARINC)	**ADS**	**CPDLC**	**AIDC**	**FDP**	**Test, Ops Trial or Operational**	**Procedures Published**	**ADS/CPDLC TRIAL**	**CONTACTS** (ATM contact in **bold)**	**REMARKS**
MALAYSIA Department of Civil Aviation	Kuala Lumpur FIR (FIT-BOB)	WMFC		ARINC			NO	YES	~~In early 2007 Malaysia will issue tender documentation for new installation.~~ Ops trial from 1 June 2008		No	~~**Mr.Harizan Mohammad Yatim**~~**Mr. Ahmad Nizar Zofakar** Director ATS Tel: 603-88714000 Fax: 603-88714290 E-mail: ~~accwmfc@tm.net.my harizan@atsdca.gov.my~~nizar@dca.gov.my **Mr Omran Zakarina** Deputy Director ATS Email:omran@dca.gov.my:	Control on-going, equipement , ops trial 1 Jun.
	Kota Kinabalu FIR	WBFC		ARINC			NO	YES			No		
PHILIPPINES Air Transportation Office	Manila FIR										No	**Mr. Salvador G. Rafael** Chief, ATC Division Tel: 632-8799160 Fax: 632-8799160 E-mail: raffy_thunder92@yahoo.com	State to provide information for FIT-SEA/7
SINGAPORE Civil Aviation Authority of Singapore	Singapore FIR	WSJC	Thales	SITA	YES	YES	NO	YES	Operational	PUBLISHED	Completed	Mr. Yeo Cheng Nam Senior Engineer (Surveillance) yeo_cheng_nam@caas.gov.sg **Mr. Kwek Chin Lin** ATC Manager (Systems) kwek_chin_lin@caas.gov.sg Mr. Kwek Chin Lin ATC Manager (Systems) E-mail: kwek_chin_lin@caas.gov.sg	Ops Trail completed 1999, integrated system
THAILAND AEROTHAI	Bangkok FIR	VTBB	ARINC	ARINC	YES	YES	YES	YES	Ops Trial	NOTAM every three months	No	Mr. Choosit Kuptaviwat Tel: 66-285 9457 Fax: 66-228 59538 Email: choosit.ku@aerothail.co.th **Mr. Tinnagorn Choowong** Tel: 66-~~2-285 9975~~287 8423 Mobile: 66-09-816 6486 Fax: 66-~~2-285 9077~~287 8424 E-mail: tinnagorn.ch@aerothai.co.th	Pending an operational trial in the Bay of Bengal after six months period and will study CPDLC aplication over the continental area base on ATN protocal.

STATE/ ORGANIZATION	**FIR**	**LOGON CODE**	**Ground Station Manuf-acturer**	**DSP** (e.g. SITA, ARINC)	**ADS**	**CPDLC**	**AIDC**	**FDP**	**Test, Ops Trial or Operational**	**Procedures Published**	**ADS/CPDLC TRIAL**	**CONTACTS** (ATM contact in **bold)**	**REMARKS**
VIETNAM Civil Aviation Administraion of Viet Nam	Ho Chi Minh FIR	VVTS	Thales	ARINC	YES	YES			~~Ops Trial~~Operational	PUBLISHED	~~Yes~~ompleted in April 2008	**Mr. Nguyen Manh Quang** ~~Deputy Director of ATS/AIS/MET/SAR~~ Tel: (84-4) 8725272 Fax: (84-4) 8725281 e-mail: vatmats@n.vnn.vn	Phase 1 started in March 2007 and Phase 2 started in August 2008. Operational since 10 Aprtil 2008
	Hanoi FIR										No		
CENTRAL REPORTING AGENCY (CRA) CRA-Japan	Ho Chi Minh, Manila and Singapore FIRs	N/A										~~Mr. Yoshiro NAKATSUJI~~Mr. Masahisa Hayashi K-1 Building, 3rd floor 1-6-6, Haneda Airport. Ota-ku, Tokyo 144-0041, Japan Telephone: +81-3-3747-1231 Fax: + +81-3-3747-1231 E-mail: crasa@cra-japan.org ~~naka@atcaj.or.jp~~hayashi@atcaj.or.jp	FIT-SEA CRA, operated by CRA Japan. Change of point of contact
IATA	N/A											Mr. Soon Boon Hai Assistant Director Safety Operations & Infrastructure Tel: 65 62397267 Fax: 65 65366267 E-mail: soonbhd@iata.org	
IFALPA	N/A											~~Capt. Suresh Menon~~ ~~Regional Vice President ASIA/East~~ ~~Tel: 61 2 99487532~~ ~~Fax:(65) 6584 8869~~ ~~E-mail: menon@pacific.net.sg~~ Capt. Korn Masumitchtai 484 Rachadanivet Soi 12, Bangkok, Thailand 10320 Tel: +66-81-344-6055 Fax: +66-2-513-0030 Email: captainkorn@gmail.com	

STATE/ ORGANIZATION	**FIR**	**LOGON CODE**	**Ground Station Manuf-acturer**	**DSP** (e.g. SITA, ARINC)	**ADS**	**CPDLC**	**AIDC**	**FDP**	**Test, Ops Trial or Operational**	**Procedures Published**	**ADS/CPDLC TRIAL**	**CONTACTS** (ATM contact in **bold)**	**REMARKS**
ARINC	N/A											Mr. Sarawut Assawachaichit Program Manager, Globalink Asia Tel: 66 2 2859435-6 Fax: 66 2 2859437 E-mail: sassawac@arinc.com	
SITA	N/A											Mr. David Fung SITA Regional Manager, Asia AIRCOM CNS Services Room 1201, 12/F Centre Point 181-185 Glovcester Road Wanchai Hong Kong, China	
ICAO	N/A											Mr. Kyotaro Harano Regional Officer ATM Tel: 66 2 5378189, ext. 159 Fax: 66 2 537 8199 E-mail: kharano@bangkok.icao.int icao_apac@bangkok.icao.int	

FIT-SEA/8
Appendix D to the Report

MESSAGE PERFORMANCE

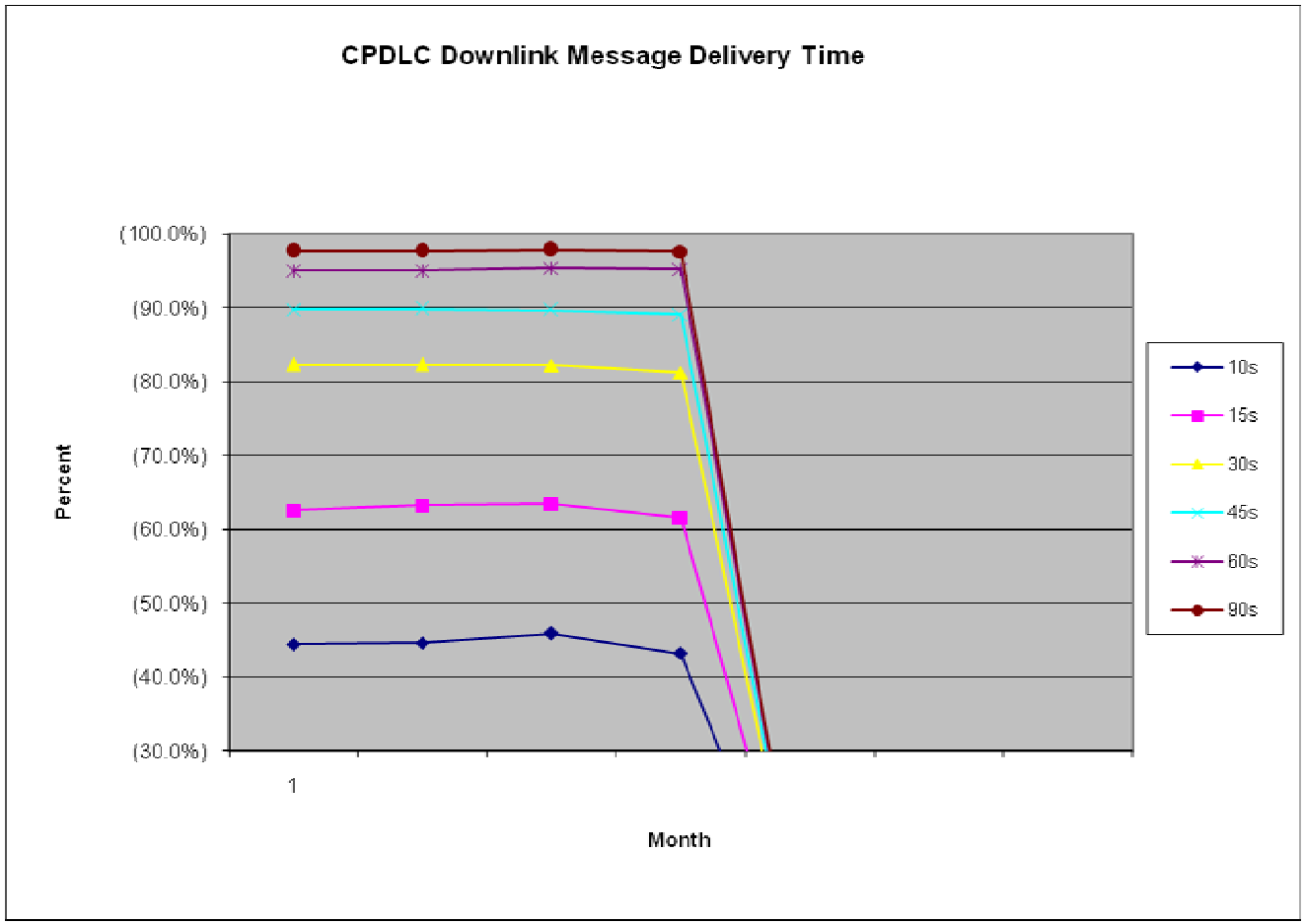
HO CHI MINH FIR

Viet Nam

CPDLC Downlink Performance

	Jan-2008		Feb-2008		Mar-2008		Apr-2008	
No. of msg.	10367		11046		14633		14463	
Ave.	0:00:22		0:00:23		0:00:20		0:00:22	
Max.	0:37:00		3:24:55		0:44:16		1:03:17	
Min.	0:00:01		0:00:01		0:00:01		0:00:01	
95Percentile	0:01:02		0:01:01		0:00:59		0:01:00	
99Percentile	0:02:36		0:02:33		0:02:04		0:02:25	
10(s)≧X	4604	(44.4%)	4929	(44.6%)	6708	(45.8%)	6244	(43.2%)
15(s)≧X	1883	(62.6%)	2057	(63.2%)	2573	(63.4%)	2648	(61.5%)
30(s)≧X	2045	(82.3%)	2103	(82.3%)	2748	(82.2%)	2856	(81.2%)
45(s)≧X	767	(89.7%)	830	(89.8%)	1086	(89.6%)	1133	(89.1%)
60(s)≧X	557	(95.1%)	579	(95.0%)	848	(95.4%)	883	(95.2%)
90(s)≧X	267	(97.6%)	290	(97.7%)	356	(97.9%)	357	(97.6%)
90(s)＜X	244	(2.4%)	258	(2.3%)	314	(2.1%)	342	(2.4%)

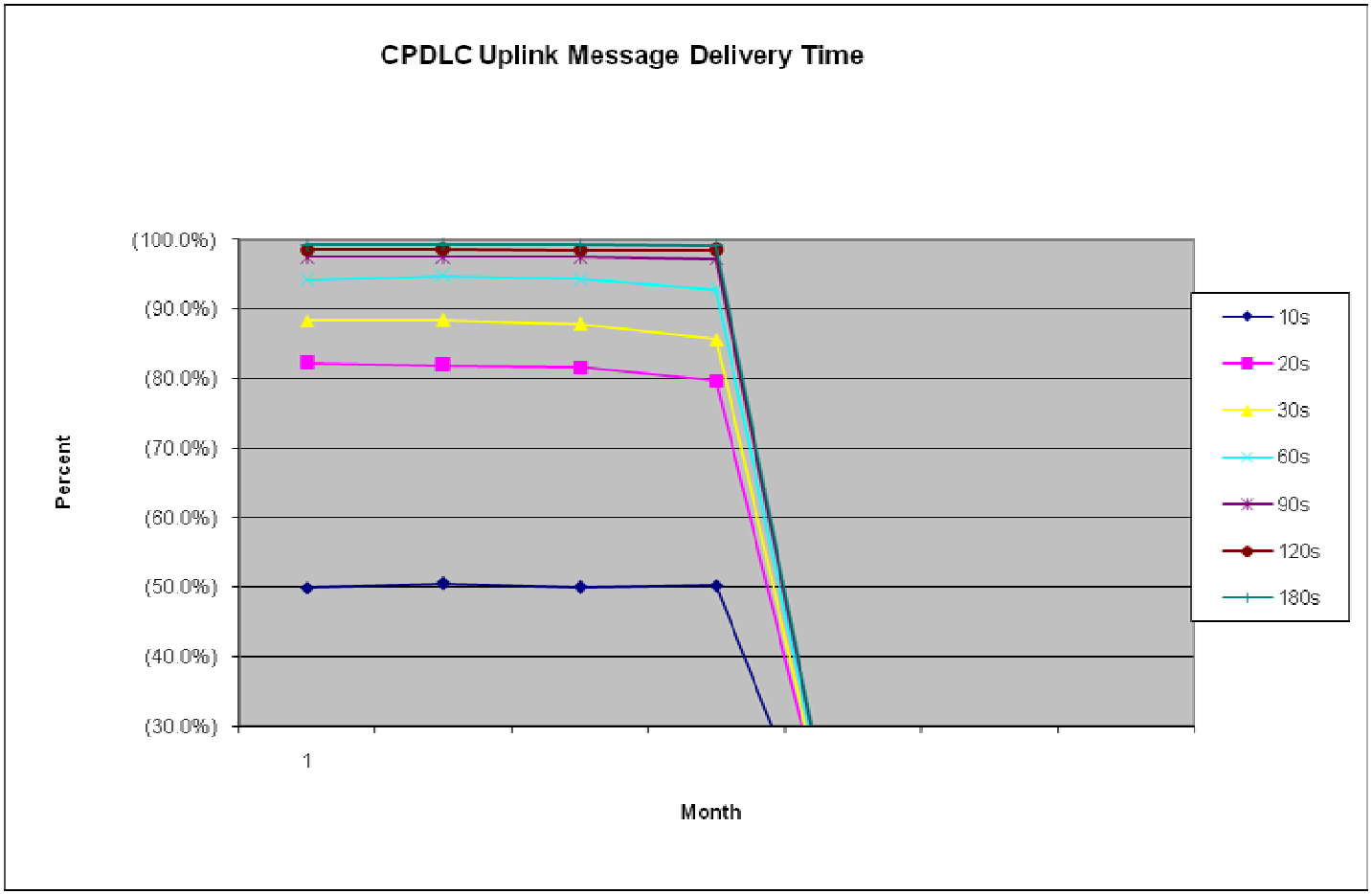
Downlink Performance = ODP Reception Time - Aircraft Time Stamp

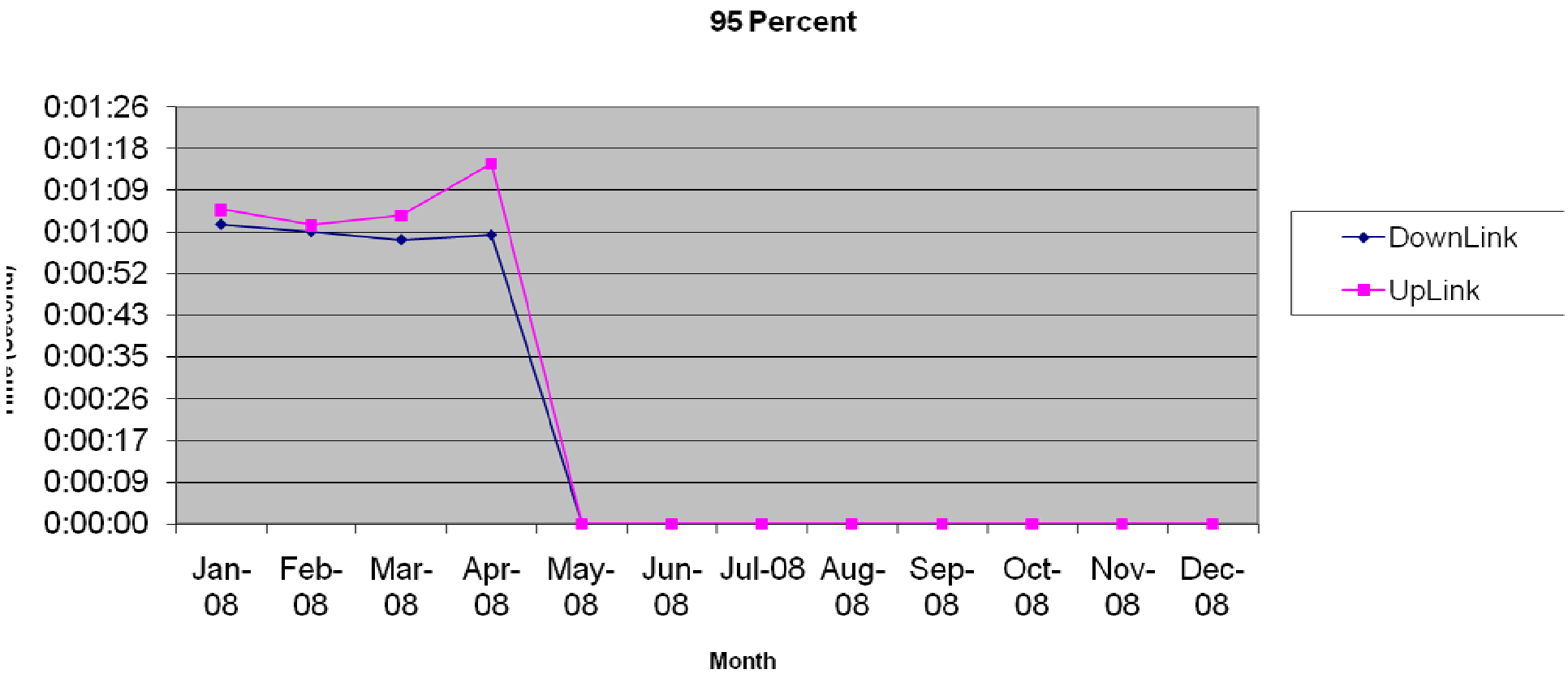

CPDLC Downlink Message Delivery Time
(100.0%)
(90.0%)
(80.0%)
(70.0%)
(60.0%)
(50.0%)
(40.0%)
(30.0%)
Percent
1
Month
10s
15s
30s
45s
60s
90s

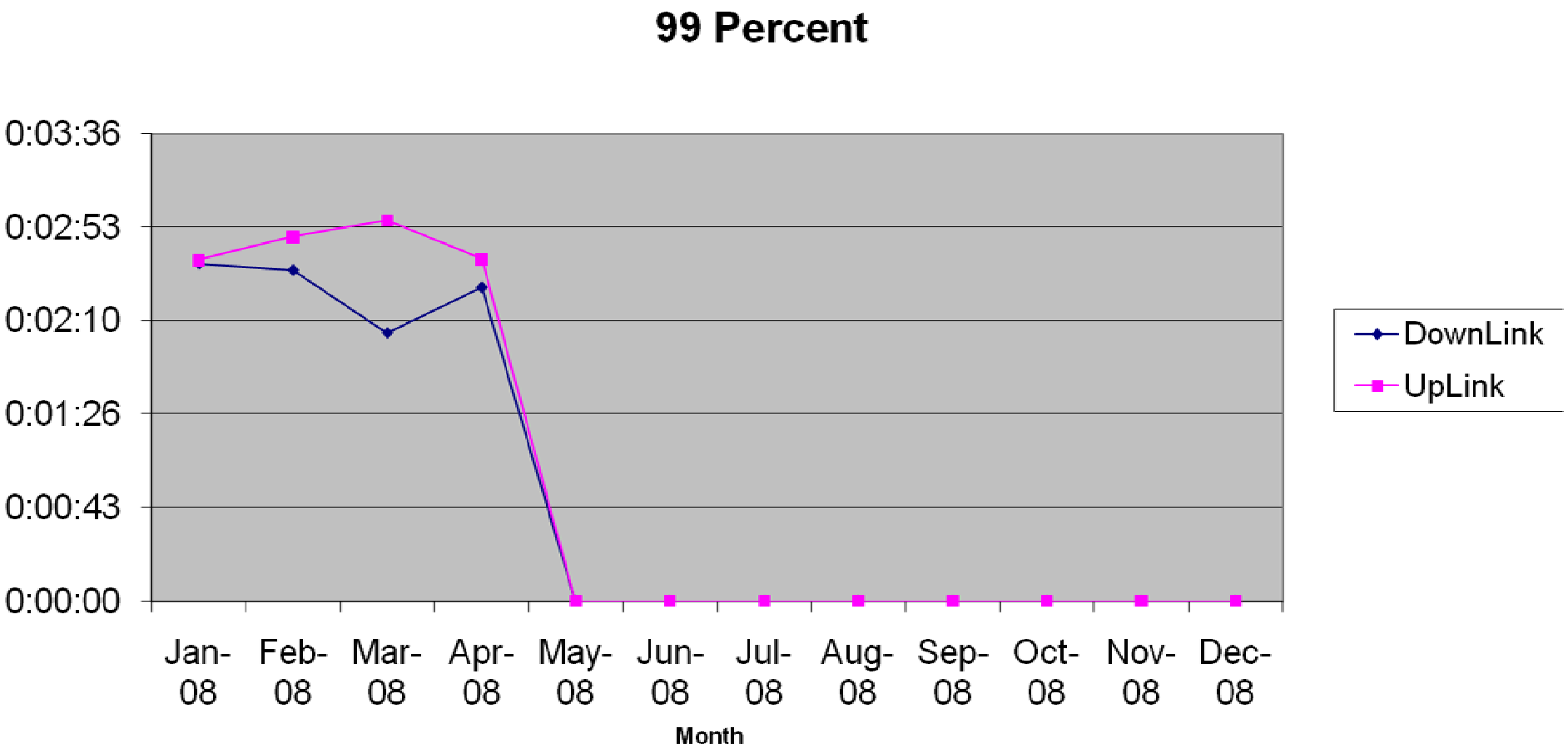
(Table-2) CPDLC Uplink Performance

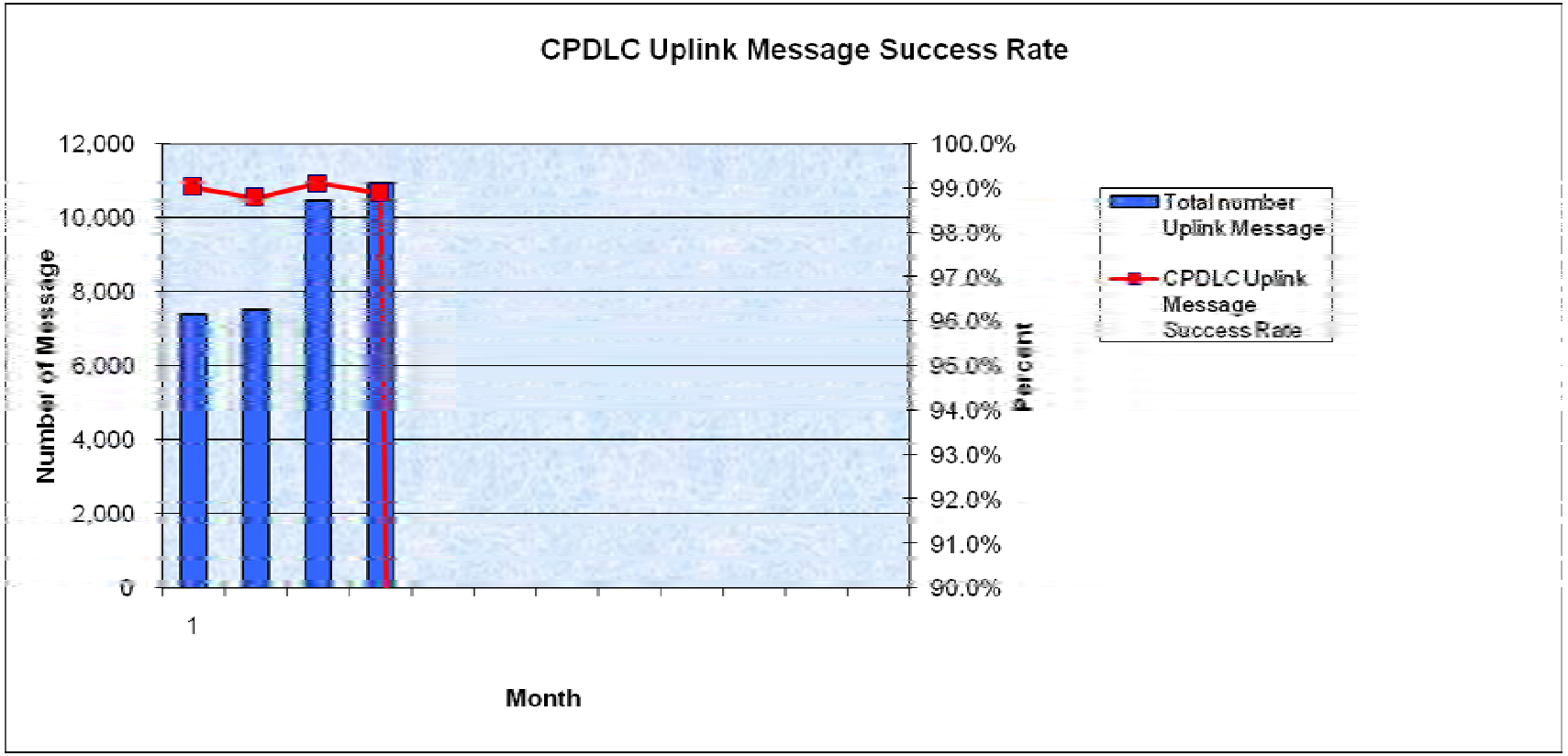
	Jan-2008		Feb-2008		Mar-2008		Apr-2008	
No. of msg.	7408		7505		10459		10933	
Ave.	0:00:16		0:00:18		0:00:20		0:00:29	
Max.	0:17:05		0:26:07		0:27:55		15:32:10	
Min.	0:00:03		0:00:03		0:00:03		0:00:02	
95Percentile	0:01:05		0:01:02		0:01:04		0:01:15	
99Percentile	0:02:37		0:02:48		0:02:56		0:02:38	
10(s)≧X	3697	(49.9%)	3790	(50.5%)	5226	(50.0%)	5497	(50.3%)
20(s)≧X	2397	(82.3%)	2355	(81.9%)	3315	(81.7%)	3213	(79.7%)
30(s)≧X	448	(88.3%)	488	(88.4%)	648	(87.9%)	658	(85.7%)
60(s)≧X	440	(94.2%)	476	(94.7%)	678	(94.3%)	774	(92.8%)
90(s)≧X	239	(97.5%)	205	(97.5%)	327	(97.5%)	488	(97.2%)
120(s)≧X	76	(98.5%)	90	(98.7%)	106	(98.5%)	132	(98.4%)
180(s)≧X	54	(99.2%)	53	(99.4%)	84	(99.3%)	83	(99.2%)
180(s)＜X	57	(0.8%)	48	(0.6%)	75	(0.7%)	88	(0.8%)

Uplink Performance = Reception Time of M.A. - Sending Time of Uplink at ODP

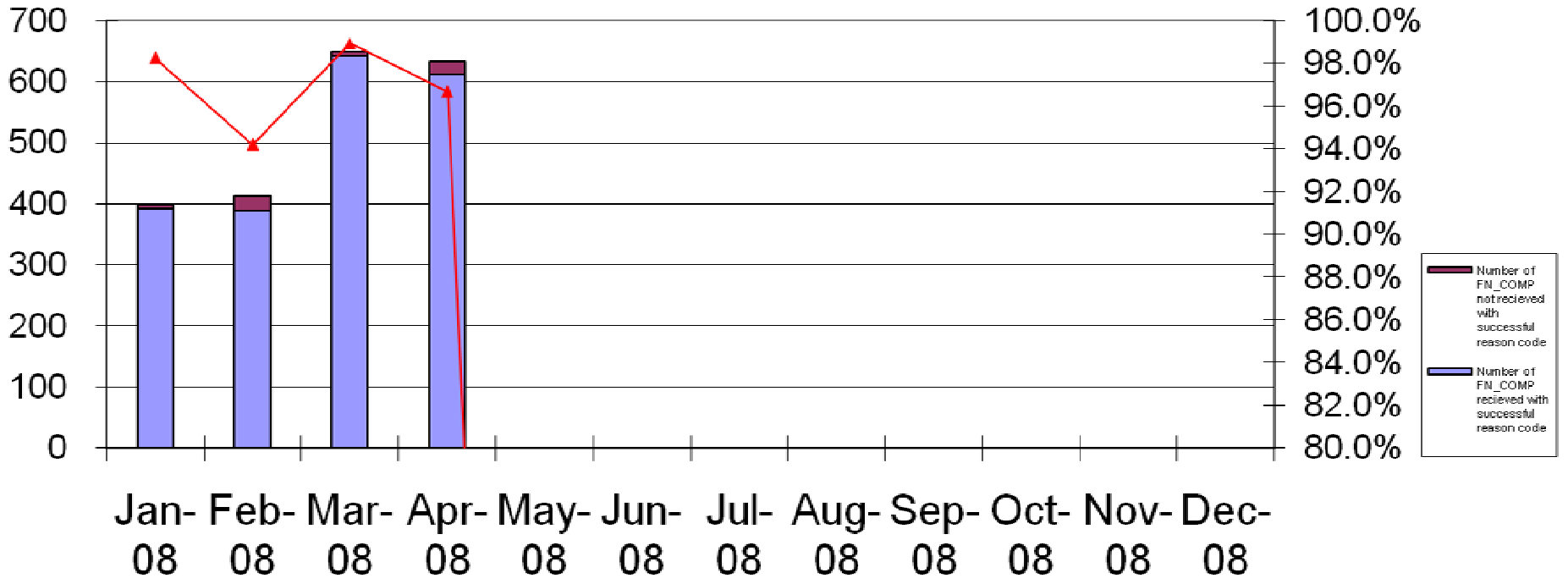

CPDLC Uplink Message Delivery Time
(100.0%)
(90.0%)
(80.0%)
(70.0%)
(60.0%)
(50.0%)
(40.0%)
(30.0%)
Percent
1
Month
10s
20s
30s
60s
90s
120s
180s


95 Percent
0:01:26
0:01:18
0:01:09
0:01:00
0:00:52
0:00:43
0:00:35
0:00:26
0:00:17
0:00:09
0:00:00
Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Sep-08
Oct-08
Nov-08
Dec-08
Month
DownLink
UpLink


99 Percent
0:03:36
0:02:53
0:02:10
0:01:26
0:00:43
0:00:00
Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Sep-08
Oct-08
Nov-08
Dec-08
Month
DownLink
UpLink


CPDLC Uplink Message Success Rate
12,000
10,000
8,000
6,000
4,000
2,000
0
Number of Message
100.0%
99.0%
98.0%
97.0%
96.0%
95.0%
94.0%
93.0%
92.0%
91.0%
90.0%
Percent
1
Month
Total number Uplink Message
CPDLC Uplink Message Success Rate

(Fig.) Auto Transfer Success Rate
(From HoChiMinh FIR - To Singapore FIR)



