INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE TWELFTH MEETING OF THE APANPIRG ATS/AIS/SAR SUB-GROUP (ATS/AIS/SAR/SG/12)

Bangkok, Thailand, 24 – 28 June 2002

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

Approved by the Meeting
And published by ICAO Asia and Pacific Office

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The twelfth meeting of the APANPIRG Air Traffic Services/Aeronautical Information Services/Search and Rescue Sub-Group (ATS/AIS/SAR/SG/12) was held at the ICAO Asia and Pacific Regional Office, Bangkok, Thailand from 24 to 28 June 2002.

2. Attendance

2.1 The meeting was attended by 70 participants from 22 States, 2 International Organizations and 1 charting company. A list of participants is at Attachment 1.

3 Officers and Secretariat

3.1 Mr. George P.S. Chao acted as Chairman of the Sub-Group. He presided over the meeting throughout its duration.

3.2 Mr. John E. Richardson, Regional Officer, ATM, ICAO Asia/Pacific Office, was Secretary of the meeting and was assisted by Messrs. Hiroshi Inoguchi and Ron Rigney, Regional Officers ATM and Mr. K.P. Rimal, Regional Officer, CNS.

4. Language and Documentation

4.1 The discussions were conducted in English. Documentation was issued in English with a total of 26 Working Papers, 1 Flimsy and 16 Information Papers being considered by the meeting. A list of papers presented during the meeting is included in Attachment 2 to this Report.

5. Opening of the Meeting

5.1 The meeting was opened by Mr. John Richardson, who welcomed the participants to Bangkok and on behalf of the ICAO Regional Director, Mr. L.B. Shah, conveying a message wishing the meeting every success in its deliberations.

5.2 The Chairman added his words of welcome to the participants and outlined the work programme before the Sub-Group.

6. Draft Conclusions, Draft Decisions and Decisions of the ATS/AIS/SAR Sub-Group - Definitions

6.1 ATS/AIS/SAR Sub-Group records its actions in the form of Draft Conclusions, Draft Decisions and Decisions with the following definitions:

a) **Draft Conclusions** deal with matters that, according to APANPIRG terms of reference, merit directly the attention of States, or on which further action is required to be initiated by the Secretary according to established procedures;

b) **Draft Decisions** relate to matters dealing with the internal working arrangements but requires the prior agreement of the APANPIRG before it can be implemented or otherwise; and

c) **Decisions** of ATS/AIS/SAR Sub-Group relate solely to matters dealing with the internal working arrangements of the ATS/AIS/SAR Sub-Group.

6.2 **List of Draft Conclusions**

Draft Conclusion 12/1 – Amendment to the *Guidance Material on the Implementation of a 300 m (1000 ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia and Pacific*

Draft Conclusion 12/2 – Timely notification by States of changes to aeronautical information

Draft Conclusion 12/3 – Adoption of a regionally protected frequency for Traffic Information Broadcasts by Aircraft (TIBA)

Draft Conclusion 12/4 – Contingency Planning

Draft Conclusion 12/5 – Key Priorities for CNS/ATM Implementation

Draft Conclusion 12/6 – Development of procedures relating to multi-part NOTAM and NOTAM Checks by NOTAM

Draft Conclusion 12/7 – Guidance Materials concerning the operating procedures for AIS dynamic data (OPADD) and the use of the Internet for information transfer as Chapters 3 and 4 respectively of the Guidance Manual for AIS in the Asia/Pacific Region

6.3 **List of Draft Decisions**

Draft Decision 12/9 – ATS/AIS/SAR Subject/Task List

6.4 **List of Decisions**

Decision 12/8 – AIS Automation Task Force (AATF)

PART II – REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Provisional Agenda

1.1 The meeting reviewed the provisional agenda presented by the Secretariat. Under Agenda Item 4, it was considered that the word "issues" was more appropriate than the word "problems", and was changed accordingly. The meeting adopted the revised agenda.

Agenda Item 1:	Adoption of Provisional Agenda
Agenda Item 2:	Review the APANPIRG/12 Report and subsequent ANC/Council Actions with respect to ATS/AIS/SAR issues
Agenda Item 3:	Review and progress the tasks assigned to the ATS/AIS/SAR/SG by APANPIRG
Agenda Item 4:	Consider issues and make specific recommendations concerning the provision of ATS/AIS/SAR in the Asia/Pacific Region
Agenda Item 5:	Review progress of AIS Automation Task Force (AATF)
Agenda Item 6:	Deficiencies in the Air Navigation field
Agenda Item 7:	Update the list of ATS/AIS/SAR Tasks together with priorities
Agenda Item 8:	Any other business
Agenda Item 9:	Date and venue for next meeting

Agenda Item 2: Review the APANPIRG/12 Report and subsequent ANC/Council Actions with respect to ATS/AIS/SAR issues

2.1 The APANPIRG/12 Meeting, which was held in Bangkok, Thailand, 20-24 August 2001, took action on the Conclusions and Decisions formulated by the ATS/AIS/SAR/SG/11 Meeting held in Bangkok 25 – 29 June 2001.

2.2 In reviewing the actions taken by ANC and Council, the meeting was advised of several comments by the Air Navigation Commission (ANC) with regard to the work of APANPIRG/12.

2.3 In reviewing the report of the meeting, the ANC (Commission) on 21 February 2002, noted that APANPIRG, with the assistance of its contributory bodies, had examined the air navigation matters of the Asia/Pacific Regions with the aim of improving the planning of air navigation facilities, services and procedures in the region, as well as fostering their implementation.

2.4 The Commission noted that reduced vertical separation minimum (RVSM) had been implemented in Western Pacific/South China Sea airspace effective from 21 February 2002. Regarding the implementation of RVSM in the Bay of Bengal area and beyond, the Commission urged the States of this area to implement RVSM in conjunction with the planned implementation in the Middle East Region on 27 November 2003. This would not only improve the availability of efficient cruising levels and reduce ground delays for flights from Asia to Europe South of the Himalayas, but would also provide an end-to-end Asia/Europe RVSM environment through the Middle East, without transition areas.

2.5 To gain benefits in terms of safety, efficiency and capacity enhancements, the Commission noted that the Europe, Middle East, Asia route structure South of Himalayas (EMARSSH) project was established, with a target date of implementation set for 28 November 2002. The Commission called upon participating States and international organizations to make a full commitment to this project.

2.6 The meeting was advised that the Commission agreed with the need for regional safety arrangements necessary to meet the ongoing revision of the ATS route structure and the introduction of reduced horizontal and vertical separation minima, as well as the implementation of new systems such as automatic dependent surveillance (ADS) and controller-pilot data link communications (CPDLC) operations. The Commission noted that APANPIRG had established a task force to examine in detail the necessary arrangements to develop an appropriate regional airspace safety performance-monitoring structure and funding mechanism. The Commission appreciated this initiative and called upon the Secretary General to develop provisions for a global approach to establishing airspace safety performance-monitoring arrangements.

2.7 On the subject of Deficiencies in the Air Navigation field, the Commission noted in particular the resolution of several deficiencies and appreciated the ongoing efforts of APANPIRG in this regard. The Commission agreed with APANPIRG's observation that, addressing deficiencies requires a concerted effort by States as well as a financial commitment for their resolution. In this regard, the establishment of the International Financial Facility for Aviation Safety (IFFAS), which was approved by the 33rd Session of the ICAO Assembly, could provide a potential mechanism for the mobilization of funds for civil aviation.

2.8 Following the ANC review, the Council on 1 March 2002 noted the APANPIRG/12 Report on the basis of the ANC report. Actions taken by ANC and the Council including States and the Secretariat on the Conclusions and Decisions of APANPIRG/12 Meeting are shown at Appendix A to the Report on Agenda Item 2.

Outstanding Conclusions and Decisions of APANPIRG in ATS/AIS/SAR Fields

2.9 The meeting reviewed the outstanding Conclusions and Decisions of APANPIRG in the fields of ATS/AIS/SAR and updated actions relating to them undertaken by States and ICAO. The updated list is at Appendix B to the Report on Agenda Item 2.

FOLLOW-UP TO BE INITIATED ON THE CONCLUSIONS/DECISIONS OF APANPIRG/12
(CONSEQUENT TO COUNCIL'S CONSIDERATION OF THE APANPIRG/12 REPORT ON THE BASIS OF C-WP/11753)

Report Reference		Action by Council/ANC	Conclusion/Decision Title and Action Taken	Follow-up to be Initiated by the Secretariat	
Concl./Dec. No.	Page			Bureau/ Section	Follow-up Action
12/2	2.1-8	ANC	**Implementation of RVSM in the Western Pacific/South China Sea area** Noted the conclusion and was pleased to receive information that RVSM had been implemented successfully in this designated area effective from 21 February 2002.	ALL	Note
12/3	2.1-9	ANC	**Implementation of RVSM in the Bay of Bengal area and beyond in conjunction with the planned implementation in the Middle East Region** Noted the conclusion and requested the Secretary General to urge the States concerned to implement RVSM to provide an end-to-end Asia/Europe RVSM environment.	Regional Office Bangkok	Urge States concerned to implement RVSM as per agreed date
12/5	2.1-21	ANC	**Implementation of the EMARSSH project** Noted the conclusion and requested the Secretary General to call upon participating States and international organizations to make a full commitment to this project.	Regional Office Bangkok	Call upon participating States and international organizations to make a full commitment to this project
12/7	2.1-25	ANC	**Guidance Manual for Aeronautical Information Services in the Asia/Pacific Region** Noted the conclusion and that the guidance manual would be published in accordance with established procedures.	Regional Office Bangkok	Publish the guidance manual in accordance with established procedures

Report Reference		Action by Council/ANC	Conclusion/Decision Title and Action Taken	Follow-up to be Initiated by the Secretariat	
Concl./Dec. No.	Page			Bureau/ Section	Follow-up Action
12/8	2.1-25	C	**Special implementation project for an AIS seminar in 2002** Noted the conclusion and that such a project would be put forward for the Council's approval through established procedures.	Regional Office Bangkok	Consequent to Council's approval of the SIP, initiate action to conduct AIS seminar
12/9	2.1-28	ANC	**Development of lateral offset procedures for application in the Asia/Pacific Region** Noted the conclusion and that the development of lateral offset procedures for regional implementation should be in accordance with global guidelines.	Regional Office Bangkok	Develop lateral offset procedures for regional implementation in accordance with global guidelines
12/10	2.1-29	C	**Special implementation project – International seminar and SAREX** Noted the conclusion and that such a project would be put forward for the Council's approval through established procedures.	Regional Office Bangkok and RAO/HQ	Put forward for the Council's approval through established procedures
12/42	3-11	C	**State regulatory framework for safety oversight** Noted the conclusion and requested the Secretary General to urge States to establish the necessary regulatory framework to provide safety oversight arrangements of their air navigation services not only in accordance with Annex 11 and PANS-ATM but also Annex 14 provisions on safety management.	Regional Office Bangkok	Urge States to establish the necessary regulatory framework to provide safety oversight arrangements of their air navigation services not only in accordance with Annex 11 and PANS-ATM but also Annex 14 provisions on safety management

Report Reference		Action by Council/ANC	Conclusion/Decision Title and Action Taken	Follow-up to be Initiated by the Secretariat	
Concl./Dec. No.	**Page**			**Bureau/ Section**	**Follow-up Action**
12/43	3-12	ANC	**Provision of ICAO guidance material on the establishment of airspace safety arrangements** Noted the conclusion and that the Secretariat had already made considerable progress in the development of draft material, which is scheduled for completion by mid-2002.	ANB/ ATM	Develop guidance material on the establishment of airspace safety arrangements
12/44	3-13	ANC	**Establishment of a task force to develop an airspace safety system performance-monitoring structure for the Asia/Pacific Regions** Noted the decision and requested the Secretary General to develop provisions for a global approach to establishing airspace safety performance-monitoring arrangements.	ANB/ ATM	Develop provisions for a global approach to establishing airspace safety performance-monitoring arrangements.

OUTSTANDING CONCLUSIONS/DECISIONS OF APANPIRG IN ATS/AIS/SAR FIELDS

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 2/28		**Implementation of Area Control Service** That in view of recent improvements in the point-to-point communications and imminent improvement in HF air-ground communication, States concerned be urged to take urgent action to upgrade advisory and flight information services to area control service in the area over the Bay of Bengal by early 1993 along major ATS routes in their respective FIRs to enhance the safety of the rapidly increasing air traffic movement.	Area Control Services is now provided over the most of the Bay of Bengal area except for the southern portion where point-to-point communications are not reliable.	On-going
C 3/24		**Implementation of RVSM & RNP in the Pacific Region** That, Australia, New Zealand and United States requested to prepare proposals for the implementation of RVSM and RNP in the Pacific Region based on the work done by the ISPACG.	a) RNP-10 has been implemented in most of the Pacific Region. Central Pacific in October 2002. b) RNP4 implementation being considered. Note: RVSM was implemented in the Pacific Region on 24 February 2000. This action on RVSM was completed.	On-going On-going
C 4/2	 C	**States in the Asia Region to review their SAR system** That, a) States in the Asia Region review their SAR system in the context of the matters which require urgent addressing in the PAC Region and detailed in Appendix B, and advise the ICAO Regional Office. Noted the Conclusion**.**	a) Review of Asian States SAR is continuing. The ICAO Regional Office is actively fostering the enhancement of SAR throughout the Region as part of the normal work programme. ~~Shortcomings and~~ Deficiencies will be listed as they become apparent.	On-going

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 6/13		**SAR Agreements** That, a) States are encouraged to develop formal SAR agreements on a bi-lateral or multi-lateral basis; and b) ICAO establish and maintain a register of SAR agreements between States.	a) The Regional Office continues to encourage States at regular intervals b) A register has not yet been established. Monitoring undertaken by ATS/AIS/SAR/SG This Task is superseded by Conclusion 11/9.	~~On-going~~ Closed ~~On-going~~ Closed
C 6/19	 C	**Japan Area "G"** That, the Task associated with Japan area "G" be removed from the work programme of ATS/AIS/SAR/SG as the problem had been determined not to be of an ATS or AIS technical nature, noting that APANPIRG and ICAO will take further steps as appropriate. Noted the conclusion and requested the Secretary General to pursue the subject as a matter of high priority and report the outcome to the Council and inform the APANPIRG accordingly.	The Task has been removed from the work programme of ATS/AIS/SAR/SG. No progress could be made by the Secretariat on this subject. Japan is currently undertaking internal co-ordination with respect to resolving this issue.	On-going
C 8/9	 ANC	**Co-ordinated Activity – SAR** That, ICAO undertakes co-ordinated activity on a regional basis to improve the level of SAR response throughout the Asia/Pacific Region. Noted the conclusion and requested the Secretary General to take appropriate action.	~~A SAREX and associated Search and Rescue Seminar is being organised initially for the Bay of Bengal followed by the South China Sea and Pacific areas.~~ a) A SAREX and associated SAR seminar focused on the Bay of Bengal area is programmed to take place in 2003: b) A similar project will be organized for the South China Sea and Pacific islands areas.	~~On-going~~ 2003 On-going