END OF PRESENTATION

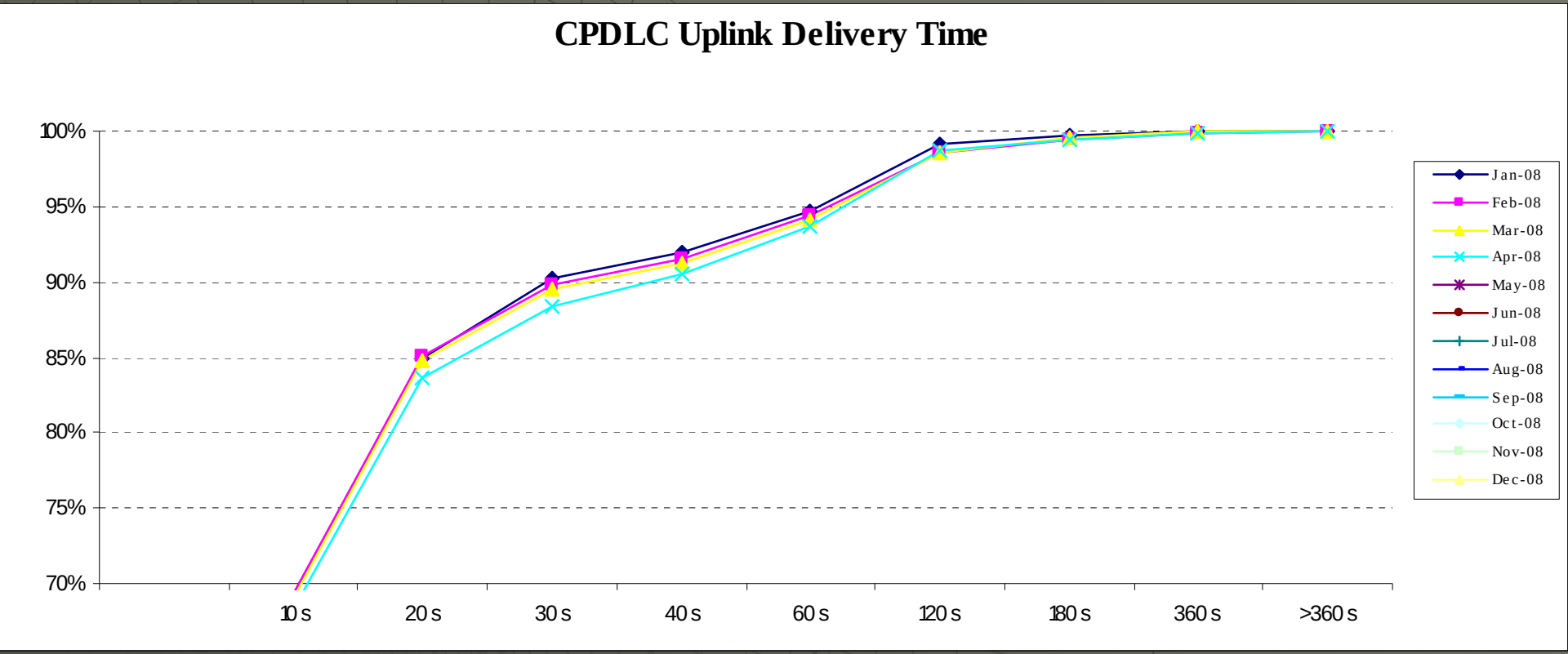
Thank you very much

ATS Datalink System Performance

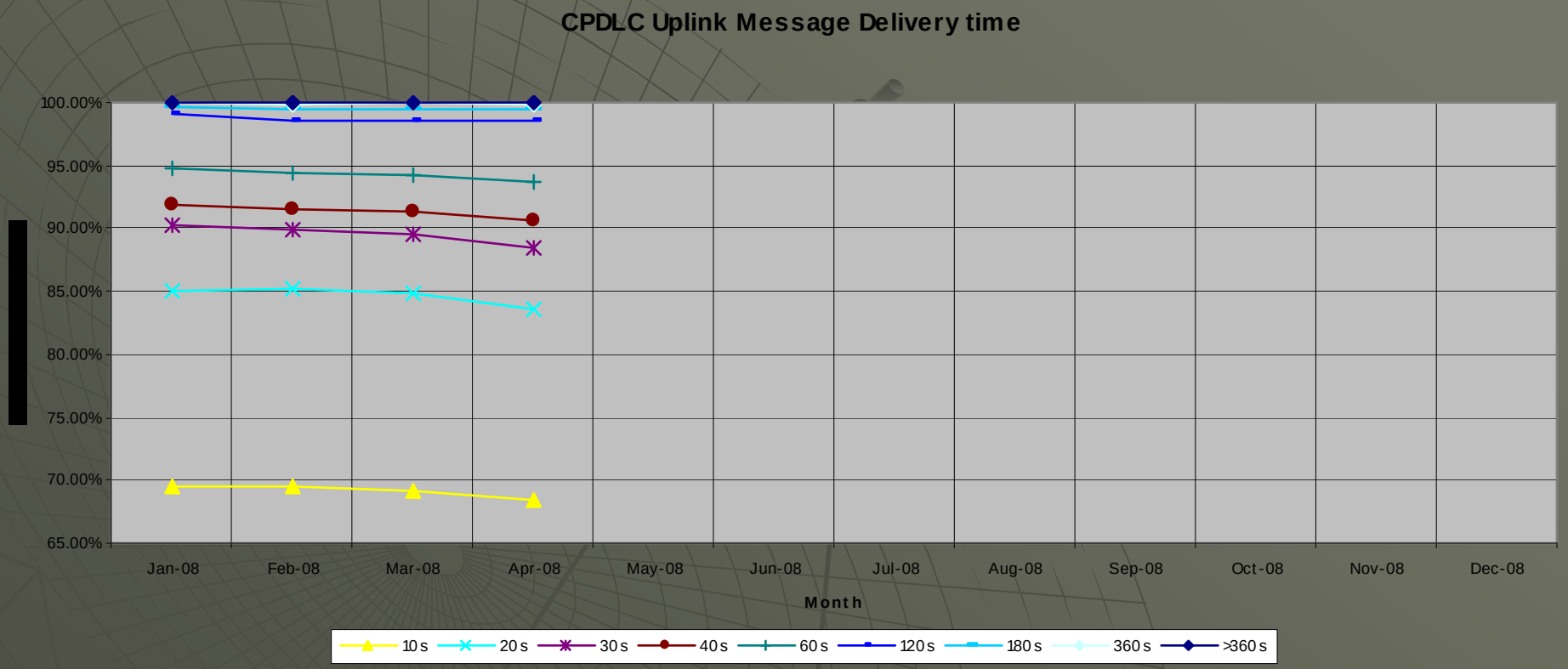
Singapore FIR

Jan – April 2008

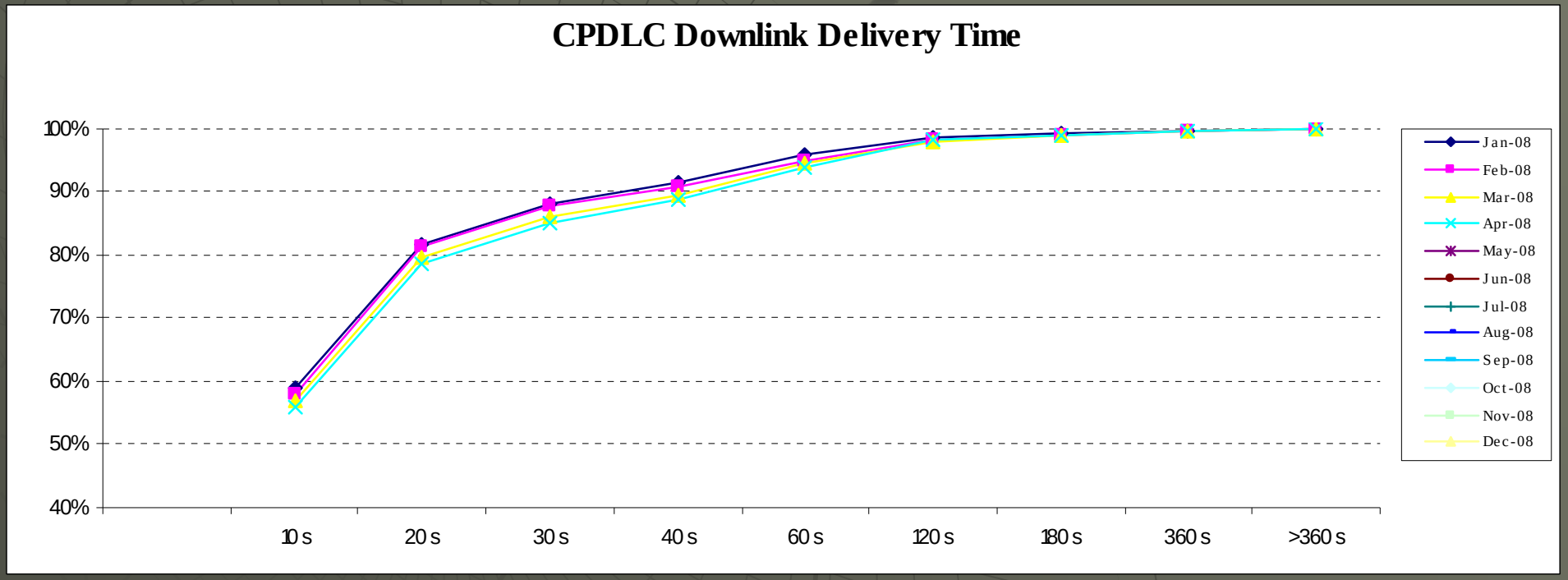
CPDLC Uplink Delivery Time



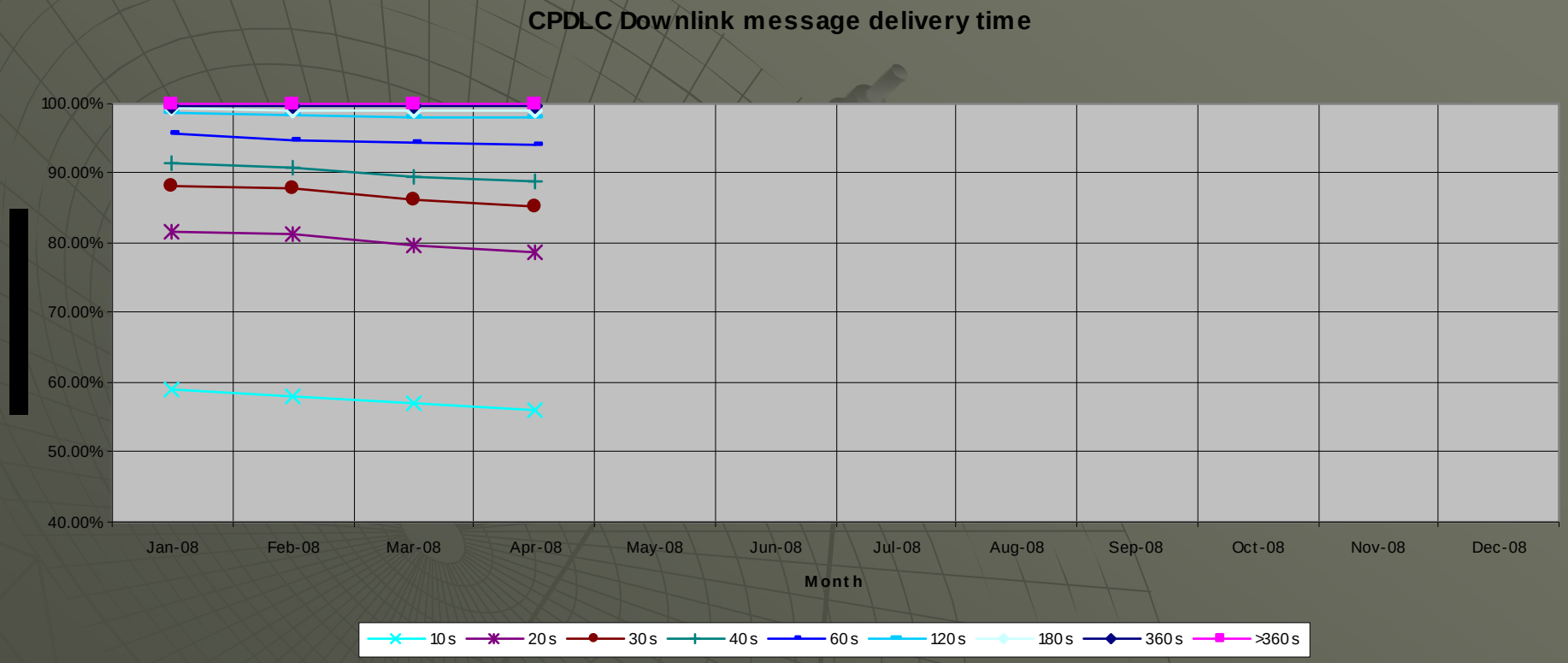
CPDLC Uplink Message Delivery Time



CPDLC Downlink Delivery Time



CPDLC Downlink Message Delivery Time



Civil Aviation Authority of Singapore

CPDLC Uplink Message Success Rate (Jan – Apr 08)

(Table-3) CPDLC Uplink Message Success Rate

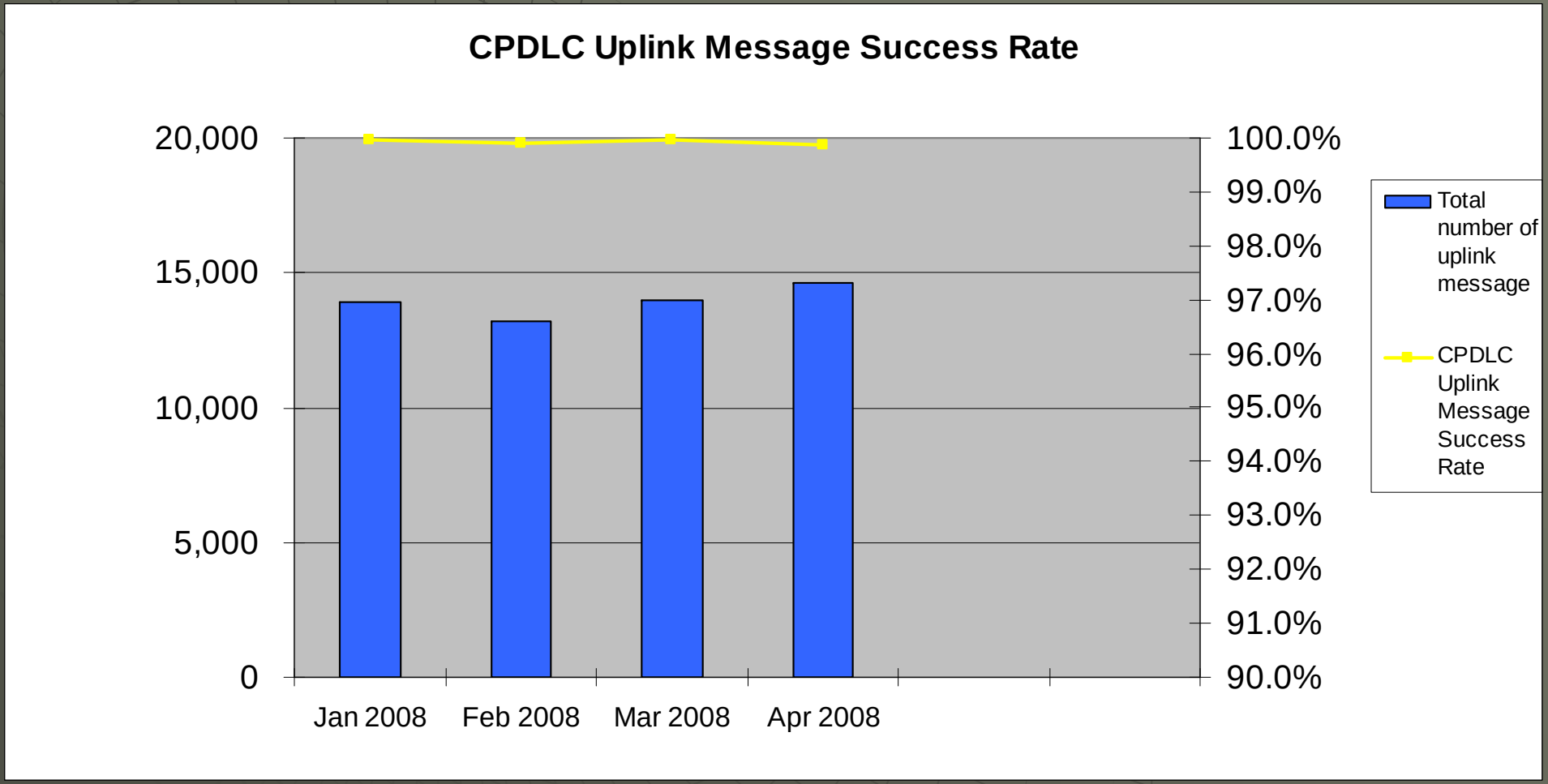
	Jan 2008	Feb 2008	Mar 2008	Apr 2008
Total number of uplink message	13,945	13,186	14,001	14,630
Total number of unsuccessful uplink message	6	11	6	17
(%)	0.04%	0.08%	0.04%	0.12%
Total number of successful uplink message	13,939	13,175	13,995	14,613
(%)	99.96%	99.92%	99.96%	99.88%

Total number of unsuccessful uplink message : The number of cases which did not receive MAS to CPDLC uplink message

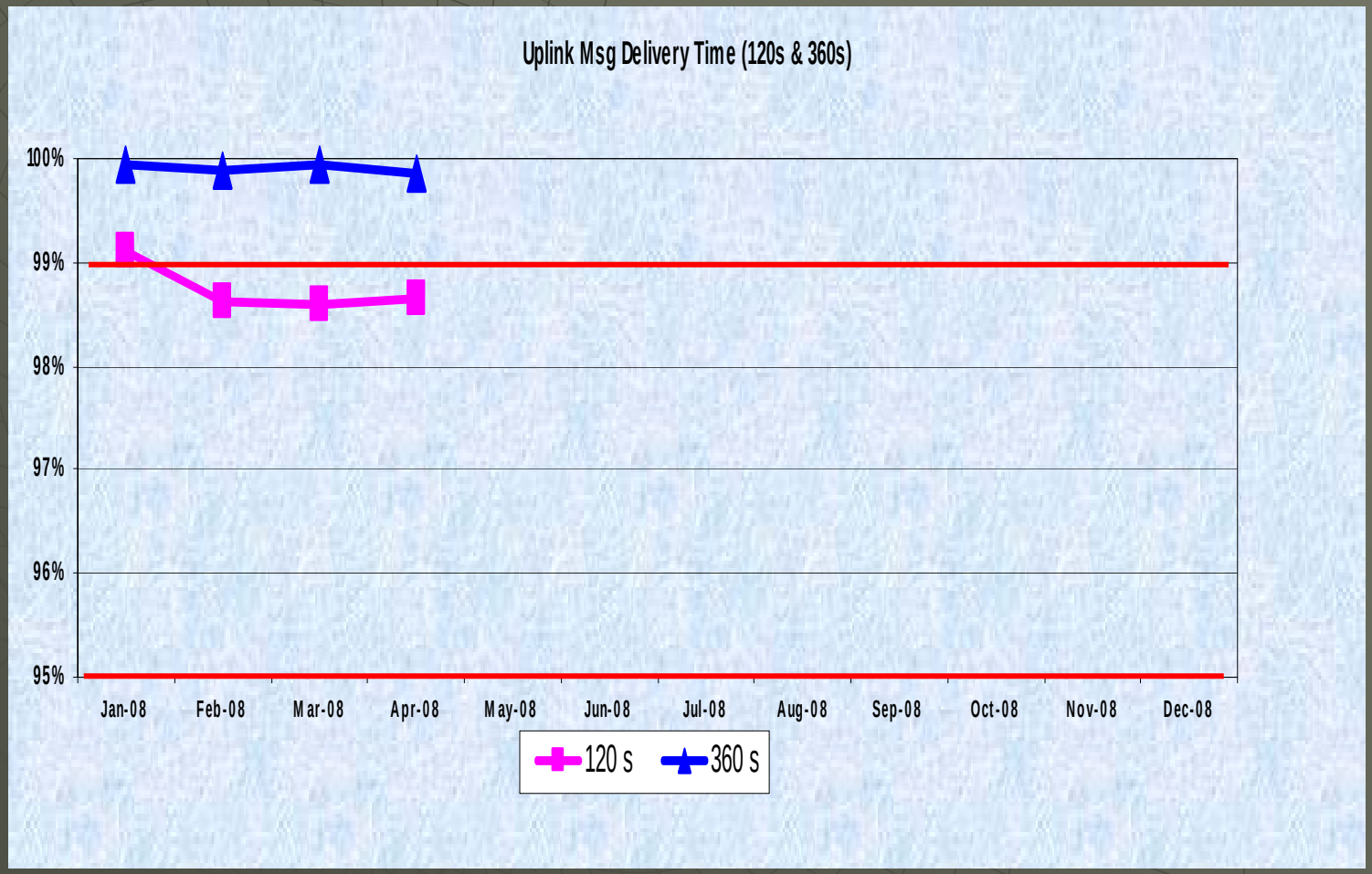
=((Total number of uplink message) - (Total number of successful uplink message))

CAAS
Civil Aviation Authority of Singapore

CPDLC Uplink Message Success Rate Jan - Apr 08



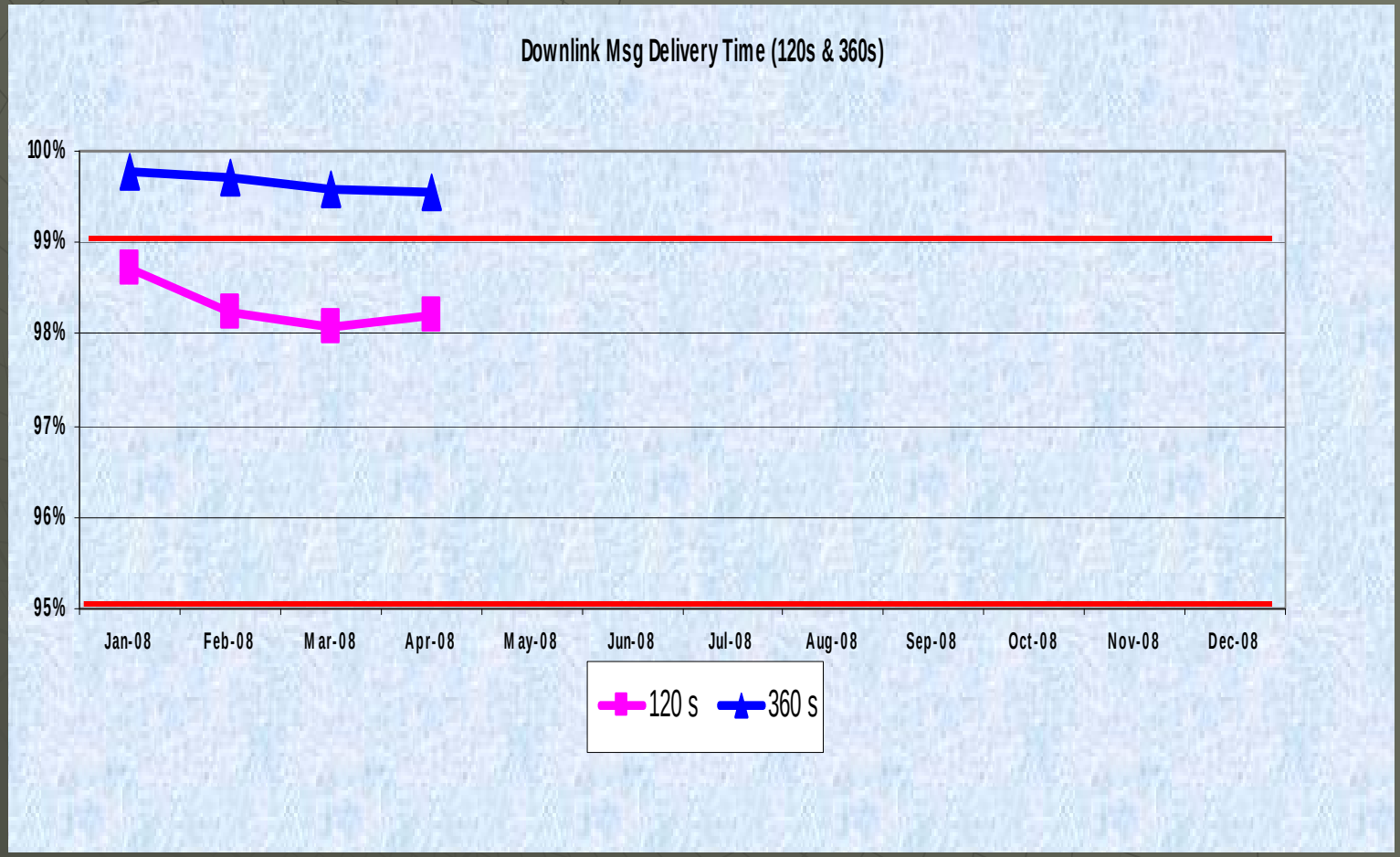
System Performance Year 2008



>99% of uplink msg are received within round trip time of 6 min (360s)

>95% of uplink msg are received within round trip time of 2 min (120s)

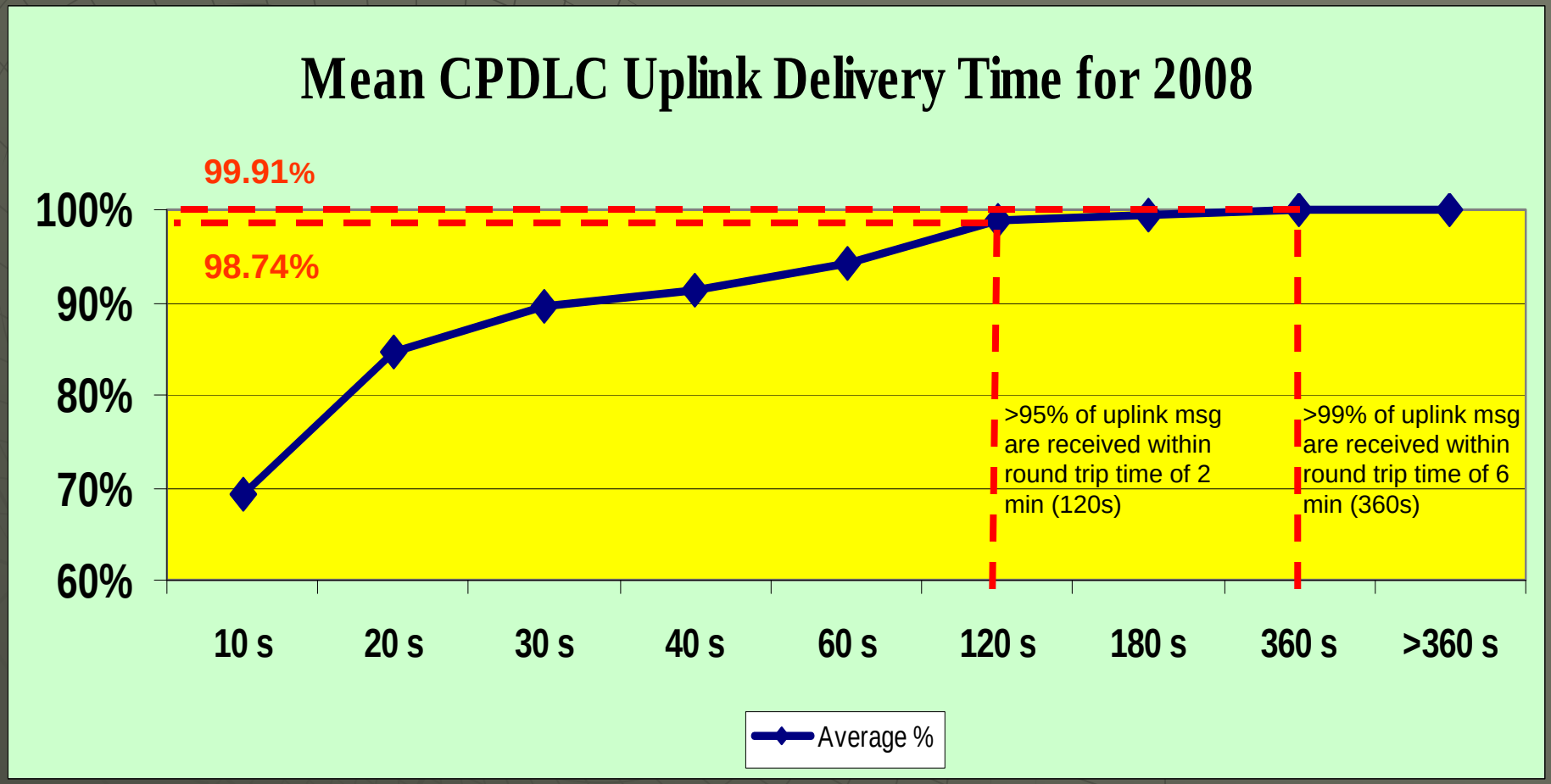
System Performance Year 2008



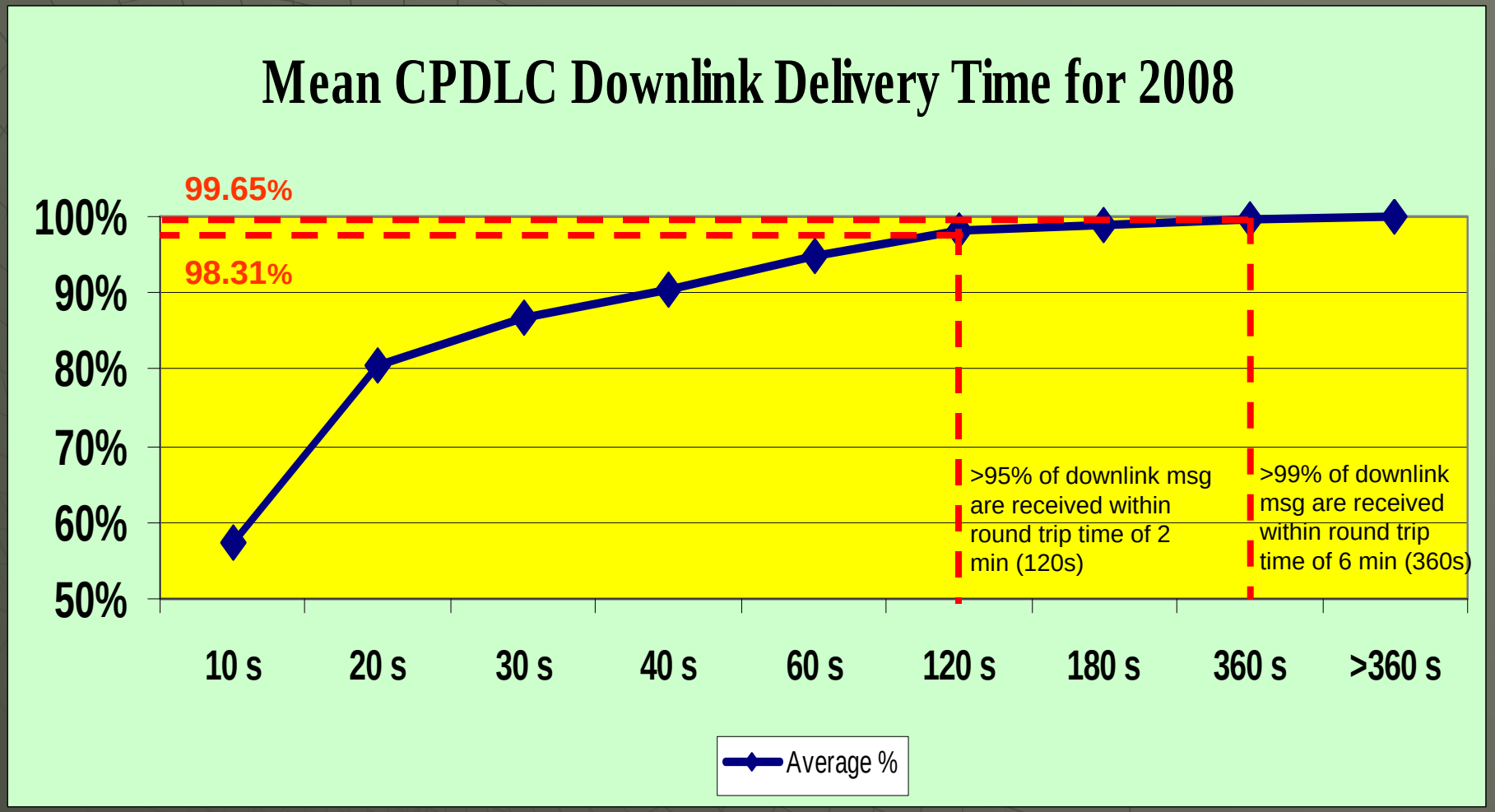
>99% of downlink msg are received within round trip time of 6 min (360s)

>95% of downlink msg are received within round trip time of 2 min (120s)

System Performance

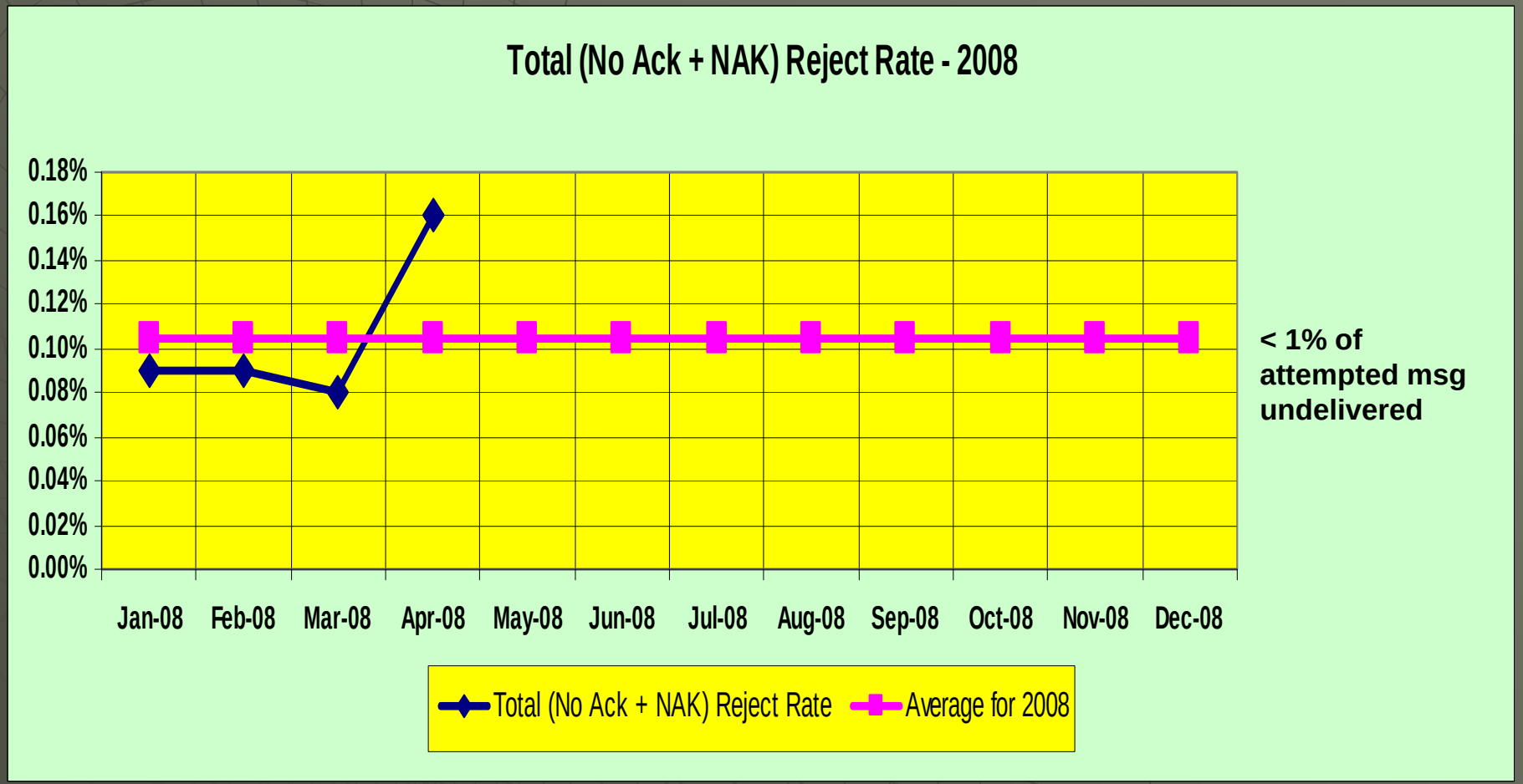


System Performance



Civil Aviation Authority of Singapore

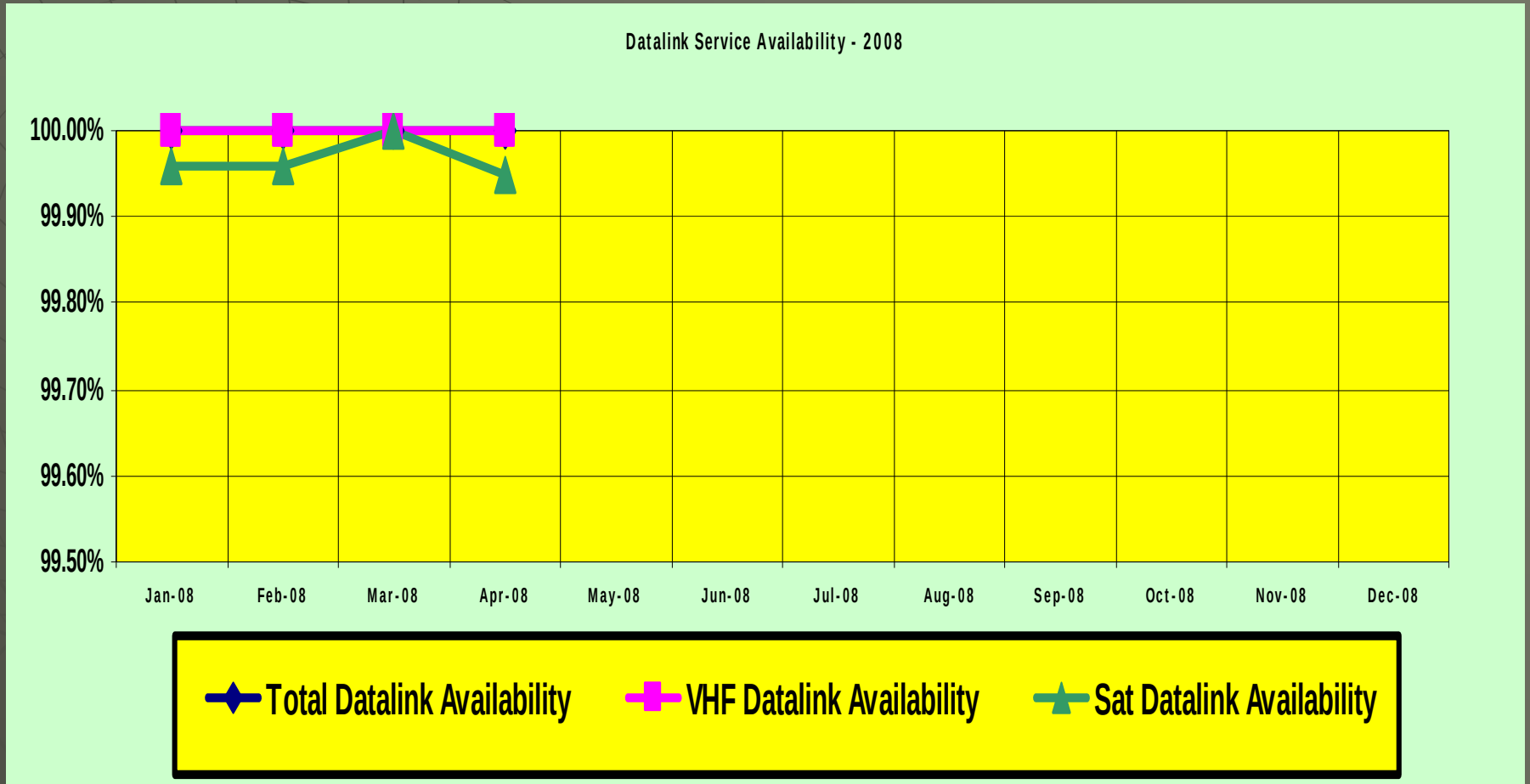
System Performance



< 1% of attempted msg undelivered

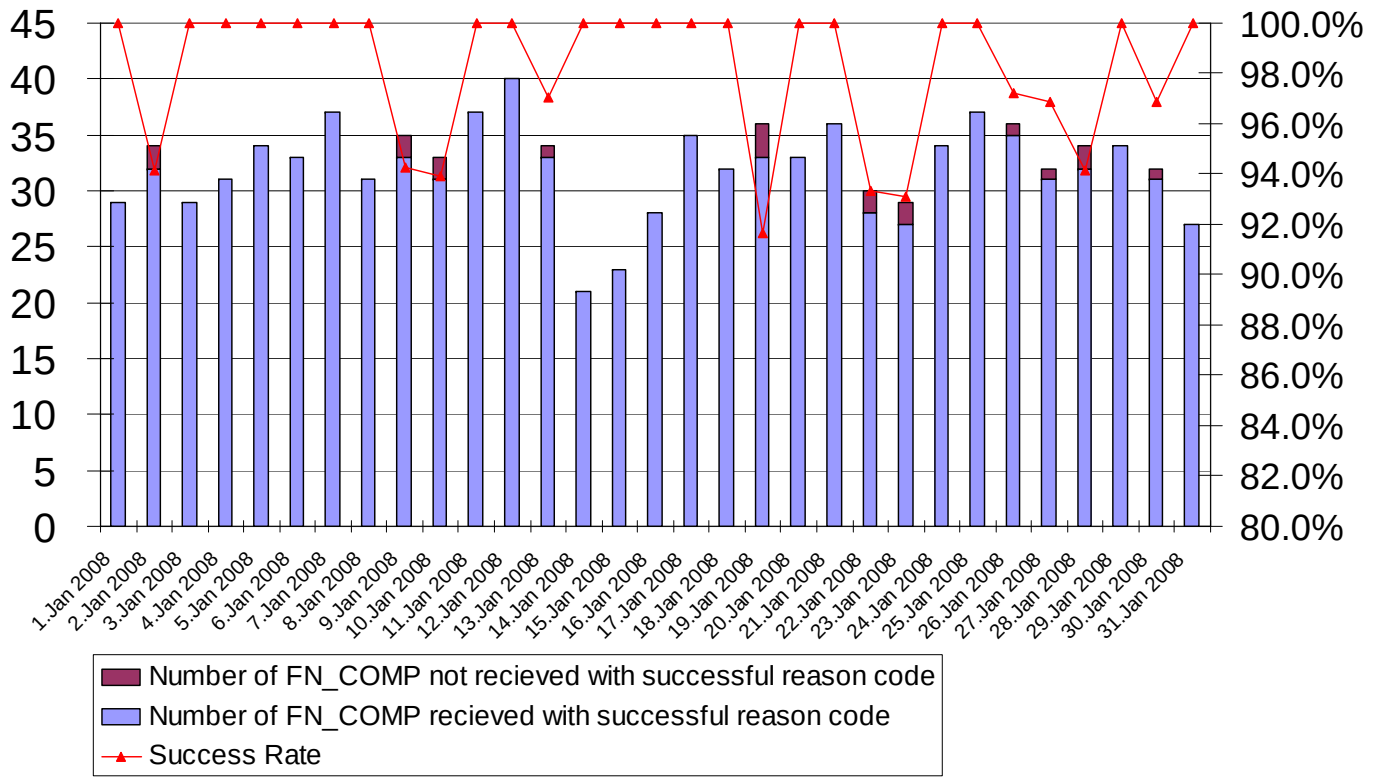
Civil Aviation Authority of Singapore

System Availability



Auto transfer Success Rate - Jan 08

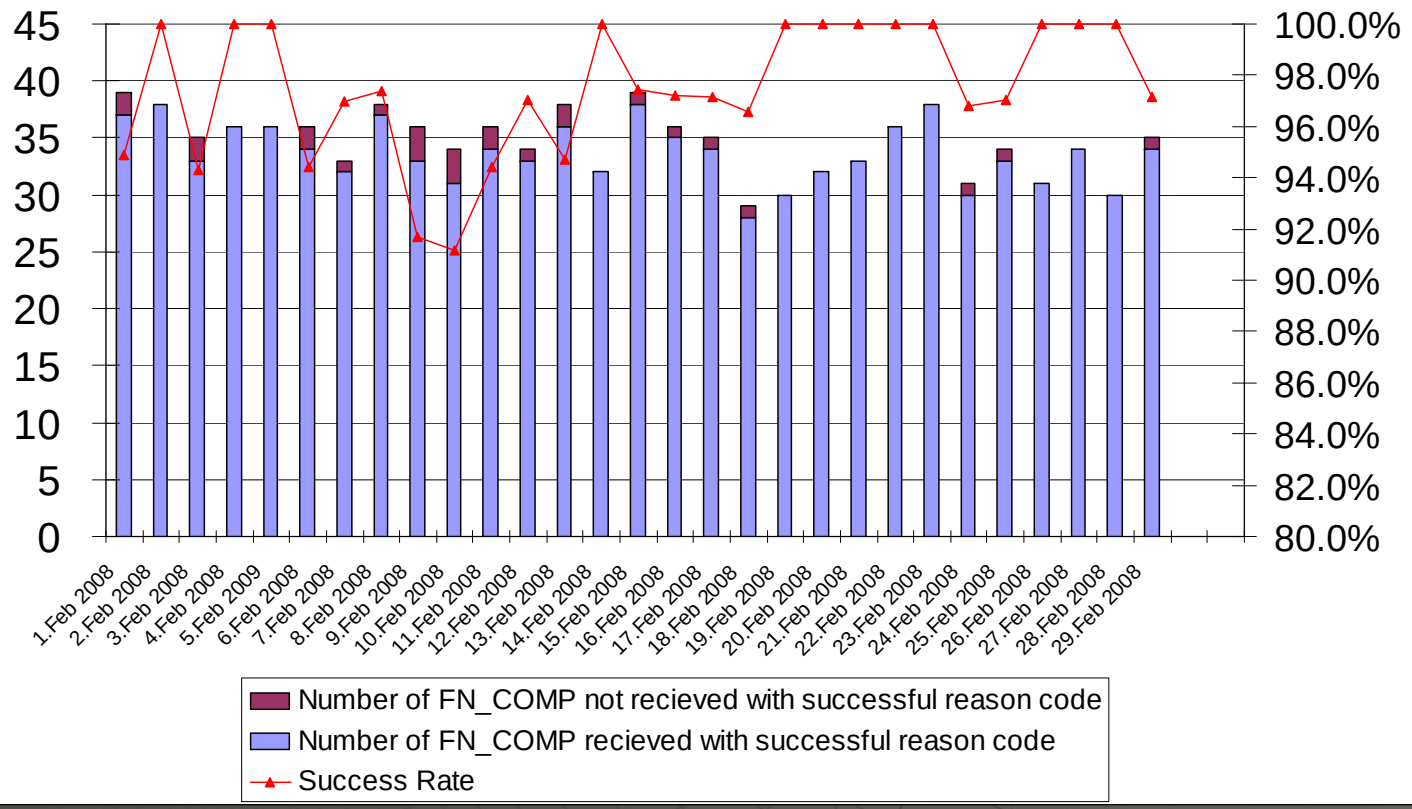
(Fig.) Auto Transfer Success Rate
(From Singapore FIR - To HoChiMinh FIR)



Civil Aviation Authority of Singapore

Auto transfer Success Rate - Feb 08

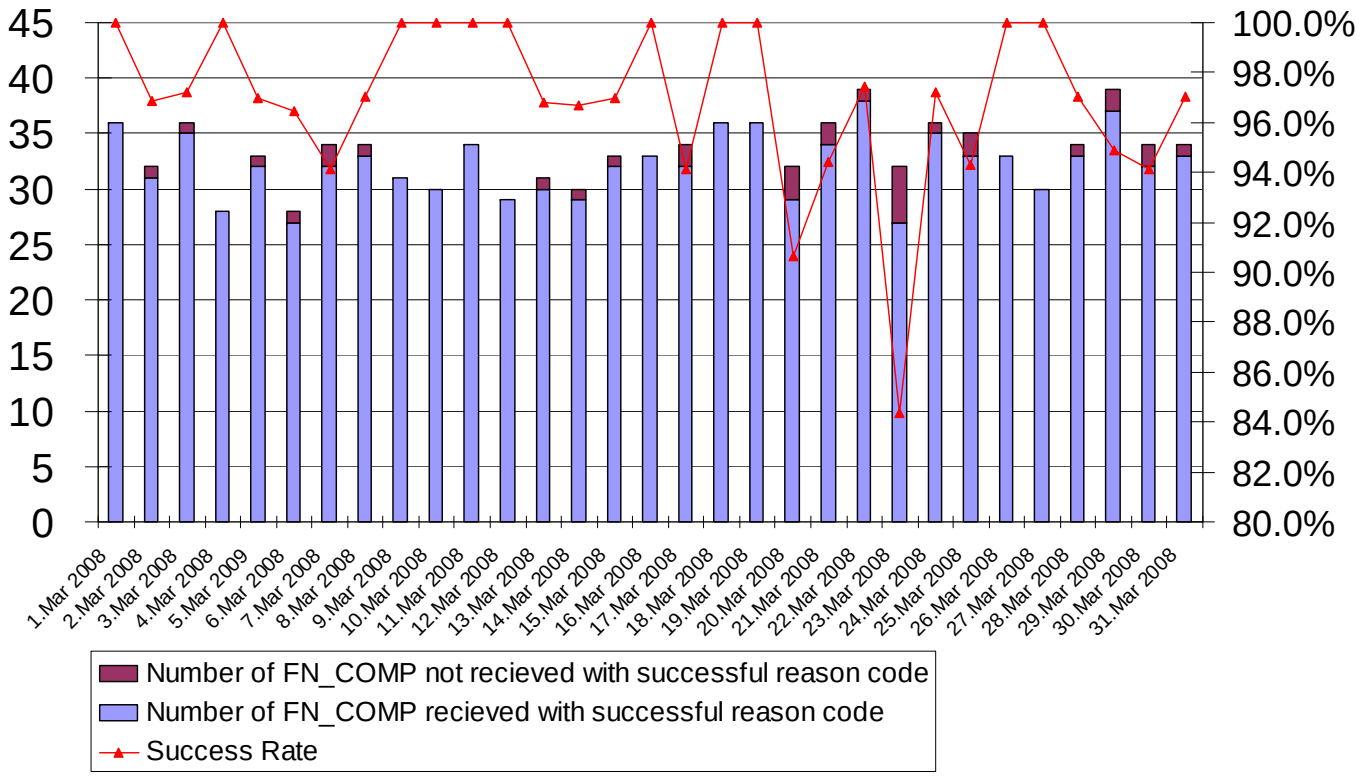
(Fig.) Auto Transfer Success Rate
(From Singapore FIR - To HoChiMinh FIR)



Civil Aviation Authority of Singapore

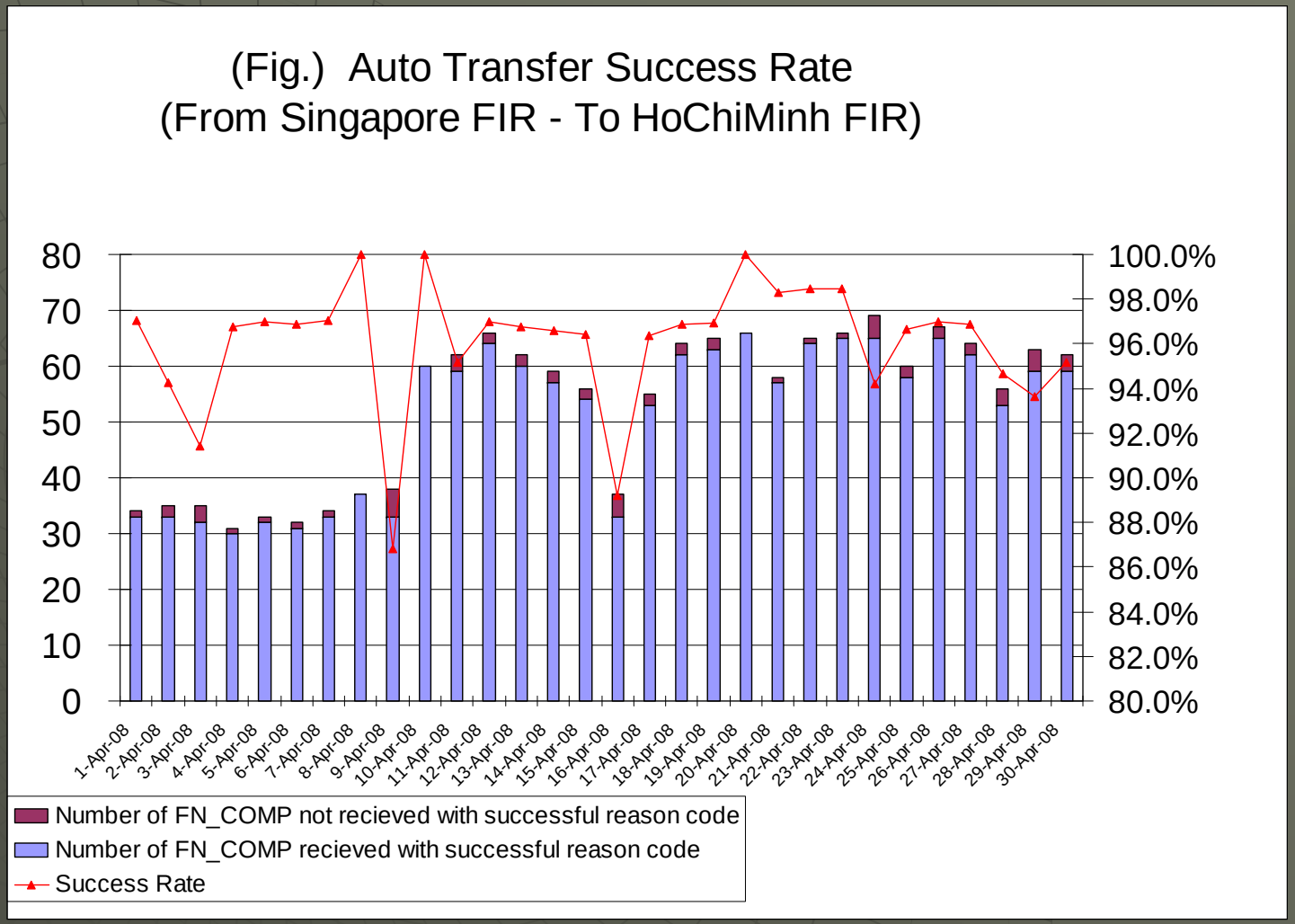
Auto transfer Success Rate - Mar 08

(Fig.) Auto Transfer Success Rate
(From Singapore FIR - To HoChiMinh FIR)



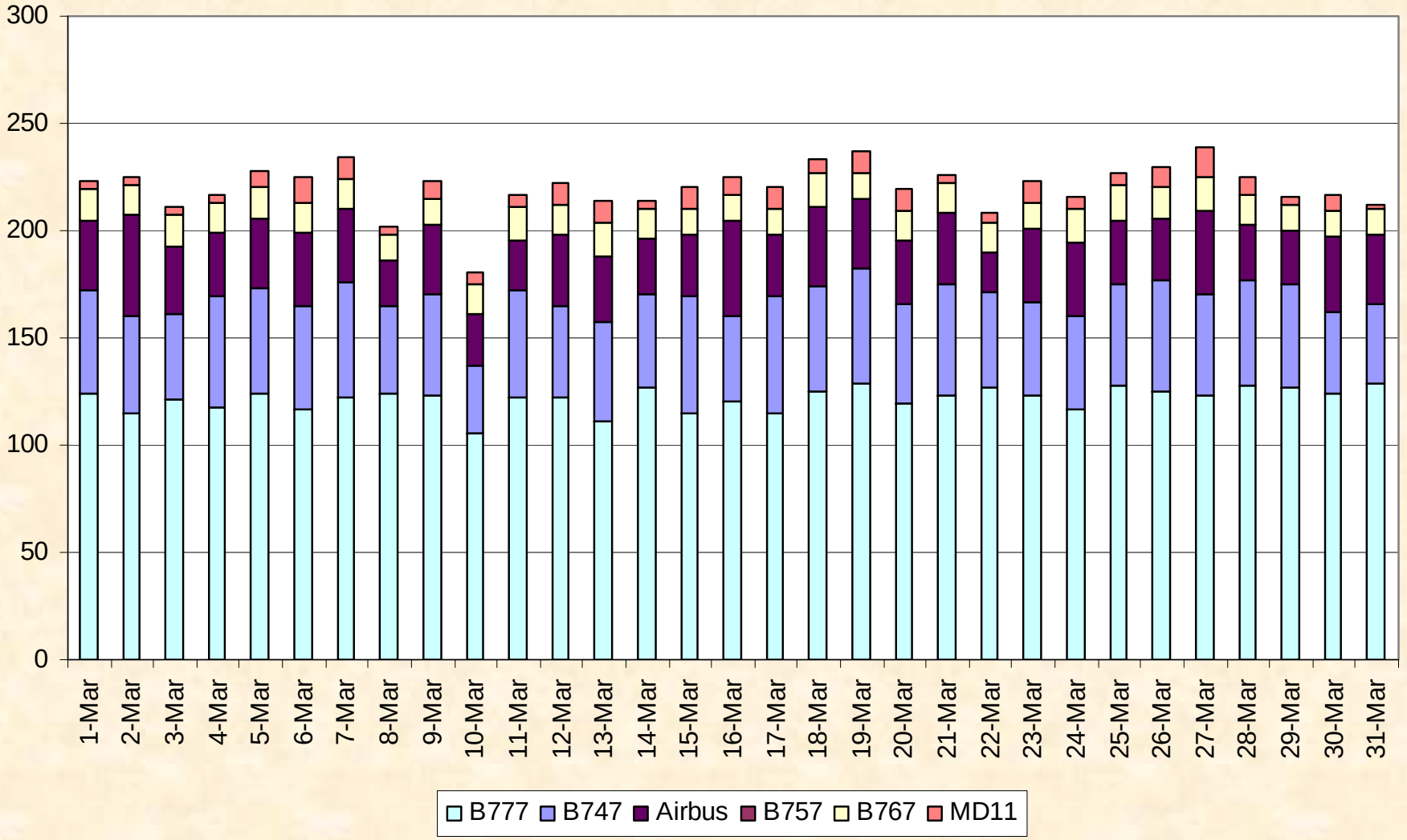
Civil Aviation Authority of Singapore

Auto transfer Success Rate - Apr 08

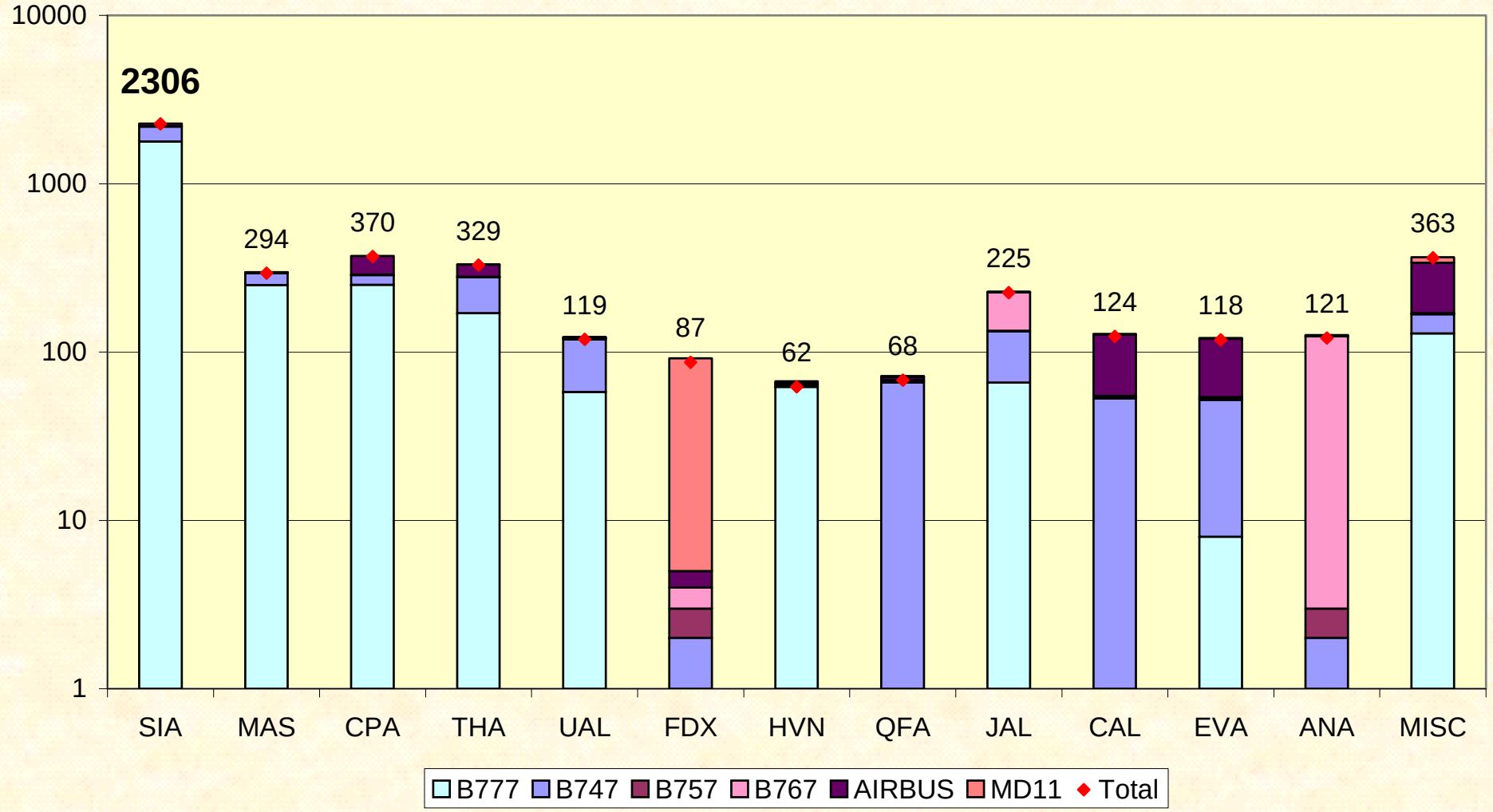


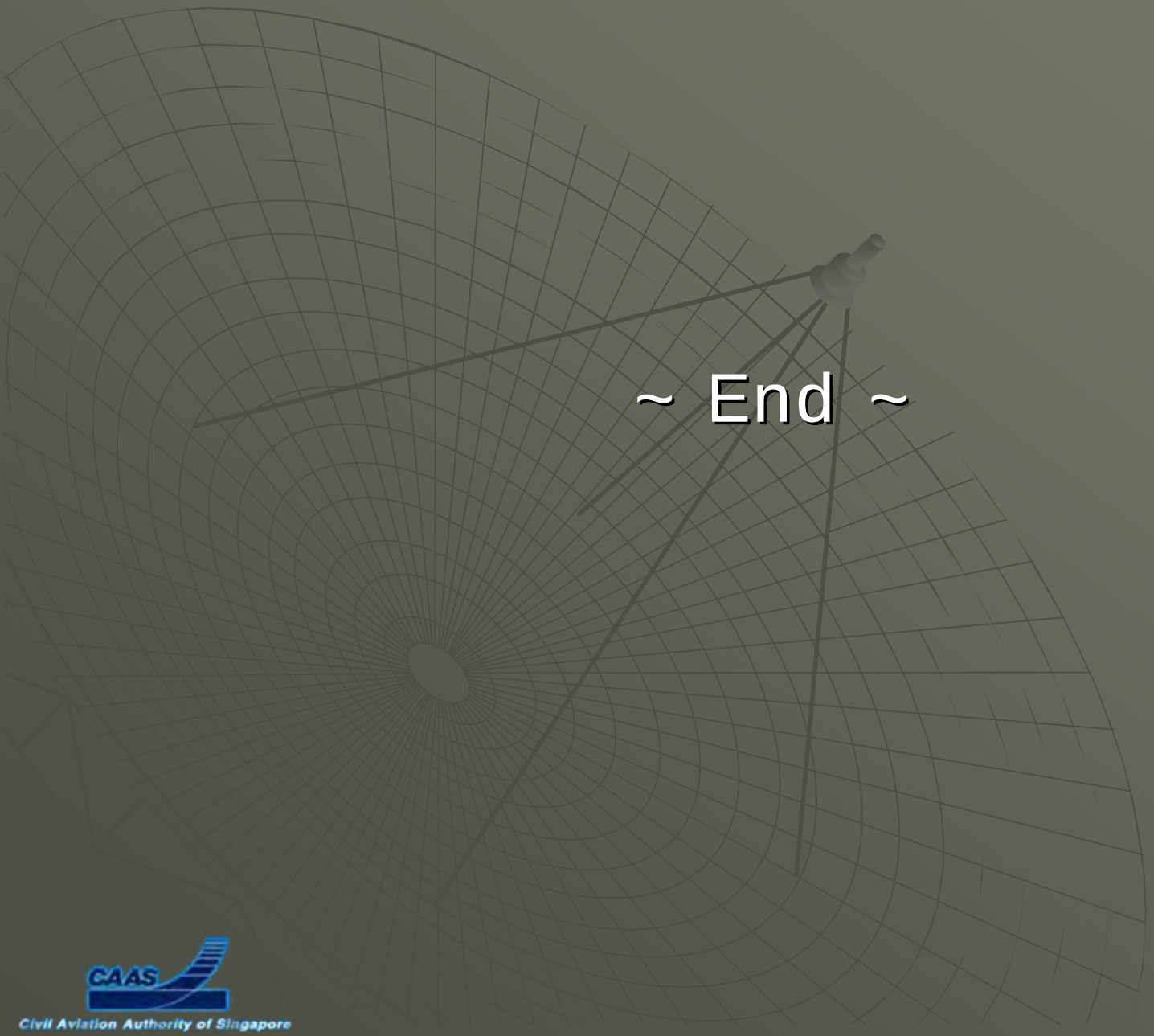
Civil Aviation Authority of Singapore

FANS 1/A Daily Logon Statistics
(Aircraft Type)
March 2008



FANS 1/A Logon Statistics
(Airlines)
March 2008





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Civil Aviation Authority of Singapore

FIT- SEA TASK LIST

(Last updated ~~February~~ May 2008)

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
1.	ATS providers to use the *FANS Operations Manual* (FOM), and to review and update their ATS operating procedures to align with the FOM.	Ongoing activities as additional States join the operational trial.	All States	Ongoing	Important that all ATSU adopt common operating procedures. APANPIRG/15 (August 2004) agreed that the FOM be used as the basis for ADS and CPDLC operations in conjunction with Annex 10, PANS-ATM and regional guidance material.
2.	ATS providers to coordinate with adjacent area control centres (ACCs) to review and update letters of agreement for introduction of ADS/CPDLC services on a trial basis.	Ongoing activities as additional States join the operational trial.	Philippines	Ongoing	Ensure common ATC procedures applied. Letter of agreement between Singapore and Viet Nam for trial was finalised and signed in February 2007 and would be amended for the regular operations in April 2008.
3.	Issue AIC/AIP supplement on the commencement of the operational trial.	AIC prior to the Phase 1 commencement and AIP Supplement prior to Phase 2 commencement	Philippines	As required	Publications of AIC and AIP Supplement by the Philippines are subject to the readiness in the Manila FIR.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
4.	Coordinate with Southeast Asia States on the operational trial.	Ongoing activities as additional States join the operational trial.	ICAO, All States	Ongoing	Determine status on trial participation Philippines planning to commence trial TBA
5.	Collect ADS/CPDLC Problem Reports (PR) and submit to the CRA through the State.	Immediate	States, operators	Ongoing	To be submitted as soon as practicable to facilitate analysing the reports. FIT-SEA CRA operated by CRA Japan undertake~~s~~ CRA services from March 2007.
6.	Provision of monthly monitoring ADS/CPDLC system performance data to be submitted to the CRA.	Monthly	States	Ongoing	Essential for evaluating overall system performance within the trial airspace. FIT-SEA CRA operated by CRA Japan ~~to~~ undertake~~s~~ CRA services from March 2007.
~~7.~~	~~Compilation of data on aircraft ADS/CPDLC equipped in the trial airspace.~~	~~Biannually~~	~~States, IATA~~	~~Ongoing~~Closed	~~To keep record of aircraft participating in the trial and determine overall benefits derived by population of aircraft operating in the trial airspace.~~
8.	Training of controllers and technical staff on ADS/CPDLC operational procedures based on the FOM.	Ongoing activities as additional States join the operational trial.	Philippines	Ongoing	

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
9.	Nominate contact person (technical and ATS) and keep details updated.	Ongoing activities as additional States join the operational trail	States, operators	Ongoing	Important that CRA has contact with engineering and operational personnel to analyse problem reports and performance data. Contact persons to be included in the Table of ADS/CPDLC Equipage and ATS Status retained by FIT-SEA FIT-SEA CRA operated by CRA Japan undertook CRA services in March 2007.
10.	Establish data confidentiality agreements between States and the CRA, and the States and operators participating in the trial.	Immediate	CRA, Philippines, Singapore and Viet Nam, and operators	Ongoing	To establish agreement with States, operators and data providers for release of data and to de-identify reports. Viet Nam and Singapore have singed.
11.	Update ICAO Guidance Material on CNS/ATM Operations in APAC Region.	As soon as practicable	ICAO	Ongoing	Part III harmonized with FOM. ICAO Headquarters continuing the review/harmonisation of Guidance Material. International Data Link Manual (IDLM) in preparation under the auspices of ICAO EUR/NAT Office.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
12.	Update table of ADS/CPDLC implementation planning for all FIT-SEA flight information regions (FIRs) including estimated dates for implementation of CPDLC communications, ADS/CPDLC full implementation, 50/50 NM reduced separation and 30/30 NM reduced separation to provide basis for long term satellite traffic load estimates to assist DSP network planning.	As required	SITA, ANSP	Ongoing	SITA has launched global satellite capacity/performance planning initiative to collect data from ANSPs and users to ensure timely network enhancement to meet future network requirements (Raised at FIT-SEA/4)
~~13.~~	~~Submit the interim report of Phase 2 by Singapore, Viet Nam and FIT-SEA CRA.~~	~~FIT-SEA/7~~	~~Singapore, Viet Nam and FIT-SEA CRA~~	Completed	~~(Raised at FIT-SEA/6)~~ ~~FIT-SEA/7 reviewed the interim report of Phase 2 and agreed that Viet Nam could terminate Phase 2 trial and commence the regular operation on 10 April 2008.~~ ~~(Revised at FIT-SEA/7)~~
14.	Coordinate with FOM editorial group on the Request for Change (RFC) to the FOM.	As required		Ongoing	SEA FOM editor to be nominated. FOM includes Request for Change (RFC) processes.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
~~15.~~	~~Issue AIP amendment/supplement on the commencement of the regular operations of ADS/CPDLC.~~	~~29 February 2008~~	~~Viet Nam~~	~~Ongoing~~Completed	~~Singapore has already issued AIP on availability of ADS/CPDLC services in the Singapore FIR~~ ~~AIC for Phase 1 trial was issued by Viet Nam in January 2007. AIP Supplement for Phase 2 trial was published on 21 June 2007. AIP Supplement for the regular operation will be issued on 29 February 2008.~~
~~16.~~	~~Revise and sign the Supplementary Letter of Agreement (SLOA) on transfer of ADS/CPDCL between Ho Chi Minh and Singapore Area Control Centres~~	~~As soon as practicable~~	~~Singapore and Viet Nam~~	~~Ongoing~~Completed	~~The Supplementary Letter of Agreement (SLOA) on transfer of ADS/CPDCL between Ho Chi Minh ACC and Singapore ACC would be revised and signed after proposed plan being approved.~~ ~~(Raised at FIT-SEA/7)~~
~~17.~~	~~Submit the final report of Phase 2 by Singapore, Viet Nam and FIT-SEA CRA.~~	~~FIT-SEA/8~~	~~Singapore, Viet Nam and FIT-SEA CRA~~	~~Ongoing~~Completed	~~FIT-SEA/8 will review the ADS/CPDLC system performance and the final report of the Phase 2 should be submitted by Singapore, Viet Nam and FIT-SEA CRA~~ ~~(Raised at FIT-SEA/7)~~