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 8/39		**CNS/ATM Training Workshops and Seminars** That, the ICAO Regional Office continue to arrange CNS/ATM training workshops and seminars with the assistance of CNS/ATM Stakeholders and partners as necessary.	Several CNS/ATM workshops and seminars were held in the year 2000. ~~and are planned for 2002~~. Further workshops and seminar will be programmed to be held in 2003/04.	~~On-going~~ 2003/04
	C	Noted the conclusion		
C 9/1		**Implementation of the Revised South China Sea ATS Route Structure** Noting the need to expedite progress, it is reiterated that, in the interest of improved efficiency and to enhance the on-going safety of operations over the South China Sea (SCS), China and Viet Nam are strongly urged to continue their efforts, under the auspices of ICAO, with the aim of resolving outstanding issues which will permit the early implementation of the Revised South China Sea ATS Route Structure.	~~Outstanding issues have been resolved between China and Viet Nam and all SCS States are continuing their efforts in working towards an implementation date of 1 November 2001.~~ The revised South China Sea ATS route structure was implemented on 1 November 2001.	~~On-going~~ Post-implementation review
	C	Noted the conclusion, its relation to APANPIRG/8 Conclusion 8/2 and the need to continue the on-going efforts of the parties with the support of ICAO to implement the revised South China Sea ATS route structure.		
C 9/2		**Transition to WGS-84 in the ASIA/PAC Region** That, in order to achieve uniformity in aeronautical data publication across the Regions, those States which have not yet determined and published WGS-84 data, urgently undertake to complete the task in the shortest possible time frame.	ICAO Regional Office continues to undertake follow-up action with States concerned. The non-implementation of WGS-84 is listed as a Deficiency.	On-going

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
~~C 9/3~~	~~ANC~~	~~**Examine the Possibility of Including the Asia Region to the Implementation Schedule of RVSM in the Pacific Region**~~ ~~In view of the RAN/3 agreement for an RVSM implementation schedule for the Pacific Region, there should be an examination of the capacity needs, fuel saving benefits and height keeping performance for routes in the Asian Region, and if warranted, the RVSM implementation schedule should be developed to include the Asian Region.~~ ~~Noted the conclusion and its basis on capacity needs and fuel saving benefits.~~	~~The ICAO RVSM/TF is planning for and facilitating the implementation of RVSM in Asia Region.~~ ~~A target implementation date of 21 February 2002 has been set for the Western Pacific/South China Sea area except for the Hong Kong FIR and the Sanya AOR.~~ ~~RVSM across the Bay of Bengal through India and the Middle East Region is planned for 27 November 2003.~~	~~Completed~~
C 9/6	C	**Establishment of Area Control Service and 10-Minute Longitudinal Separation using Mach Number Technique** That, States, a) Identify ATS routes where the 10-minute longitudinal separation minima for RNAV equipped aircraft using MNT could be applied and subsequently implement such minima before the end of 1999. b) Identify ATS routes where 10-minute longitudinal separation minima can be applied for RNAV equipped aircraft without using MNT. Noted the conclusion.	a) With respect to the application of MNT, ~~the ICAO Regional Office will progress an amendment to Doc 7030 to streamline the existing provisions~~ an amendment proposal to the Regional Supplementary Procedures (Doc 7030) (APAC-S 00/5), which enables the application of the minimum longitudinal separation of 10 minute using MNT within the whole Asia/Pacific Region, was approved on 21 September 2001. b) Implementation subject to provisions of ICAO separation standards.	~~On-going~~ Completed On-going

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 9/8		**ATS Route Amendments** It is reiterated that, States should provide information regarding implemented, re-aligned or deleted ATS routes to ICAO by 30 April of each year in order to permit the periodic update of the Document of ATS Route Network.	Some information has been received. The Document of ATS Route Network has been revised and updated.	On-going
C 9/9		**Human Factor in the Provision of ATS** That, a) ICAO consider holding Human Factors seminars in the Asia/Pacific Region which are focused directly on Human Factors associated with the provision of ATS, and; b) States be urged to make regular presentations to Sub-Group meetings regarding "lessons learned" relating to Human Factors associated with the implementation of the new CNS/ATM Systems.	a) The first ATS Human Factors Seminar was conducted in 2000. b) ~~Very little information has been received from States~~. States are urged to provide information to ICAO on lessons learned.	On-going On-going
	ANC	Noted the conclusion		
D 9/39		**CNS/ATM Training and Human Resource Development Task Force** That, a CNS/ATM Training and Human Resource Development Task Force be established with the following Terms of Reference: a) Recommend a strategy for a regional approach towards planning the development and implementation of CNS/ATM training; b) Recommend a co-ordination mechanism for the establishment of regional training capabilities in CNS/ATM systems;	The Task Force held its first meeting in July 1999. A Regional CNS/ATM Training & Human Resource Development Strategy was developed. Further work may be progressed when the outputs of the ICAO Human Resource Planning and Training Needs Study Group become available.	On-going

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
D 9/39		c) Recommend a framework for regional training plans and consider the applicability of including this material in the Regional Air Navigation Plan; d) Take into consideration the work of ICAO TRAINAIR, the ICAO Regional Human Resources Planning and Training Needs Study Group and the APANPIRG/7 Training Task Force and recommend mechanisms for regional integration of the outputs from these group.		
C 9/51	C	**Strengthening the Regional Office Resources** That, the ASIA/PAC Regional Office resources be strengthened to permit the proper maintenance of the ASIA/PAC FASID and implementation of uniform methodology for the identification of shortcomings, the first step being the filling of the vacant AIS/MAP post. Noted the conclusion and requested the Secretary General to take appropriate action thereon	Secretary General has been requested to take appropriate action.	On-going
~~C 10/1~~		~~**Application for SSR Code Allotment**~~ ~~That States, which require additional SSR Codes, forward their application to the Regional Office, listing the required information and justification in accordance with paragraph 5.3 of the Asia/Pacific SSR Code Management Plan.~~	~~An earlier request from Myanmar is being co-ordinated with ICAO.~~ ~~SSR Codes have been allocated to Myanmar.~~ ~~There have been no requests from other States.~~	~~Completed~~
C 10/2		**Uniform Promulgation of FIR Boundary Way-points** That, States review their aeronautical materials and that of their adjacent States and, through co-ordination with adjacent States, ensure uniform promulgation of FIR boundary way-points using WGS-84 as the basis of the Datum.	ICAO continues to monitor situation and will co-ordinate with individual States where the uniform promulgation of FIR Boundary way-points has not been achieved.	On-going

Report Reference ---------- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 10/3		**ANP Amendment Proposal to include SIGMET in VOLMET Broadcasts (ASIA)** That, the ASIA/PAC Air Navigation Plan (Doc 9673) be amended to add a requirement for inclusion of SIGMET in VOLMET broadcasts for the Asia Region.	Amendment proposal APAC 99/9-ATS has been drafted. On-going consultation with provider States and users is continuing.	On-going
C 10/4		**Implementation of Area Control Service and 10-Minute Longitudinal Separation using Mach Number Technique in the Bay of Bengal area** 1) That, States in the Bay of Bengal area a) Complete the upgrade of airspace from advisory and flight information services to area control service along ATS routes, as appropriate; b) complete the implementation of 10-minute longitudinal separation minima using Mach Number Technique; and c) identify ATS routes where 10-minute longitudinal separation minima for RNAV equipped aircraft without using MNT could be applied and implement such minima. 2) That, Sub-regional ATS Co-ordination Groups concerned place a high priority on items 1) a), b) and c) above.	1) a) Implemented; b) Implemented; c) Implementation subject to provisions of ICAO separation standards 2) Implementation continues to be co-ordinated through the Bay of Bengal ATS Co-ordination Group (BBACG).	 Completed Completed On-going Closed

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 10/7	C	**Carriage of ACAS and Pressure-Altitude Reporting Transponders** That, a) ICAO survey States in the Asia Pacific Region and ascertain the implementation plans of States regarding the carriage of ACAS and pressure-altitude reporting transponders with respect to APAC-S 98/4 B ASIA/PAC RAC; b) Operators upgrade to ACAS as soon as possible. Noted the conclusion in relation to the worldwide implementation of ACAS II by January 2003 and requested the Secretary General to initiate a worldwide survey to ascertain the implementation plans of States for ACAS II.	a) ICAO conducted a survey on 22 October 1999, and information provided by States was compiled. In order to obtain additional and more specific information, ICAO conducted the 2nd survey in Aug 2000. b) ATS/AIS/SAR SG recognized a need to establish a transition period to allow operators to use TCAS version 6.04 as an interim measurement before equipping their aircraft with ACAS II completely by 1 January 2002.	Completed On-going
~~C 10/27~~	~~C~~	~~**ASIA/PAC Basic ANP and FASID**~~ ~~That, the draft ASIA/PAC Basic ANP and FASID be updated and processed in accordance with established procedures.~~ ~~Noted the conclusion and requested the Secretary General to arrange for the completion, approval and publication of the documents as a matter of priority, in accordance with established procedures.~~	~~The ASIA/PAC Basic ANP and FASID were approved by the President of the Council on 11 August 2001.~~	~~Completed~~
C 10/37		**Development of General Contingency Plans** That, The Asia Pacific Regional and State Y2K Contingency Plans and SLOAs or MOUs be used to form the basis on which to develop general contingency arrangements which will permit the continuation of air traffic in the event of any significant degradation of air traffic services and systems.	States have agreed to revise their general contingency plans using their Y2k State Contingency Plans as a model. A target date for finalization of State Contingency Plans to be the end of ~~2001~~ 2003.	~~On-going~~ 2003

Report Reference ---------- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 11/1	 ANC	**RVSM Minimum Monitoring Requirements** That, ICAO be requested to develop globally applicable short and long-term RVSM minimum monitoring requirements for aircraft. Noted the conclusion and that SASP is studying the short- and long –term objectives for RVSM monitoring.	The ICAO Separation and Airspace Safety Panel (SASP) is studying the short- and long-term objectives for RVSM monitoring.	On-going
C 11/4		**Guidance Material on CNS/ATM Operations in the Asia/Pacific Region** That, the revised Guidance Material on CNS/ATM Operations in the Asia/Pacific Region be adopted and circulated to States and appropriate International Organizations.	The Air Navigation Commission on reviewing the report of APANPIRG/11, was of the view that the revised edition of the document should not include material on the application of separation based on ADS until proposed amendments to the Procedures for Air Navigation Services – Rules of the Air and Air Traffic Services (PANS-RAC, Doc 4444), had been approved by ICAO. The revised Guidance Material on CNS/ATM Operations in the Asia/Pacific Region will be published in accordance with the guidance provided by the Air Navigation Commission, as soon as practicable. * This Task is superseded by Conclusions 12/38 and 12/39.	~~On-going~~ Closed
C 11/6		**Mandatory Carriage and Operation of Pressure-Altitude Reporting Transponders** That, States take immediate steps to mandate the carriage and operation of pressure-altitude reporting transponders within all FIRs in the Asia/Pacific Region.	Two surveys have been conducted in conjunction with the survey relating to the carriage of ACAS II for the purpose of monitoring the implementation status in the Region.	On-going

Report Reference ---------- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 11/7	C	**Implementation of ACAS II** That States; a) promulgate their implementation plans mandating the carriage and operation of ACAS II; and b) where this is in advance of the globally agreed date of 1 January 2003, provide for the continuing use of TCAS with Version 6.04A logic with a transition plan to phase out systems with Version 6.04A logic by 1 January 2002. Noted the conclusion and requested the Secretary General to urge States to take action to mandate the carriage of ACAS II by the globally agreed date of 1 January 2003.	Two surveys have been conducted. The secretariat continues to monitor the implementation. The result was presented to APANPIRG in the ATS/AIS/SAR/SG/11 Report.	~~On-going~~ 1 January 2003 ~~On-going~~ 1 January 2003
C 11/8		**SAR Capability Matrix** That, a) the "SAR Capability Matrix" be distributed to States for information and action as appropriate; and b) States provide information to ICAO by 30 April 2001 to permit the periodic update of the Matrix.	a) The "SAR Capability Matrix" was distributed to States; b) Updated information was presented at ATS/AIS/SAR/SG/11.	On-going On-going

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 11/9		**Search and Rescue Agreements between States and Establishment of a Search and Rescue Register** That, States are to complete their SAR agreements with their neighbouring States and forward such agreements to the ICAO office to be included in a register on SAR Agreements.	States have been urged to complete their SAR agreements with their neighboring States. Information has been received from some ASEAN States on signed agreements with their neighbours.	On-going
	C	Noted the conclusion and requested the Secretary General to urge States to complete SAR agreements with their neighbouring States and forward such agreements to ICAO.		
C 11/10		**Development of a Revised ATS Route Structure - Asia to/from Europe/Middle East, South of the Himalayas (EMARSSH)** That, taking into account the introduction of Required Navigation Performance (RNP), Area Navigation (RNAV) and Reduced Vertical Separation (RVSM) into the Asia Pacific region, States, ICAO and IATA develop a revised ATS route structure - Asia to/from Europe and the Middle East south of the Himalayas, to gain the benefits of existing aircraft capabilities together with CNS/ATM enhancements.	A Task Force was established, led by a Core Team. ~~Three~~ Seven sub-regional meetings have taken place. Phase 1 implementation involving Australia, Indonesia, Malaysia and Singapore took place on 29 November 2001. Further Task Force meetings are planned to complete the work. Implementation of the revised route structure is scheduled for AIRAC Date of 28 November 2002.	~~On-going~~ 28 November 2002
	ANC	Noted the conclusion and requested the Secretary General to organize an interregional coordination meeting to address interface issues to ensure end-to-end connectivity in the revised ATS route structure.		