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SOUTHEAST ASIA DATA LINK IMPLEMENTATION

STATES	FIR	ESTIMATED/ STARTED DATE	DATE COMPLETED	NOTES
Commence ADS/CPDLC Operational Trial				
Malaysia	Kuala Lumpur	1 June 2008	–	Will participate in the Bay of Bengal (BOB) trials in the first quarter of 2008.
Philippines	Manila	TBA		
Singapore	Singapore	1997	1997	
Thailand	Bangkok	TBA		Had previously participated in BOB trials, some equipment issues.
Viet Nam	Ho Chi Minh	15 March 2007	10 Apr 2008	
Implement CPDLC - Data Link Communications only				
Malaysia	Kuala Lumpur	TBA	–	Only for FIT-BOB
Philippines	Manila	TBA		
Singapore	Singapore	1997		
Thailand	Bangkok	TBA		
Viet Nam	Ho Chi Minh	2008		
Implement 50 NM/50 NM Based on RNP 10				
Malaysia	Kuala Lumpur	TBA		
Philippines	Manila	TBA		
Singapore	Singapore	3 July 2008		
Thailand	Bangkok	TBA		
Viet Nam	Ho Chi Minh	3 July 2008		Based on VHF on L642 and M771
Hong Kong, China	Hong Kong	3 July 2008		Based on VHF on L642 and M771
China	Sanya	3 July 2008		Based on VHF on L642 and M771

STATES	FIR	ESTIMATED/ STARTED DATE	DATE COMPLETED	NOTES
Implement 30 NM/30 NM Based on RNP 4				
Malaysia	Kuala Lumpur	TBA		
Philippines	Manila	TBA		
Singapore	Singapore	2010		
Thailand	Bangkok	TBA		
Viet Nam	Ho Chi Minh	TBA		

JCAB FIT Activities at IPACG28/FIT15 Meeting

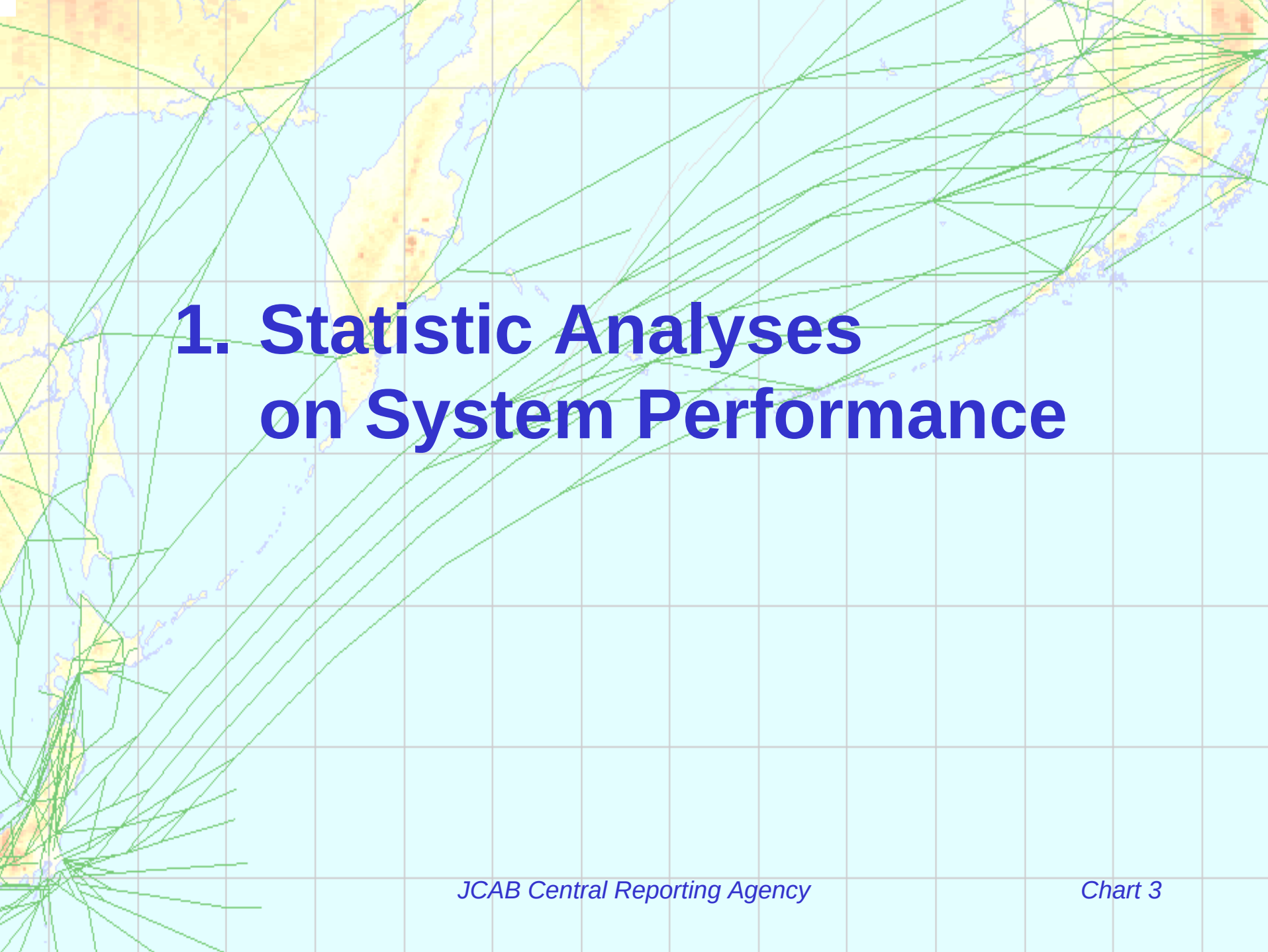
FIT-SEA8

Bangkok, Thailand
20 May, 2008

JCAB FIT Activities at IPACG28/FIT15 Meeting

This presentation contains;

1. **Statistic Analyses on System Performance**
   - System Performance Analysis Data
2. **Problem Reports**
   Since IPACG FIT/14



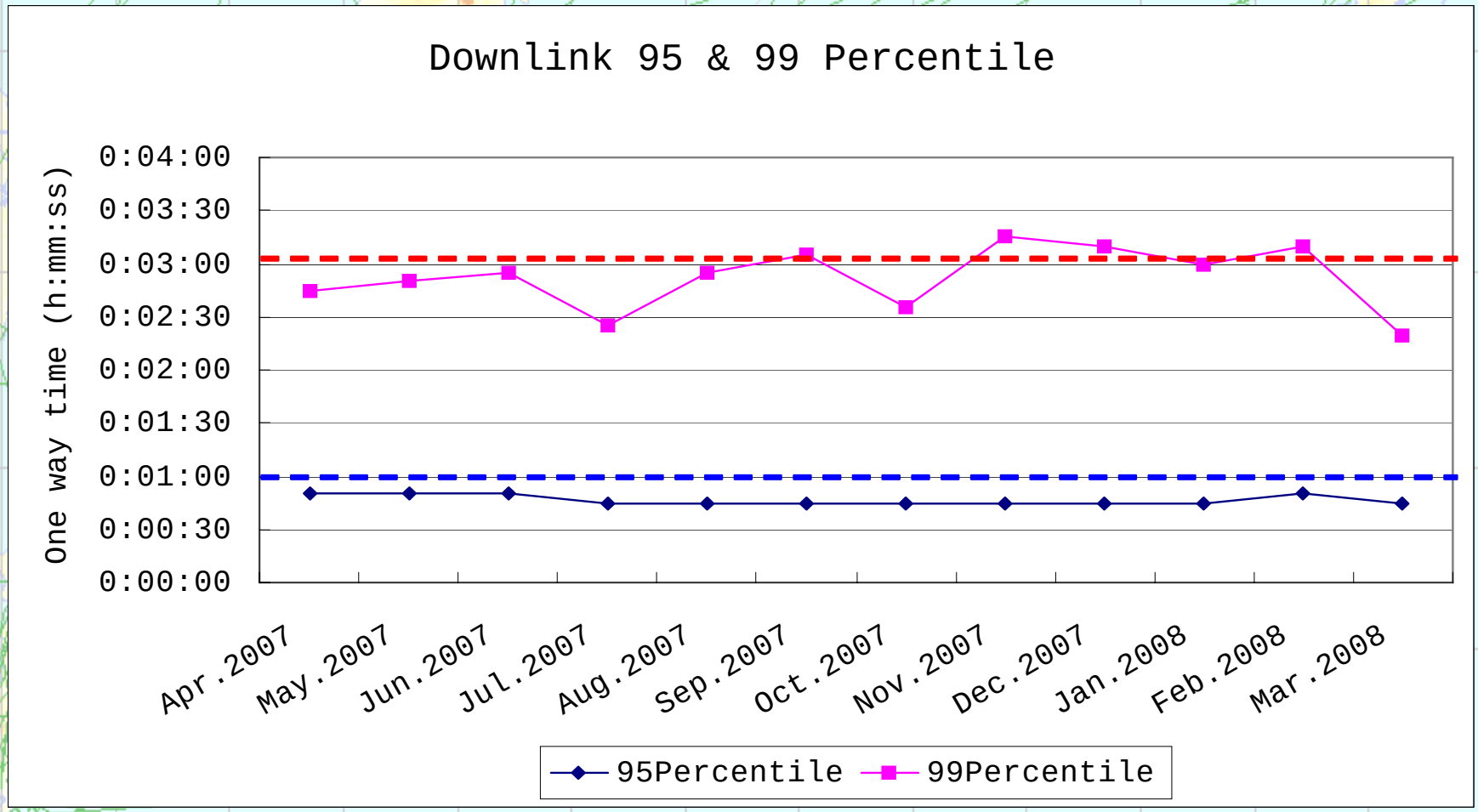
1. Statistic Analyses on System Performance

CPDLC System Performance

- In this section, we provide CPDLC system performance on:
  - + CPDLC Down-link Performance
  - + CPDLC Up-link Performance
  - + CPDLC Up-link Message Success Rate
  - + Success Rate of Automatic-Transfer of CPDLC Connections to the Next ATSUs (Fukuoka ATM Center - Oakland & Anchorage ARTCC)

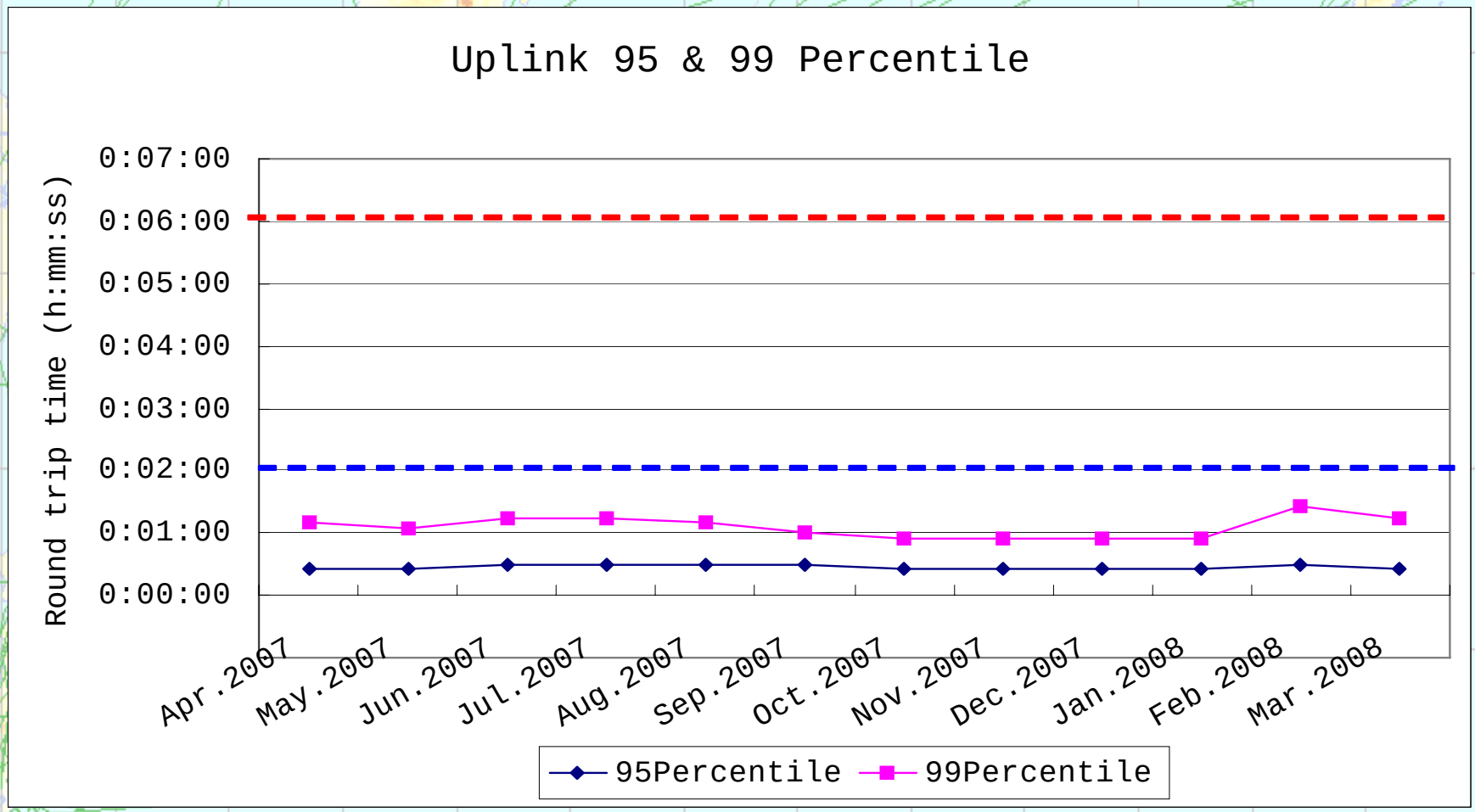
CPDLC Down-link Performance

(One-way Trip Time:
Difference of time-stamps between the avionics and ground systems)

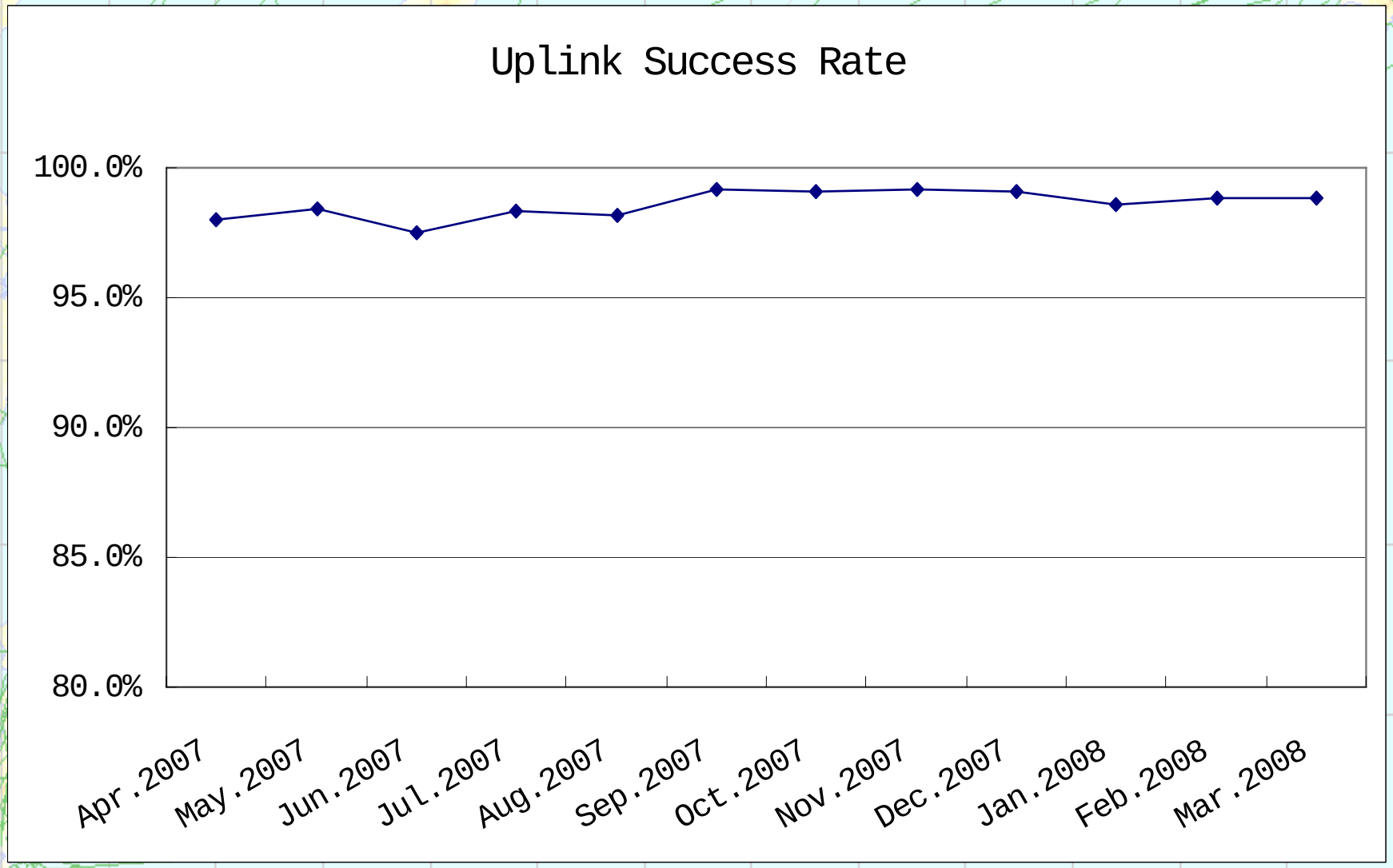


CPDLC Up-link Performance

(Round Trip Time:
Transit-delay-time from time-stamp of up-link to receipt time of MAS)

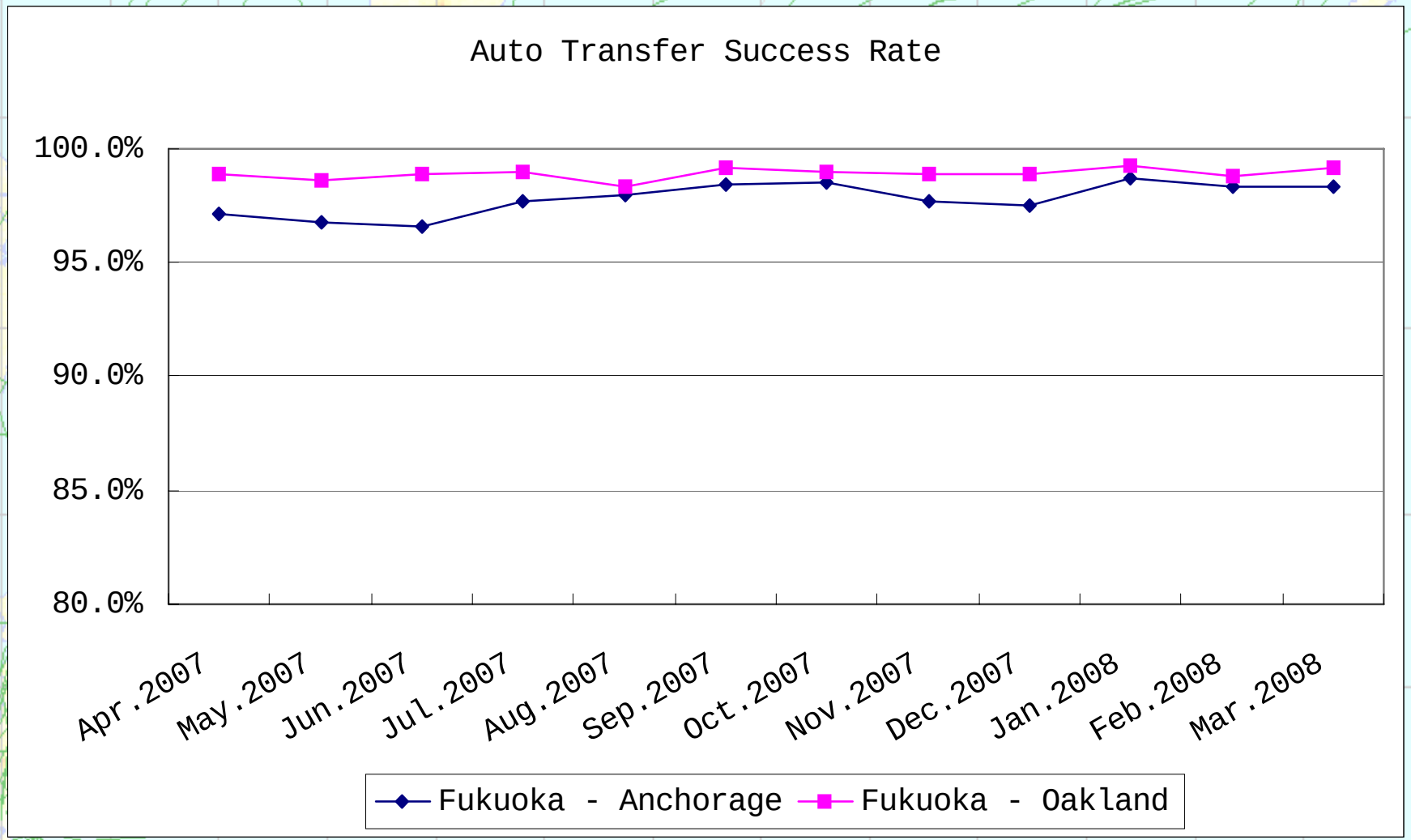


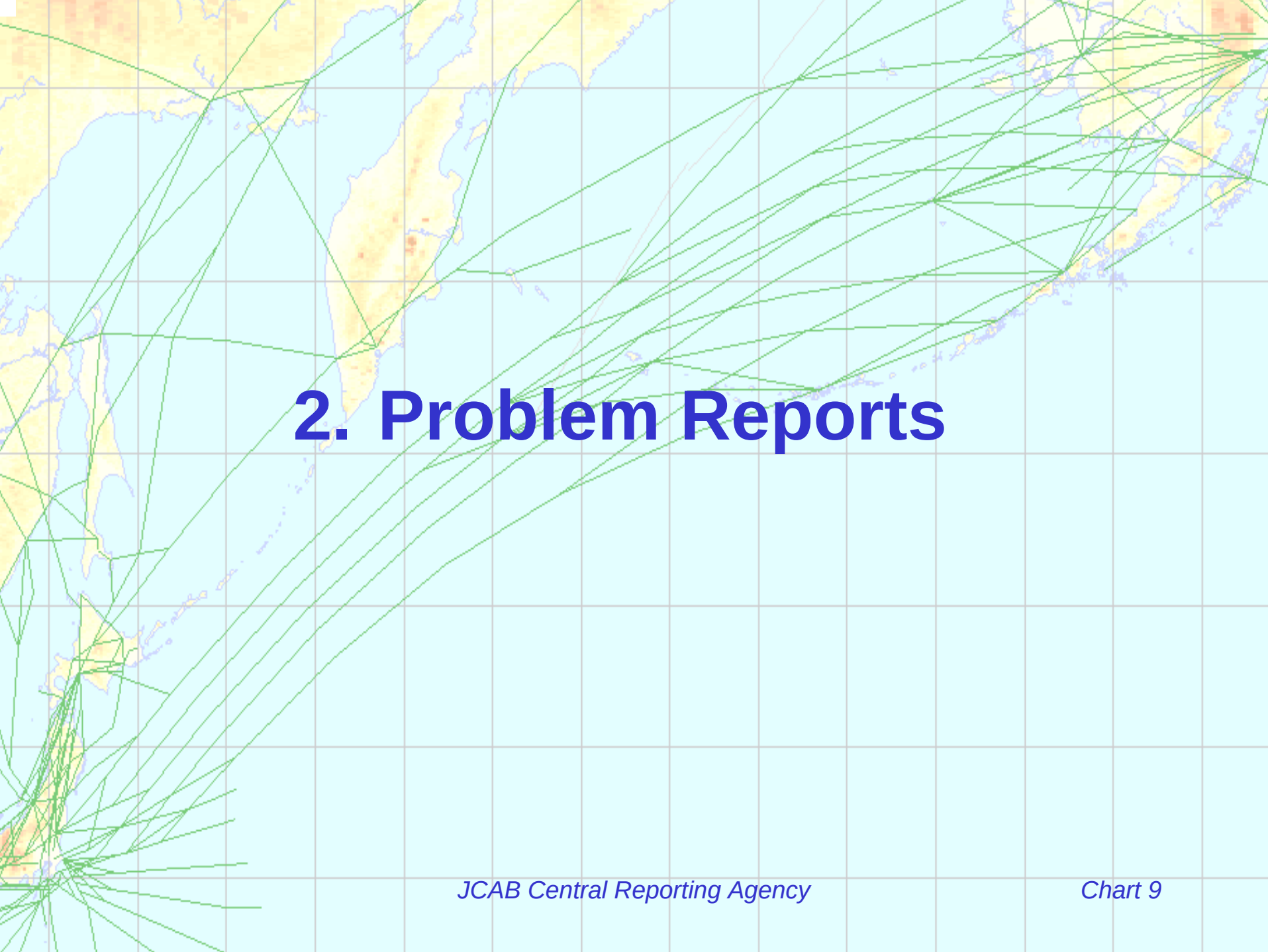
CPDLC Up-link Message Success Rate



Success Rate of Automatic-Transfer of Connections

(From Fukuoka FIR to Anchorage/Oakland)





2. Problem Reports

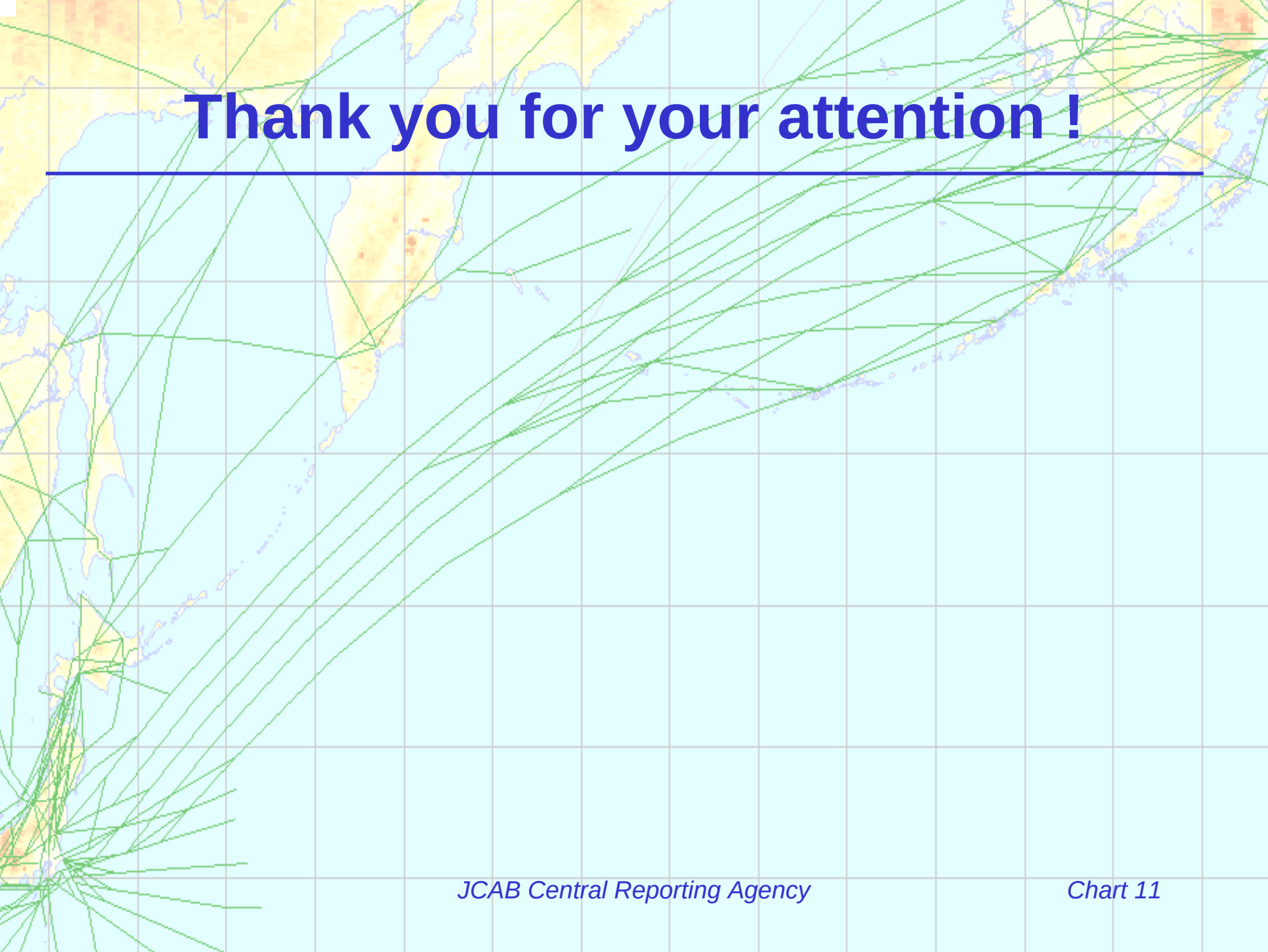
New Reports since IPACG FIT/14

Categories of Reports

- of the 7 Reports;

ADS	4
CPDLC	1
Connection	0
Datalink failure	2

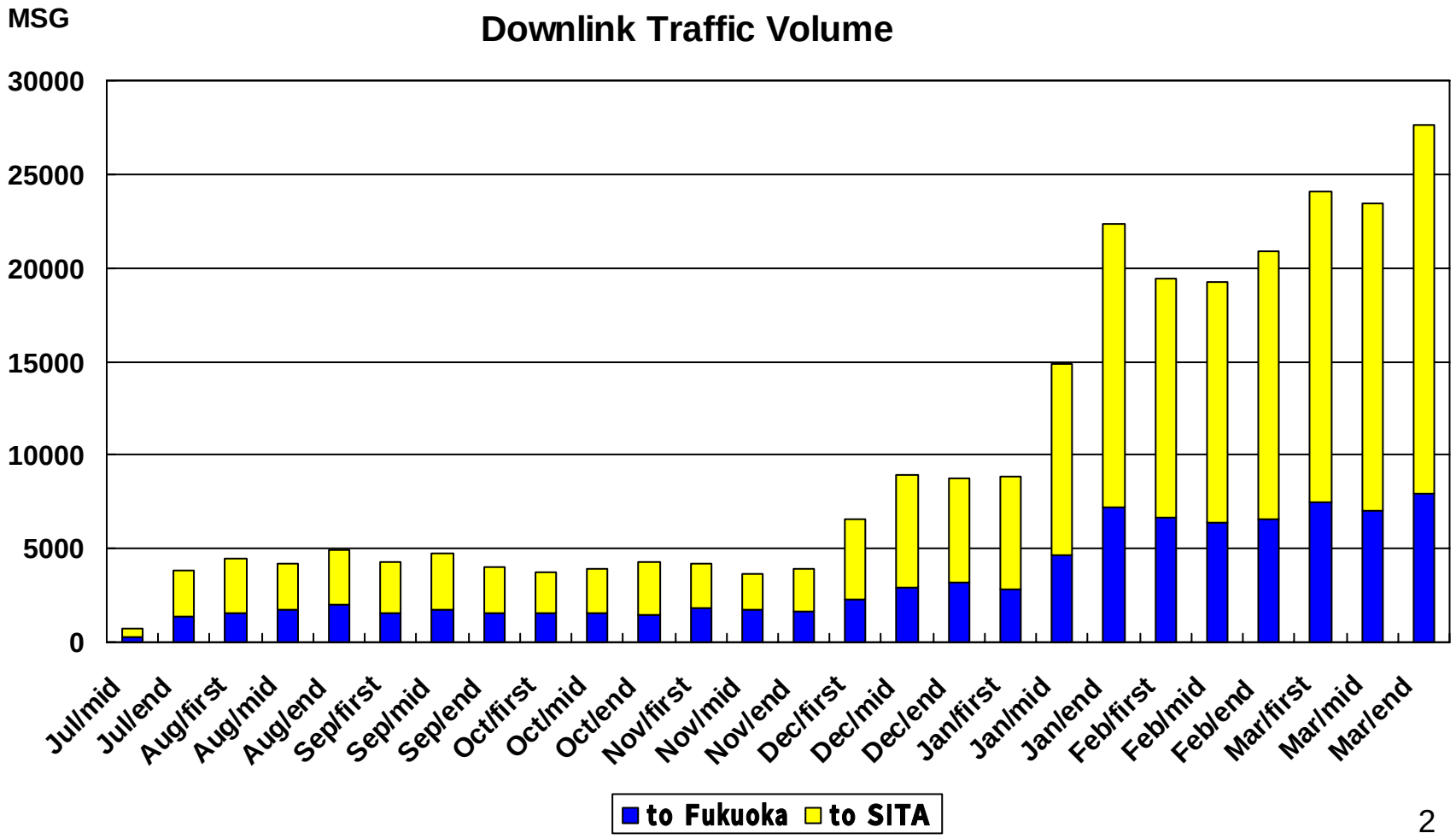
Thank you for your attention !



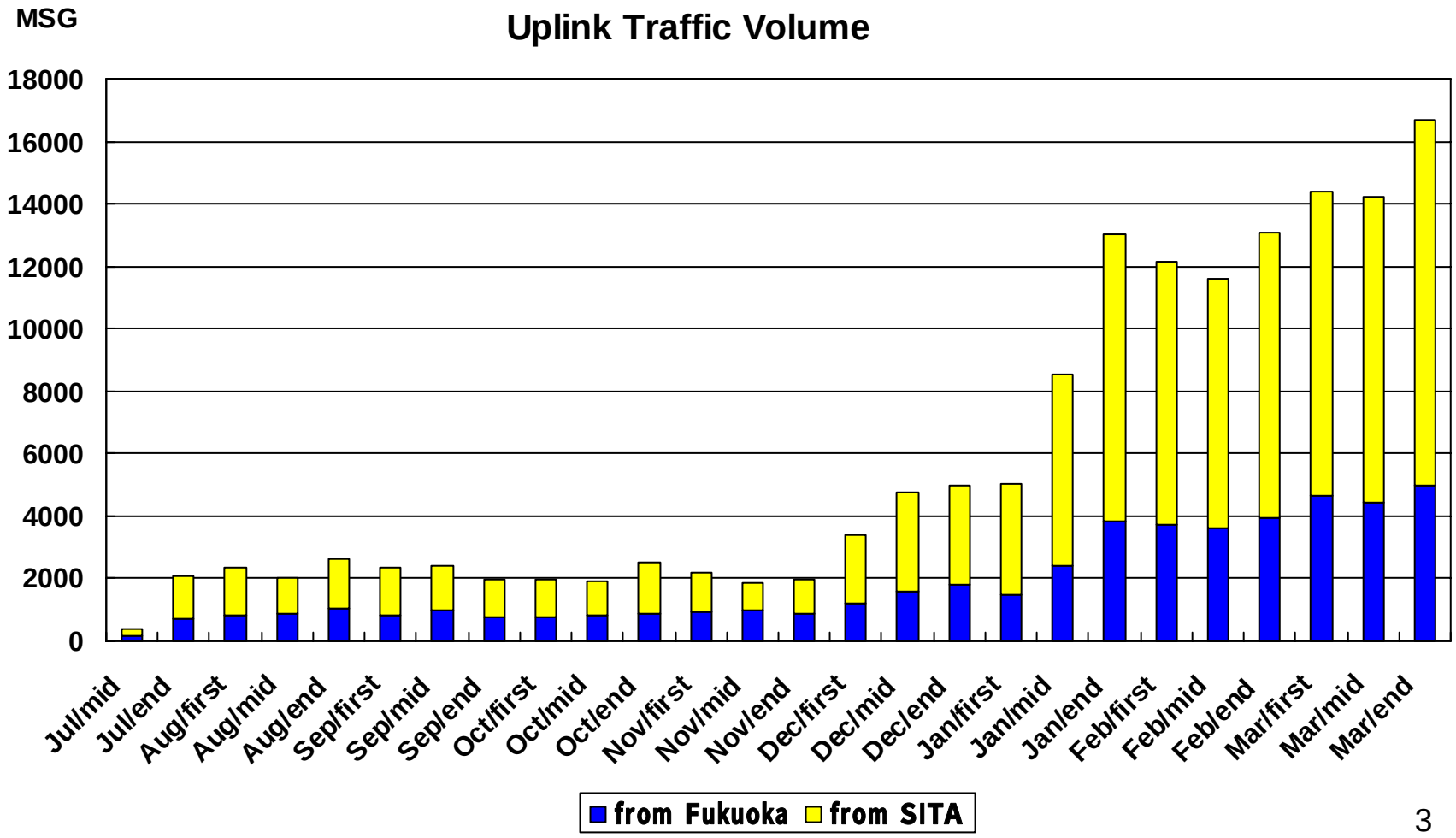
MTSAT Status and availability

Presented by JCAB

Daily Downlink Traffic



Daily Uplink Traffic



Service Availability

Availability

	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec	2008 Jan	2008 Feb	2008 Mar
Data Service	100%	100%	100%	100%	100%	100%	100%	100%
Voice Service	100%	100%	100%	100%	100%	100%	100%	100%

Unplanned MTSAT outage History

No unplanned outage of service from July 19th 2007 to March 31st 2008.

Data Service Performance

Data Service Performance

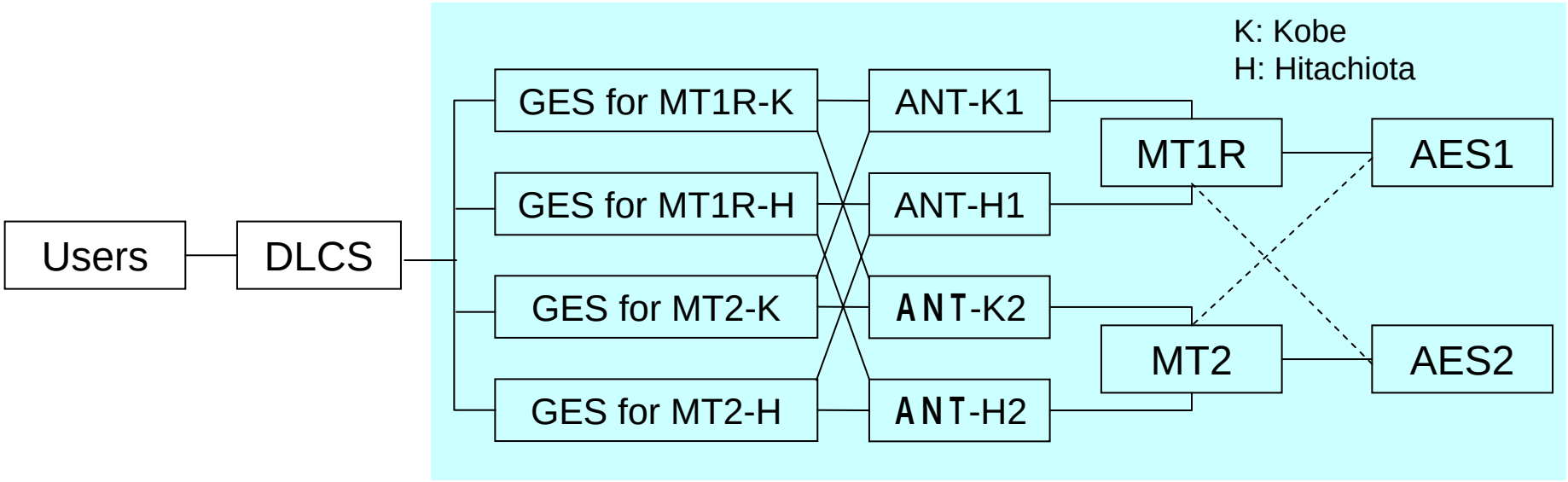
		2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec	2008 Jan	2008 Feb	2008 Mar
Uplink Success Rate		99.83%	99.81%	99.88%	99.86%	99.94%	99.89%	99.82%	99.81%
Uplink Delay Round-trip	Avg	3.30 sec	3.27 sec	3.20 sec	3.33 sec	3.60 sec	3.85 sec	4.90 sec	6.03 sec
	95 %	3.89 sec	3.74 sec	3.56 sec	3.85 sec	4.05 sec	4.63 sec	6.59 sec	7.09 sec
	99 %	4.17 sec	3.94 sec	3.74 sec	4.12 sec	4.28 sec	5.01 sec	7.43 sec	7.62 sec

- Performances defined in FOM (FANS-1/A Operations Manual) :
  - Round trip time of 2mins, 95 % of the messages
  - Round trip time of 6 minutes, 99 % of the messages

Availability of MTSAT system(1)

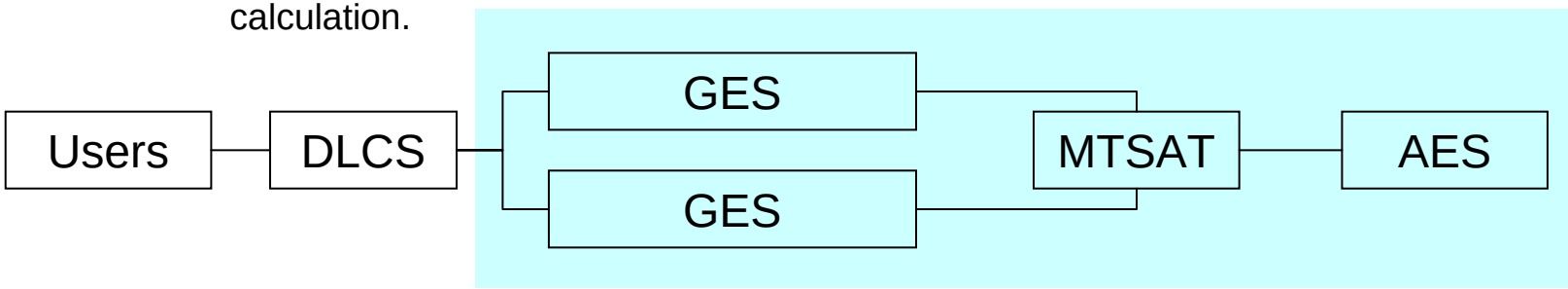
Pro forma calculation of the availability of MTSAT system based on RTCA DO-270.

Modeled MTSAT Architecture



MTSAT-1R and MTSAT-2 work in parallel. The MTSAT system can be deemed as one satellite with a back-up satellite that is available for back up in a few seconds.

The model below might be oversimplification. However, this can be used for high level calculation.



Availability of MTSAT system(2)

The availability was calculated according to the RTCA DO-270.

System Failure Components

- Ground Station Equipment
  - MTSAT system provides redundancy for GESs and Antenna.
  - Historical data from July 19th 2007 shows that the availability of GESs is 100%.
  - Estimated MTSAT GESs availability: near 1.0.
- Satellite Control Equipment
  - All segment of Satellite Control Equipment are redundant. Network operation and associated network availability is 100% so far.
  - Estimated MTSAT Ground Control Station Equipment availability: near 1.0.
- Aircraft Station Equipment
  - The availability of AES is essentially 1.0 because aircraft station failures affect individual users, when performing multi-user availability calculations, this element was assumed to have an availability of 1.0.
- Satellite Spacecraft
  - According to the “Future Communication Study – Action Plan 17 Final Conclusions and Recommendations Report” submitted to ACP-T held on 2 to 5 Oct. 2007 in Montreal, the availability of Inmarsat SBB is 0.9999 (mission life of 10 years at entire airspace).
  - The figure above can be applied to one satellite of MTSAT. Since two MTSAT satellites work in parallel, the availability of satellites could be calculated as a parallel system . So, the availability of MTSAT satellite as one parallel system is near 1.0.

Availability of MTSAT system(3)

Fault-free Rare Events (comments, suggestions welcome)

- RF Link Event
  - RF Link availability of MTSAT system by design criterion is 99.99%. The main driver of RF Link Event is precipitation loss. Other contributing factors have been incorporated into link budget calculation.
- Capacity Overload Event
  - The capacity of MTSAT is closely watched and will not be overloaded.
  - Thus, the availability of Capacity Overload Event is essentially 1.0.
- Interference Event
  - The interference between Inmarsat and MTSAT is non-existent because of the wide separation of send/receive frequencies. For the interference from Iridium, the separation of frequency is also sufficiently wide.
  - Thus, the availability of Interference Event is approximately 1.0.
- Scintillation Event
  - The Scintillation Event has significant impact at polar regions and equatorial regions. However, the impact of scintillation could be ignored even at the equatorial region since the traffic speed of Classic Aero is relatively low. Thus, the availability of Scintillation Event is approximately 1.0.

Availability of MTSAT system(4)

Summary

Ground Station	Control Station	Aircraft Station	Satellite	RF Link	Capacity Overload	Interference	Scintillation
~1.0	~ 1.0	~ 1.0	~ 1.0	0.9999	~ 1.0	~ 1.0	~ 1.0

The availabilities of this analysis are nearly or essentially 1.0 except for RF Link Event thanks to the MTSAT system configuration of 2 satellites and 4 GESs.

Overall, the availability of MTSAT system is over 0.9999.

Feel free to send questions and comments to Mr. Mikuni of JCAB, e-mail address on the last page.

Reference:

- RTCA DO-270
- "Future Communication Study – Action Plan 17 Final Conclusions and Recommendations Report" submitted to ACP-T held on 2 to 5 Oct. 2007 in Montreal

Future Considerations

- **In the calculation of the availability of the MTSAT system, the "similar in kind" parameters were used in some cases when the parameters, such as "Spacecraft Availability", were difficult to obtain.**
  - **A globally or regionally accepted method should be established for the calculation of the availability, based on the Appendix C of RTCA DO-270.**

- **What type of configuration should the satellite communication systems take to satisfy the 99.99% availability requirement?**
  - **In the Pacific region, the end-of-life of Inmarsat-3 (POR) is 2018. The commencement of Inmarsat-5 service is said to be 2023 or later.**
  - **In the Atlantic region, it is easy to satisfy 99.99% availability requirement provided:**
    - **that Alphasat is successfully launched (scheduled in 2012), and**
    - **that CN96 (ref. discussion in FANS/SIT) is applied for Classic Aero.**

Thank you

Questions and comments to:

Yoshiyuki Mikuni
mikuni-y2bd@mlit.go.jp

SEACG/15

REPORT OF THE SEACG/15

Agenda Item 1: Adoption of Agenda

1.1 The Secretariat informed the meeting that the objectives of SEACG were to discuss problems affecting the provision of ATS in the area and to develop a co-ordinated plan for implementation of actions agreed, including reviewing the implementation of the new ICAO CNS/ATM systems (paragraph 1.1.2 of the Report of SEACG/10). Further, the objective of SEACG was not for long-range planning but to identify and solve current problems or deficiencies in ATS by means of an action plan with time lines (paragraph 6.1.5 of the Report of SEACG/10).

1.2 The meeting agreed to amend the proposed agenda and adopted the following as the Agenda for the meeting:

Agenda Item 1:	Adoption of Provisional Agenda
~~Agenda Item 2:~~	~~Review Status of Recommended Actions as Agreed at the SEACG/14 Meeting~~
Agenda Item ~~3~~2:	Outcomes of APANPIRG/18
Agenda Item ~~4~~3:	Review of FIT-SEA/7 and 8
Agenda Item ~~5~~4:	Review current operations across South-East Asia and identify problem areas
Agenda Item ~~6~~5:	Implementation of the new CNS/ATM systems in the Region
Agenda Item ~~7~~6:	ATS route development
Agenda Item ~~8~~7:	Development of State Contingency Plans
~~Agenda Item 9:~~	~~Civil Military Coordination~~
Agenda Item ~~10~~8:	Develop a coordinated plan for implementation of actions agreed by the meeting
Agenda Item ~~11~~9:	Any other business
Agenda Item ~~12~~10:	Date and venue for the next meeting

Agenda Item 2: Outcomes of APANPIRG/18

2.1 The meeting reviewed conclusions and decisions from the 18th meeting of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/18, September 2007), relating to ATM, AIS and SAR matters. The Air Navigation Commission (ANC) Working Group on Regional Plans (WG/RPL) reviewed the report in conjunction with selected conclusions and decisions that require the Commission and/or Council action, including those that may impact on other Regions.

ATM/AIS/SAR Matters

Large Height Deviations (LHD) Occurring in the Western Pacific/South China Sea Area

2.2 Referring to Conclusion 18/3 - *Prevalence of LHDs from ATC Unit to ATC Unit coordination errors*, the WG/RPL noted with concern that LHD had become a global issue. Although different sources contribute to LHD, poor coordination between ATC centres generates the majority of errors. The third Special RMA Meeting (Montreal, 13- 15 May 2008) would verify the best way to define and consider LHD in the risk analysis. Subsequently, the HQ Secretariat is scheduled to develop an overview and present a working paper to the Commission covering various aspects on the issue of LHD.

Annex 2 – Variation in True Airspeed

2.3 With reference to Conclusion 18/10 - *Clarification of intent of Annex 2 in relation to variations in true airspeed*, the WG/RPL was informed that the issue of unannounced 5 % variation in cruise speed and the associated problems was expected to be addressed by the Separation and Airspace Safety Panel (SASP) during its meeting scheduled in May 2008.

Operational Performance Requirements for End-To-End Satellite Communications

2.4 APANPIRG/18 noted that the existing mechanism might not be satisfactory for enforcing adequate end-to-end performance of satellite communications systems which are used for the provision of ATS. In expressing strong concerns, APANPIRG/18 sought the assistance of ICAO to urgently provide further guidance on suitable mechanisms to meet current and future data link operational demands.

Aeronautical Information Services (AIS) Implementation Task Force

2.5 The WG/RPL supported the proposal to undertake a special implementation project (SIP) for a workshop on AIS automation as per Conclusion 18/12 and, subsequently, the Council approved this SIP on 19 March 2008.

2.6 Taking into consideration the EUROCONTROL Operating Procedures for AIS Dynamic Data, the 17th meeting of ATM/AIS/SAR Sub-group (ATM/AIS/SAR/SG/17, July 2007) agreed that further clarification of Amendment 34 to Annex 15 – *Aeronautical Information Services* and related guidance material was necessary. APANPIRG/18 supported and formulated Conclusion 18/14 in this respect. The WG/RPL supported the proposal in Conclusion 18/14 that the NOTAM format be reviewed in light of the various terminologies in common use to determine appropriate provisions for Annex 15 and requested the Secretariat to include this task in its work programme.

2.7 The WG/RPL endorsed the request of APANPIRG to hold an eTOD workshop in the Asia and Pacific Regions during 2008 as per Conclusion 18/15.

CNS/MET Matters

2.8 The WG/RPL welcomed the initiative of APANPIRG to urge the States of Asia and Pacific Regions planning to deliver ADS-B based ATS services to implement requirements for ADS-B out avionics equipment for aircraft operating in their airspace with a target date of 2010 as in Conclusion 18/35 and urged other PIRGs to follow this initiative.

2.9 APANPIRG/18 recognized that many meteorological services were lacking knowledge of the new ATM concepts and related new expectations for improved MET facilities and services. Further guidance and education was considered essential for the MET stakeholders in order to be a vital part of the new developments. It was suggested that such guidance should be developed by ICAO and Conclusion 18/49 – *Developing guidance material on the ATM requirements for MET services and facilities* was adopted. The WG/RPL endorsed Conclusion 18/49, calling on ICAO to extend the guidance material in the *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services* (Doc 9377) to cover new requirements for MET services, and requested the Secretariat to undertake this task as part of the forthcoming, regular amendment to Doc 9377, which is consequential to Amendment 74 to Annex 3.

Deficiencies in the Air Navigation Field

2.10 With regard to the development of a regional online database of air navigation deficiencies as in Conclusion 18/58, the WG/RPL acknowledged that such a database, in addition to providing transparency, enables information to be current and formatted by State, type, deficiency, date, etc., and complimented APANPIRG for this initiative.

Agenda Item 3: Review of FIT-SEA/7 and 8

Review Outcomes of the Seventh Meeting of FANS Implementation Team, South-East Asia (FIT-SEA/7)

3.1 The meeting noted that FIT-SEA/7 was hosted by JCAB at the ACROS FUKUOKA conference hall in Fukuoka, Japan from 30 January to 1 February 2008.

Report of FIT-SEA CRA

3.2 Central Reporting Agency (CRA) -Japan, as FIT-SEA CRA designated by FIT-SEA, provided FIT-SEA/7 with a report concerning the status of ATS data link system performance and the summary of problem reports (PRs), in accordance with its terms of reference (TOR). The system performance in Singapore and Viet Nam satisfied the *FANS Operations Manual* (FOM) criteria in all elements, except that the CPDLC downlink performance in Viet Nam only marginally met the criteria although it indicated a trend of gradual improvement from July to December 2007.

Conclusions by FIT-SEA/7 of Phase 2

3.3 FIT-SEA/7 concluded that the result of CPDLC downlink performance in the Phase 2 trial in the Ho Chi Minh Flight Information Region (FIR) was operationally acceptable for ATC, and would not impose an adverse effect on the data link services. FIT-SEA/7 also felt that the commencement of regular services in the Ho Chi Minh FIR would bring more benefits by enhancing communication and surveillance capability over the South China Sea. Consequently, it was agreed that Viet Nam could complete the Phase 2 trial and commence the regular operation on 10 April 2008 as proposed.

3.4 FIT-SEA/7 concluded that it would be required that the ADS/CPDLC performance fully meet the criteria in the FOM to reduce the longitudinal separation. In this regard, FIT-SEA/7 considered it more prudent that FIT-SEA/8 in May review the situation of performance improvement and the results of remedial actions undertaken by Viet Nam to ensure that the FOM criteria are met.

Data Link Operations by the Philippines

3.5 FIT-SEA/7 discussed the way forward for the Philippines' data link implementation. FIT-SEA/7 recognized that the Manila FIR was the last integral part for the seamless data link operations in the entire South China Sea area.

3.6 The meeting reviewed the outcomes from FIT-SEA/7 as above, and noted, *inter alia*, that FIT-SEA/7 formulated a draft recommendation to be considered by the Group. The meeting agreed with the draft recommendation by FIT-SEA/7 and agreed to the following recommendation for consideration by ATM/AIS/SAR/SG/19 in June:

Draft Recommendation

That, to enable the early realization of the full benefit of data link operation and the implementation of reduced lateral and longitudinal separations throughout the South China Sea airspace, the Philippines take appropriate steps to implement ADS-C and CPDLC data link services in the Manila Flight Information Region as soon as possible.

Review Outcomes of the Eighth Meeting of FANS Implementation Team, South-East Asia (FIT-SEA/8)

3.7 The meeting reviewed the outcomes of FIT-SEA/8 which was held on 20 June 2008 at the Regional Office.

Agenda Item 4: Review Current Operations across South-East Asia and Identify Problem Areas

Outcomes from RASMAG/8

4.1 The meeting reviewed the relevant parts of the Report of the Eighth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/8, December 2007).

Adoption of Global Long-Term Height Monitoring Provisions for RVSM

4.2 RASMAG/8 was informed that the eleventh meeting of the Working Group of the Whole of SASP (SASP-WG/WHL/11) adopted a proposed statement of long-term monitoring requirements to support continued safe use of RVSM. Subsequently, the Air Navigation Bureau (ANB) reviewed the statement from SASP and made significant changes to the SASP proposal which were subsequently adopted by the ANC with a proposed effective date of November 2010. However, RASMAG/8 was informed that the SASP remained of the view that the text did not provide sufficient flexibility to enable specific regions to address local issues and during November 2007 presented the following proposed text for Annex 6– *Aircraft Operations*, with new material shown in bold font, to the ANB for consideration:

7.2.7 The State of the Operator that has issued an RVSM approval to an operator shall establish a requirement which ensures that **a minimum of** two aeroplanes of each aircraft type grouping of the Operator have their height-keeping performance monitored, at least once every two years or within intervals of 1 000 flight hours per aeroplane, whichever period is longer. If an operator aircraft type grouping consists of a single aeroplane, monitoring of that aeroplane shall be accomplished within the specified period.

- *Note. — Monitoring data from any regional monitoring programme established in accordance with Annex 11, 3.3.5.2, may be used to satisfy the requirement.*

7.2.8 All States that are responsible for airspace where RVSM has been implemented, or that have issued RVSM approvals to operators within their State, shall establish provisions and procedures which ensure that appropriate action will be taken in respect of aircraft and operators found to be operating in RVSM airspace without a valid RVSM approval.

- *Note 1.— These provisions and procedures need to address both the situation where the aircraft in question is operating without approval in the airspace of the State, and the situation where an operator for which the State has regulatory oversight responsibility is found to be operating without the required approval in the airspace of another State.*

…

7.2.9 Regional Planning Authorities shall be responsible for instituting such monitoring programmes as are necessary to provide assurance that the RVSM Safety Objectives are being met. Specific requirements are set out in ICAO Doc. 7030 Regional Supplementary Procedures.

4.3 RASMAG/8 requested that States take care to fully review the State Letter in relation to this matter (State letter Ref: AN 13/11.1-07/72, 7 December 2007) and, taking into consideration the amended text prepared by the SASP, recognize that the proposed Annex 6 amendment may not provide APANPIRG with the ability to implement effective regional monitoring programmes to suit local circumstances. Accordingly, RASMAG encouraged States to respond to the State letter and to seek direct input from any regional monitoring agency (RMA) associated with that State to ensure an informed response is provided from the recognized regional experts.

Outcomes from the Fourth Meeting of the WPAC/SCS RVSM Scrutiny Working Group

4.4 The meeting noted that the fourth meeting of the Western Pacific/South China Sea RVSM Scrutiny Group (WPAC/SCS RSG/4) was convened in February 2008 at the Regional Office.

RMA Update for WPAC/SCS Area

4.5 Based on the risk estimates, both technical and total risks satisfy the agreed target level of safety (TLS) value of no more than 2.5×10^{-9} and 5.0×10^{-9} fatal accidents per flight hour, respectively. WPAC/SCS RSG/4 was pleased to note the continued improvements in RVSM safety performance of the WPAC/SCS airspace and attributed the improvements to the continued efforts of States involved under the strong focus and guidance of the WPAC/SCS RSG. Nevertheless, continued

work was needed in addressing the high numbers of LHDs attributable to ATC-unit to ATC-unit coordination errors.

Realignment of the Manila, Ujung Pandang FIR Boundary

4.6 Indonesia and the Philippines reached in-principle agreement for the realignment of the complex joint FIR boundary with Oakland in the vicinity of position approximately N0400 E13220. A draft amendment proposal was prepared which extends the primary east-west boundary between Ujung Pandang and Manila FIRs directly to where it intercepts the Oakland FIR boundary. The amendment proposal would be finalized by the Regional Office in coordination with Indonesia and the Philippines, and circulated for comments in accordance with ICAO established procedures.

Indonesia - Expansion of RVSM Level Band

4.7 WPAC/SCS RSG/4 recalled that RVSM was implemented in Indonesia in November 2003 using a restricted flight level band, from FL 310 to FL 410 inclusive. However, in order to harmonize RVSM operations in the Region and coincide with the implementation of the new flight level allocation scheme (FLAS) for the WPAC/SCS area, from July 2008 Indonesian would implement the full RVSM level band between FL 290 and FL 410 throughout Indonesian airspace.

Model AIP Supplement for FLOS/FLAS Implementation

4.8 Hong Kong, China informed WPAC/SCS RSG/4 that despite strong attempts to meet the June target, the high workload resulting from a number of changes in the ATC operations as well as limited simulator capacity meant that training for the new FLAS arrangements could not be completed in time for a June implementation. The meeting thanked Hong Kong, China for their attempts to meet an earlier implementation, recognized that the additional time would be useful to all States in making preparations, and considered the 3 July 2008 AIRAC cycle for implementation of the new flight level arrangements. Accordingly, WPAC/SCS RSG/4 adopted a switchover date/time of 2100 UTC on 2 July 2008 to implement the new flight level arrangements in the WPAC/SCS area.

4.9 WPAC/SCS RSG/4 finalised the text of a suitable model AIP Supplement, including details of the No-Pre-Departure Coordination Procedure (No-PDC) flight level applicable to each airway, based on the Scenario 3 proposal that had been the basis of the “Go” decision taken by WPAC/SCS RSG/3 (November 2007, Bangkok). WPAC/SCS RSG/3 had recognised that the Large Scale Weather Deviations (LSWD) Table that was included in the model AIP Supplement did not include all related routes and therefore was not comprehensive in terms of LSWD procedures. In light of this, WPAC/SCS RSG/4 recommended that the LSWD situation be further reviewed by SEACG/15 and, if supplementary aeronautical information was considered necessary, additional AIP supplements could be issued at that time.

4.10 In this regard, the meeting reviewed the LSWD situation as requested by WPAC/SCS RSG/4 and considered if the supplement aeronautical information was necessary. The meeting noted that the LSWD Table that would be included in the model AIP Supplement did not include all related routes, however was of view that it was practically very difficult to cover all the routes in the area.

4.11 The meeting agreed that the LSWD procedures are basically the arrangements between ATC units and therefore are transparent to aircrew, and confirmed that the LSWD procedures had already been stipulated in each letter of agreement (LOA). Therefore, the meeting concluded that there was no need to issue the additional AIP supplement.

Implementation Management Considerations

4.12 WPAC/SCS RSG/4 recognised the importance of providing adequate advance information to industry of such a complex change, and urged States to finalise and issue AIP supplements as early as possible. In this regard, the meeting confirmed that all the States attending at the meeting had published the AIP supplements accordingly.

Singapore – LOA for Gross Navigational Error

4.13 The meeting noted that Singapore presented WPAC/SCS/RSG/4 with the draft Operational LOA for monitoring of aircraft gross navigational errors (GNE) in the South China Sea area, and the collection of data for the conduct of safety assessment to implement 50 NM/50 NM and 30 NM/30 NM reduced horizontal separations in the South China Sea area. WPAC/SCS RSG/4 noted that Singapore would coordinate with Regional Office for the circulation of the signed operational LOA to States concerned.

Radar Coverage Chart of the South China Sea Area and the Status Matrix of Application of Radar Handover Procedures

4.14 The meeting was advised that the Fifteenth Edition of the *Procedures for Air Navigation Services - Air Traffic Management* (PANS-ATM, Doc 4444) provides that the transfer of control should be effected, whenever practicable, so as to enable the uninterrupted provision of the ATS surveillance service (paragraph 8.7.4.1). The procedure enables air traffic controllers to provide continuous service for aircraft and to apply seamless reduced longitudinal separation ("radar spacing" hereinafter) when agreed on through the LOA between the ATC units concerned.

Review by the Second Meeting of Southeast Asia Required Navigation Performance Implementation Task Force

4.15 The meeting was advised that a radar coverage chart and the Status matrix of the Radar Handover Procedures reviewed by SEACG/14 (May 2007, Hanoi) were presented to the second meeting of Southeast Asia Required Navigation Performance Implementation Task Force (RNP-SEA/TF/2, March 2008). IATA requested at RNP-SEA/TF/2 that the radar coverage chart be updated with the latest information.

Reviewed of Radar Coverage Chart

4.16 The meeting thanked the Chairman and the Secretariat for undertaking to update the Radar Coverage Chart for the South China Sea area originally developed by SEACG/10 (March 2002, Bangkok) with the new format. The meeting reviewed and updated the Radar Coverage Chart for the South China Sea Area as in **Appendix A** to this Report.

Reviewed the Status matrix of Application of Radar Handover in Southeast Asia developed by SEACG/13

4.17 Taking into consideration the updated information of radar coverage chart, the meeting reviewed the Status matrix of Application of Radar Handover in Southeast Asia originally developed by SEACG/13 (May 2006, Bangkok). States updated the table as shown in **Appendix B** to the Report.

Radar Provision across South-East Asia Region

4.18 To follow up the status of radar provision across the Southeast Asia region, the meeting updated the Operational Status of Radar Spacing Application table created by SEACG/14 as shown below:

Operational Status of Radar Spacing Application						
ATS Route	**FIR**	**Spacing Applied**	**Status**	**Responsible Party**	**Target Date**	**Remark**
B346	Bangkok Vientiane	40 NM	~~*Proposed*~~ Operational	Thailand Lao PDR	~~*November 2007*~~ 14 January 2008	~~*Proposed*~~ FL 300 and above
B218	Vientiane Kunming	40 NM	~~*Proposed*~~ Operational	Lao PDR China	~~*November 2007*~~ 22 November 2007	~~*Proposed*~~ FL 300 and above
R474	Bangkok Vientiane	40 NM	~~*Proposed*~~ Operational	Thailand Lao PDR	~~*November 2007*~~ 14 January 2008	~~*Proposed*~~ FL 300 and above
	Vientiane Hanoi	40 NM	Operational	Lao PDR Viet Nam	Implemented	
	Hanoi Guangzhou	40 NM	Operational	Viet Nam China	Implemented	
A1	Bangkok Vientiane Ho Chi Minh	*40 NM*	*Proposed [Eastbound and Westbound]*	Thailand Lao PDR Viet Nam	~~*November 2007*~~ 3 July 2008	Currently 20 NM applied for the westbound only
A1/P901	Ho Chi Minh Sanya	40 NM	Operational	Viet Nam China	Implemented	
	Sanya Hong Kong	40 NM	Operational	China Hong Kong, China	Implemented	
A1 **M750**	Hong Kong Taipei	30 NM	Operational	Hong Kong, China Taiwan	Implemented	
G581 **G86**	Hong Kong Taipei	30 NM	Operational	Hong Kong, China Taiwan	Implemented	

Summary of the Second Meeting of South-East Asia Required Navigation Performance implementation Task Force (RNP-SEA/TF/2)

4.19 The meeting was updated with the outcome of RNP-SEA/TF/2.

Suggestion to the Terms of Reference for RNP-SEA/TF by RASMAG

4.20 The meeting reviewed and adopted the amendment to the Terms of Reference of the RNP-SEA/TF agreed at RNP-SEA/TF/2 based on the proposal from RASMAG/5 as follows:

Terms of Reference of the South-East Asia RNP Implementation Task Force

The objective of the Task Force is to:

Develop strategic, benefits-driven implementation plans in collaboration with stakeholders, to improve en-route airspace efficiency by means of reduced horizontal separation based on RNP operations within the Southeast Asia area, ensuring interregional harmonization.