Report Reference --- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
C 11/11		**Planning and Implementation Strategy** That, to achieve the success of the project, the following Strategy will be used:		
		a) development of a set of principles for restructuring the routes;	a) a set of Principles were adopted and agreed to;	Completed
		b) development of a project plan;	b) a project plan has been formulated;	~~On-going~~ Completed
		c) form a small project or core team to initiate, develop and lead the project through to implementation;	c) a Core Team was established consisting of Australia, Hong Kong, China, India, Singapore, IATA and ICAO as Chairman of the Core Team;	Completed
		d) plan a number of sub-regional meetings to progress the work; and	d) seven meetings have taken place ~~in Brisbane, Bangkok and Cairo~~. Further meetings, including a post-implementation review meeting, are planned ~~for Paris and Delhi this year~~; and	On-going
		e) full co-ordination with adjacent regions with regard to the development of the route structure and procedures to be maintained.	e) inter-regional coordination ~~is being~~ was conducted throughout the planning and implementation of this project.	On-going
C 11/12		**Principles to be Used in the Development of the Route Network** That, the following Principles will be used in developing this route structure: 1. that, using the advantages of CNS/ATM implementation, a revised ATS trunk route structure between Southeast Asia and Europe/Middle East will be developed. The planning of these routes structures should take advantage of existing and on-going CNS/ATM technologies in order to provide safe and efficient air traffic management with the least impact to environmental concerns; 2. that, these ATS trunk routes be developed primarily for international long-haul and medium-haul flights, however they may also be used where necessary for other regional and domestic operations;	All 5 Principles are being considered in the development and implementation of the revised ATS route structure.	On-going

Report Reference ---------- Conc/Dec No	Action by ANC/ Council	Decision/Conclusion Title/ ANC/Council Action, if any	Action by States/ICAO	Status
		3. that, as much as possible, planning of ATS trunk routes will be on the basis that each route is laterally separated from each other; 4. that, the development of these route structures will be fully co-ordinated amongst the involved Asia/Pacific ATS Providers and airlines. Also, due to the length of these trunk routes, harmonisation is required with both MID and EUR Regions; and 5. that co-operation is required between all concerned states and the aviation industry to ensure an efficient flow of international aircraft operations between Asia, Europe and the Middle East.		

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Agenda Item 3: Review and progress the tasks assigned to the ATS/AIS/SAR/SG by APANPIRG

3.1 **RVSM Implementation**

3.1.1 The Sub-Group reviewed the work of the ICAO RVSM Implementation Task Force (RVSM/TF).

3.1.2 The Task Force had met four times as below since its activities were reported to the Sub-Group at the ATS/AIS/SAR/SG/11 meeting:

TF/12: 10-14 September 2001, Denpasar, Indonesia

TF/13: 14-18 January 2002, Singapore

TF/14: 30-31 May 2002, Bangkok, Thailand

TF/15: 3-7 June 2002, Bangkok, Thailand

3.1.3 The RVSM/TF meetings have had wide representation from States planning to implement RVSM, States considering implementing RVSM, operators, international organizations and industry groups.

3.1.4 Ms. Leslie McCormick, Acting Deputy Manager, ATS International Staff, Federal Aviation Administration (FAA), United States, as Chairperson of the Task Force, continued to guide its activities until January 2002. Mr. Sydney Maniam, Senior ATC Manager (Standards), Civil Aviation Authority of Singapore took over as Chairperson of the Task Force from February 2002. Mr. Yusfandri Gona, Head of Performance & Flight Test Section, Directorate General Air Communication (DGAC) Indonesia and Mr. Greg Hood, FIR Manager, Airservices Australia, undertook the duties of Chairman of the Aircraft Operations & Airworthiness Work Group (OPS/AIR/WG) and of the ATC Operations Work Group (ATC/WG), respectively at the RVSM/TF/14. Mr. Nopadol Sangngurn, Vice-President, Business Development Bureau, AEROTHAI, chaired the Safety & Airspace Monitoring Work Group (SAM/WG) from the RVSM/TF/14, too.

3.1.5 In order to accomplish its work program, the RVSM/TF formed the following smaller work groups:

a) Safety & Airspace Monitoring;

b) ATC Operations; and

c) Aircraft Operations & Airworthiness

3.1.6 The RVSM/TF defined its work program by way of a Task List, which was reviewed and updated at each meeting.

<u>Western Pacific/ South China Sea Implementation</u>

3.1.7 The meeting noted that RVSM was implemented on 21 February 2002 in the following airspace (Phase 1):

a) Phnom Penh, Kuala Lumpur, Kota Kinabalu, Manila, Singapore, Bangkok and Ho Chi Minh FIRs; and

b) on N892 (within the oceanic airspace of the Sanya AOR).

3.1.8 The meeting was advised that RVSM will be implemented on 31 October 2002 in the following airspace (Phase 2):

a) Hong Kong, Bali, Jakarta, Ujung Pandang, Vientiane and Ha Noi FIRs; and

b) in the rest of the oceanic airspace of the Sanya AOR.

3.1.9 The meeting was provided with a comprehensive overview of the 90-day post implementation review conducted by the RVSM/TF/14. The issues addressed at the meeting are as follows:

Operational Considerations – Phase 1 implementation on 21 February 2002

3.1.10 All States concerned reported that the transition went smoothly except for minor non-compliance of flight planning requirements and occasional misunderstanding of level assignments on some routes.

3.1.11 IATA commented positively on the implementation and operations of RVSM in the Western Pacific/South China Sea area since 21 February 2002. However, there were some concerns on the dissemination of aeronautical information and NOTAMs by individual States. In this regard, IATA emphasized the need for close co-ordination and harmonization of activities by States.

3.1.12 IATA suggested the involvement of charting companies in developing RVSM materials in order to keep abreast with States' plans and provide assistance in the area of aeronautical information. It was agreed that charting/flight data companies should be invited to the future meetings of the Task Force.

3.1.13 IFALPA considered that the implementation of RVSM in the Western Pacific/South China Sea area had enhanced the efficiency of operations. IFALPA praised the States involved and the Task Force for the successful implementation of RVSM. IFALPA also urged that procedures be harmonized with adjacent regions in order to further enhance safety.

3.1.14 IFATCA also expressed positive views on the implementation of RVSM on 21 February 2002. IFATCA emphasized the importance of the flight planning requirement to insert "W" for RVSM compliant aircraft by operators.

Operational Considerations – Phase 2 implementation on 31 October 2002

3.1.15 States involved in the Phase 2 implementation advised that preparations were progressing satisfactorily in general.

3.1.16 At RVSM/TF/14, it was agreed that the band of RVSM levels would be from FL290 to FL410 inclusive in all FIRs/AOR, except for Bali, Jakarta and Ujung Pandang FIRs, as of 31 October 2002.

3.1.17 It was confirmed that RVSM would not be implemented on A202 within Hong Kong FIR and Sanya AOR on 31 October 2002.

3.1.18 The operational plan for the implementation of RVSM in the Western Pacific/South China Sea area was updated as shown below:

Operational Plan for the Implementation of RVSM in the Western Pacific/South China Sea Area

Flight Information Region/Area of Responsibility	Flight Levels	Flight Level Orientation Scheme (FLOS)	Exclusive Airspace ** Note 1*	Initial Implementation	Remarks
Bangkok	290-410	Single Alternate	Yes	21 Feb 2002 (phase 1)	G474 R468(BKK-BOKAK) R588(KAKET-SOPOL) R334 N891(BKK-XONAN)
				31 Oct 2002 (phase 2)	A1 and A202 Northeastern to Northern of BKK FIR
Hanoi	290-410	Modified Single Alternate/Single Alternate ***Note 2***	Yes	31 Oct 2002	A202 (Modified Single Alternate); W1 (Single Alternate); B465, R474 (subject to further discussion with Thailand and Lao PDR)
Ho Chi Minh	310-410 (phase 1)	Modified Single Alternate ***Note 2***	Yes	21 Feb 2002 (phase 1)	L642, M771, N892, L625, L628, N500, M765, M768, M753, L637,N891
	290-410 (phase 2)	Modified Single Alternate/Single Alternate ***Note 2***	Yes	31 Oct 2002 (phase 2)	L642, M771, N892, L625, L628, N500, M765, M768, M753, L637,N891 A1, P901 (Modified Single Alternate); W1 (Single Alternate)
Hong Kong	290-410	Modified Single Alternate ***Note 2***	Yes	31 Oct 2002	Excluding A202
Jakarta	350-390 (phase 1)	Single Alternate	Yes	31 Oct 2002	Phase 1: N646, N752, L764, L895, L511, B592, G464, A464, A576, G462, A585, G220
	310-390 (phase 2)	Single Alternate	Yes	AIRAC Feb 2004	Phase 2 to be advised

Flight Information Region/Area of Responsibility	Flight Levels	Flight Level Orientation Scheme (FLOS)	Exclusive Airspace ** Note 1*	Initial Implementation	Remarks
	290-410 (phase 3)	Single Alternate	Yes	AIRAC Feb 2006	
Kota Kinabalu	310-410	Single Alternate/ Modified Single Alternate ***Note 2***	Yes	21 Feb 2002	Modified Single Alternate in SCS/ Single Alternate in other airspace
	290-410 (Phase 2)	Single Alternate/ Modified Single Alternate ***Note 2***	Yes	31 Oct 2002	
Kuala Lumpur	310-410	Modified Single Alternate ***Note 2***	Yes	21 Feb 2002	East of M751 inclusive
	290-410 (Phase 2)	Single Alternate/ Modified Single Alternate ***Note 2***	Yes	31 Oct 2002	
Manila	310-410	Single Alternate/ Modified Single Alternate ***Note 2***	Yes	21 Feb 2002	Single Alternate in Western Pacific/ Modified Single Alternate in SCS
	290-410 (Phase 2)	Single Alternate/ Modified Single Alternate ***Note 2***	Yes	31 Oct 2002	
Naha (Pacific Oceanic)	290-410	Single Alternate	Yes	24 Feb 2000	Exclusive airspace FL290-FL390
Phnom Penh	290-410	Single Alternate	Yes	21 Feb 2002	Except for R468, PNH-SAPEN FL310-FL410
	290-410 (Phase 2)	Single Alternate	Yes	31 Oct 2002	Include R468, PNH-SAPEN
Sanya (Oceanic airspace)	310-410	Modified Single Alternate ***Note 2***	Yes	21 Feb 2002	Applicable only on N892
	290-410	Modified Single Alternate ***Note 2***	Yes	31 Oct 2002	A1, P901, L642, and M771 be added as RVSM applied routes
Singapore	310-410	Modified Single Alternate ***Note 2***	Yes	21 Feb 2002	
	290-410 (Phase 2)	Modified Single Alternate ***Note 2***	Yes	31 Oct 2002	
Incheon (Daegue)	TBD	TBD	TBD	TBD	
Taipei	310-410	Modified Single Alternate ***Note 2***	TBD	21 Feb 2002	N892 south-bound traffic only
	290-410 (Phase 2)		Yes	31 Oct 2002	

Flight Information Region/Area of Responsibility	Flight Levels	Flight Level Orientation Scheme (FLOS)	Exclusive Airspace ** Note 1*	Initial Implementation	Remarks
Ujung Pandang (UIR)	350-390 (phase 1)	Single Alternate	Yes	31 Oct 2002	Phase 1: B584, B583, R223, A461, B473, B472, R590, R340 L511, R592, G578, A576, B349, A587, G326, G464, A464, G462, A339, R340, A215, G459, B462
	310-390 (phase 2)	Single Alternate	Yes	AIRAC Feb 2004	To be advised
	290-410 (phase 3)	Single Alternate	Yes	AIRAC Feb 2006	To be advised
Vientiane	290-410	Single Alternate	Yes	31 Oct 2002	B465, R474, A1, A202, B202, B329, B346, B218

Table 1- RVSM Implementation Western Pacific/South China Sea

Note 1: "Exclusive" means non-RVSM approved aircraft may NOT flight plan into airspace where RVSM may be applied. Aircraft that have not received State RVSM approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and procedures established by the ATS Provider States provided that 2,000ft vertical separation is applied. Some States may choose to allow non-RVSM State aircraft to flight plan into RVSM airspace.

Note 2: "Modified Single Alternate" means the RVSM levels for the six major RNAV routes (viz L642, M771, N892, L625, N884 and M767) would be FL320, FL340, FL360, FL380 and FL400. RVSM approved aircraft operating on routes that cross the six one-way tracks would be assigned the eastbound levels FL330, FL370 and FL410 or westbound levels FL310, FL350 and FL390 accordingly. Individual State AIP will describe the details.

3.1.19 The Task Force reiterated the need for States to provide monthly reports on large height deviations to the Asia Pacific Approvals Registry and Monitoring Organization (APARMO). A "NIL report" (where applicable) was necessary to ensure the completeness of the safety assessments relating to RVSM operations. The monthly large height deviation reports should be submitted to the APARMO by the end of the following month.

3.1.20 The RVSM/TF/14 agreed that States should also provide details of operational errors in relation to large height deviation to the airlines/operators of aircraft involved.

3.1.21 It was further agreed that States concerned should put appropriate measures in place to ensure that operational errors are significantly reduced in order for the target level of safety to be maintained.

3.1.22 The Task Force agreed that the procedures for large-scale weather deviations, which was carried forward from SEACG/10 meeting, should be reviewed between the States concerned. The agreed procedures should be included in the respective LOAs/SLOAs.

3.1.23 It was agreed that States should consult their relevant meteorological agencies prior to the resumption of RVSM operations as a result of adverse weather conditions, in accordance with the ICAO manual.

3.1.24 The Task Force agreed that Section 12.0 of the AIP Supplement on RVSM operations relating to procedures for operation of non-RVSM compliant aircraft in RVSM airspace, should be amended. The AIP Supplement should also include the No-PDC assignment of RVSM levels. States that had not published the AIP Supplement would do so by late July 2002. States that have implemented RVSM will publish an AIP amendment by late July 2002 to inform operators of the changes.

Airworthiness and Operation of Aircraft Considerations

3.1.25 The Task Force reviewed the need of the availability of the RVSM Website from the FAA (www.faa.gov/ats/ato/rvsm1.htm) to States and operators, to provide a better understanding of the airworthiness and aircraft operations material available. The website listed the published information on RVSM and the FAA had agreed to maintain the website for States, operators and the ICAO RVSM Implementation Task Force.

3.1.26 The Task Force noted that ICAO had distributed a second guideline on the use of lateral offsets and the effect on airspace safety under State Letter C19-15/02-1 dated 19 April 2002. The Task Force also noted that APANPIRG was in the process of developing lateral offset procedures for application in the Asia/Pacific Region through the ATS/AIS/SAR Sub-Group.

3.1.27 The Task Force reviewed the program for the monitoring of aircraft height-keeping performance, as part of the RVSM Continuous Airworthiness Program, after initial operational approval had been issued. It was noted that the Asia Pacific Airspace Safety Monitoring (APASM) Task Force would develop the structure for regional monitoring of aircraft operations, including the height-keeping performance of aircraft.

Safety and Airspace Monitoring Considerations

3.1.28 The APARMO reported that it had used the sample of traffic for the period 15 November to 15 December 2001 in the Western Pacific/South China Sea airspace that had been identified for RVSM implementation on 31 October 2002. China, Hong Kong China, Indonesia, Lao PDR, and Viet Nam provided traffic samples for their respective FIRs/AOR. State RVSM approvals reported to the North Atlantic Central Monitoring Agency and APARMO, as well as MASPS-compliant airframes identified by EUROCONTROL, were compared to the traffic sample. The percentage of operations currently being conducted by RVSM-approved operators and aircraft in the Western Pacific/South China Sea area was 91 percent.

3.1.29 The Task Force had adopted a target of 90-percent operator approval for RVSM implementation. The readiness assessment done by the APARMO indicated that a sufficient percentage of operators had obtained RVSM approval for operations in the designated RVSM airspace. It was noted that the readiness requirement had been met for the planned implementation of RVSM in Western Pacific/South China Sea area on 31 October 2002.

3.1.30 The safety assessment conducted by the APARMO confirmed that the safety target for the Phase 1 implementation of RVSM in the FIRs/AOR in the Western Pacific/South China Sea area on 21 February 2002 had been met.

3.1.31 The Task Force reviewed the safety assessment associated with the Phase 2 implementation of the RVSM in the FIRs/AOR in the Western Pacific/South China Sea area on 31 October 2002. The meeting recalled that the safety goal to be satisfied when implementing RVSM was a Target Level of Safety (TLS) of 5×10^{-9} fatal accidents per flight hour. The Task Force noted that the number of operational errors needed to be reduced prior to the implementation of RVSM in the FIRs/AOR in the Western Pacific/South China Sea area on 31 October 2002. The APARMO reported that the estimated number of minutes that aircraft were operating at incorrect flight levels exceeded the amount that could be tolerated by the Collision Risk Model (CRM). The meeting was also informed that the APARMO's experience had shown that the operational risk dominated the estimated risk value attributable to all causes. After existing procedures were improved, the APARMO would ask operational experts to forecast the likely effect on the occurrence of operational errors. Based on advice of the operational experts, a value of estimated risk would be re-computed. A final safety assessment for the FIRs/AOR in Western Pacific/South China Sea area planning to implement RVSM on 31 October 2002 would be presented at the RVSM/TF/16 meeting in September 2002.

3.1.32 The Task Force noted the progress of the transfer of responsibility for RVSM monitoring between the AEROTHAI and the FAA Technical Center. It was informed of the recent engagement between the AEROTHAI and the FAA Technical Center in the area of airspace analysis and data collection process pertaining to RVSM, as well as the arrangements for the training of personnel from the AEROTHAI at the FAA Technical Center.

3.1.33 It was also noted that preparations for the signing of the Memorandum of Understanding (MOU) between the AEROTHAI and the FAA were underway. AEROTHAI reported that it would be ready to assume responsibility as the monitoring agency for RVSM operations in the Asia Region by October 2002.

Bay Of Bengal and Beyond Implementation

3.1.34 The Task Force agreed to reflect a common definition for the airspace in which RVSM will be implemented on 27 November 2003. To this end, the Task Force adopted the definition "**Bay of Bengal and Beyond (within the ICAO Asia Region)**." The RVSM airspace will include the Bangkok, Calcutta, Chennai, Colombo, Delhi, Dhaka, Jakarta, Karachi, Katmandu, Kuala Lumpur, Lahore, Male, Mumbai and Yangon FIRs. It was also agreed to examine orographic flow, known as mountain waves activity, and other meteorological effects which may have an impact on the safe implementation of RVSM in the Bay of Bengal and Beyond (within the ICAO Asia Region).

3.1.35 India advised the meeting that Calcutta FIR has been renamed as Kolkata FIR.

Operational Considerations

3.1.36 The Task Force sought initial planning details (operational readiness report) from India, Indonesia, Malaysia, Maldives, Nepal, Pakistan, Sri Lanka, and Thailand for RVSM implementation on 27 November 2003. It was agreed that States involved could not provide definite plans on the Flight Level Orientation Scheme (FLOS) until an operational concept had been agreed upon for the traffic flow in the region. The operational plan for the implementation of RVSM in the Bay of Bengal and Beyond was updated as shown below:

Operational Plan for the Implementation of RVSM in the Bay of Bengal and Beyond (within the ICAO Asia Region)

Flight Information Region/Area of Responsibility	Flight Levels	Flight Level Orientation Scheme (FLOS)	Exclusive Airspace ** Note 1*	Initial Implementation	Remarks
Bangkok	290-410	Single Alternate	Yes	27 Nov 2003	All the remaining areas, in the southern part of BKK FIR
Calcutta	290/330-410 (availability of FLs 290-330 is time basis as follows:) 1630-0030 UTC (290-410 inclusive) 0030-1630 UTC (330-410)	TBD (Certain levels to be reserved for crossing routes)	Yes (for Oceanic airspace)	27 Nov 2003	Pending EMARSSH evaluation. Subject to consultation with adjacent FIRs. Implementation on a route specific basis.
Chennai	290/330-410 (availability of FLs 290-330 is time basis as follows:) 1630-0030 UTC (290-410 inclusive) 0030-1630 UTC (330-410)	TBD (Certain levels to be reserved for crossing routes)	Yes (for Oceanic airspace)	27 Nov 2003	Pending EMARSSH evaluation. Subject to consultation with adjacent FIRs. Implementation on a route specific basis.
Colombo	290/330-410	Modified Single Alternate	Yes	27 Nov 2003	Pending EMARSSH evaluation. Subject to consultation with adjacent FIRs. Implementation on a route specific basis.

Flight Information Region/Area of Responsibility	Flight Levels	Flight Level Orientation Scheme (FLOS)	Exclusive Airspace ** Note 1*	Initial Implementation	Remarks
Delhi	290/330-410 (availability of FLs 290-330 is time basis as follows:) 1630-0030 UTC (290-410 inclusive) 0030-1630 UTC (330-410)	TBD	1630-0030 UTC Exclusive: 0030-1630 UTC Non-Exclusive	27 Nov 2003	Pending EMARSSH evaluation. Subject to consultation with adjacent FIRs. Implementation on a route specific basis.
Dhaka	TBD	TBD	TBD	27 Nov 2003	To be co-ordinated by ICAO
Jakarta	310-410	Single Alternate	Yes	27 Nov 2003	EMARSSH routes and R461, B344, A585, A576, B335, G468, B466, A327, R469, A330
Karachi	290-410	TBD	Yes	27 Nov 2003	Subject to consultation with adjacent FIRs. Implementation on a route specific basis
Kathmandu	TBD	TBD	TBD	27 Nov 2003	Subject to consultation with adjacent FIRs. Implementation on a route specific basis
Kuala Lumpur	290-410	Single Alternate	Yes	27 Nov 2003	Subject to consultation with adjacent FIRs.
Lahore	290-410	TBD	Yes	27 Nov 2003	Subject to consultation with adjacent FIRs.
Male	290-410	TBD	TBD	27 Nov 2003	Subject to consultation with adjacent FIRs.
Mumbai	290-410 (Oceanic airspace)	TBD	Yes (Oceanic airspace)	27 Nov 2003	Pending EMARSSH evaluation. Subject to consultation with adjacent FIRs. Implementation on a route specific basis.
Yangon	TBD	TBD	TBD	27 November 2003	To be co-ordinated by ICAO

Table 2 – RVSM Implementation Bay of Bengal and Beyond (within the ICAO Asia Region)

Note 1: "Exclusive" means non-RVSM approved aircraft may NOT flight plan into airspace where RVSM may be applied. Aircraft that have not received State RVSM approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and procedures established by the ATS Provider States provided that 2,000ft vertical separation is applied. Some States may choose to allow non-RVSM State aircraft to flight plan into RVSM airspace.

3.1.37 Task Force agreed that all States would assess the effect of large scale meteorological activity such as typhoon/cyclones on their planned implementation of RVSM and develop mitigating strategies as appropriate. It was agreed that where these mitigating strategies affected adjacent FIRs, the procedures should be included in the respective LOAs/SLOAs.

3.1.38 India, Nepal and Pakistan agreed to consult with their respective meteorological agencies to assess the impact of mountain waves on the height-keeping capability of aircraft in RVSM airspace. This would determine whether the implementation of RVSM would need to be modified or suspended in areas where such mountain wave activities were forecasted. India, Nepal and Pakistan agreed to provide a report on the results of their assessment at the RVSM/TF/17 meeting in November 2002.

3.1.39 The Task Force agreed that implementation of RVSM in the Bay of Bengal and Beyond should be harmonized with the ICAO Middle East Region RVSM implementation plan, also scheduled on 27 November 2003. To this end, a Joint Interface Meeting will be held with the ICAO Middle East Region Task Force later this year.

3.1.40 The Task Force agreed that all States would publish an AIC on the implementation of RVSM before 27 November 2002, to ensure that a full 12-month notice would be provided to operators.

3.1.41 The Task Force reviewed the draft sample AIP Supplement for the implementation of RVSM in the Bay of Bengal and Beyond. It was agreed that the AIP Supplement should be in line and consistent with previous procedures. The AIP Supplement would be finalized at the RVSM/TF/17 meeting. States will publish the AIP Supplement not later than 15 May 2003 to provide operators with advance information on the policies and procedures for RVSM operations.

3.1.42 The Task Force considered a draft proposal to amend ICAO Document 7030 to include FIRs where RVSM may be applied, which highlighted the requirement for a cost benefit analysis of RVSM implementation for the Bay of Bengal and Beyond. The requirement for this cost benefit analysis will be reviewed when the operational concept plan is finalized.

Airworthiness and Operation of Aircraft Considerations

3.1.43 It was noted that the list of State-approved aircraft was not available on the RVSM Website. The meeting agreed that the list should be included in the FAA RVSM Website, in coordination with the North Atlantic and EUROCONTROL monitoring agencies.

3.1.44 The Task Force reviewed the Operator and Aircraft Approval Process and Documentation for RVSM operations. The Task Force agreed that the existing guidelines and procedures in the Asia Pacific RVSM program could be adopted for Bay of Bengal and Beyond RVSM program.

3.1.45 The Task Force reviewed the APARMO MINIMUM MONITORING REQUIREMENTS. Amendments were proposed to include the planning process for operators to conduct RVSM operations in Bay of Bengal and Beyond. The meeting agreed that data obtained in conjunction with RVSM monitoring programs from other regions could be used to meet the Bay of Bengal and Beyond monitoring requirements. The proposed amendments will be finalized at the

RVSM/TF/17 meeting.

3.1.46 The Task Force reviewed the existing procedures for the application of tactical lateral offset to mitigate the effects of wake turbulence and TCAS alerts on RVSM operations. The Task Force adopted the existing procedures for the implementation of RVSM in the Bay of Bengal and Beyond.

Safety and Airspace Monitoring Considerations

3.1.47 In view of the new area where RVSM will be implemented, *i.e.* the Bay of Bengal and Beyond within the ICAO Asia Region, the Task Force recognized the need for the dissemination of information to States, ATS providers and operators on the policy and procedures for the implementation of RVSM. In this regard, the information on RVSM is available via the FAA RVSM Website (http://www.faa.gov/ats/ato/rvsm1.html) with a direct link from ICAO Asia and Pacific Regional Office Website at http://www.icao.int/apac.

3.1.48 The Task Force agreed that traffic movement data in the airspace where RVSM would be implemented was necessary for a comprehensive assessment of operator readiness and safety evaluation. The same data would be used for a cost benefit analysis as well. To this end, States were required to provide the APARMO with traffic movement data for the period 1 February to 31 March 2002. It was agreed that States who have not yet provided the data to APARMO should forward the data as soon as possible.

3.1.49 The Task Force agreed that States concerned in the Bay of Bengal and Beyond should provide further traffic movement data to the APARMO for 2 months from 15 December 2002 to 15 February 2003, following the implementation of the EMARSSH route restructure.

3.1.50 It was recalled that one criterion adopted by the Task Force as a target for RVSM implementation was a 90 percent operator approval. Currently, the percentage of operations conducted by State-RVSM approved operators and aircraft in the Bay of Bengal and Beyond airspace where RVSM would be implemented was 69.62%.

3.1.51 The Task Force reiterated that the reporting of large height deviations and operational errors involving level assignment was critical to the determination of the safety assessment for RVSM implementation. The Task Force agreed that all States in the Bay of Bengal and Beyond would provide monthly reports on large height deviations to the APARMO. A “NIL report” (where applicable) was necessary to ensure the completeness of the safety assessment relating to RVSM operations.

3.1.52 The Task Force agreed that operators should also report large height deviations to the APARMO. The requirement for such reports will be incorporated in the State AIC for the implementation of RVSM.

RVSM Implementation Plan Status Report

3.1.53 The Task Force continued to review the status of the RVSM implementation plan for the Asia/Pacific Region. The updated Asia/Pacific Region RVSM Implementation Plan Status Report is below:

Asia/Pacific Region RVSM Implementation Plans Status Report (as of 7 June 2002)

FIR/AOR	RVSM Implementation Date	Comments
Anchorage Arctic	24 Feb 2000	RVSM Transition Airspace only
Anchorage Continental	24 Feb 2000	RVSM Transition Airspace only
Anchorage Oceanic	24 Feb 2000	
Auckland Oceanic	24 Feb 2000	
Bali	31 Oct 2002	Phased implementation
Bangkok	21 Feb 2002	Phased implementation
Beijing		
Biak	Not applicable	Subject to Indonesia upper airspace consolidation
Brisbane	24 Feb 2000	Oceanic East of Australia 24 Feb 2000 - Remainder of FIR 1 Nov 2001
Calcutta	27 Nov 2003	
Chennai	27 Nov 2003	
Colombo	27 Nov 2003	
Delhi	27 Nov 2003	
Dhaka	27 Nov 2003	
Guangzhou		
Hanoi	31 Oct 2002	Phased Implementation
Ho Chi Minh	21 Feb 2002	Phased Implementation
Hong Kong	31 Oct 2002	
Honiara	24 Feb 2000	
Jakarta	31 Oct 2002	**Phased Implementation**
Karachi	27 Nov 2003	
Kathmandu	27 Nov 2003	
Kota Kinabalu	21 Feb 2002	
Kuala Lumpur	21 Feb 2002	Phased Implementation – Western part 27 Nov 2003
Kunming		
Lahore	27 Nov 2003	
Lanzhou		

FIR/AOR	RVSM Implementation Date	Comments
Male	27 Nov 2003	
Manila	21 Feb 2002	
Melbourne	1 Nov 2001	
Mumbai	27 Nov 2003	
Nadi	24 Feb 2000	
Naha	24 Feb 2000	Pacific Oceanic (non-exclusive RVSM airspace) Further phased implementation planned
Nauru	24 Feb 2000	
New Zealand (Domestic)	13 July 2000	Non-exclusive
Oakland Oceanic	24 Feb 2000	
Phnom Penh	21 Feb 2002	
Port Moresby	13 Apr 2000	
Pyongyang		
Sanya AOR	31 Oct 2002	N892 within the oceanic airspace of Sanya AOR on 21 February 2002
Shanghai		
Shenyang		
Singapore	21 Feb 2002	
Taegu	TBD	
Tahiti	24 Feb 2000	Non-exclusive RVSM airspace
Taibei	21 Feb 2002	
Tokyo	24 Feb 2000	Oceanic
Ujung Pandang	31 Oct 2002	**Phased Implementation**
Ulaan Baatar		
Urumqi		
Vientiane	31 Oct 2002	
Wuhan		
Yangon	27 Nov 2003	