To meet this objective the Task Force shall:

a) Review the current South China Sea route structure and examine its suitability for application of reduced horizontal separation based on RNP operations;

b) Identify routes where the application of reduced horizontal separation would bring immediate operational efficiency;

c) Determine the reduced horizontal separation required, taking into account the aircraft approval status of the traffic operating on the relevant routes, capacity increase desired, and communication and surveillance capability of ATS providers;

d) Examine the possibility of a phased implementation of reduced horizontal separation based on RNP operations and to detail the phases required and the areas/routes concerned;

e) Develop the necessary strategic plans to implement the agreed horizontal separation taking into account airspace user requirements, the need for inter-regional harmonization, and ICAO Standard and Recommended Practices;

f) Explore the possibility of further harnessing operational efficiency of the routes through re-reconfiguration and enhanced surveillance;

g) Ensure the conduct of Annex 11 compliant pre-implementation safety assessments and make arrangements for States to conduct ongoing post implementation safety monitoring in accordance with ICAO provisions;

~~g)~~h) Consider setting up appropriate teams/groups which might but not necessarily, include the entire Task Force, to address and implement specific agreed measures within their airspace; and

~~h)~~i) Cooperate with other Task Forces and groups which are involved with similar work in the adjacent airspace in order to achieve harmonized inter-regional solutions.

(Adopted by the 13th meeting of Southeast Asia ATS Coordination Group, 2006, amended by the 15th meeting, 2008)

4.21 The meeting noted the actions being taken by RNP-SEA/TF as follows;

a.) The ATS route re-alignment would be not be considered for the implementation of RNP 10 (50 NM/50 NM) separations. The current spacing of 60 NM between the trunk routes would be kept as it is until the next step of RNP 4 is introduced. This would allow for simply establishing additional routes between the current routes.

b.) The Go/No-Go meeting implementation of RNP10 operations (50/50NM) for L642 and M771 is scheduled from 4 - 6 June 2008, at the ICAO Regional Office in Bangkok.

Updates on ATS Activities in Viet Nam and Proposals for ATS Matters

4.22 Viet Nam informed the meeting that Civil Aviation Administration of Viet Nam (CAAV) provided ATS, CNS, MET, AIS and SAR services in accordance with its national laws and regulations, and ICAO Standards and Recommended Practices. Viet Nam provided ATS and other air navigation services (ANS) for more 100 airlines operating in the Ha Noi and Ho Chi Minh FIRs, as well as at four international airports and more than 16 domestic airports for the civil flight operations in the whole country. In April 2008, the average traffic volume was more than 890 flights per days (545 overflights). Recently, the traffic volume was increasing considerably along with the economic growth in Viet Nam.

Brief Updates on Main ATS Activities 2007-2008

4.23 Viet Nam presented the following updates to the meeting;

Regulations and audits:

- Issuance of the governmental degree on air traffic management in Viet Nam, and the Regulation on Rules of the Air and Air Traffic Services of Viet Nam.
- Developing the guidance on ATC unit operations, guidance on issuance of ANS unit operational approval; the ATS Contingency Plan and ATS Safety document.
- Issuance of new and revised manuals on flight operations.
- Implementation of the amendments of ICAO relevant Annexes, manuals and other documents.
- ICAO Oversight Audit (including all fields of ANS) was carried out in December 2007.

ATS routes and operations:

- The ATS route R471 has been established serving traffic between Ha Noi and Kunming since 10 April 2008.
- Participating in ATFM operations for the westbound traffic overflying the Kabul FIR.

- RVSM:
  + RVSM single alternate flight level orientation scheme (FLOS) has been implemented in the Ha Noi FIR since 22 November 2007. ATC LOAs between Ha Noi ACC, and Nanning, Ho Chi Minh, Sanya and Vientiane ACCs were revised.
  + The preparation for implementation of the new FLAS in the Ho Chi Minh is in progress with target date of 3 July 2008.
- ADS/CPDLC operation trial (phase 2) in the Ho Chi Minh FIR was completed and official operation has been commenced since 10 April 2008. ATC Supplementary LOA between Ho Chi Minh ACC and Singapore ACC was revised.
- Implementation of 40 NM radar spacing along ATS routes A202 and R474.
- Reviewing the Recommended Actions agreed at SEACG/14, taking corrective actions for air navigation deficiencies in respect of ATS field, namely: ATS route G473 and airspace classification. CAAV has sent a letter to the Regional Office in April 2008, in which CAAV proposed to delete the deficiency on ATS route G473 from the APANPIRG List of Air Navigation Deficiencies.

Coordination between Relevant ACCs

4.24 The meeting was informed of coordination activities with the relevant area control centers (ACCs) as follows:

- Ha Noi ACC: Ho Chi Minh, Kunming, Nanning, Sanya and Vientiane ACCs. ATC LOAs between Ha Noi ACC and Vientiane, Sanya, Nanning ACCs have been revised. ATC LOA between Ha Noi ACC and Kunming ACC has been signed.
- Ho Chi Minh ACC: Bangkok, Ha Noi, Kuala Lumpur, Manila, Sanya, Singapore, Phnom Penh and Vientiane ACCs. ATC LOA between Ho Chi Minh ACC and Singapore ACC has been revised and supplemented for ADS/CPDLC operations.

4.25 Viet Nam emphasized that the ATC LOAs between Ho Chi Minh ACC and eight adjacent ACCs/two APPs were going to be revised in May or June 2008 in order to meet the target date of implementation of the revised FLAS within the Ho Chi Minh FIR.

Proposals for ATS matters in the Area

4.26 Viet Nam proposed that, in order to meet traffic operation requirements, based on APANPIRG Conclusion 16/4 and the ATS Route Catalogue, the civil aviation authorities of States concerned consider revising and implementing the following routes:

- Extension of the ATS route B329 from Pakse VOR to VILAO (between the Ha Noi and Vientiane FIRs) and then to Vin VOR serving traffic between Ha Noi and Siemriep/Phnompenh.
- New route from Phucat VOR to IKELA (Lower limit of FL 290) serving traffic between Ho Chi Minh City/Kuala Lumpur, and Hong Kong and beyond or the extension of the ATS route R588 from Pkeiku NDB to IKELA (Lower limit of FL 290) serving traffic between Phnom Penh/Phuket/Ho Chi Minh City, and Hong Kong and beyond.

- Establishment of an ATS route from VIBUN (N1347.8 E10525.9) to point XXXXX (near to POPET between the Phnom Penh and the Ho Chi Minh FIRs) on the route R468 within the Phnom Penh FIR serving traffic between Ho Chi Minh City and Vientiane as well as traffic between Ha Noi and Ho Chi Minh City in certain contingencies.

Implementation of the Revised RVSM FLAS

4.27 Viet Nam proposed to the civil aviation authorities of States concerned to actively coordinate re-signing of ATC LOAs between Ho Chi Minh ACC and the relevant ACCs in late May or June 2008.

40 NM Radar Spacing on the ATS Route A1 for Traffic between Bangkok and Hong Kong

4.28 Viet Nam proposed to the civil aviation authorities of States concerned to consider adopting the application of 40 NM radar spacing on ATS route A1 between Bangkok and Hong Kong with the expected target date of implementation in November 2008.

ADS/CPDLC operations

4.29 Viet Nam was of view that the expansion of ADS/CPDLC services should be encouraged to especially ATS route portions which are located outside VHF and radar coverage.

Air Traffic Management Coordination and Activities in Thailand

4.30 Thailand presented the outcomes of the Second Meeting of Air Traffic Services Coordination Meeting between Bangkok, Ho Chi Minh, Phnom Penh, and Vientiane ACCs which was held in Pattaya, Thailand from 27 to 28 March 2008.

4.31 Thailand suggested that the intention of the Air Traffic Services Coordination Meeting was to improve the ATS coordination procedures amongst the four ACCs to accommodate the expected increase in traffic growth and to fine-tune the present ATM arrangements to achieve more user's preferred flight profiles and to increase route capacity utilizing existing technology.

Reinstatement of Air Traffic Services Responsibility over the Southern Part of Vientiane FIR to Vientiane ACC

4.32 Thailand reported that Thailand and Lao PDR had reached an agreement in transferring the ATS responsibility of the southern part of the Vientiane FIR back to Vientiane ACC, which would take place on 3 July 2008. The new LOA was currently under consideration of both parties and was expected to be signed in June 2008.

4.33 In this regard, Thailand advised that the transition procedure had been agreed which would include an exchange programme for operational Vientiane ACC's ATC Officers to be trained at Bangkok ACC prior to the transfer of responsibility. During the actual handover, the bi-lateral monitoring and coordination procedure would be enforced to ensure smooth and safe transfer of control in the mentioned area.

Application of the Agreed 40 NM Radar Spacing

4.34 Thailand reported an action had been taken for implementing an application of the agreed 40 NM radar spacing of the some major routes, which has been implemented since 14 January 2008 as shown in the table below.

ATS Routes	Previous FLAS	Present FLAS with No-PDC Arrangement
B346	310 350 390	All odd FL, except FL 330 40 NM radar spacing at FL 300 and above
R474	290 330 370 410	290 330 370 390 410 40 NM radar spacing at FL 300 and above

4.35 The meeting was also advised of the provision of 40 NM radar spacing on ATS route A1 had been agreed by Ho Chi Minh and Vientiane ACCs, however, further coordination between Ho Chi Minh and Sanya ACCs were still required and was expected to be implemented on 3 July 2008.

Activities in Regard to Revised Flight Level Arrangement on 3 July 2008

4.36 Thailand advised the meeting that the LOA between Bangkok and Phnom Penh ACCs in regard to the revised FLAS was signed on 28 March 2008. However, new LOA between Bangkok and Vientiane ACCs was expected to be signed pending the transfer of the ATS responsibility of the southern part of Vientiane FIR in the middle of June 2008. AIP Supplement A10/2008 was published by 22 May 2008 for the revised FLAS in the SCS area.

Establishment of ATS Route R345 between Bangkok and Phnom Penh FIRs

4.37 Thailand reported that coordination had been made to establish ATS route R345 between Bangkok and Phnom Penh FIRs from ROT to SRE to support traffic operating between VTN, Siem Riep, Phnom Penh and Ho Chi Minh with effective from 3 July 2008.

Realignment of ATS Route R588

4.38 The meeting noted that Cambodia and Thailand have agreed on the realignment of ATS Route R588 from RELIP to KANGKENG supporting traffic to and from Sihanuville airport with effective date of 3 July 2008.

4.39 In addition, the meeting was informed of the withdrawal of the ATS route R589 between RELIP and PNH, hence the realignment of R588 could also serve the purpose of R589. Thailand also mentioned that the proposal of amendment to the Basic Air Navigation Plan (BANP) would be submitted to ICAO. IATA expressed appreciation to the coordination effort among the four ACCs and suggested that in submitting proposals of amendment to BANP, States also provide the information of beneficial gained from the implementation of each ATS route in term of distances, fuel saving or environmental effect.

ATS Routes Deficiency in the Bangkok FIR

4.40 Thailand drew to the attention of the meeting that there were two routes listed in the ICAO Asia and Pacific Deficiency List which involved the Bangkok FIR namely R345 [Pakse (PAK) – Streung Treng (ST)] and G473 [Phitsanuloke (PSL) – Danang (DAN) – Lubang (LBG)]. In an attempt to remove these routes from the Deficiency List, Thailand and States concerned had agreed to the followings:

a.) proposal for the establishment of R345 from Roi Et (ROT) to SRE with the minimum enroute altitude (MEA) of FL 220 to support traffic from Vientiane to Siem Reap, Phonm Penh and Ho Chi Minh, and vice versa. The new track will be considerably shorter than the original requirement; and

b.) deletion or withdrawal of the proposed G473 [PSL-DAN-LBG] since this route had been proposed prior to the revised SCS route structure and had never been incorporated into the new structure.

4.41 The Secretariat advised that Thailand and States concerned were required to submit a proposal of amendment to BANP to dissolve the deficiency status.

Traffic Sample Data State Letter

4.42 The meeting recalled that in considering the requirements for routine safety assessment, RASMAG/2 (October 2004) agreed that an annual provision by States of TSD as well as ongoing provision of LHD and GNE reporting – including NIL reporting -was sufficient for vertical and horizontal safety analysis. The meeting was presented the State letter Ref: T3/10.0, T3/10.1.17 – AP124/07 (ATM) dated 12 November 2007 requesting submission of December 2007 TSD to relevant RMAs.

Asia/Pacific Actions to Support Long-Term RVSM Monitoring Requirements

4.43 APANPIRG/18 was of the opinion that work should be undertaken as soon as possible in order to assess the consequences for the Asia/Pacific Region of the implementation of long-term monitoring requirements and, under the terms of Conclusion 18/4, requested Asia/Pacific RMAs in conjunction with RASMAG to prepare a regional impact statement summarizing the estimated consequences for the Region, including consideration of the numbers of airframes required to be monitored. In advancing this matter in the Asia/Pacific Region, RASMAG/8 considered that, although the final composition of the long-term height monitoring provisions was still subject to final solution, it was reasonable to expect, as a minimum, that RMAs would need to carry out the following tasks:

a) Educate States and airspace users about the roles and functions of an RMA;

b) Establishing monitoring requirements for each operator;

c) Coordinate between Global RMAs to ensure that monitoring results are shared; and

d) Ensure an adequate regional height monitoring infrastructure exists.

Agenda Item 5: Implementation of the New CNS/ATM Systems in the Region

Revised Operational Letter of Agreement (LOA) for Monitoring of Aircraft Gross Navigational Errors in the South China Sea Area

5.1 Singapore informed the meeting of the revised Operational LOA for monitoring of aircraft GNE in the South China Sea area and the collection of data for the conduct of safety assessment to implement 50 NM/50 NM and 30 NM/30 NM reduced horizontal separations in the South China Sea area. The meeting noted that the amended operational LOA had been accepted by RASMAG and States concerned.

5.2 The meeting noted the coordination arrangement between Singapore and the Regional Office regarding the signing of the Operational LOA with the States concerned. The Regional Office had agreed that the revised Operational LOA would be signed during the ATM/AIS/SAR/SG/18 held from 23 to 27 June 2008.

5.3 Singapore had informed States concerned via electronic mail on 22 April 2008 regarding the signing of the Operational LOA during ATM/AIS/SAR/SG/18. States concerned were requested to provide the names of the signatory (including their appointments and administration) in order for Singapore to prepare the LOA for the signing. Singapore requested the States participating in the meeting to provide the information at the meeting, if possible. The revised operational LOA to be signed at the Sub-Group is attached as **Appendix C** to this Report.

Singapore to be Established as the Safety Monitoring Agency and Conduct of Safety Assessment for the Implementation of 50 NM/50 NM on L642 and M771

5.4 The meeting was informed that as requested by IATA at ATM/AIS/SAR/SG/17, Singapore hosted the Special Coordination Meeting (SCM, September 2007) to progress the implementation of RNP10-based separation on L642 and M771. Singapore informed the SCM that an external consultant would be engaged to assist Singapore to be established as the Safety Monitoring Agency (SMA) and to conduct the safety assessment for the implementation of 50 NM/50 NM horizontal separation on L642 and M771.

Summary of the First and the Second Meetings of Asia/Pacific Performance Based Navigation Task Force

5.5 The meeting recalled that the deliberations from APANPIRG/18 resulted in the establishment of the Performance Based Navigation Task Force, which was supported by the 44th Conference of Directors Generals of Civil Aviation, Asia and Pacific Region (44th DGCA Conference, October 2007).

PBN/TF/1

5.6 PBN/TF/1 reviewed a worksheet providing detailed status regarding current and planned implementation of PBN terminal instrument procedures (SIDs and STARs) and approaches that each State should complete and submit to ICAO, then keep them updated. It was recommended that the Focal Contact Person in each State should be responsible for providing the initial data to the Regional Office by 30 June 2008, and for updating the data as implementation occurs, or no less than an annual basis, by 15 January of each year.

5.7 The Chairperson of PBN/TF stressed that while there were a lot of RNP/RNAV specifications, concurrently there was a shortage of defined airspace separation standards. The need for associated standards therefore needed to be addressed. Subsequent to the discussion of issues highlighted during the meeting, the Chairperson urged the States to critically consider what issues they would face in implementing PBN at the State level and recommended the formation of two sub-groups to address.

PBN/TF/2

5.8 At the Chairman's invitation, eleven of the participant States made presentations on the status of PBN implementation in their respective State.

Hong Kong, China. Hong Kong had implemented RNAV (GNSS) SIDs since July 2005. The procedures were basically overlays of the conventional SIDs. Aircraft with appropriate capability flying the RNAV (GNSS) SIDs are benefited from enhanced track keeping accuracy. As there are a lot of high grounds in the vicinity of the Hong Kong International Airport, the RNAV (GNSS) SIDs proved to be extremely useful in enhancing the flight safety. On the other hand, the high inherent accuracy of the RNAV (GNSS) SIDs also helped to confine the noise footprint, thereby minimizing noise disturbance. Recognizing the potential benefits of PBN applications and to support PBN application, HKCAD also plans to implement 2 RNAV (GNSS) non-precision approach procedures in 2008.

Japan. Japan had implemented PBN-based RNAV1 SIDs/STARs since 27 September 2007. RNAV operation would be available at major city pairs in Japan by 2010 and available at most of the other airports by 2012. RNAV routes for en-route previously being promulgated in the Japan AIP required RNAV 5 operational approvals from 13 March 2008. In addition, PBN/TF/2 was informed that Japan planned to replace RNAV (GNSS) approaches which currently did not require RNP 0.3 with RNP approaches in 2008, and implement RNP 4 operation in the oceanic airspace in the middle of 2008.

Malaysia. In the area of navigation, pre-PBN Navigation Specification was being implemented; RNP10 routes had been implemented in the South China Sea and the Bay of Bengal areas, and RNAV STARs had been implemented at some major airports. RNAV approach procedures based on VOR/DME and GNSS have also been published for KLIA and at some major airports which have undergone upgrading. The NPA procedures are supplemental to the precision approach procedures available. With respect to Surveillance, full radar coverage over land area was being implemented; two new radar sensors would be installed to improve coverage in Kinabalu FIR. WGS84 had been fully implemented since 2005. On moving towards PBN, a National PBN Working Group would be formed. A team of experts from various relevant units and agencies would come up with the State PBN Implementation Plan and PBN Road Map for Malaysia.

5.9 PBN/TF/2, in keeping with the APANPIRG/18 Conclusion 18/55, requested States to urgently nominate PBN Focal Contact Person.

Air Traffic Services within Vientiane FIR

5.10 Lao PDR informed the meeting that for more than 10 years, ATC in the southern part of the Vientiane FIR was provided by Bangkok ACC for the reason of poor coverage of the radio communication systems which created an unreliable control of the congested flow traffic at high level on A1 in the southern part of Lao PDR. The meeting was also informed that Laos had continued improvement of the procedures and regulation of air navigation system, and thereafter the ATS were upgraded from the flight information service (by Flight Information Centre) to be an Area Control Service (by Area Control Centre) in the First of November 2001. The followings CNS/ATM facilities have been developed in the Vientiane FIR:

- 1 PSR/SSR Vientiane (17 59 38N 102 33 12E)
- 1 SSR Xiengkhouang (19 24 53N 103 17 34E)
- 1 SSR Savannakhet (16 33 17N 104 45 36E)
- 2 ILS/Vientiane, Luang Prabang
- 4 VHF/RCAG/Vientiane, Xiengkhouang, Savannakhet and Pakse
- 4 DVOR/DME

- 1 CVOR/DME
- 12 NDB

5.11 Lao PDR also reported that, since 31 October 2002, the RVSM had been implemented in the Vientiane FIR with the Modified Single Alternate FLOS with six transition areas. Now that RVSM single alternate FLOS had been applied in the Hanoi and the Kunming FIRs, the transition were not conducted within the Vientiane FIR.

5.12 Subsequently, the radar surveillance had been provided since 2001, and published in the AIP of Lao PDR in 16 September 2005. A radar spacing of 40 NM applies to the traffic operating on the ATS routes A202 and R474. The radar spacing on the ATS routes A206 and B465 only applies to the eastbound traffic. The radar spacing applies on the ATS routes A581, B218 and B346 above FL 290.

5.13 Lao PDR informed that Vientiane ACC was ready to handle the traffic in this delegated airspace, which will be handed over on 3 July 2008, 0100 UTC. The meeting noted the information presented by Lao PDR, and congratulated Lao PDR and Thailand in coordination activities being arranged to ensure the smooth transition during the resumption of ATS responsibility of the southern part of the Vientiane FIR.

Agenda Item 6: ATS Route Development

ATS Route Catalogue

6.1 The meeting recalled that the ATS Route Network Review Task Force (ARNR/TF, disbanded) developed the draft *Asia/Pacific ATS Route Catalogue*, which was adopted by APANPIRG/16 (August 2005, Bangkok) as a regional planning tool in support of the BANP. Since then, on-going updates had been undertaken by the Regional Office based on the information made available by States and airspace users.

6.2 The meeting was reminded that the Catalogue does not replace the BANP and that without a formal amendment to the BANP, inclusion in the Catalogue does not affect the status of the routes required by the BANP. The Catalogue Version 3 is now available from the ICAO Asia/Pacific web site (http://www.icao.int/apac/) under the menu “eDocuments”.

ATS Route Improvements

6.3 Japan presented an extension of the RNAV route N884 and a new FLAS in the South China Sea area. Japan informed the meeting that the first meeting of East Asia ATM Coordination Group (EATMCG/1, August 2007) discussed and agreed to a new FLAS in the South China Sea area with ATC providers concerned. Japan had reported the result of EATMCG/1 to WPAC/SCS RSG/3.

Abolishment of R596 and the Establishment of the New RNAV Route M501

6.4 The meeting was informed that at 0000UTC, 13 March 2008, ATS route R596 which had penetrated from the Oakland FIR through the Manila, Fukuoka, Taipei and Hong Kong FIRs had been moved to the south as the new RNAV route M501 which goes through only the Manila FIR from the Oakland FIR to the Hong Kong FIR.

Extension of RNAV Route N884

6.5 Japan reported that the RNAV route N884 would be extended into the Fukuoka FIR at 2100 UTC, 2 July 2008. The extended segment is from Cabanatuan (CAB) in the Manila FIR to ALBAX in the Fukuoka FIR. This ATS route would unidirectional and available only for northeast-bound aircraft which are approved for RNP 10.

6.6 The aircraft would take one of the following routes after ALBAX which would be implemented simultaneously with N884:

a.) RNAV Route Y533: connected to Chinen VORTAC (TIC) bound for Japan or North America, etc with the application of RNAV 5.

b.) RNAV Route Y531: connected to YURIX bound for Korea, etc. with the application of RNAV 5

c.) A conventional direct route between ALBAX and Miyakojima VORTAC (MYC) would be also implemented.

ATS Route A582

6.7 Japan informed the meeting of the ATS route A582 being available only for southwest-bound aircraft as being unidirectional except for the aircraft not to be approved for RNP 10 on N884, and/or to operate below the MEA of FL 250 on N884.

ATS Route B462

6.8 The meeting was also informed that the ATS route B462 would be used as bidirectional, and the available flight levels and the transition would be as follows.

- Northeast-bound: FL 290, 310, 320, 350, 360, 390 and 400; and
- Southwest bound: FL 300, 340 and 380.
- The flight level transition would be undertaken by Naha ACC.

6.9 The Meeting noted the information presented by Japan and the PowerPoint presentation including charts of ATS routes is shown in **Appendix D** to the Report.

Agenda Item 7: Development of State Contingency Plan

Availability of Model ATM Contingency Plan

7.1 The meeting noted the key points arising from the Contingency Plan Finalization Meeting (April 2007, Jakarta) that may be useful for other States in preparing their own plan as follows:

- The Plan would be activated by a NOTAM issued by the Indonesian International NOTAM Office (NOF) as far in advance as was practicable.

- In the event that the Indonesian International NOF was unable to issue the NOTAM, the (alternate) International NOF at Singapore and/or Brisbane would take action to issue the NOTAM of closure of airspace.

- Since the Plan was too voluminous to be published by Aeronautical Information Publication (AIP), a short summary of the Plan and information that a copy of the Plan could be obtained from Indonesia was promulgated by aeronautical information circular (AIC).

- Contingency routes would be introduced in the event of disruption of air traffic services to ensure safety of flight, and to facilitate limited flight operations commensurate with the prevailing conditions.

- The Indonesian airspace would be divided into two parts, north and south along latitude 05 00 00S then along the existing FIR boundary of the Jakarta and the Ujung Pandang FIRs.

- The adjacent ATS units would provide flight information service (FIS), not ATC service, during the application of the Plan.

- In regard to domestic operations, all flights should be temporarily suspended until a full assessment of the prevailing conditions had been determined and sufficient ATS restored.

- Australia, Papua New Guinea, Philippines and the United States had agreed that international operators might elect to avoid the Indonesian airspace and route to the east around the Ujung Pandang FIR through the Melbourne and the Port Moresby FIRs to the Oakland and the Manila FIRs and vice versa, via Horn Island (HID) – R204 – KEONE – Koror (ROR).

- Airspace classifications might not necessarily be changed even if ATC services become unavailable during the interruption of ATS.

- Fight planning requirements were to be followed in respect to normal flight planning requirements contained in the Indonesia AIP and as detailed at Appendix 1G to the Plan. Aircraft operators must obtain normal overflight approval from Indonesia prior to operating flights through the Jakarta FIR.

7.2 States were urged to take action in accordance with APANPIRG/17 Conclusion 17/11 to adopt the model provided by the Indonesian Contingency Plan for use by SEACG States. Copies of the plans can be obtained from the website of the Regional Office at http://www.bangkok.icao.int/ under the ‘APAC eDocuments’ menu.

Agenda Item 8: Develop a Coordinated Plan for Implementation of Actions Agreed by the Meeting

8.1 In recognition of the introduction of ICAO Strategic Objectives (SOs) and the *Global Air Navigation Plan* (Doc 9750) with associated Global Planning Initiatives (GPIs), a restructured Action Plan had been developed by the Secretariat to be adopted by SEACG/14 that included reference to specific ICAO SOs and GPIs for each action item. SEACG/14 agreed to use the new format for the Action Plan.

8.2 However, the subsequent ATM/AIS/SAR/SG/17 found the new format to be too cluttered and too high level, thus rejecting the new format Task List proposed by the Secretariat. The inclusion of SOs and GPIs was considered to be more suitable for policy making forums like APANPIRG but did not assist at the working group level. Language like "Contributing Task", "Benefits" and "Deliverables" was confusing and disguised the core activities that were to be completed.

8.3 In light of the above, the Secretariat proposed to the meeting to revert to the previous simple format until ATM/AIS/SAR/SG agrees with the new format. The meeting agreed with ATM/AIS/SAR/SG/17 that the new format was too cluttered and too technical, and re-adopted the previous simple format until ATM/AIS/SAR/SG agrees otherwise. Subsequently, the meeting updated Task List in the previous format as in **Appendix E** to this Report.

Agenda Item 9: Any Other Business

State Focal Point for Safety-Related Activities

9.1 The meeting noted that the Regional Office had established the data base of the 'Safety Contact Officers' called for by APANPIRG. Despite this effort, IATA informed the Regional Office that attempts to contact the officials listed had often been unsuccessful as a result of incorrect email addresses and telephone numbers, and officials retiring or changing jobs. IATA requested to take particular care to ensure that all details on the list were accurate, and the updates be indicated with the updated date in the list. Feedback should be provided to the Regional Office as soon as possible. The meeting updated the list based on the inputs from Hong Kong China, Lao PDR, Malaysia, Singapore, Thailand and Viet Nam as in **Appendix F** to this Report.

Outcomes of the 44th DGCA Conference

9.2 The meeting reviewed the outcomes of the 44th Conference of Directors Generals of Civil Aviation, Asia and Pacific Region (October 2007).

Collection of Information on Wake Vortex

9.3 The Secretariat drew attention to the State letter Ref: AN 13/4-07/67 issued by ICAO Headquarters in regard to ICAO's efforts to collect and analyze data concerning wake vortex encounters of all aircraft types on a worldwide basis. The meeting was informed that the A380 Wake Vortex Steering Group had been created as a result of wake turbulence concerns regarding the Airbus A380-800 entering into service. The Steering Group considered that an overall review of wake turbulence provisions including the current wake turbulence categorization scheme in the PANS-ATM should be undertaken.

9.4 In order to provide a sound basis for any necessary amendment to these PANS-ATM provisions, the Steering Group had developed reporting forms for the collection and analysis of information on wake vortex encounters of all aircraft types on a worldwide basis. States were requested to commence the wake vortex reporting scheme as soon as practicable by making available the template reporting forms A and B provided in the State letter to pilots, aircraft operators and air navigation service providers. Reports should be submitted to the Regulator of the State of Occurrence and could also be filed through E-mail to wakevortex@icao.int.

Review of RVSM/TF Activities

9.5 The RVSM Implementation Task Force (RVSM/TF) met three times after SEACG/14.

RVSM/TF/31

9.6 RVSM/TF/31 noted that the FAA Technical Centre reviewed the China's readiness and safety assessment and had independently verified the risk values presented safety assessments prepared by China. Specifically, the FAA Technical Centre team, *inter alia*, produced readiness estimate values which were virtually identical to the Chinese team's results which indicate that China's readiness goal for RVSM implementation would be met.

RVSM/TF/32

9.7 RVSM/TF/32 noted that the technical and overall risk estimates satisfied the agreed TLS value of no more than 2.5×10^{-9} and 5.0×10^{-9} fatal accidents per flight hour, respectively. Consequently, based on the readiness and safety assessments, the RVSM/TF agreed that RVSM implementation should proceed on 21 November 2007 as scheduled.

RVSM/TF/33

9.8 RVSM/TF/33 was informed by China that Air Traffic Management Bureau (ATMB) took the following actions:

a) In order to ensure that the transition is safe and smooth, China signed new LOAs with respective neighboring FIRs and established new transition procedures in terms of RVSM flight levels assignment before the implementation of RVSM.

b) To ensure the flight safety and provide enough time for air traffic controllers to be familiar with the changes of flight level assignment and transition procedures, the traffic flows in China were controlled and did not increase obviously in the first few months after RVSM implementation.

c) In December 2007, China again conducted the RVSM airspace risk assessment to further examine the variation trend of risks after the transition. The month of December was chosen as it was near to the month for RVSM implementation.

d) At RASMAG/8, China coordinated with the Group the establishment of the RMA. China would submit a formal application to RASMAG/9 to establish China RMA.

e) ATMB was keeping contact with international aviation community for any queries and feedbacks. ATMB expressed gratitude to ICAO, IATA, IFALPA and the FAA for their support in the preparation for RVSM implementation.

9.9 Most of RVSM non-approved aircraft were modified to meet the RVSM approval requirement. 1 084 domestic aircraft, which accounted for more than 90 % of aircraft, were approved for RVSM. 129 foreign airlines had been approved for RVSM in China.

9.10 IATA appreciated that a lateral offset procedure applied by China in their radar airspace could have been necessitated by the desire to provide additional safeguards in China's unique set of circumstances in RVSM implementation. IATA, however, could not support the introduction of lateral offsets in radar airspace as a permanent procedure in order to provide mitigation against possible separation breakdown attributable to speculative concerns arising from the current circumstances. It was IATA's view that if there are such underlying causes necessitating the lateral offsets, these should be addressed as soon as possible to provide a long-term and sustainable solution.

9.11 If a lateral offset procedure was required as an interim measure, while the underlying causes were being addressed, China was requested to clarify and publish the procedure, and ensure that it was applied in accordance with the published procedures. PANS-ATM contains some related phraseologies in 12.3.2.9, which may be applicable.

9.12 China reported that they had made progress in the establishment of RMA as follows:

- ATMB group has completed three risk estimate for Chinese airspace (including: 1st for the assessment of the Shanghai FIR, 2nd for the preliminary assessment for the RVSM airspace to support the Go/No-Go and the 3rd for the post-implementation assessment for 90 day review);

- The internal arrangement for the application of RMA establishment had been completed and the China RMA would be authorized from CAAC by May 2008.

Review of the 19th Meeting of the Bay of Bengal ATS Coordination Group (BBACG/19)

9.13 The Ninth Meeting of the FIT, Bay of Bengal (FIT-BOB/9) and the Nineteenth Meeting of the Bay of Bengal ATS Coordination Group (BBACG/19) were held consecutively at the Regional Office on 21 and 22, and 23 to 25 January 2008, respectively.

Outcomes from ATFM/TF/11

9.14 BBACG/19 reviewed relevant parts of the Report of the Eleventh Meeting of the Air Traffic Flow Management Task Force (ATFM/TF/11, November 2007), which had conducted a post implementation review of the ATFM implementation. In proposing the establishment of BOBCAT Scrutiny Group (BSG), it was envisaged that the primary functions of the BSG would include:

a) Oversight of ATFM operations across the Bay of Bengal and South Asia;

b) Industry liaison in regard to ATFM service provision;

c) Collaboration with the BOBCAT Development Team, ATFM units and air navigation service providers;

d) Resolution of complaints in an impartial, timely and effective way;

e) Establishment of an appropriate cost recovery funding arrangements;

f) Liaison with the BOBCAT Development Team and ATFM Stakeholders; and

g) Planning for future growth to ensure that the system can accommodate the demand.

Indonesia – Consolidation of Medan ATS to Jakarta ACC

9.15 Indonesia informed BBACG/19 that Medan East Control Area and Medan West Control Area were renamed as Medan East Upper Control Area and Medan West Upper Control Area, respectively, and that provision of Medan East Upper Control Area was permanently implemented on 31 August 2006, and Medan West Upper Control Area Services on 14 March 2007. This meant that services previously provided from Medan ACC were now provided from Jakarta ACC.

Thailand - ATS Route Changes - Bangkok and Yangon FIRs

9.16 Thailand presented BBACG/19 with proposals for amendments to the ATS route structure between the Bangkok and the Yangon FIRs over the Bay of Bengal to enhance the flow of the significantly increased traffic during the BOBCAT period and to prevent possible choke-points within the Bay of Bengal area. BBACG/19 was informed that Thailand and Myanmar had started the discussion in relation to the proposed revised ATS route structure between the Bangkok and the Yangon FIRs during an operational visit to Yangon in July 2007. BBACG/19 noted that amendments to ATS routes and the establishment of a conditional route had been agreed by both parties.

Australia - Implementation of Transition Routes for AUSOTS Access

9.17 BBACG/19 noted that the implementation of Australian Organised Track Structure (AUSOTS) was initiated entirely within Australian FIRs. Aircraft flying the AUSOTS tracks use the conventional fixed routes outside of the Australian FIR and commence Flex Track at a published waypoint on the boundary of Australian FIRs. As the conventional fixed route does not always position the aircraft efficiently for a Flex Track, benefits to airlines can increase with the availability of additional route options or transitions to the start of the Flex Track.