Future Work

3.1.54 The future work of the Task Force with respect to the implementation of RVSM in the Asia/Pacific Region is as follows:

Special Coordination Meeting:	29-31 July 2002 in Manila, Philippines (Western Pacific/South China Sea Focus)
Joint Interface Meeting between Asia/Pacific and Middle East RVSM Task Forces:	26-28 August 2002 (tentative) and location TBD
RVSM/TF/16:	23-25 September 2002 in Bangkok, Thailand (Western Pacific/South China Sea Focus)

(Target Implementation in Bali, Hanoi, Hong Kong, Jakarta, Ujung Pandang and Vientiane FIRs and Sanya AOR AIRAC date 31 October 2002)

RVSM Seminar/5:	6-8 November 2002 (tentative) and location TBD (Bay of Bengal and Beyond focus)
RVSM/TF/17:	11-15 November 2002 (tentative) location TBD (Bay of Bengal and Beyond focus)
RVSM/TF/18:	3 days February 2003 location TBD (90-day and 1-year follow up review on Western Pacific/South China Sea focus)
RVSM/TF/19:	5 days May 2003 location TBD (Bay of Bengal and Beyond focus)
RVSM/TF/20:	5 days October 2003 location TBD (Bay of Bengal and Beyond focus)

(Target Implementation Bay of Bengal and Beyond AIRAC date 27 November 2003)

RVSM/TF/21:	3 days February 2004 location TBD (90-day follow up review on Bay of Bengal and Beyond focus)
RVSM/TF/22:	2 days November 2004 location TBD (1-year follow up review on Bay of Bengal and Beyond focus)

Proposed Amendment To The Guidance Material on the Implementation of a 300M (1000 Ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia And Pacific

3.1.55 The Sub-Group meeting was advised that the RVSM Task Force discussed and agreed to the phraseologies related to RVSM operations to be used by pilots and controllers. The RVSM/TF/13 meeting agreed that the adopted phraseologies be included in the RVSM Guidance Material. The proposed amendments are to be made to the following paragraphs and Appendix of the Guidance Material:

a) Add paragraph 5.7 to Part 5 – Flight Crew Operating Procedures (Page 18);

b) Add paragraphs 6.5 and 6.6 to Part 6 – ATC Procedures (Page 20);

c) Add Appendix G – Controller-pilot Phraseologies (Pages G-1 and 2);

d) Amend the Table of Contents accordingly (Pages i and ii); and

e) Add the Record of Amendments and Corrigenda.

3.1.56 The details are shown at Appendix A to the Report on Agenda Item 3.

3.1.57 Noting that these phraseologies have been adopted and widely in use in the Pacific and the South China Sea area as well as in the North Atlantic and Europe, the meeting considered it appropriate to include the proposed phraseologies related to RVSM operations to the RVSM Guidance Material. Accordingly, the meeting developed the following Draft Conclusion for adoption by APANPIRG:

Draft Conclusion 12/1 – Amendment to the *Guidance Material on the Implementation of a 300 m (1000 ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia and Pacific*

That, the phraseologies related to RVSM operations contained at Appendix A to the Report on Agenda Item 3 be adopted for inclusion the *Guidance Material on the Implementation of a 300 m (1000 ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia and Pacific*.

3.1.58 The meeting unanimously wished to record their appreciation to Ms. Leslie McCormick, Mr. Sydney Maniam, Mr. Brian Colamosca, and Mr. Roy Grimes, for their leadership in chairing the Task Force meetings and seminars in the past, and to FAA for providing expert assistance to the Task Force, which led to the successful implementation of RVSM in the Pacific in February 2000 and in the Western Pacific/South China Sea area in February 2002. The meeting also expressed appreciation to Australia, Indonesia, Singapore and Thailand for the significant support provided to the Task Force through the appointment of Chairpersons of the Task Force and its Work Groups in order to ensure the continuity of the Task Force work.

3.2 Dissemination of Aeronautical Information

3.2.1 The Representative for Jeppesen provided the meeting with a presentation on the processes associated with the scheduling and production of aeronautical and charting data. The meeting was reminded that aircraft navigation systems and commercial navigation charts were dependent on the timely and accurate publication of information.

3.2.2 The meeting was advised that if a recipient did not receive data according to the AIRAC concept, then the amended information could not always be applied to navigation databases by the intended effective date. This may result in pilots, airlines, flight planners, and simulator operators using out-dated information. Current data must be available in order for database driven systems to operate safely and efficiently in existing and future CNS/ATM airspace.

3.2.3 The meeting recalled that ICAO Annex 15 specifies that AIRAC type changes to aeronautical information *"shall be distributed under the regulated system (AIRAC)."* Annex 15 also specifies that *"whenever major changes are planned and where additional notice is desirable and practicable, a publication date of at least 56 days in advance of the effective date should be used."*

3.2.4 In addition to the dates prescribed by ICAO, the meeting was informed that there were two important industry time factors associated with the production of aeronautical and charting data. These include:

a) the data preparation time factor (needed by the data supplier); and

b) the data processing time factor (needed by the avionics manufacturers).

Data preparation time factor

3.2.5 The data preparation time factor is needed to prepare the data in accordance with aviation industry specifications. A data preparation agency receives, analyzes, and evaluates the navigation data contained in AIP documents. Any inconsistencies in the data are coordinated with the State. The data preparation agency then edits the data, codes the data into a master database, and extracts the navigation data from the master database in preparation for use by the avionics manufacturers. Data not received before the extract will not appear in the aviation industry databases.

Data processing time factor

3.2.6 The data processing time factor is needed by the avionics manufacturers to finalize data for the flight deck. Twenty days prior to an effective date, data prepared in accordance with industry specifications is extracted from the master database of a data preparation agency. The extracted data is sent to the avionics manufacturers such as Honeywell, Smiths, Rockwell-Collins, etc., who process the data for each type of avionics system and each type of aircraft. They complete the final data processing and disseminate databases to worldwide aircraft.

3.2.7 This is accomplished within the 20-day window, of which 10 days is required for processing and a further 10 days is allowed for distribution to the airlines, which must then complete data integrity checks before the effective date.

3.2.8 The meeting recognized that there was no flexibility within the 20-day data processing period and acknowledged that recipients (data preparation agencies) of AIP documents who receive data 28 days in advance of the effective date have only 8 days before the 20-day avionics window begins. According to the Jeppesen Representative, eight days was not sufficient time to physically prepare significant changes or major changes such as the South China Sea project.

3.2.9 In view of the above, the meeting was asked to consider whether changes to aeronautical information could be delivered to the data preparation agency, 14 days ahead of the required 28 days specified under ICAO Annex 15 (i.e. 42 days in advance of the effective date).

3.2.10 Furthermore, to avoid the possibility of mailing delays associated with the delivery of the original document, States are encouraged to submit aeronautical data via electronic means, in addition to hard-copy delivery.

3.2.11 In view of the foregoing, the meeting formulated the following Draft Conclusion:

Draft Conclusion 12/2 – Timely notification by States of changes to aeronautical information

That, to facilitate data preparation and processing, States are encouraged to disseminate changes to aeronautical information in an electronic form to be at least 14 days in advance of the 28 day AIRAC cycle requirement. (i.e. to be received 42 days ahead of implementation).

3.2.12 The meeting considered that this enhancement may be included in the ICAO Regional Supplementary Procedures (Doc 7030).

3.3 **Implementation of lateral offsets in oceanic and remote area airspace**

3.3.1 The meeting recalled APANPIRG/12 Decision 12/9 – Development of lateral offset procedures for application in the Asia/Pacific Region:

That, as a matter of urgency, the ATS/AIS/SAR/SG develop lateral offset procedures for application in the Asia/Pacific Region, and in co-ordination with other regional planning groups and bodies concerned, develop global offset procedures.

3.3.2 In consideration of APANPIRG Decision 12/9, the meeting was reminded that the use of lateral offsets as a safety measure to reduce the risk of collision in the event of loss of vertical separation was the subject of State letter AN 13/11.6-00/96 dated 3 November 2000. The purpose of these guidelines was to standardize procedures to reduce the likelihood of pilots inadvertently applying procedures different from those specified for the airspace in which they were operating. It was also necessary to ensure that the application of offsets to reduce the risk of collision as a result of loss of vertical separation would not unduly increase the risk of loss of lateral separation between aircraft on adjacent tracks.

3.3.3 In its review of the APANPIRG/12 report, the Air Navigation Commission considered Decision 12/9 and noted that further guidance was being developed by the Separation and Airspace Safety Panel (SASP) and that the development of lateral offset procedures for regional implementation should be in accordance with global guidelines to avoid a proliferation of procedures with potentially conflicting requirements.

3.3.4 The meeting was advised that the SASP undertook a review of the lateral offset guidelines in late 2001, in light of information provided by certain States and further safety analyses, which had been undertaken since promulgation of the original guidelines. As a result of these new studies, the SASP had recommended that the guidelines be amended to allow for the application of offset procedures different from those specified, provided that a safety analysis for the particular airspace had shown that the proposed procedures would meet appropriate safety criteria.

3.3.5 Furthermore, the meeting was informed that in order to minimize unnecessary variation in offset procedures, the implementation of procedures different from those recommended in the revised guidelines covered under State letter AN 13/11.6-02/21 (dated 31 May 2002), should be considered only when there were operational considerations which would make the application of the standard procedures impracticable. A copy of the revised guidelines is shown at Appendix B to the Report on Agenda Item 3.

3.3.6 The meeting also noted that the authorization required by ICAO Annex 2 paragraph 3.6.2.1.1 prior to a pilot applying a lateral offset could be achieved by coordinated publication of approved offset procedures, by NOTAM and in Aeronautical Information Publication (AIP), by all States concerned. It was further noted that action should also be taken to incorporate the procedures in

the *Regional Supplementary Procedures* (Doc. 7030); however, because of the need to regularize the existing situation where some pilots are applying offsets at their own discretion, publication by States of procedures in accordance with these guidelines should not be delayed until Doc 7030 is amended.

3.3.7 In consideration of the revised guidelines which are shown at Appendix A, the meeting noted the reference to tactical offsets as shown under paragraph 7.1 (e), which states:

> *"these guidelines do not apply to the use of tactical offsets by ATC, nor to the application of offsets by pilots when following published contingency procedures to avoid wake turbulence"*.

3.3.8 With reference to the above, the meeting further noted that procedures for tactical offsets had been incorporated into Doc 7030 – wake turbulence procedures.

3.3.9 As a consequence of the above, the meeting concluded that events had overtaken APANPIRG/12 Decision 12/9, because revised global lateral offset guidelines had been issued under the State letter.

3.3.10 Furthermore, the meeting considered that States should coordinate and harmonize the implementation of the lateral offset procedures set by these guidelines on a sub-regional basis. It was further noted that the Informal South-Pacific ATS Coordinating Group (ISPACG) Project Coordinator had proposed to member States, that consideration be given to the implementation of 1NM lateral offsets in the South Pacific airspace on 5 September 2002.

3.3.11 Having noted the intention of ISPACG to progress the implementation of 1 NM lateral offsets in the South pacific region, the meeting was of the opinion that the results of this implementation effort should be carefully analyzed before proceeding with a regional implementation programme.

3.3.12 Accordingly, the meeting decided that this item should be reviewed with a degree of priority at the next ATS/AIS /SAR/SG meeting.

3.4 Implementation of ATS routes

3.4.1 The meeting was presented with an updated list of ATS routes which had not been implemented, including ATS routes which had been implemented, but not in accordance with Air Navigation Plan (ANP) requirements.

3.4.2 The meeting was advised that since APANPIRG/12, some updated information including the action agreed to be taken by States concerned had been provided to the Regional Office by India, Japan and Malaysia.

3.4.3 While verifying the status of implementation of ATS routes in the list, IATA expressed a concern that they had not had a sufficient time in advance to examine the list with updated information from States; thus they were unable to comment on some ATS routes implementation status. To improve the process, IATA suggested that the updated list should be circulated to States and international organization by ICAO well in advance before ATS/AIS/SAR Sub-Group meetings in the future. In this connection, the meeting was reminded of the APANPIRG Conclusion 9/8 which calls upon States to provide information regarding implemented, re-aligned and deleted ATS routes to the Regional Office by 30 April of each year.

3.4.4 The meeting noted that the revised South China Sea ATS route structure was implemented on 1 November 2001 in accordance with the ANP amendment proposal APAC 95/16-ATS (revised ATS route structure across the South China Sea) which was approved by the President of the Council 7 May 1997, and the ANP amendment APAC 01/2-ATS (adjustment to APAC 95/16)

which was approved on 11 October 2001. These amendments deleted or amended most of the existing ATS routes and introduced a new system of RNAV routes. In this regard, IATA also raised their concern that their operational requirements for some additional routes were yet to be recognized in ANP though they were addressed at the SEACG/10 meeting. In response, it was clarified that any additional requirements for ATS routes should be processed in coordination with States concerned in accordance with the established procedures for the amendment of approved regional plans.

3.4.5 The meeting reviewed and further updated the list of ATS routes which have not been implemented in accordance with the Asia/Pacific ANP, taking into account information provided at the meeting. In the course of this review, IATA raised objections to States' proposals to delete the requirements for the following ATS routes, and requested the States concerned to reconsider the implementation as originally proposed or with some realignment of the routes:

A202 – deletion of the segment between Hong Kong-Kagoshima-Niigata-Chitose;
A223 – deletion of the whole route;
Note: As this route would serve flights from Hong Kong and Taipe to Fukuoka, the preferred option for A223 would be APU-MIKES
A341 – deletion of the segment between Surabaya-Kota Kinabalu;
B456 – deletion of the segment between Madang-Vanimo; and
R345 – deletion of the whole segment.

3.4.6 It was pointed out that any States or international organizations would have the opportunity to raise their objections to an ANP amendment proposal when it is circulated by ICAO for comments in accordance with the established procedures.

3.4.7 The updated list of ATS routes is at Appendix C to the Report on Agenda Item 3.

3.4.8 In addition, Singapore informed the meeting that they planned to establish an RNAV route between TOMAN and LUSMO as an extension of L625, and will submit a formal draft proposal to the ICAO Regional Office in due course.

3.4.9 The meeting identified deficiencies related to ATS routes in the Asia/Pacific Region, and considered inclusion of those non-implemented ATS routes in the list of air navigation deficiencies in accordance with the new methodology for the identification, assessment and reporting of air navigation deficiencies approved by the Council on 30 November 2001.

3.4.10 The meeting was advised that the majority of the ATS routes listed in the Appendix C to the Report on Agenda Item 3 had been agreed to by the sates concerned at the third Asia/Pacific Regional Air Navigation Meeting in 1993.

3.5 Implementation of WGS-84 in the Asia/Pacific Region

3.5.1 The meeting recalled that the Task No. 11 allocated to the ATS/AIS/SAR Sub-Group by APANPIRG requires the Sub-Group to facilitate and monitor the implementation of WGS-84 in the Asia/Pacific Region.

3.5.2 The meeting also recalled the following APANPIRG Conclusions:

Conclusion 9/2 – Transition to WGS-84 in the ASIA/PAC Region

That, in order to achieve uniformity in aeronautical data publication across the regions, those States which have not yet determined and published WGS-84data urgently undertake to complete the task in the shortest possible time frame.

Conclusion 11/5 - Uniform format for the reporting of WGS-84 implementation

That States adopt the table available at the Appendix E as an uniform format for reporting of WGS-84 implementation.

3.5.3 Furthermore, the meeting recalled that the fourth meeting of ALLPIRG/Advisory Group (ALLPIRG/4) developed the following Conclusion:

Conclusion 4/7 – Adoption of a uniform format for the reporting of WGS-84 implementation

That, the table at Appendix D to the report (of ALLPIRG/4) on Agenda Item 2 be adopted as a uniform format for the reporting of WGS-84 implementation by PIRGs and States.

3.5.4 It was advised that in reviewing the standard table showing the implementation status of WGS-84, APANPIRG/12 noted that there were still missing elements in the table, and urged States to provide information as required to the Regional Office as soon as possible.

3.5.5 In this regard, India, Japan, Philippines and the United States provided their updated information to ICAO before and during the meeting. The table of WGS-84 implementation status was updated accordingly as shown at Appendix D to the Report on Agenda Item 3.

3.5.6 Philippines briefed the meeting on their WGS-84 survey programme in cooperation with the National Imagery and Mapping Agency (NIMA) of the U. S. Department of Defense. As a result, thirteen (13) airfields in Philippines has been surveyed to develop a highly accurate WGS-84 database of airfield survey data airfield features, vertical obstructions and an airfield elevation model intended to improve safety of air navigation through the production of GPS-guided terminal procedures.

3.5.7 It was advised that such cooperative programme offered by NIMA is a flight safety oriented programme and does not entail any charge to the hosting States.

3.5.8 It was reiterated that due to the importance in facilitating the world-wide implementation of WGS-84, States should supply the necessary data so that an accurate record of implementation can be established. It was noted that this information should be provided in an official correspondence to the ICAO Regional Office.

3.5.9 IATA emphasized the importance of implementation of WGS-84 for the safety in the current age of flight data oriented aircraft operations. For example, EGPWS requires the accurate WGS-84 data. In addition, IATA recommended that top priority should be given to providing WGS-84 reference stations at the airport gates to allow aircraft to align their navigation systems prior to departure.

3.5.10 The meeting considered the status of non-implementation of WGS-84 as an air navigation deficiency.

3.6 **Inclusion of SIGMET in VOLMET broadcasts**

3.6.1 The meeting recalled the APANPIRG Conclusion 10/3, which states:

That, the ASIA/PAC Air Navigation Plan (Doc 9673) be amended to add a requirement for inclusion of SIGMET in VOLMET broadcasts for the Asia Region.

3.6.2 In pursuit of the APANPIRG Conclusion 10/3, an draft amendment proposal to the Asia/Pacific ANP (Serial number APAC 99/9-ATS) was forwarded in March 2000 to the States, whose facility and services will be significantly affected by the proposal, for comments before it would be formally circulated.

3.6.3 It was recalled that Australia, China and Japan expressed concerns regarding the limited time for broadcast though they were all in favour of the proposal in principle. In addition, New Zealand raised an objection to the proposal. States with very large FIRs indicated difficulty in transmitting SIGMET in addition to other required meteorological information in the limited timeframe of 5 minutes.

3.6.4 The meeting recalled that there were several options addressed at previous meetings as follow; however any of them were not considered a viable solution:

a) SIGMET information or its availability be included in VOLMET broadcasts as the final section, when time permits. For example, Auckland broadcast includes TAF, METAR and TTL for designated aerodromes in accordance with the present ANP. The existence and validity of SIGMET is also included;

b) procedures being applied for VOLMET broadcast including SIGMET in the North Atlantic (NAT) Region. In the NAT Region, SIGMET information included in the Gander broadcasts include SIGMET or notification of SIGMET affecting flights operating above FL100 in the Gander Oceanic and Gander, Moncton, Montreal and Toronto FIRs. Also the reports and forecast at certain aerodromes shown in brackets may be deleted from the Gander broadcasts to provide broadcasting time for the inclusion of SIGMET messages (NAT ANP, Table ATS 2 refers). It was felt that those service provider States might have difficulties in determining such aerodromes whose MET information can be omitted from the broadcasts when there is not sufficient time if the similar procedures are introduced in the ASIA/PAC Region, too;

c) some brief and simple guidance should be developed as to what SIGMET information is critical to the VOLMET and what information in the whole VOLMET broadcast could be condensed and abbreviated. Some examples are:

   i) information on position and movement of a tropical storm or depression;

   ii) volcanic activity; or

   iii) actual pilot reports of severe clear air turbulence (CAT) (*note: this is not referring to forecast CAT, which is subjective and rarely encountered*).

d) to identify additional frequencies for VOLMET broadcast form ITU Radio Regulation Appendix S27. It was however, not considered practical to pursue this option, as it would take a considerable period of time to secure suitable frequencies. This option was not found suitable to satisfy the immediate requirement;

e) as a near term solution, consideration may be given for the use of currently available D-VOLMET through ACARS data link pending availability of ICAO standard telecommunication system. Where feasible, the use of voice channel of existing NDB may also be considered;

f) to condense and abbreviate SIGMET, it was noted that this would contradict the provision of Annex 3 which particularly specifies that content and format of reports, forecasts and SIGMET information included in VOLMET broadcasts should be consistent with the provisions of Chapters 4, 6, and 7 of the Annex as applicable to bulletins disseminated beyond the aerodrome of origin; and

g) to include in VOLMET broadcast only those SIGMETs valuable to the operating crew. The CNS/MET SG/5 felt that, since issuance of SIGMET was considered as a safety issue, selection of SIGMETs to be included in VOLMET broadcast is not acceptable.

3.6.5 IATA stated that the most important aspect of inclusion of SIGMET in VOLMET broadcasts is to enable pilots to have access to the necessary MET information.

3.6.6 The meeting recalled that IATA presented to ATS/AIS/SAR SG/11 a summary of the results of their survey, which concluded that no meteorological information from any airport should be deleted from the Asia/Pacific VOLMET system in order to make room for the full inclusion of a SIGMET(s). If the SIGMET(s) and normal meteorological information cannot fit in a 5-minute broadcast then a decision must be made as to what modifications should be made. This may entail streamlining the contents or the defined area of a SIGMET. If a Collaborative Decision-Making (CDM) mechanism exists between the ATS/MET Provider and relevant airlines then that may be a tool to consider. In any case, each weather phenomena must be individually considered against the intended audience of the VOLMET.

3.6.7 In light of the foregoing, the meeting was not able to reach any consensus on this issue, and noted that IATA would further study the issue with its member airlines so that a consolidated view would be presented to the Sub-Group.

3.6.8 IATA further suggested that there may be times when the contents of the weather information to be included in the VOLMET could exceed the 5-minute broadcast time limit. In such instances, the provider of the VOLMET information should:

a) If possible, co-ordinate with the Area Control Centre (ACC) responsible for the airspace impacted by the SIGMET to ascertain if any SIGMET information could be abbreviated or deleted from the VOLMET broadcast.

b) If any SIGMET is deleted from the VOLMET broadcast, the VOLMET should still indicate the SIGMET number, subject and effective time. All SIGMETs that directly affect the safety of flight, such as clear air turbulence based on actual reports, ASHTAMs or SIGMETs involving volcanic ash that may impact any international route should be included in the VOLMET.

3.7 **Carriage and operation of pressure-altitude reporting transponders and ACAS**

3.7.1 The meeting recalled that the ICAO Regional Office conducted the second survey on the States' implementation plans for the mandatory carriage of pressure-altitude reporting transponders and ACAS in August 2000 in follow-up to the request of ATS/AIS/SAR/SG/10. This survey was intended to obtain detailed information clearly differentiating between the implementation plans for the carriage and operation of pressure-altitude reporting transponders and those of ACAS II. This was considered to be of more benefit to the airspace users in arranging their fleet modification and approval programmes to coincide with State implementation plans.

3.7.2 The meeting was advised that in reviewing the results of the survey, the APANPIRG/12 meeting noted that:

a) thirteen (13) States had already mandated the carriage and operation of **pressure-altitude reporting transponders**;

b) six (6) had an implementation plan of the carriage and operation of **pressure-altitude reporting transponders**;

c) nine (9) had already mandated the carriage and operation of **ACAS but NOT ACAS II,** while two (2) had mandated the carriage of **ACAS II** specifically;

d) ten (10) had a plan to mandate the carriage of **ACAS II** specifically on or earlier dates before the worldwide applicability date of Annex 6, *i.e.* 1 January 2003;

e) one (1) had a plan to mandate the carriage of **ACAS II** specifically on dates after the worldwide applicability date of Annex 6, i.e. 1 January 2003; and

f) nineteen (19) States and Territories had not replied.

3.7.3 The APANPIRG/12 updated the status of the implementation plans for the mandatory carriage and operation of pressure-altitude reporting transponders and those of ACAS II.

3.7.4 The meeting reiterated the critical importance of aircraft not equipped with a pressure-altitude reporting transponders not being permitted to share airspace used by aircraft equipped with airborne collision avoidance systems. The performance of ACAS II is totally dependent on all aircraft in the vicinity being equipped with pressure-altitude reporting transponders, in order to detect conflicting traffic and offer resolution advisories.

3.7.5 In this connection, it was noted that Annex 6, Part 1 (International Commercial Transport-Aeroplanes) contains a Standard which states:

"All aeroplanes shall be equipped with a pressure-altitude reporting transponders which operates in accordance with the relevant provision of Annex 10, Volume IV."

Note.- This provision is intended to improve the effectiveness of air traffic services as well as airborne collision avoidance systems.

3.7.6 In addition, Annex 11 – *Air Traffic Services* states in paragraph 2.25:

> *"States shall establish requirements for carriage and operation of pressure-altitude reporting transponders within defined portions of airspace.*
>
> *Note.- This provision is intended to improve the effectiveness of air traffic services as well as airborne collision avoidance systems."*

3.7.7 The meeting was informed that in light of the above requirement and the safety concern, the APANPIRG/12 considered it necessary that situations where States had not established the requirement for the carriage and operation of pressure-altitude reporting transponders specified as a Standard in Annex 6, be listed as a "Deficiency". To this end, it was a view of the Sub-Group that the status of non-implementation of the requirement for the mandatory carriage and operation of ACAS II on and after 1 January 2003 should be identified from airworthiness/aircraft operation perspective as well as ATS perspective.

3.7.8 Japan provided the meting with a summary of the recent analysis of ACAS RA event reports in Japan, which indicated a significant reduction of "nuisance RAs" as a positive result of the carriage and operation of ACAS II (TCAS version7).

3.7.9 The meeting noted with interest that as the number of aircraft being equipped with ACAS II has increased, the number of ACAS RAs reported by pilots and controller has been significantly reducing. It was a JCAB's view that in addition to the adjustment of vertical speed by pilots and certain ATC procedures in place, the improved programme of TCAS version 7 has contributed to the reduction of the number of nuisance RAs.

3.7.10 It was also noted that on 4 January 2001, Japan mandated the carriage and operation of ACAS (TCAS version 6.04a or better) by turbine-engined airplanes of a maximum certified take-off mass in excess of 15 000kg or authorized to carry more than 30 passengers engaged in commercial transport operations, which are registered in Japan. Since then, JCAB has been strongly urging airlines to equip their aircraft with operative ACAS II. As a result, 297 (61.9%), out of 480 commercial aircraft, are equipped with TCAS version 7 while 165 (34.4%) are equipped with TCAS 6.04a as of May 2002. Japan confirmed that all commercial transport aircraft registered in Japan which has a maximum certified take-off mass in excess of 15 000 kg or is authorized to carry more than 30 passengers, will be equipped with ACAS II by the end of this year, meeting the Annex 6 requirement.

3.7.11 India advised the meeting that in Mumbai FIR, there were many reports of unknown traffic crossing the busy ATS routes over the Arabian sea without any standard separation minima as specified in PANS-ATM (Doc 4444).

3.7.12 China informed the meeting that after 1 January 2003, aeroplanes that have a maximum certificated take-off mass in excess of 15000kg or that are authorized to carry more than 30 passengers not be fitted with ACAS II will not be allowed to operate within the FIRs of China. This information was published in AIC 06/2001 and AIC 08/2001, and further details concerning this subject will be published shortly.

3.7.13 It was also informed that with effect from 1 January 2002, all aeroplanes shall be equipped with a pressure-altitude reporting transponder as required in ICAO Annex 10, Volume IV.

3.7.14 The meeting updated the table of States' implementation plans for pressure-altitude reporting transponder and ACAS as shown at Appendix E to the Report on Agenda Item 3.

3.8 **Search and Rescue Matters**

Analysis of SAR Capability of ICAO States in the Asia/Pac Region

3.8.1 The meeting reviewed the SAR Capability Matrix Table, which provides a comprehensive listing of the SAR Capability of ICAO States in the Asia/Pacific Region. This Table was developed by APANPIRG/7 in response to APANPIRG Conclusion 7/3 – "*that States provide information to ICAO by 30 April of each year to permit periodic update."* The Matrix Table was updated by the meeting and is shown at Appendix F to the Report on Agenda Item 3.

Provision of SAR and SAR Agreements

3.8.2 The meeting was reminded that APANPIRG/6 recalled the ICAO policy relating to the delegation of SAR Responsibilities from one State to another and formulated the following Conclusion:

Conclusion 6/12 - Provision of SAR

That, States unable to provide SAR, endeavour, with the assistance of ICAO if necessary, to:

a) delegate their responsibility for provision of SAR to one or more neighboring State(s); or

b) negotiate agreements with appropriate States to ensure SAR is provided on their behalf.

3.8.3 APANPIRG/6 noted that experiences from some States indicated that establishment of SAR agreements between SAR Organizations had improved efficiency of SAR operations, in particular if such agreements also embraced maritime organizations. The following Conclusion was formulated:

Conclusion 6/13 - SAR Agreements

That,

a) States are encouraged to develop formal SAR agreements on bi-lateral or multi-lateral basis; and

b) ICAO establish and maintain a register of SAR agreements between States.