Global Aviation Safety Plan

9.18 The meeting reviewed information on the recent development of the ICAO Global Aviation Safety Plan (GASP) that provides a common frame of reference for all stakeholders in order to allow a more proactive approach to aviation safety and to help coordinate as well as to guide safety policies and initiatives worldwide in order to reduce the accident risk for civil aviation.

9.19 The meeting noted that the GASP was finalized on the basis of the Global Aviation Safety Roadmap developed by the Industry Safety Strategy Group and that it includes twelve Global Safety Initiatives (GSIs) which support the implementation of the ICAO safety Strategic Objective. The GASP follows an approach and philosophy which is consistent with the *Global Air Navigation Plan* and calls for a collaborative approach in the formulation of an action plan that defines, at the regional, sub-regional or national level, the specific activities that should take place in order to improve safety.

Termination of SAR Satellite Services on 121.5 and 243.0 MHz

9.20 The international COSPAS-SARSAT program announced at its 25th Council Session (October 2000, London) that it planed to terminate satellite processing of distress signals from 121.5 and 243 MHz distress beacons effective 1 February 2009.

Registration of 406 MHz Beacons

9.21 The meeting recognized that it was crucial that 406 MHz distress beacons be registered in beacon registration databases, which will be accessible to SAR authorities at all time. The information contained in these databases concerning the beacon, its owner, and the vehicle/vessel on which the beacon is mounted is vital for the effective use of SAR resources.

Process for Registering a Beacon in the COSPAS-SARSAT International 406 MHz Beacon Registration Database (IBRD)

9.22 States may have elected to allow for the direct registrations of beacons in the IBRD, available online and free of charge at www.406registration.com. It provides capability to register 406 MHz distress beacons and has extensive online help capabilities.

APANPIRG Conclusion

9.23 To bring these matters to the attention of States, the Regional Office transmitted the State letter Ref.: T 3/11.4 – AP041/07 (ATM), dated 18 May 2007, highlighting the technical issues. APANPIRG/18 also highlighted the importance of these issues and endorsed the Conclusion 18/19.

News Letter Prepared by Australia and New Zealand

9.24 The newsletter prepared by Australia and New Zealand is at **Appendix G** to this report.

User Preferred Routes by Japan and the United States

9.25 Japan reported that IPACG/27 (November 2007, Tokyo) was raised the issue of user preferred route (UPR) and JCAB and the FAA discussed the study for UPRs between Japan and Hawaii. The FAA acknowledged that the Pacific Organised Track System (PACOTS) tracks were generated quite early, but also noted that weather forecasts, restricted areas and other information were considered before the tracks were generated. In addition, customers also have the opportunity to provide input on proposed tracks before they are finalized.

9.26 As a result of discussions on this issue, JCAB and the FAA asked Japan Air Lines to participate in a paper trial of UPRs between Japan and Hawaii that started on 1 December 2007 and lasted for two weeks. If the analysis of data finds no major issues, the paper trial could transition to an operational trial with the implementation of potential UPRs. The detail of the paper trial of the Asia – Hawaii UPR was as follows:

a. The paper trial was conducted from 1-15 December 2007.

b. All operators are encouraged to participate in the paper trial. More data that could be collected from the paper trial would help evaluate operational impacts.

c. The participating operators shall generate east- and west-bound UPRs that correspond to the daily PACOTS for their flights.

d. The operator shall compare the UPR to the PACOTS to quantify the operational benefit, time and fuel savings, and emission reductions.

e. The following constraints/conditions shall be placed for UPR generation:

i. Eastbound UPRs shall remain at least 50 NM south of PACOTS Track 3.

ii. Westbound UPRs shall remain at least 50 NM south of PACOTS Track F.

iii. The daily UPRs shall be planned around the Hawaiian Military Operating Areas.

f. The operators email the daily UPR flight plans and savings/losses to JCAB and the FAA.

9.27 While some of the trial flights did not see fuel savings advantages, other flights demonstrated significant savings of up to 4600 pounds of fuel. The data from the trial extrapolated over a year would provide a savings of 2.27 million kg of fuel and the reduction of 6.81 million kg of CO2 emissions. The PowerPoint presentation by Japan is in **Appendix H** to this Report.

Bunching Traffic on the RNAV M772

9.28 Singapore referred the meeting to the Report of the Special ATS Coordination Meeting on the Hong Kong, China and Jakarta ATS Routes (August 2004, Manila). The report recorded that the usage of M772 was restricted to the city pair Jakarta and Hong Kong and destinations beyond via Hong Kong due to a considerable portion of M772 being outside radar and VHF radio coverage and crossing a number of other routes. However, there were flights utilizing this route for destinations other then the above agreed arrangement. Whenever possible, these flights would be allowed to continue on M772 and the airlines concerned would be reminded by ATS authorities on the restricted usage on M772. The situation had recently propagate to a level where bunching occurred frequently and Manila was unable to assign levels other than the agreed No-PDC levels, FL 310 and FL 390 due to the traffic in their own airspace. Aircraft had to be orbited within the Kota Kinabalu FIR for the required longitudinal separation. This caused extra workload for the controllers and extra fuel burned for the aircraft. In view of the absence of representatives from Indonesia and the Philippines at the meeting, Singapore requested the meeting to assist in providing at least an interim solution before the implementation of the revised FLAS, take into consideration the impact on safety and efficiency.

9.29 Malaysia informed the meeting that the bunching situation was glaring and required immediate attention. Malaysia suggested that the flight plans of those flights not complying with the restriction on M772 should be rejected from the departure point to resolve this problem. Malaysia highlighted that there was an alternate the ATS route B592 for such flights to use.

9.30 The Secretariat suggested that this issue be presented at the coming ATM/AIS/SAR/SG/18 for discussion. Hong Kong, China supported the Secretariat's suggestion as it felt the views of the Philippines was important and this meeting could not fully understand the underlying problem in the Manila FIR without the participation of the Philippines. The meeting agreed to refer this matter to ATM/AIS/SAR/SG/18 to be held in Bangkok, ICAO Regional Office, from 23-27 June 2008.

Agenda Item 10: Date and Venue for the Next Meeting

10.1 The meeting noted that the next SEACG/16 meeting was tentatively scheduled in April 2009 in conjunction with FIT-SEA/9 in Bangkok.

Closing of the meeting

10.2 In closing the meeting, Mr. Kyotaro Harano thanked delegates for their participation in the meeting and for the excellent work achieved. Many matters had been progressed and the follow-up work by States and international organizations after the meeting would result in successful resolutions to a number of matters that had been agreed by the meeting.

10.3 Whilst strongly regretting that no papers were submitted from some States and an international organization, Mr. Harano highlighted the significant progress towards the better ATS operation rested with the States' endeavors and commitments. He requested the States and international organizations to submit papers to participate in the next meeting.

10.4 However, excellent progress had also been made in relation to radar spacing. Mr. Harano wished all delegates a safe trip home.

10.5 In closing, Mr. Tinnagorn thanked States and international organizations attending this meeting and have brought up the discussions, suggestions and all the comments in a professional manner. From the meeting point of view, he found that now the ANS providers came to more closely coordinate amongst each others, which was a good sign in improving ATM in the Region.

10.6 Mr. Tinnagorn believed that was the ICAO that makes this happen and such activities most probably driven from many activities being let by the Regional Office and its staff here and this meeting is one of them.

10.7 Mr. Tinnagorn wished to see some more activity in providing information from the States in the future which he thought would be very useful to the meeting if able to have the information, in particular, of traffic movement in each State to give the overall picture of traffic situation in the Region. On behalf of the meeting, he thanked ICAO in providing the facilities including meals and refreshments to all of them.

10.8 Mr. Tinnagorn gave special thanks to Mr. Harano who always assisted them at the meeting and worked very hard during the meeting. Mr. Tinnagorn also thanked Mr. Kwek Chin Lin, who ran FIT-SEA/8, and Japan, Singapore and Viet Nam as well as IATA and all concerned States in supporting the successful implementation of ADS/CPDLC program in the SCS area. He wished to see all again in the next meeting and hoped everyone enjoy while staying in Bangkok [The City of Angels] and have a safe trip back home.

APPENDICES TO THE REPORT OF SEACG/15


HANOI FIR
GUANGZHOU FIR
TAIPEI FIR
YANGON FIR
HONG KONG FIR
HOCHIMINH FIR
PHNOM PENH FIR
MANILA FIR
KUALA LUMPUR FIR
SINGAPORE FIR
JAKARTA FIR
UJUNG PANDANG FIR
KOTA KINABALU FIR

Status of Application of Radar Handover in South East Asia

Yes: Implemented
No: Not Implemented
N/A: Not Applicable (radar converages not overlap,thus impossbile)

FIR/AOR	Bangkok	Guangzhou	Hanoi	Ho Chi Minh	Hong Kong	Jakarta	Kota Kinabalu	Kuala Lumpur	Manila	Fukuoka	Phnom Penh	Sanya	Singapore	Taibei	Ujung Pandang	Vientiane
Bangkok		N/A	N/A	YES	N/A	N/A	N/A	YES	N/A	N/A	YES	N/A	N/A	N/A	N/A	YES
Guangzhou	N/A		YES	N/A	NO	N/A	N/A	N/A	N/A	N/A	N/A	TBD	N/A	N/A	N/A	N/A
Hanoi	N/A	YES		YES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	YES	N/A	N/A	N/A	YES
Ho Chi Minh	YES	N/A	YES		N/A	N/A	N/A	N/A	N/A	N/A	YES	YES	N/A	N/A	N/A	~~NO~~YES
Hong Kong	N/A	NO	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	NO	N/A	YES	N/A	N/A
Jakarta	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	NO	N/A	N/A	N/A
Kota Kinabalu	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	~~NO~~ N/A	N/A	N/A	N/A
Kuala Lumpur	YES	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	YES	N/A	N/A	N/A
Manila	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	NO	N/A	N/A
Fukuoka	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	~~NO~~N/A		N/A	N/A	N/A	YES	N/A	N/A
Phnom Penh	YES	N/A	N/A	YES	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	~~NO~~YES
Sanya	N/A	NO	YES	YES	NO	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Singapore	N/A	N/A	N/A	N/A	N/A	~~N/A~~NO	~~NO~~ N/A	YES	N/A	N/A	N/A	N/A		N/A	N/A	N/A
Taibei	N/A	N/A	N/A	N/A	YES	N/A	N/A	N/A	YES	YES	N/A	N/A	N/A		N/A	N/A
Ujung Pandang	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
Vientiane	YES	N/A	YES	~~NO~~YES	N/A	N/A	N/A	N/A	N/A	N/A	~~NO~~YES	N/A	N/A	N/A	N/A	

OPERATIONAL LETTER OF AGREEMENT BETWEEN

General Administration of Civil Aviation of China	China
Civil Aviation Department	Hong Kong, China
Directorate General of Civil Aviation	Indonesia
Department of Civil Aviation	Malaysia
Air Transportation Office	Philippines
Civil Aviation Authority	Singapore
Aeronautical Radio of Thailand Ltd	Thailand
Civil Aviation Administration	Viet Nam

FOR

MONITORING OF AIRCRAFT NAVIGATION ERRORS

IN THE

SOUTH CHINA SEA AREA

Operational Letter of Agreement

Document Management

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Appendix A-Navigation Error Report	A1 – 6	23 June 2008

Operational Letter of Agreement

Overview

Introduction

The following document is a Letter of Agreement (LOA) between those Air Traffic Service (ATS) authorities shown on page one of this document. The letter of agreement details monitoring procedures between the following ATS units:

Bangkok ACC	Hanoi ACC
Ho Chi Minh ACC	Hong Kong ACC
Jakarta ACC	Kota Kinabalu ACC
Kuala Lumpur ACC	Manila ACC
Sanya ACC	Singapore ACC

Objective

The objective of this LOA is to define agreed procedures for the monitoring, notification, investigation, analysis and reporting of aircraft navigation errors in respect of aircraft to which reduced horizontal separation minima is applied when operating on the following designated RNAV routes:

L642	M771	N892
L625	M767	N884

Scope

The procedures contained in this LOA implement the performance monitoring requirements associated with the introduction of the reduced horizontal separation standard, and for the reporting and monitoring of gross lateral and longitudinal navigational errors.

For the purposes of this LOA, the term ‘Service Providers’ refers to organisations which are responsible for the provision of Air Traffic Control (ATC) services.

The term ‘Regulatory Authority’ refers to those organizations responsible for the investigation of navigational errors. In some cases, the Regulatory Authority may be the same as the Service Provider.

Effective Date

This letter of agreement becomes effective on 23 June 2008

Overview, continued

Background

The use of these horizontal separation standards is restricted to aircraft which meet the requirements detailed in the respective States' AIP / AIP Supplements. This includes a requirement for RNP 10 / RNP 4 Performance Based Navigation (PBN) approval and it is the responsibility of the operator to ensure that such requirements are satisfied when so declared.

PBN approval includes operators meeting certain requirements with regard to crew training and in-flight operating procedures. The responsibility for approval for such operations rests with the State of Registry of the Operator.

Monitoring navigation errors is a joint responsibility between the aircraft operators, the States of Registry, and the ATC providers. There are established requirements for the operators to monitor navigation performance under the terms of their PBN Approval. This document sets out the responsibilities and procedures to be followed by staff of the signatory organizations to this LOA.

Area of Applicability

The procedures outlined in this LOA shall be applied to all aircraft operating on the following designated RNAV routes:

L642	M771	N892
L625	M767	N884

Monitoring Procedures

Lateral Deviations

Monitoring shall be based on radar observations.

When the radar controller observes a lateral deviation of 15NM or more, the controller shall:

- Immediately advise the pilot in command; and
- Provide the 'Duty Supervisor' with the necessary information to enable Part 1 of the Navigation Error Investigation Form (as shown in **Appendix A**) to be completed.

Where an aircraft is off-track as the result of ATC approved diversion (e.g. due weather), no notification under the terms of this Letter of Agreement need be submitted.

Longitudinal Deviations

Monitoring of longitudinal errors shall be accomplished by reporting occurrences where the observed longitudinal separation, following a check, is either less or more than the expected longitudinal separation as detailed below.

Where a time standard is being used, this check will follow the receipt of a routine position report. Notification, in accordance with **Appendix A**, shall be submitted in all cases where:

- The separation standard is infringed; or
- The expected time between two aircraft varies by 3 minutes or more, even if the applicable separation standard is not infringed; or
- A pilot estimate varies by 3 minutes or more from that advised in a routine position report.

Where a distance standard is being used, the check may be based on ADS, radar observations, or it may be the result of a specific request for RNAV distance reports. Notification, in accordance with **Appendix A**, shall be submitted in all cases where:

- The separation standard is infringed; or
- The expected distance between two aircraft varies by 10NM or more, even if the applicable separation standard is not infringed.

Notification Procedures

Action by ATC Unit	The duty supervisor, when advised of the deviation, shall be responsible for completion and submission of a Navigation Error Investigation Form. A copy of the aircraft's flight plan shall be attached to the Navigation Error Investigation Form, and forwarded to the Chief of ATC. The Chief of ATC shall forward copies of the Navigation Error Investigation Form (Parts 1 to 4) to the aircraft operator and the State of Registry of the aircraft or the State of the Operator, as considered appropriate. In addition, the copy for the aircraft operator shall be sent with a covering letter (as provided in **Appendix A**) requiring the operator to complete the Navigation Error Investigation Form and to provide reasons for the error.

Investigation Procedures

Investigation Procedures

The investigation of errors notifiable under this Letter of Agreement is a joint responsibility of the operator, the Regulatory Authority of the airspace in which the error occurred, and the State of Registry or State of the Operator of the aircraft involved.

The initial investigation shall be undertaken by the aircraft operator, who is responsible for supplying all data and comments needed to complete the form at **Appendix A**. The completed reports are to be returned by the operator to the originating Regulatory Authority. For aircraft registered in States not included in this LOA, these reports are also to be forwarded to the State of Registry of the aircraft or the State of the operator.

Further action by States other than signatories to this LOA is outside the scope of this agreement, and shall be at the discretion of that State.

On receipt of the completed report from the aircraft operator, the relevant Regulatory Authority will first check that all information required has been supplied and, if necessary, the Regulatory Authority shall request any further information from either the operator, the State of the Operator, or the State of Registry of the aircraft.

If the completed form from the aircraft operator is not received within 14 days of the date of dispatch, the Regulatory Authority will contact the operator and request the completed form.

Once the completed information has been received, the Regulatory Authority will complete Part 5 of the Navigation Error Investigation Form as detailed in **Appendix A**. The cause of the error is to be classified in accordance with the criteria specified in Part 5.

The decision as to whether any further investigation is warranted will be taken by the Regulatory Authority based on their assessment of the seriousness of the error.

Analysis of Errors & Reporting

At the end of each month, Service Providers shall forward to the Air Traffic Services Division, Civil Aviation Authority of Singapore (CAAS), a copy of all completed Navigation Error Investigation Forms (Parts 1 to 5) covering reported errors or nil reports for that month, together with data on the number of movements on the routes being monitored as recorded by the relevant Flight Data Processing System, or other auditable means.

CAAS shall be responsible for calculation of the frequency of the errors, in accordance with Doc 7030.

Each six months, the Monitoring Authority should prepare an assessment schedule setting out the results of the monitoring for the preceding six-month period and forward a copy of this schedule to:

a. All signatory States to the Monitoring Letter of Agreement; and

b. The Chairman of the APANPIRG ATM/AIS/SAR Sub-Group, through the ICAO Bangkok Office.

Permitted Error Rate Exceeded

Where the summary statistics show a long term trend which could result in the Permitted Error Rate being exceeded, ATC Authorities of the States concerned, in conjunction with the ICAO Regional Office, will jointly consider the causes, to determine if the problems can be eliminated, and to take appropriate remedial action.

Revision

This LOA shall remain in force until it is cancelled or superseded.

For any reason, which might make it advisable to change this agreement and its associated attachments, the interested State shall propose the pertinent revision.

Operational Letter of Agreement

Authority

China	Name Designation Department
Hong Kong, China	Name Designation Department
Indonesia	Name Designation Department
Malaysia	Name Designation Department

Continued on next page

Operational Letter of Agreement

Authority, Continued

Philippines	Name Designation Department
Singapore	Name Designation Department
Thailand	Name Designation Department
Viet Nam	Name Designation Department

Operational Letter of Agreement

Appendix A

NAVIGATION ERROR REPORT

Dear

Air Traffic Control service providers are monitoring traffic on routes in the South China Sea Area, as part of the implementation of reduced separation minima on those routes.

These procedures require the reporting and investigation of:

i) Lateral tracking errors of 15NM or more;

ii) Variations of longitudinal separation of three minutes or more; or

iii) Variations of longitudinal separation of 10NM or more.

A Navigation Error Investigation Form relating to one of your aircraft is enclosed.

An investigation of this occurrence is required. A detailed explanation should be provided within 10 days, using the attached Navigation Error Investigation Form. In your reply, you are also requested to indicate any corrective action taken to prevent future occurrences.

Yours faithfully,

NAVIGATION ERROR NVESTIGATION FORM

Instructions for Service Provider responsible officer:

Please ensure that Part 1 of this form has been completed to the maximum extent possible, and distribute according to the requirements of the Letter of Agreement on monitoring of aircraft navigation errors in the South China Sea Area.

Instructions for aircraft owner/operator:

Please supply any details required in Part 1 of this form which have not already been completed, together with the information requested in Parts 2, 3 and 4 (if applicable), and return to:

[*Appropriate Regulatory Authority*]

Instructions for Investigating Agency (Regulatory Authority):

Please complete Part 5 of this form and return to:

[*Appropriate Service Provider*]

NAVIGATION ERROR INVESTIGATION FORM

PART 1 - To be completed by responsible officer in the Service Provider (and aircraft owner/operator if need)		
ATC Unit Observing Error:		
Date/Time (UTC):		
Type of Error: (tick one) ☐ LATERAL ☐ LONGITUDINAL		
Details of Aircraft		
	First Aircraft	**Second Aircraft (when longitudinal deviation observed)**
Aircraft Identification:		
Name of owner/Operator:		
Aircraft Type:		
Departure Point:		
Destination:		
Route Segment:		
Cleared Track:		
Position where error was observed: (BRG/DIST from fixed point or LAT/LONG)		
Extent of deviation – magnitude and direction: (NM for lateral, min/NM for longitudinal)		
Flight Level:		
For All Errors		
Action taken by ATC:		
Other Comments:		

**** (Please Attach ATS Flight Plan)**

NAVIGATION ERROR INVESTIGATION FORM

PART 2 - Details of Aircraft, and Navigation and Communications Equipment Fit (To be completed by aircraft owner/operator)			
LRNS	**Number of Systems (0, 1, 2 etc.)**	**Make**	**Model**
INS			
IRS			
GNSS			
FMS			
Others (please Specify)			
COMS			
HF			
VHF			
SATCOM			
CPDLC			
Which navigation system was coupled to the autopilot at the time of observation of the error?			
Which NAV MODE was selected at the time of observation of the error?			
Which comms system was in use at the time of observation of the error?			
Aircraft registration and model/series			
Was the aircraft operating according to PBN requirements?		☐Yes ☐ No	

NAVIGATION ERROR INVESTIGATION FORM

PART 3 – Detailed description of incident (To be completed by owner/operator – use separate sheet if required)
Please give your assessment of the actual track flown by the aircraft, and the cause of the deviation:
Corrective action proposed:

PART 4 – To be completed by owner/operator, only in the event of partial or total navigation equipment failure.			
Nav System Type	**INS**	**IRS/FMS**	**Others (Please specify)**
Indicate the number of units of each type which failed			
Indicate position at which failure(s) occurred			
Give an estimate of the duration of the equipment failure(s)			
At what time were ATC advised of the failure(s)?			

NAVIGATION ERROR INVESTIGATION FORM

PART 5 – To be completed by investigating agency		
Have all required data been supplied?	□ Yes	□ No
Is further investigation warranted?	□ Yes	□ No
Will this incident be the subject of a separate report?	□ Yes	□ No
General comments:		
Classification: (please circle) A B C D E F G H I		

CLASSIFICATION OF GROSS NAVIGATION ERRORS	
Class	**Cause**
A	Aircraft not approved to PBN requirements
B	ATC system loop error
C	Waypoint insertion error, due to correct entry of incorrect position or incorrect entry of correct position
D	Other navigation errors, including equipment failure notified to ATC in time for action
E	Other navigation errors, including equipment failure notified to ATC too late for action
F	Other navigation errors, including equipment failure of which notification was not received by ATC
G	Mode select error
H	Weather deviation (other than approved)
I	Other (please specify):

Procedures for the Assessment of Aircraft Navigation Errors In Support of the Implementation of Reduced Horizontal Separation Minima In the South China Sea Area

1. Introduction

1.1 This document provides guidance on the methodology to be adopted in the assessment of navigation errors associated with the implementation of reduced horizontal separation minima in the South China Sea Area.

1.2 This document should be read in conjunction with the Letter of Agreement between States of the South China Sea Area, entitled *"Letter of Agreement for the Monitoring of Aircraft Navigation Errors in the South China Sea Area"*.

2. Data Gathering Responsibility

2.1 The States responsible for the gathering and onwards forwarding of data relating to the monitoring letter of agreement, and the monitoring areas identified in paragraph 4, shall be Hong Kong China, the Philippines, and Singapore.

2.2 Data gathering requirements are detailed in paragraph 5.

3. Monitoring Authority

3.1 Civil Aviation Authority of Singapore (CAAS) shall be responsible for the collection and reporting of navigation error.

4. Designated Monitoring Areas

4.1 In order to validate the monitoring requirements supporting the reduction in horizontal separation minima, it is necessary to assess the track keeping ability of aircraft operating on the route structure, whilst they have been using on-board RNAV navigation systems only, for a maximum period of time, relative to the route being flown.

4.2 It is also essential that observation of the navigation of the aircraft, using radar, occurs before the on-board navigation systems have been able to "up-date" using ground-based navigation aids, such as DME/DME, or VOR/VOR.

4.3 In assessing navigation errors on the 6 core routes – ie L642, M771, N892, L625, N884 and M767 – there are only six appropriate areas at which the required monitoring may be undertaken, given the extensive ground-based navigation aid coverage in the South China Sea Area.

4.4 These areas are the route segments between:

a) DULOP and DUMOL on M771
b) AKOTA and AVMUP on L625
c) LULBU and LEGED on N884
d) MELAS and MABLI on N892
e) ESPOB and ENREP on L642
f) TEGID and BOBOB on M767

4.5 Monitoring of aircraft on these route segments should be undertaken as soon as possible after the aircraft enters radar coverage.

4.6 It should be noted that navigation error reports relating to areas other than those stated above, should also be processed and reported on, in order to support data gathering for future reductions in lateral and longitudinal separation. Details on the processing of these reports are given at paragraph 7.

5. Collection and Forwarding of Data

5.1 Those States identified in Paragraph 2, are required, at the end of each month, to collect the following data:

a) Recorded navigation errors at the required monitoring areas, by way of the "Navigation Error Investigation Form", as detailed in the Letter of Agreement on the Monitoring of Navigation Errors; and

b) Total monthly movement statistics relating to air traffic passing the designated monitoring areas within the designated monitoring height band.

Note: The recording of monthly traffic movement statistics in the monitoring areas should be auditable – in other words, some formal method of recording the movements – eg copies of flight progress strips or data from Flight Data Processing Systems – should be available for audit if required.

5.2 After collection, the required data should be forwarded to the Monitoring Authority (CAAS), for assessment, to arrive not later than 15 days from the end of the month within which the data was collected. This will allow time for the Navigation Error Investigation Forms relating to occurrences near the end of a month, to be processed and returned as detailed in that form.

5.3 In respect of paragraph 5.1.a), if there have been no error reports submitted, a "Nil Return" should be submitted to the Monitoring Authority.

6. Assessing of Navigation Errors

6.1 The monitoring requirements associated with the introduction of the reduced horizontal separation minima will be in accordance with the requirements for RNP10 / RNP4 PBN, i.e. aircraft navigation performance shall be such that the standard deviation of lateral track errors shall be in accordance with the PBN requirement.

6.2 The requirements will be met, if the number of navigation errors by approved flights, measured in the monitoring area, divided by the total number of approved flights over those monitoring points, is less than the required parameters, over a period of time for the PBN requirement. (See Appendix B).

6.3 The assessments for each month should be recorded separately, and also cumulatively, on a month-to month basis. If the assessment in any particular month exceeds the required parameter, a check should be made to ensure that the cumulative assessment does not also exceed the required parameter.

6.4 If a trend is identified, which indicates that the required parameter is being exceeded regularly, or the cumulative assessment indicates a upwards trend, the Monitoring Authority should notify, through the ICAO Bangkok Office, the APANPIRG ATM/AIS/SAR Sub-Group, which should then investigate the need for a review of the applicable procedures.

6.5 An example of an assessment schedule is shown at Appendix B.

7. Processing of Navigation Error Reports Relating to Areas Other Than Required Monitoring Areas

7.1 The Letter of Agreement on the Monitoring of Navigation Errors required all participating States to notify all appropriate navigation errors to the Monitoring Authority. This data should be collated and assessed in the following manner.

7.2 If the navigation error report relates to aircraft tracking on RNAV routes L625, L642, M767, M771, N884, or N892, the error should be assessed and processed in accordance with paragraph 6 above.

7.3 If the report relates to aircraft tracking on other routes, the errors should be assessed, and recorded separately. This information should be assessed by the APANPIRG ATM/AIS/SAR Sub-Group meeting, for appropriate action.

8. Reporting Procedures

8.1 The Monitoring Authority should prepare an assessment schedule (refer to Appendix B), and forward a copy of this schedule, at least every 6 months, to:

a) All signatory States to the Monitoring Letter of Agreement; and

b) The Chairman of the APANPIRG ATM/AIS/SAR Sub-Group, through the ICAO Bangkok Office.

8.2 In addition, a report should be prepared on those errors reported in accordance with paragraph 7.3 above.

9. Attachments

Appendix A – Assessment Schedule Process
Appendix B – Sample Assessment Schedule

Appendix A

Assessment Schedule Process For Designated Monitoring Areas

STEP 1.

Hong Kong, Philippines and Singapore carry out a total monthly traffic count for approved traffic at FL290 and above, over the points:

a) DULOP and DUMOL on M771
b) AKOTA and AVMUP on L625
c) LUBLU and LEGED on N884
d) MELAS and MABLI on N892
e) ESPOB and ENREP on L642
f) TEGID and BOBOB on M767

STEP 2.

Hong Kong, Philippines and Singapore collate all Navigation Error Investigation Forms.

STEP 3.

Not later than the 15th day of each month, send the statistics gathered in Steps 1 and 2, to the Monitoring Authority (CAAS).

STEP 4.

The Monitoring Authority collates the information into an assessment schedule.

STEP 5.

Each 6 months, the assessment schedule is sent to:

a) All signatory States to the Monitoring Letter of Agreement; and

b) The Chairman of the APANPIRG ATM/AIS/SAR Sub-Group, through the ICAO Bangkok Office.

STEP 6 (if required).

If the trend in errors is increasing, notify, through the ICAO Bangkok Office, the APANPIRG ATM/AIS/SAR Sub-Group, for appropriate action.