3.8.4 The meeting was reminded that ICAO received SAR agreements based on a multi-lateral basis between Malaysia and Singapore, Philippines, Thailand, Indonesia and Brunei Darussalam.

3.8.5 Other States, which have established such SAR agreements or are in the process of doing so, were also encouraged to complete this important task and send to ICAO to be included in the register.

3.8.6 The U.S. presented the meeting with two papers on Search and Rescue. Annex 12 of the Chicago Convention recommends that States have SAR agreements with other States that address territorial entry of foreign rescue units, and recommends that rescue coordination centers mutually agree on various operational matters that could be addressed in agreements. Certain amendments are currently being considered for Annex 12 by the ICAO-IMO Joint SAR Working Group. (IMO is the International Maritime Organization and the Working Group handles changes to the *International Aeronautical and Maritime Search and Rescue Manual* (IAMSAR Manual) and other matters

pertaining to harmonization of aeronautical and maritime SAR. Other treaties, such as the *International Convention on Maritime Search and Rescue*, as well as the IAMSAR Manual, also provide for concluding international SAR agreements. The U.S. provided the meeting with a representative agreement that was between the U.S, Canada and the United Kingdom. Information found at Appendix G to the Report on Agenda Item 3.

SAR Exercises

3.8.7 It was recalled that in accordance with APANPIRG/6 Conclusion 6/15, States are requested to develop formal programs of SAR exercises and forward their programmes to the ICAO Regional Office on an annual basis by 30 April. It should also be noted that APANPIRG/6 considered that such exercises should be made available for other States to participate as observers.

3.8.8 Some States hold regular joint SAR exercises (SAREXs) with their neighbours which have proved to be productive in the standardization of their procedures. States are encouraged to continue this practice or where these joint SAREXs are not presently taking place, make appropriate arrangements to develop and initiate these exercises.

3.8.9 Over the past years, several international SAR seminars and SAREXs involving many States and international organisations have been held with significant success. A main contribution to this success was the intensive preparation and planning to create a "live" atmosphere for the exercise as well as the harmonisation of the event with the jointly held seminar. In this way, participants at the seminar had a "front seat" to the exercise and were able to give worthwhile observation and comment on the performance at the conclusion of the SAREX.

3.8.10 The meeting will recall that, due to other high priorities over the past few years, an International Search and Rescue Seminar and SAREX involving some States of the Bay of Bengal area unfortunately was deferred.

3.8.11 To assist in supporting this deferred SAREX/Seminar, APANPIRG/12 endorsed a Conclusion to request a Special Implementation Project for an International Seminar and SAREX in the Bay of Bengal as follows:

Conclusion 12/10 – Special Implementation Project – International Seminar and SAREX

That, ICAO urgently consider a proposal for an Asia/Pacific Special Implementation Project to be established with the primary objective to improve search and rescue services, co-ordination and cooperation between States.

3.8.12 Subsequently the ICAO Council endorsed the Special Implementation Project as described above in accordance with the prescribed ICAO procedures. The Seminar and SAREX is now planned to take place in 2003.

3.8.13 The meeting noted the methodology in programming and organizing this SAREX/Seminar, taking into consideration the following issues:

a) SAREX/Seminar venue
b) area to be covered by the SAREX;
c) participants to be invited to the SAREX/Seminar;
d) SAREX/Seminar structure and programme;
e) support from outside organizations;
f) SAREX/Seminar planning; and,
g) coordination requirements between States involved in the SAREX.

3.8.14 States will be approached regarding the hosting of this SAREX/Seminar. When this decision has been finalized, other States of the Bay of Bengal area will be invited to contribute to the conduct and organizational aspects of making this event a success.

Search and Rescue Training

3.8.15 The meeting recalled that ICAO in partnership with the International Maritime Organization (IMO), has developed an International Aeronautical and Maritime Search and Rescue Manual (Doc 9731-AN/958). The first edition of this Manual, which is in three volumes, is dated 1998.

3.8.16 Further, the Document gives a comprehensive explanation of search and rescue organization, responsibilities and requirements and is designed to assist States in meeting their own search and rescue needs and the obligation they accepted under the Convention on International Civil Aviation, the International Convention on Maritime Search and Rescue and the International Convention for the Safety of Life at Sea (SOLAS) These volumes provide guidelines for a common aviation and maritime approach to organizing and providing SAR services.

3.8.17 Using these guidelines, States were encouraged to develop and improve their SAR services, cooperate with neighbouring States and to consider their SAR services to be part of a global system.

3.8.18 Chapter 3 of Volume 1 of the Manual considers the use of training, qualification and certification processes to develop professionally competent SAR personnel. A number of aspects of training and of exercises used for training, are examined in detail.

3.8.19 Singapore advised the meeting that courses in search and rescue are regularly programmed twice yearly at the Singapore Aviation Academy. One course concentrates on Aviation Search and Rescue with the second focusing on Maritime SAR.

National Plans for Search and Rescue

3.8.20 The U.S. presented the meeting with a paper which recommended that every nation should have, either in legislation or other suitable form, high-level provisions for providing SAR services. In the U.S., this is done mainly in the form of an interagency agreement signed at the ministry level by six federal departments (agencies). Three of these departments (Transportation (DOT), Defense (DOD) and Interior (DOI)) have operational responsibilities for SAR, and the other three (National Aeronautics and Space Administration (NASA), Department of Commerce (DOC), and the Federal Communications Commission (FCC)) have responsibilities to support SAR. DOD has overall responsibility for aeronautical and land SAR for the SAR regions (SRRs) corresponding to Alaska and the continental U.S. The Coast Guard (under DOT) handles aeronautical and maritime SAR in oceanic SRRs for which the U.S. is responsible, and operates Joint (aeronautical and maritime) RCCs (JRCCs) for this purpose. The National Park Service (under DOI) handles SAR within national parks. NASA and NOAA support the Cospas-Sarsat system and other initiatives that enable the use of technology to support SAR. The FCC (together with the Coast Guard and the Federal Aviation Administration (FAA)) regulates radio spectrum, radio equipment, and radio carriage requirements for distress alerting and response.

3.8.21 It should be noted that the National SAR Plan:

a) Adopts the *International Aeronautical and Maritime Search and Rescue Manual* (IAMSAR Manual)
b) Identifies responsible agencies and their duties
c) Refers to international references that define U.S. SAR regions
d) Discusses international cooperation and agreements

e) Discusses our National Search and Rescue Committee, which oversees the Plan
f) Provides for mutual assistance among the agencies

3.8.22 It should be further noted that the Plan addresses matters of national SAR policy, including policies on the following topics:

a) Use of all available resources for SAR
b) Charging for SAR services
c) Aeronautical and maritime SAR harmonization and cooperation
d) Terminology
e) Non-discrimination in provision of assistance
f) Preparedness for rapid response
g) Civil-military cooperation
h) Use of the Incident Command System when warranted (discussed in Section 1.12 of Volume 2 of the IAMSAR Manual)
i) SAR resources
j) Suspension and termination of SAR operations

3.8.23 The U.S. provided the meeting with a copy of their National Search and Rescue Plan for information and potential usefulness as an example of how to comply with legal and humanitarian SAR obligations (see Appendix H to the Report on Agenda Item 3).

3.9 **Update on the EMARSSH Project**

3.9.1 The meeting was reminded that the Revised ATS Route Structure, Asia to Middle East/Europe, South of the Himalayas (EMARSSH), was an initiative of ICAO. The purpose of the EMARSSH project is to use the existing aircraft capabilities and CNS/ATM enhancements to revise the ATS route structure and increase benefits to the ATS users and providers as well as gain environmental benefits.

3.9.2 With the introduction of Required Navigation Performance (RNP), Area Navigation (RNAV) and Reduced Vertical Separation (RVSM) into the Asia Pacific region, it was considered appropriate to re-look at how we provide air traffic services. This is especially the case with regard long-haul inter-regional flights.

3.9.3 Seven stand alone EMARSSH Task Force meetings and two TARTAR meetings with components set aside for EMARSSH discussions have been held since February 2001. Changes to the present ATS route structure in the three ICAO regions covering parts of the Asia/Pacific, Middle East and the Europe have been considered. The 8th meeting of the EMARSSH Task Force will take place in Bangkok, Thailand on 5 – 9 August 2002.

3.9.4 The EMARSSH ATS revised route structure from Australia through South East Asia, across the Bay of Bengal, through Southern Asia, South of the Himalayas, to the Middle East as well as to Europe up to the Black Sea, is close to finality.

3.9.5 The section of EMARSSH, commonly referred to as EMARSSH Phase 1 was successfully implemented from Australia to South East Asia in December 2001. Reports received indicate that this has improved efficiency as well as being cost effective, both to the provider and the user.

3.9.6 EMARSSH includes ATS routes through Afghanistan into the Southern C.I.S as well as through I.R. Iran into Turkey and the States of the Caucasus. Although much of the airspace within the Kabul FIR was presently closed, work was currently being undertaken by ICAO, in cooperation with the coalition forces and IATA, to have the airspace re-opened for civil traffic on a limited basis.

Nevertheless, alternative arrangements have been being developed if all or some of the Afghanistan routes developed for EMARSSH are still unavailable on 28 November 2002.

3.9.7 The meeting should note that many areas concerning this large project have been addressed but still require further work to ensure a smooth transition to the revised route structure. These include:

a) safety management issues;
b) domestic route requirements;
c) planning of ATC workload;
d) coordination and cooperation with military organisations;
e) further work on exclusive or non exclusive use of RNP airspace;
f) communications requirements as a result of the changed route structure;
g) Weather deviation procedures;
h) Transition procedures;
i) AIS requirements; and,
j) Amendments to current Letters of Agreement between adjacent FIRs

3.9.8 The meeting was advised that most if not all of these outstanding issues will be finalized at the next Task Force meeting on 5 – 9 August 2002. It was emphasised to the meeting that, more than ever before, all States need to work very closely together as well as with their military colleagues across the whole EMARSSH route structure to ensure a satisfactory implementation of the project.

3.9.9 The status in respect to the EMARSSH route structure over the Arabian Sea and the Bay of Bengal is as follows:

Arabian Sea Routes

3.9.10 Co-ordination issues on Arabian Sea routes between Mumbai FIR and Muscat FIR have been progressing. India and Oman reported acceptance of the revised routes under EMARSSH with the common FIR boundary reporting points as follows:

AS1 (UP570):	KITAL	N200300 E0601800
AS2 (UM300):	LOTAV	N203700 E0605700
AS3 (UN563):	REXOD	N211230 E0613830
AS4 (UP574):	TOTAX	N215030 E0622230
AS5 (UN571):	PARAR	N222630 E0630700
AS6 (UL301):	RASKI	N230330 E0635200

3.9.11 Some minor adjustments are still required to protect RNP10 requirements.

Bay of Bengal Routes

3.9.12 The following EMARSSH routes over the Bay of Bengal are ready for implementation:

BB1 (UP570), BB2 (UM300), BB5 (L645) and BB12 (P762).

3.9.13 Malaysia advised that the required lateral separation between BB4 (UP574) and BB6 (UN571) was not available and proposed realignment of routes BB3 (UN563) and BB4 (UP574) to create the required 50NM lateral separation between BB3 (UN563), BB4 (UP574) and BB6 (UN571). According to the proposal, the route BB4 (UP574) which goes across the Jakarta FIR, Kuala Lumpur FIR and Chennai FIR will be realigned to avoid the Kuala Lumpur FIR. The proposal will be

examined with the objective of ensuring 50NM lateral separation between the proposed routes.

3.9.14 India advised the meeting that the following proposed routes over the Bay of Bengal have been agreed:

BB7 (N877):	POINT N083000 E0920000 to VVZ- NAGPUR-PRATAPGARH*
BB8 (P628):	FIR N094328 E0942500 to PPB- JABALPUR*
BB9 (L759):	FIR- BBS- KHAJURAHO#- TIGER
BB16 (P646):	BKK-BETNO-CC FIR-DOPID-JJS (by night)-BBN/R460)/CEA-GAYA/R460
BB17 (L507):	BKK- BGO- CEA- GAYA/R460

* The routes will continue along the existing ATS routes west of these way-points if the proposed direct tracks be progressed in time by the implementation date.

\# The existing route to join the ATS route A466 will continue to be available.

3.9.15 IATA expressed concern on the exclusion of routes BB10 and BB15 due to the difficulties expressed by India in the TF/6 meeting. IATA pointed out that in the absence of BB10 and with the restricted flight operations on R325, the traffic flow out of Singapore and Kuala Lumpur for destinations in Europe would be greatly constrained. The meeting was informed that the two routes, BB8 (P628) and BB9 (L759) would not be adequate to meet demand of traffic flows. This issue was deliberated and India agreed to consider the establishment of BB10 from RAN up to a point (coordinates TBD) in the Bay of Bengal and then direct to Jamshedpur (JJS) by night, or to LEGOS during the day for flights to join existing routes to Calcutta and Europe. This route will replace R325 (M770). India also agreed to establish BB15, modified and realigned to join at BBS to replace the existing ATS route G472. Thailand and Myanmar would be consulted before finalizing the alignment of BB10 and BB15, respectively.

3.9.16 IFALPA expressed concern that introducing crossing routes over the Bay of Bengal could have an impact on safety in view of communication difficulties in some parts of the region. IFALPA explained that there had been at least two cases of near misses in that region in recent times and urged the meeting to consider ways to reduce the likelihood of similar close proximity occurrences in the future.

3.9.17 A chart depicting the latest agreed EMARSSH route structure is at Appendix I to this Report on Agenda Item 3.

Safety Management requirements

3.9.18 The requirements of Amendment 40 to Annex 11 (1 November 2001) in relation to ATS Safety Management and the EMARSSH Project have been taken into account. Furthermore, it has been recognized that a Safety Management programme for any ATS system must perform two major functions, which while they may share many common techniques, have different aims. These functions are:

a) safety assessment of proposed additions and changes to the system; and

b) monitoring and evaluation of the level of safety being achieved in the operational system.

3.9.19 In order to implement and operate the EMARSSH route system, States responsible for providing air traffic services would be required to monitor aircraft navigation performance and participate in the regional monitoring arrangements established for the route system.

3.9.20 Traffic data collection in support of safety assessments for RNP10 operations has been initiated. This traffic data collection also includes data associated with the proposed implementation of RVSM. Airservices Australia has undertaken to provide a safety analysis for the proposed EMARSSH routes, based on the data provided. It is expected that this safety assessment will be completed by 31 October 2002.

AIS Issues

3.9.21 A template of an AIP SUP for use by States in the publication of changes to aeronautical information associated with EMARSSH has been developed. Where applicable, individual States could enhance the AIP SUP by including specific weather deviation procedures. It was also recognized that aeronautical information on new or revised SIDS and STARs associated with the EMARSSH route structure should be published simultaneously where applicable.