Appendix B

Example of Navigation Error Assessment Schedule For Designated Monitoring Areas

a. Example of Monthly Total – Single Area

Month/ 2007	Total traffic at DULOP/DUMOL	Errors Category 1	Errors Category 2	Error Rate Category 1	Error Ratio Category 2
April	3105	1	0	3.22×10^{-4}	0
May	3042	2	0	6.57×10^{-4}	0
June	2810	0	0	0	0
July	2995	1	1	3.34×10^{-4}	3.34×10^{-4}

Category 1 => 30NM Category 2 = 50 – 70NM

b. Example of Cumulative Monthly Total – Single Area

Month/ 2007	Total traffic at DULOP/DUMOL	Errors Category 1	Errors Category 2	Error Rate Category 1	Error Ratio Category 2
April	3105	1	0	3.22×10^{-4}	0
May	6147	3	0	4.88×10^{-4}	0
June	8957	3	0	3.35×10^{-4}	0
July	11952	4	1	3.34×10^{-4}	8.36×10^{-3}

Category 1 => 30NM Category 2 = 50 – 70NM

c. Example of Monthly Total – All Six Areas

Month/ 2007	Total traffic at Areas	Errors Category 1	Errors Category 2	Error Rate Category 1	Error Ratio Category 2
April	7852	2	0	2.55×10^{-4}	0
May	8311	2	0	2.41×10^{-4}	0
June	8263	1	0	1.21×10^{-4}	0
July	7678	1	1	1.30×10^{-4}	1.30×10^{-4}

Category 1 => 30NM Category 2 = 50 – 70NM

d. Example of Cumulative Monthly Total – All Six Areas

Month/ 2007	Total traffic at Areas	Errors Category 1	Errors Category 2	Error Rate Category 1	Error Ratio Category 2
April	7852	2	0	2.55×10^{-4}	0
May	16163	4	0	2.47×10^{-4}	0
June	24426	5	0	2.05×10^{-4}	0
July	32104	6	1	1.87×10^{-4}	3.11×10^{-3}

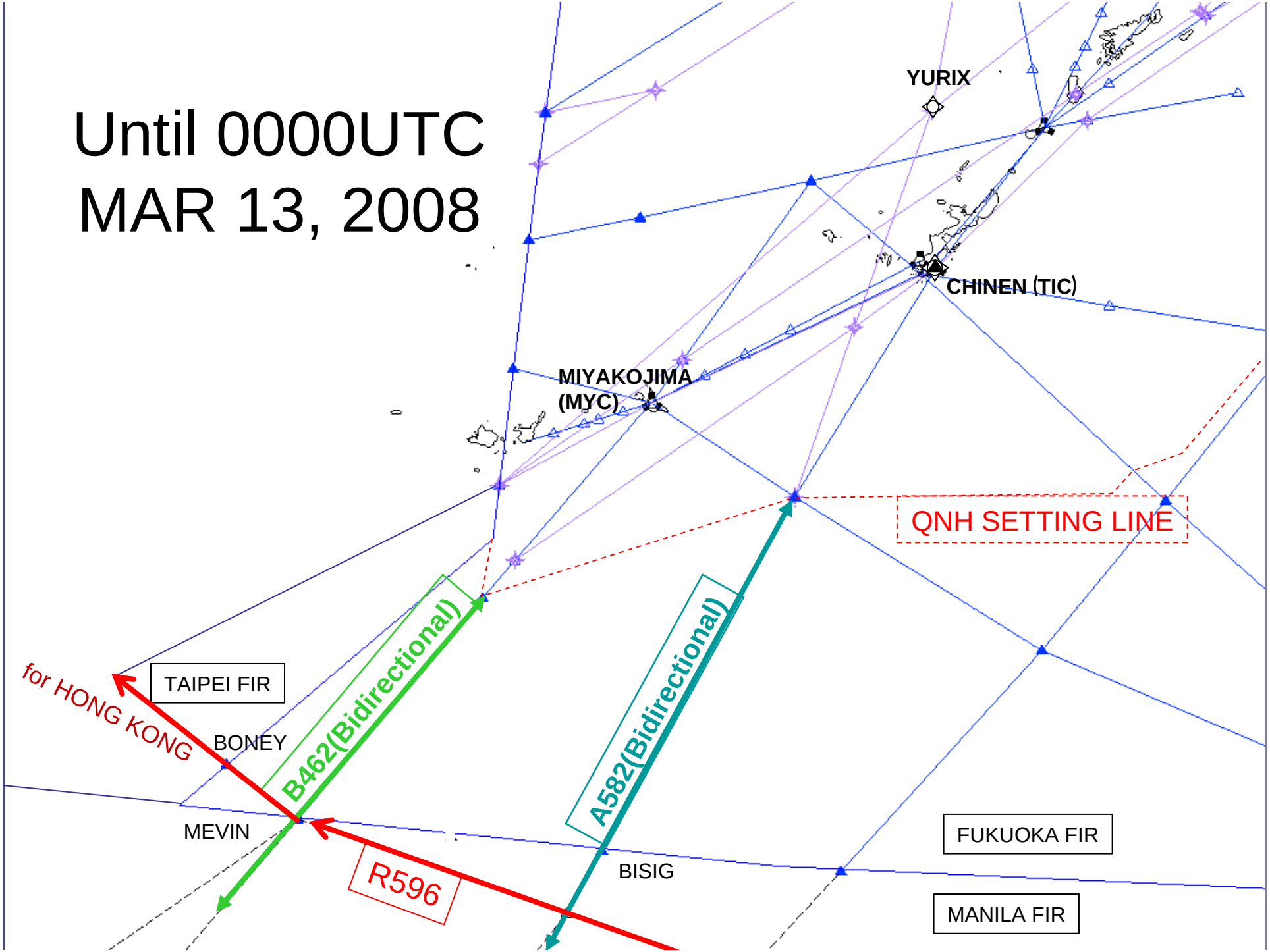
Category 1 => 30NM Category 2 = 50 – 70NM

SEACG/15
Appendix D to the Report

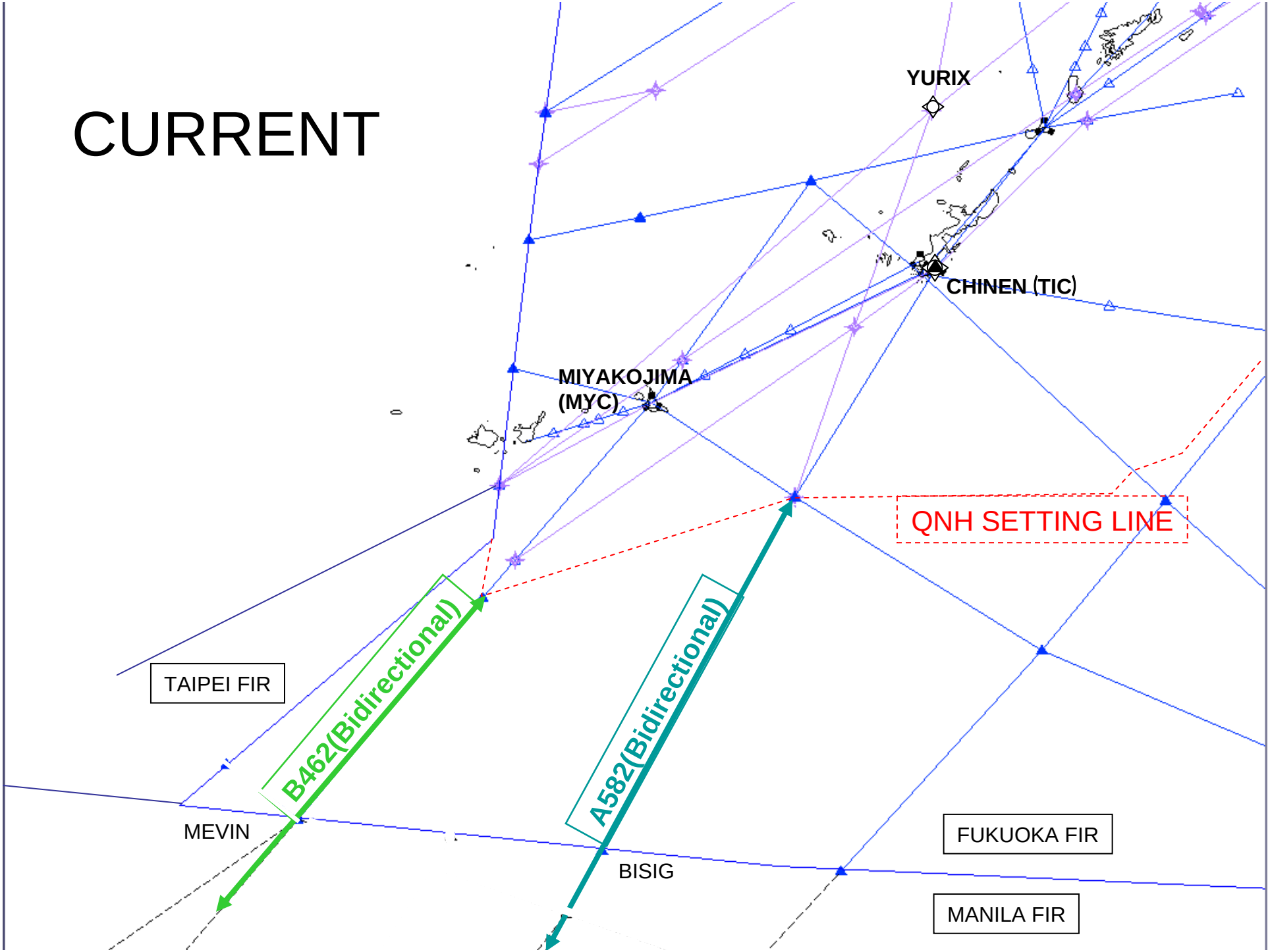
IMPLEMENTATION OF NEW ROUTE N884 and other Routes concerns

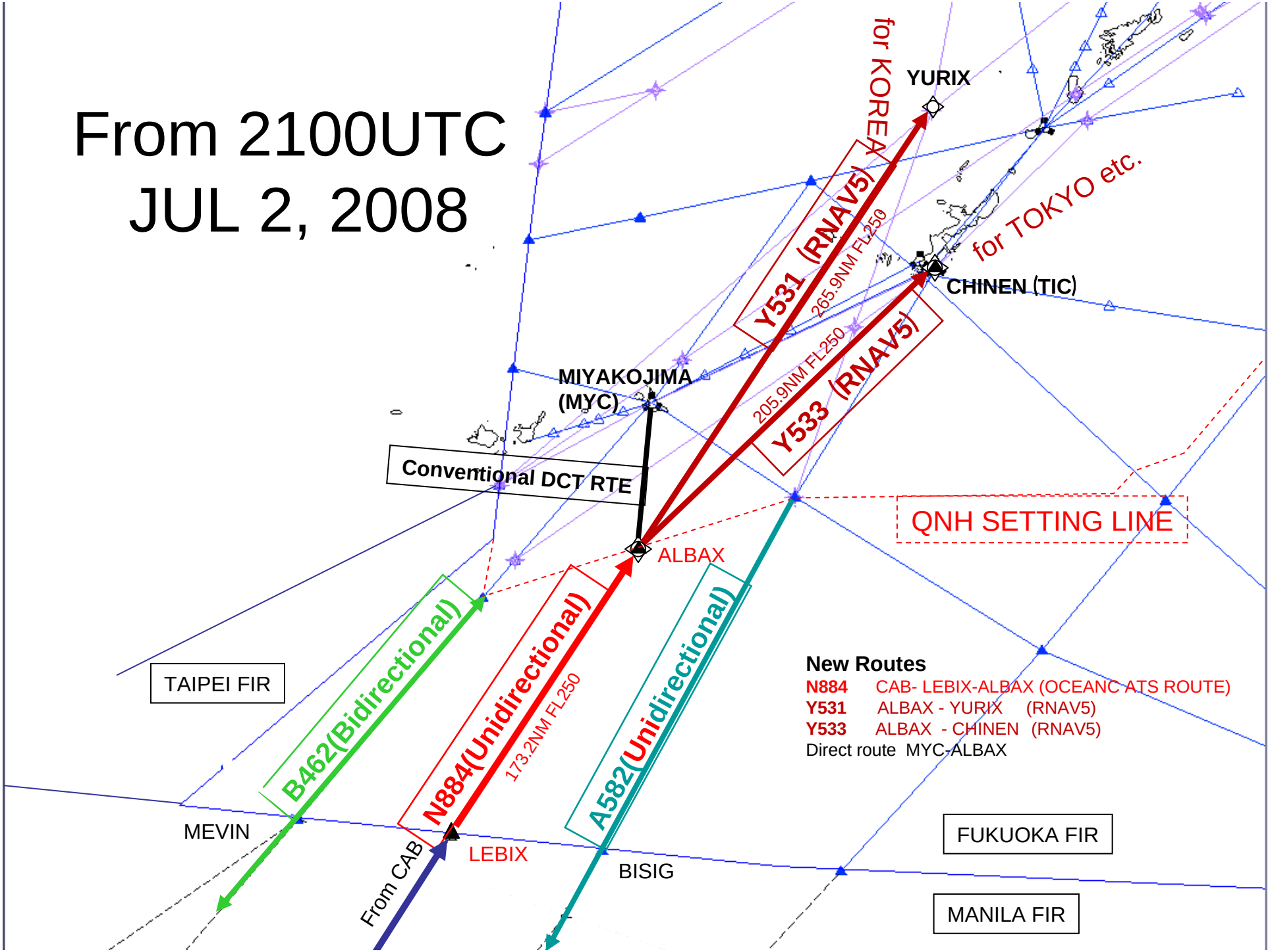
CAB – LEBIX – ALBAX-

Japan Civil Aviation Bureau


Until 0000UTC
MAR 13, 2008
YURIX
CHINEN (TIC)
MIYAKOJIMA
(MYC)
QNH SETTING LINE
for HONG KONG
TAIPEI FIR
BONEY
B462(Bidirectional)
A582(Bidirectional)
MEVIN
R596
BISIG
FUKUOKA FIR
MANILA FIR

CURRENT


YURIX
CHINEN (TIC)
MIYAKOJIMA
(MYC)
QNH SETTING LINE
TAIPEI FIR
B462(Bidirectional)
A582(Bidirectional)
MEVIN
BISIG
FUKUOKA FIR
MANILA FIR


From 2100UTC
JUL 2, 2008
YURIX
for KOREA
for TOKYO etc.
CHINEN (TIC)
Y531 (RNAV5)
265.9NM FL250
Y533 (RNAV5)
205.9NM FL250
MIYAKOJIMA
(MYC)
Conventional DCT RTE
QNH SETTING LINE
ALBAX
TAIPEI FIR
B462(Bidirectional)
N884(Unidirectional)
173.2NM FL250
A582(Unidirectional)
New Routes
N884 CAB- LEBIX-ALBAX (OCEANC ATS ROUTE)
Y531 ALBAX - YURIX (RNAV5)
Y533 ALBAX - CHINEN (RNAV5)
Direct route MYC-ALBAX
MEVIN
From CAB
LEBIX
BISIG
FUKUOKA FIR
MANILA FIR

NEW FLAS (Flight Level Allocation Scheme)
MANILA ACC and NAHA ACC
B462, N884 and A582

FL ASSIGNMENT	B462 ↓ ↑		N884 ↑	A582 ↓
	SW ↓	NE ↑	NE only ↑	SW only ↓
410			410	
400		400		400
390		390	390	
380	380			380
370			370	
360		360		360
350		350	350	
340	340			340
330			330	
320		320		320
310		310	310	
300	300			300
290		290	290	

N884 is only available for RNP10 certificated aircraft.

NEW FLAS for LSWD(Large Scale Weather Deviation)
MANILA ACC and NAHA ACC
B462, N884 and A582

FL ASSIGNMENT	B462 ↓ ↑		N884 ↑	A582 ↓
	SW ↓	NE ↑	NE only ↑	SW only ↓
410		410		
400				
390			390	
380	380			380
370		370		
360				
350			350	
340	340			340
330		330		
320				
310			310	
300	300			300
290		290		

N884 is only available for RNP10 certificated aircraft.

Thank you for your attention!

JAPAN CIVIL AVIATION BUREAU

MINISTRY OF LAND, INFRASTRUCTURE, TRANSPORT AND TOURISM

SEACG/15 — ACTION PLAN

IMMEDIATE: Action to be taken immediately after the conclusion of the meeting
MID TERM: Action to be taken within six months
LONG TERM: Action to be taken one year

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
~~1.~~	~~**Review No-Pre-Departure Coordination (No-PDC) Procedure**~~	~~IMMEDIATE~~	~~All States~~	~~OPEN~~ COMPLETED	~~Raised at SEACG-12. States to review the impact of the No-PDC procedures on the provision of more efficient flight levels, and report to SEACG-14~~
~~2.~~	~~**Realignment Studies on A1 and P901**~~	~~LONG TERM~~	~~China, Hong Kong China, Viet Nam and IATA~~	~~OPEN~~ COMPLETED	~~Raised at SEACG/12~~ ~~China updated progress.~~ ~~China submitted the proposal to ATM/AIS/SAR/SG/15.~~ ~~States and users to review and provide feedback.~~
~~3.~~1.	**Establishment of Safety Monitoring Agency (SMA) for Asia Region**	MID TERM (RASMAG/9)	~~MAAR~~Singapore Regional Office	OPEN	Raised at SEACG/11. MAAR provided details on planning to establish an SMA for the South-East Asia area. ~~MAAR to progress this matter and report progress to SEACG/14.~~ Singapore had informed RASMAG that it would undertake to provide the SMA services for reduced horizontal separation in the South China Sea area when the requirements for the establishment of the SMA are fulfilled.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
~~4.~~2.	**Update on ADS/CPDLC Implementation Planning**	~~MID TERM~~ LONG TERM	FIT-SEA	OPEN	Raised at SEACG/11. States to update SEACG/~~15~~16 and/or FIT-SEA/~~4~~9 on their ADS/CPDLC implementation plans with timelines for implementation.
~~5.~~3.	**Implementation of Radar Handover Procedures** States should identify areas where radar handover procedures can be applied at common FIR boundary, and implement the procedures.	LONG TERM	All SEA States	OPEN	Raised at SEACG/10. SEACG/11 was advised that many States had introduced radar handover procedures. Some States identified areas where progress was still to be made and agreed to move towards radar handover procedures as soon as possible. States updated the radar coverage/services chart and the matrix presented at SEACG/10. ~~States to implement radar handover procedures, where possible. Report to SEACG/14.~~ SEACG/15 identified the applicable areas in the matrix of the radar handover procedures. Specific actions were also suggested at the meeting and are provided in the table in the report of SEACG/15. States to implement radar handover procedures, where possible. Report to SEACG/16.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
~~6.~~4.	**Implementation of RNP 10 ~~and RNP 4~~ Routes and Reduced Horizontal Separation of 50 NM ~~and 30 NM, respectively~~ in Southeast Asia.**	LONG TERM	~~RNP-SEA/TF~~ SEACG	OPEN	Raised at SEACG/11. Ongoing implementation of RNP 10 routes as required and introduction of 50 NM separation. Identify areas suitable for RNP 4 and reduction of en-route separation to 30 NM. RNP-SEA/TF to undertake study of implementation. L642 and M771 implemented on 3 July 2008.
~~7.~~	~~**A202 Metric Cruising Levels Transition**~~ ~~Consideration should be given to an alternate arrangement to the metric cruising level system for operations on A202 to facilitate flights with ceiling limitations.~~	~~LONG TERM~~	~~China, Hong Kong China~~	~~OPEN~~ CLOSED	~~Raised at SEACG/10.~~ ~~China would consider this issue in its RVSM Implementation Plan.~~
~~8.~~5.	**Study of Restructuring of A1 and P901, Including the Establishment of Parallel Uni-Directional Routes**	LONG TERM	China, Hong Kong China, Viet Nam, Lao PDR and Thailand	OPEN	Raised at SEACG/13. IATA requested that the parallel unidirectional routes to restructure A1 and P901 be considered to increase capacity. States to study the ~~restructuring of A1 and P901 or the~~ establishment of the parallel routes, and report to SEACG/~~15~~16.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
~~10~~	~~**Compliance with the Annex 15 AIRAC Provisions**~~	~~MID TERM~~	~~IATA and the Regional Office~~	~~OPEN~~ CLOSED	~~Raised at SEACG/14.~~ ~~AITF/2 found in many cases, matters were outside the control of AIS officials as the upstream staff in the planning process has no knowledge about AIRAC cycles.~~
6.	**Identify the airspace where RNP 10 or RNP 4 routes can be established and reduced horizontal separation of 50 NM and 30 NM, respectively, can be applicable**	LONG TERM	SEACG	OPEN	Raised at SEACG/15. Identify areas suitable for RNP 10 or RNP 4 and reduction of en-route separation to 50 NM or 30 NM. Cf. Action Item 4 which is focused on the implementation

STATE ATS SAFETY CONTACT POINTS

APANPIRG Conclusion 16/62 required the nominations by States of a Contact Officer or position to act as the focal point for ATS safety-related activities and in particular for the submission and coordination of ATS incident reports. ICAO Asia and Pacific Office (Bangkok, Thailand) maintains the following list in this regard.

Attention is drawn to the provisions in the ICAO *Air Traffic Services Planning Manual* (Doc 9426), Part II, Section 1, Chapter 3 – *ATS Incident Reporting* in relation to the reporting and investigation of ATS incidents.

(Last Updated ~~29 May 2007~~22 May 2008 by SEACG/15)

	Name	Title/Organization	TEL/FAX Number	E-mail
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2.	**BANGLADESH**			
	Mr. Mohammad Kaisar Alam	Director (Flight Safety & Regulations) Civil Aviation Authority, Bangladesh FSR Division CAAB Headquarters, Kurmitola Dhaka – 1229 Bangladesh	Tel +8802 891 1126 Fax + 8802 891 3322 + 8802 891 4709	dfsrcaab@accesstel.net
3.	**BHUTAN**			

	Name	Title/Organization	TEL/FAX Number	E-mail
4.	**BRUNEI DARUSSALAM**			
	Ali Hj Mohammad Yusof	Operations Officer-Airworthiness Department of Civil Aviation Ministry of Communications Brunei International Airport Bandar Seri Begawan BB2513 Negara Brunei Darussalam	Tel: (673)(2)2330142, 2332741 Fax: (673)(2)2331706, 2345345	alex_keasberry@civil-aviation.gov.bn aliyhms@yahoo.com
5.	**CAMBODIA**			
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	Accident/Serious Report	Flight Standard Division Japan Civil Aviation Bureau 2-1-3, Kasumigaseki, Chiyoda-ku, Tokyo, 100-8918 Japan	Tel: +81-3-5253-8731 Fax +81-3-5253-1661	
	ACAS RA Report	Air Traffic Control Division Japan Civil Aviation Bureau 2-1-3, Kasumigaseki, Chiyoda-ku, Tokyo, 100-8918 Japan	Tel: +81-3-5253-8749 Fax +81-3-5253-1664	

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COSPAS-SARSAT Distress Beacons

South Pacific Newsletter

1. Phase-out of 121.5 MHz Satellite Processing on 1 February 2009

In October 2000 the International Cospas-Sarsat Program, announced at its 25th Council Session held in London, UK that it plans to terminate satellite processing of distress signals from 121.5 and 243 MHz distress beacons on February 1, 2009. All mariners, aviators, and individuals using distress beacons on those frequencies will need to switch to those operating on the newer, more reliable, digital 406 MHz frequency if they want to be detected by satellites.

The decision to stop satellite processing of 121.5 / 243 MHz signals is due to problems in this frequency band, which inundate search and rescue authorities with poor accuracy and numerous false alerts, adversely impacting the effectiveness of lifesaving services. The 406 MHz beacons provide search and rescue agencies with more reliable and complete information to do their job more efficiently and effectively.

The Cospas-Sarsat Program made the decision to terminate 121.5/243 MHz satellite alerting services, in part, in response to guidance from the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO). These two agencies of the United Nations are responsible for regulating the safety on international transits of ships and aircraft, respectively, and handling international standards and plans for maritime and aviation search and rescue.

2. 406 MHz Beacons

The Cospas-Sarsat System provides alerting services for the following types of beacons:

- Emergency Locator Transmitters (ELTs) for aviation use
- Emergency Position-Indicating Radiobeacons (EPIRBs) for maritime use
- Personal Locator Beacons (PLBs) for applications which are neither aviation or maritime

COSPAS-SARSAT Distress Beacons

406 MHz beacons have a built-in, low-power homing beacon that transmits on 121.5 MHz. This allows rescue forces to home in on a beacon once the 406 MHz satellite system has gotten them "in the ballpark" (about 2-3 miles). Some beacons transmit a GPS-encoded position, which dramatically improves the location accuracy down to the 100-meter level…that's roughly the size of a football field!

Geostationary satellites can instantly detect beacon signals. This means that even a brief inadvertent signal can generate a false alert. Make sure that when you test your beacon that you follow the manufacturer's recommendations carefully. Tests by beacon owners should only be done in the beacon's "self-test" mode.

	EPIRBS are for use in maritime applications. They transmit a digital identification code on 406 MHz and a low-power "homing" signal on 121.5 MHz.

COSPAS-SARSAT Distress Beacons

	ELTs were intended for use on the 121.5 MHz frequency to alert aircraft flying overhead. Presently, most aircraft operators are mandated to carry an ELT and have the option to choose between either a 121.5 MHz ELT or a 406 MHz ELT. Australia will require all aircraft to carry 406 MHz ELTs from 1 Feb 2009.
	PLBs are portable units that operate much the same as EPIRBs or ELTs. These beacons are designed to be carried by an individual person instead of on a boat or aircraft. Unlike ELTs and some EPIRBs, they can only be activated manually.

3. Registration of 406 MHz Beacons

It is crucial that 406 MHz distress beacons be registered in recognized beacon registration databases, which will be accessible to search and rescue authorities at all times. The information contained in these databases concerning the beacon, its owner, and the vehicle/vessel on which the beacon is mounted is vital for the effective use of Search and Rescue resources. The proper registration of a beacon could make the difference between success and failure of a search and rescue mission.

All beacons are coded with an International Telecommunication Union (ITU) assigned 3-digit country code eg. Fiji has been assigned the code 520. These codes, called the maritime identification digit (MID), can be obtained from the ITU web site at: http://www.itu.int/cgi-bin/htsh/glad/cga_mids.sh?lng=E

COSPAS-SARSAT Distress Beacons

Beacons should be coded with the MID of the country maintaining the beacon registration database. However a country may choose to register their country-coded beacons in the International 406 MHz Beacon Registration Database (IBRD) the procedure and details of which are provided below. This information should be provided to IMO, ICAO and Cospas-Sarsat.

Process for Registering a Beacon in the Cospas-Sarsat International 406 MHz Beacon Registration Database (IBRD)

Your country may have elected to allow you to directly register your beacon in the International 406 MHz Beacon Registration Database (IBRD), available online and free of charge at www.406registration.com. It provides capability to register 406 MHz distress beacons and has extensive online help capabilities.

Individual beacon owners may register their beacons and select their own passwords during the registration process if this use of the IBRD has been allowed by their national Administration.

You will need the following information to register a beacon:

- Beacon Hexadecimal Identification (15 Hexadecimal characters)
- Owner name and phone number
- Emergency contact name and phone number
- Vehicle type (selectable from a menu)
- Vehicle name, MMSI, call sign or identification number (except for PLBs).

Administration User Accounts

The IBRD is freely available to users with no access to national registration facilities and to Administrations who wish to avail themselves of the facility to make their national beacon registration data more available to SAR services.

SAR Services and others wishing to query the IBRD will require passwords issued by the Cospas-Sarsat Secretariat. In order to acquire appropriate passwords to access the IBRD, National Administrations should:

- designate a National IBRD Point of Contact, and
- request that the Cospas-Sarsat Secretariat allocate user identifications and passwords to their National IBRD Point of Contact.

The password and user identification request must be provided in writing to the Database Administrator (i.e. the Cospas-Sarsat Secretariat) and must carry the signature of the Cospas-Sarsat/IMO/ICAO Representative of the Administration. A letter template can be obtained from:
http://www.cospas-sarsat.org/DocumentsDSeries/IBRDTemplateLetter.doc

COSPAS-SARSAT Distress Beacons

4. More Information

Further information on the phase-out of 121.5 MHz satellite processing and beacon coding and registration can be obtained from the web sites provided below.

- Cospas-Sarsat
  http://www.cospas-sarsat.org/
  www.406registration.com
  http://www.cospas-sarsat.org/DocumentsDSeries/IBRDTemplateLetter.doc

- ITU
  http://www.itu.int/cgi-bin/htsh/glad/cga_mids.sh?lng=E

- Australian Maritime Safety Authority
  http://beacons.amsa.gov.au/index.asp

- Maritime New Zealand
  http://www.maritimenz.govt.nz/SAR/about_beacons.asp

- USA NOAA Satellite and Information Service
  http://www.sarsat.noaa.gov/

- End of Document -

Asia – Hawaii UPRs

Presented : Japan Civil Aviation Bureau

IATA Japan – Hawaii Paper Trial

- Japan airlines on behalf of IATA presented a the results of a Study regarding the benefits of UPRs over Flexible Tracks between Japan and Hawaii
- The study concluded that there were benefits to be gained.
  - Fuel Savings
  - Weather Advantages
  - Aircraft Type & Weight

Asia-Hawaii UPRs

- Asia and Hawaii.
  - Need to analyze the impact on ATC Operations.
  - Determine if there JCAB and FAA had discussed UPRs between were benefits for all operators.
  - Possibility of conducting a paper trial.

Asia-Hawaii UPRs

- *PROCEDURES:*
  - ***The Paper Trial will be conducted from December 1-15, 2007.***
  - ***All operators are encouraged to participate in the Paper Trial. The more data that can be collected from the Paper Trial will help evaluate operational impacts.***
  - ***The participating operators shall generate East and Westbound UPRs that correspond to the daily PACOTS for their flights.***
  - ***The operator shall compare the UPR to the PACOTS to quantify the Operational benefit, Time, Fuel, Emission savings.***

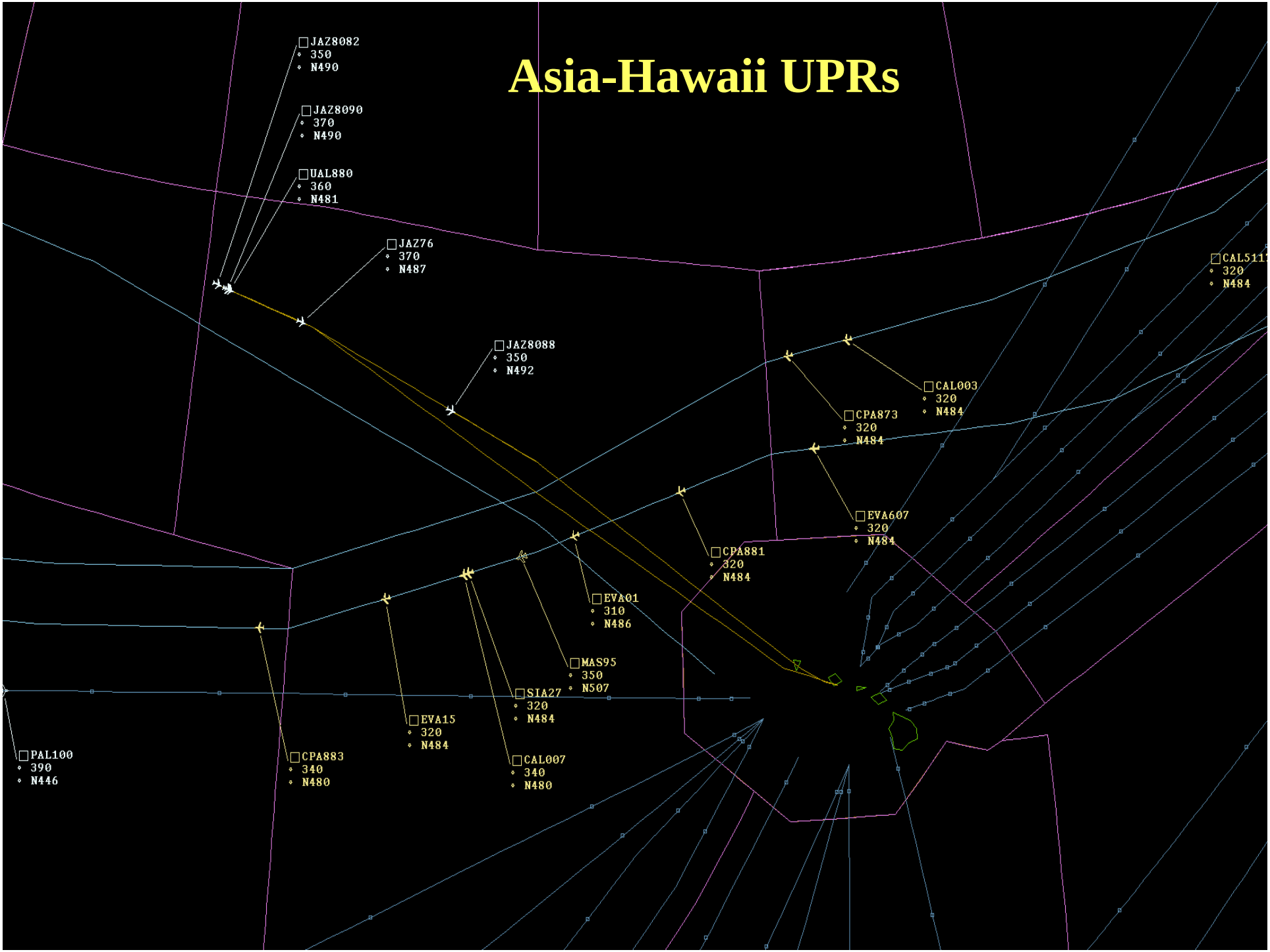
Asia-Hawaii UPRs

- *PROCEDURES Cont:*
  - ***The following constraints shall be used for UPR generation:***
    - ***Eastbound UPRs shall remain at least 50 NM south of PACOTS Track 3***
    - ***Westbound UPRs shall remain at least 50 NM south of PACOTS Track F***
    - ***The daily UPRs shall be planned around the Hawaiian Military Operating Areas***
  - ***The operator shall email the daily UPR Flight Plans and Savings/Losses to FAA and JCAB.***

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 CO2 emissions
  - 2 million US dollars in annual operator savings
  - Discussed at the IPACG Meeting

Asia-Hawaii UPRs



Asia-Hawaii UPRs

- JCAB and the FAA have analyzed the data from the December Paper Trials.
- A determination has been made that there were no significant problems that prevent implementation of the UPRs.
- A tentative start date of Mid June has been set to begin Operational use of UPRs between Asia and Hawaii.

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LIST OF WORKING AND INFORMATION PAPERS, AND PRESENTATIONS

FIT-SEA/8

WORKING PAPERS

WP/No.	Agenda Item	Title	Presented by
1	1	Provisional Agenda – FIT-SEA/8	Secretariat
2	2	FIT-SEA CRA Report	FIT-SEA CRA
3	3	ADS/CPDLC Equipage and ATS Status for the Operational Trials of ADS/CPDLC	Secretariat
4	6	Update FIT-SEA Task List	Secretariat
5	7	Data Link Implementation Table for Capacity Planning	Secretariat
6	3, 4	Report of the Preparation for ADS/CPDLC Official Operation and the Result of Three Weeks of ADS/CPDLC Operational Implementation in the Ho Chi Minh FIR	Viet Nam

INFORMATION PAPERS

IP/No.	Agenda Item	Title	Presented by
1	-	List of Tentative Working and Information Papers	Secretariat
2	-	Terms of Reference of FIT-SEA	Secretariat
3	2	Review of RASMAG List of Competent Airspace Safety Monitoring Organizations	Secretariat
4	7	JCAB FIT Activities at IPACG28/FIT15	Japan
5	5	IPACG FIT “Request for Changes (RFCs)”	Japan

PRESENTATIONS

Agenda Item	Title	Presented by
7	MTSAT Status and Availability	Japan
4	ATS Data Link System Performance	Singapore

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SEACG/15

WORKING PAPERS

WP/No.	Agenda Item	Title	Presented by
1	1	Provisional Agenda – SEACG/15	Secretariat
2	3	Outcomes of APANPIRG/18 and Review of the Report by Air Navigation Commission Working Group on Regional Plans	Secretariat
3	3	Review Outcomes of the Seventh Meeting of FANS Implementation Team, South-East Asia (FIT-SEA/7)	Secretariat
4	4	Review of the Eighth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/8)	Secretariat
5	4	The Fourth Meeting of the Western Pacific/South China Sea RVSM Scrutiny Group	Secretariat
6	4	Radar Coverage Chart of the South China Sea Area and the Status Matrix of Application of Radar Handover Procedures	Secretariat
7	4	Summary of the Second Meeting of South-East Asia Required Navigation Performance Implementation Task Force (RNP-SEAS/TF/2)	Singapore
8	5	Revised Operational Letter of Agreement (LOA) for Monitoring of Aircraft Gross Navigational Errors in the South China Sea Area	Singapore
9	5	Engaging CSSI, Inc. to Assist Singapore to be Established as the Safety Monitoring Agency and Conduct of Safety Assessment for the Implementation of RNP10 (50/50NM) Operations on L642 and M771 in the South China Sea Area	Singapore
10	6	Review of the Asia and Pacific ATS Route Catalogue	Secretariat
11	9	Review Action Plan from SEACG/14	Secretariat
12	10	State Focal Point for Safety-Related Activities	Secretariat
13	10	Outcomes of the 44th DGCA Conference	Secretariat
14	4, 7	Updates on ATS Activities in Viet Nam and Proposals for ATS Matters	Vietnam
15	3	Review of the Draft Report of the Eighth Meeting of the FANS Implementation Team, South-East Asia (FIT-SEA/8)	Rapporteur of FIT-SEA/8
16	4	Air Traffic Management (ATM) Coordination	Thailand

INFORMATION PAPERS

IP/No.	Agenda Item	Title	Presented by
1	-	List of Tentative Working and Information Papers	Secretariat
2	4	Traffic Sample Data (TSD) State Letter	Secretariat
3	4	Asia/Pacific Actions to Support Long-Term Reduced Vertical Separation Minimum (RVSM) Monitoring Requirements	Secretariat
4	5	Summary of the First and the Second Meetings of Asia/Pacific Performance Based Navigation Task Force	Secretariat
5	6	Extension of the RNAV Route N884 into the Fukuoka FIR	Japan
6	4	Availability of Model ATM Contingency Plan	Secretariat
7	10	Collection of Information on Wake Vortex	Secretariat
8	10	Review of the 32nd and the 33rd Meetings of the RVSM Implementation Task Force	Secretariat
9	10	Outcomes of the 19th Meeting of the Bay of Bengal ATS Coordination Group	Secretariat
10	10	The ICAO Global Aviation Safety Plan (GASP)	Secretariat
11	10	Termination of SAR Satellite Services on 121.5 and 243.0 MHz	Secretariat
12	5	The Air Traffic Services within Vientiane FIR	Lao PDR
13	10	User Preferred Routes (UPRs) between Asia and Hawaii	Japan

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