3.9.22 In consideration of sensitivity and significance of aeronautical information, States have been reminded of the importance of timely and accurate dissemination of changes to aeronautical information in the preparation for implementation of EMARSSH route structure on 28 November 2002.

3.9.23 It has been further emphasized that airlines and ATS Providers must receive notification of changes in sufficient time to complete training, familiarization and data upgrades. If these changes are not received in sufficient time, then the databases cannot be upgraded and Airlines and ATS Providers could find themselves using inconsistent and aged data.

3.9.24 Under ICAO Annex 15, Appendix 4, Part I, regional AIS changes involving more than one FIR should be disseminated with the objective of reaching recipients 56 days in advance of the effective date. However because of the major regional and global changes associated with EMARSSH, the meeting agreed that States would publish their respective AIP SUPs by the AIRAC cycle date of 05 September 2002.

3.9.25 Furthermore, to avoid the possibility of mailing delays associated with the delivery of the original document, States have been advised to make available a soft copy of the AIP SUP to aviation charting producers in addition to the hard copy.

Large-scale weather deviation contingency procedures

3.9.26 It should be noted that the Bay of Bengal experiences a monsoon season where aircraft may have to deviate around cyclones and lines of thunderstorms by as much as 100 NM. The Arabian Sea occasionally has tropical cyclones and thunderstorm activity but not to the extent of the Bay of Bengal.

3.9.27 In the event of such large-scale weather conditions, it is quite likely that there will be many requests from aircraft for weather diversions. These diversions are sometimes in excess of 100NM and may affect more than one FIR, which impacts the protected airspace of the adjacent routes.

3.9.28 The workload on Pilots and ATC during these periods can be significant and the handling of this workload will require close co-ordination and co-operation between the ACCs concerned. Inappropriate handling of weather deviations can possibly trigger traffic disruptions and induce undesirable pressure on the ATC system.

3.9.29 In view of the above, it was considered appropriate that State ATS Providers develop a **Large Scale Weather Deviation Contingency Procedure** for these occasions. These procedures would be intended to cover large areas of severe weather and not localized adverse weather conditions. The smaller deviations would be provided solely by the immediate ACC controller, with appropriate coordination if the deviation impacted on an adjacent FIR.

3.9.30 In formulating the Large Scale Weather Deviation Contingency Procedures, across the Bay of Bengal and Arabian Sea, the following factors should be taken into consideration:

a) the Route Structure;
b) the Radar coverage in the area;
c) application of RNP10 lateral spacing (50NM);
d) Flight Level Allocation Scheme (FLAS)
e) FIR boundaries and airspace dimensions;
f) the coordination requirements by the ACCs concerned; and
g) the future application of RVSM across the area.

3.9.31 The meeting recognized that contingency procedures for large-scale weather deviations may necessitate level changes, which would create operational concerns during the transition from normal operations to contingency operations. The urgent nature of this situation would require immediate attention, which may cause operational concerns and inconvenience to both ATC and the Pilot. A matrix will be developed and presented to EMARSSH TF/8 (5 – 9 August 2002), which would provide suggested contingency procedures for traffic management when large-scale weather deviations are either forecast or taking place. This would include a suggested Flight Level allocation scheme (FLAS).

3.9.32 Furthermore, the ACC initiating the contingency procedures should provide the downstream/adjacent ACC with as much prior notice as is practicable to mitigate the impact on ATC operations. Similarly, when weather conditions improve to the extent that aircraft can resume normal navigation along the routes, the initiating ACC should coordinate with the downstream/adjacent ACC to deactivate the contingency procedures as soon as possible.

Transition Plan

3.9.33 It has been agreed that a dynamic transition plan would be required to safely manage aircraft transition to the new EMARSSH route structure on 28 November 2002.

3.9.34 It was noted that initial work has been undertaken in respect to the development of the

transition plan and in particular, the inclusion of certain elements designed to assist in the safe management of traffic and ATS workload in the period prior to, during and immediately after EMARSSH transition. These elements include:

a) Confirmation of transition time and transition window;
b) FMS and ATS Database management;
c) Flight planning procedures;
d) In-flight procedures;
e) NOTAM requirements and ATS instructions;
f) Training considerations; and
g) Transitional Coordination Units.

3.9.35 The meeting noted that, with the cooperation from IATA airlines, it was determined that the transition time should be fixed at 0200 UTC for all States in the Regions concerned. States have been invited to provide input to this initial transition plan ahead of EMARSSH TF/8 (Bangkok, 5 – 9 August 2002), where the plan will be further developed.

3.10 Establishment of a Task Force to Develop an Airspace Safety System Performance Monitoring Structure for the Asia/Pacific Region

3.10.1 The meeting was reminded that the Revised ATS Route Structure, Asia to Middle East/Europe, South of the Himalayas (EMARSSH), was an initiative of ICAO. The purpose of the EMARSSH project is to use the existing aircraft capabilities and CNS/ATM enhancements to revise the ATS route structure and increase benefits to the ATS users and providers as well as gain environmental benefits.

3.10.2 The meeting was briefed that in the past, the majority of the world's airspace used the system of incident reporting to provide an assessment of the safety of that airspace. With the increasing designation of airspace and/or separation standards based on a target level of safety, the need for ongoing system monitoring and reporting has been recognized by various implementation groups as well as ICAO.

3.10.3 The meeting noted that innovations such as reduced vertical separation minimum (RVSM) and FANS-1/A, have included in their implementation and trials various monitoring and reporting requirements. These have in turn have led to the establishment of a range of data collection and reporting structures to support the application of the technology or standard. Agencies such as the RVSM Asia Pacific Approvals Registry and Monitoring Organisation (APARMO) and the FANS Implementation Teams (FIT) are but two local arrangements.

3.10.4 The organisation, structure, staffing and funding of these arrangements have evolved out of their hosts' safety requirement needs and ability to provide resources. In some cases, it has been seen as necessary to establish a dedicated central reporting agency to undertake the monitoring and reporting requirements. In many cases the actual cost and technical complexity of these organisations are not readily apparent. With the increasing proliferation of technology, the organisation and funding of these arrangements have been questioned.

3.10.5 In an effort to find an acceptable solution to these problems, the United States presented a working paper to the 8th meeting of the APANPIRG Communications, Navigation, Surveillance and Air Traffic Management Implementation Coordination Subgroup (CNS/ATM/IC/SG/8) in Bangkok on 30 July – 3 August 2001 recommending that the meeting consider the need to establish a regional funding mechanism to support monitoring activities in support of Asia Pacific CNS/ATM implementation; and, if such a mechanism was needed, establish a task force or other appropriate means of considering alternative methods and make recommendations to the next meeting.

3.10.6 Two meetings of the Asia Pacific Airspace Safety Monitoring Task Force have been held in Bangkok, Thailand on 12-14 December 2001 and 5-8 March 2002.

3.10.7 The Task Force amended the terms of reference suggested by APANPIRG/12, and adopted the following terms of reference:

a) To develop an airspace safety monitoring organization and structure for the Asia/Pacific Region, and to coordinate with other regional monitoring organizations to ensure inter-regional harmonization;

b) To examine requirements of regulatory bodies, operators and service providers;

c) To determine the size and functions of the monitoring services to meet safety goals;

d) To identify the cost of operating monitoring services and requirements for its funding;

e) To address any other matters as appropriate and relevant to establishing an appropriate monitoring system;

f) The Task Force will include participation from all parties concerned; and

g) The Task Force will report to the Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG).

3.10.8 Given that the FAA would continue to provide airspace safety monitoring services for the Pacific Region, the Task Force identified the need to identify appropriate States and organizations that would be willing to provide airspace safety monitoring services, and could play a role in the monitoring activities for the Asia Region. The following States and organizations are currently providing monitoring services in the Asia/Pacific Region:

a) Pacific and South Pacific, reduced horizontal and vertical separation: Australia, Japan, United States, and CSSI Inc. (CSSI operates the GPS Monitoring System for Reduced Vertical Separation Minimum (RVSM));

b) North, Central and South Pacific, FANS Interoperability Team (FIT), monitoring automatic dependent surveillance (ADS) and controller-pilot data link communication (CPDLC): Japan, United States, and Boeing. (Boeing provides services under contract to the Federal Aviation Administration);

c) Asia, reduced horizontal and vertical separation: Australia, Singapore, and the United States.

3.10.9 The Task Force was made aware that the cost of ATS safety management programs, which include system performance monitoring, is a State regulatory requirement under Annex 11. ICAO policy on charges for the provision of air navigation services allows for the recovery of user charges, which could include ATS safety management program. Determining an appropriate level of user charges for airspace safety monitoring is an important issue requiring more detailed examination. The representative from IATA stated that they fully supported the principle of States recovering the cost of providing safety services through user charges. However, it was important that such charges were transparent and reasonable. The Task Force agreed that members should look into this matter further and obtain information from their organizations on how such charges were determined. The Task Force also noted that some States do not levy user fees and the provision of air navigation

services was government funded.

3.10.10 A proposed framework for safety oversight in the international airspace of the Asia Pacific Region was presented by the FAA Technical Center based on the experience of the Asia Pacific Approvals Registry and Monitoring Organization (APARMO). This proposed framework consisted of the following: a) objectives of the structure; b) prerequisites for establishing the structure; c) a provisional list of duties and responsibilities; d) a functional description of the structure necessary to carry out these duties and responsibilities, and e) linkages which the structure must establish with specialist groups and States both within and outside the Region.

3.10.11 The meeting was also presented with a proposed Business Plan Framework that was developed by a small group of Task Force members. This plan is still evolving and needs further discussion and work before it can be considered a complete and robust Business Plan. ICAO considered it to be in line with ICAO's recommendation to use a business case approach in projects of this nature.

3.10.12 AEROTHAI, on behalf of the Department of Aviation (DOA) of Thailand, had already offered to assist ICAO with the safety assessment program for RVSM and other monitoring services. During the meeting, the representative from the National Airports Authority of India expressed their interest to participate in a regional airspace safety monitoring organization. The representative from Singapore also confirmed that the Civil Aviation Authority of Singapore (CAAS) would continue to provide monitoring services including RVSM to the South China Sea area until a decision on the final organizational structure was decided.

3.10.13 The meeting was advised that the Electronic Navigation Research Institute (ENRI) Japan is developing the Navigation Accuracy Measurement System (NAMS) as a ground based height-monitoring unit. The experiment of NAMS is in its final stage and positive results are expected. Since NAMS is still an experimental facility, the cost for actual operation is not yet available. However, Japan would be prepared to assume the role of a sub-regional monitoring unit using NAMS in addition to the GPS monitoring unit, under a regional funding arrangement scheme.

3.10.14 The meeting noted that the FANS Interoperability Teams (FITs) would continue to operate to resolve issues identified. The Central Reporting Agencies (CRAs) under the FITs would become contributory bodies to the regional monitoring organization and continue to collect and process data.

3.10.15 After discussion by the meeting on the appropriateness of including communications system performance as a task for monitoring by the airspace safety monitoring organization, it was agreed that communications was an integral consideration in the future reduction of separation standards. The meeting noted the staffing and equipment requirements of the CRAs, and included appropriate material on roles and responsibilities in the business plan to provide for the monitoring of communications and data link performance. Japan further offered to consider expanding their CRA services to include adjacent flight information regions.

3.10.16 AEROTHAI provided information on their preparation to become the RVSM Regional Monitoring Agency for the Asia section of the Asia/Pacific Region. The objective of AEROTHAI is to collaborate with APARMO in providing a similar service to cover the Asia section of the Asia/Pacific Region. AEROTHAI has engaged in discussions with APARMO to arrange for the transfer of the databases and knowledge on the safety assessment and safety oversight with regards to RVSM monitoring. A Memorandum of Understanding will be signed between the two organizations to achieve the mentioned objectives and also for the training of AEROTHAI personnel. The meeting noted that AEROTHAI is also aware that RVSM is just a part of the whole activity of the airspace safety system performance monitoring and is willing to participate in other functions associated as required.

3.10.17 An action plan was developed for the accomplishment of the Task Force's objectives.

3.10.18 The Task Force considered that at least one further meeting would be required. Provisions for a fourth meeting prior to APANPIRG/13, scheduled to meet 9-13 September 2002, will be made to finalize any outstanding issues. The following schedule was agreed:

TF/3 22-24 July 2002 (Bangkok)
TF/4 August/September 2002, if required

RECORD OF AMENDMENTS AND CORRIGENDA

AMENDMENTS			
No.	**Date of Issue**	**Date entered**	**Entered by**

CORRIGENDA			
No.	**Date of Issue**	**Date entered**	**Entered by**

Users are invited to forward to the ICAO Asia and Pacific Office, Bangkok, Thailand, suggestions for improvements or additions based on their experience when using the material. Errors or discrepancies noticed in the material should be brought to the attention of the ICAO Asia and Pacific Office.

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c) during cleared transition between levels, the aircraft should not overshoot or undershoot the old or new FL by more than 45 m (150 ft);

d) an automatic altitude-keeping device (AKD) should be operative and engaged during level cruise, except when circumstances, such as the need to retrim the aircraft or turbulence, require disengagement. In any event, adherence to cruise altitude should be done by reference to one of the two primary altimeters;

e) the altitude-alerting device should be operative and engaged;

f) at intervals of approximately one hour, cross-checks between the primary altimeters should be made. A minimum of two must agree within 60 m (200 ft). Failure to meet this condition requires that the altimetry system be reported as defective and notified to ATC;

Note: Consideration should be given to making use of the third altimeter, if installed, as a means of keeping the system operational. Future systems may make use of altimeter comparators in lieu of regular checks.

g) the operating altitude-reporting transponder should be connected to the altimetry system being used to control the aircraft;

h) the pilot should notify ATC of contingencies (equipment failures, weather conditions) which affect his ability to maintain his CFL and co-ordinate a plan of action. If unable to notify ATC and obtain an ATC clearance prior to deviating from the CFL, the pilot should follow established contingency procedures detailed in Part 7 to leave the assigned route or track and obtain ATC clearance as soon as possible. Examples of equipment failures and weather conditions that should be notified to ATC are:

i) failure of all automatic AKDs aboard the aircraft;

ii) loss of redundancy of altimetry systems, or any part of these, aboard the aircraft;

iii) loss of thrust on an engine necessitating descent;

iv) any other equipment failure affecting the ability to maintain CFL; and

v) greater than moderate turbulence.

i) Pilots should use the phrase "UNABLE RVSM DUE EQUIPMENT" to advise ATC that the aircraft does not meet the requirements to operate within airspace designated for RVSM.

Note: Specific contingency procedures for flight crew and controllers are contained in Part 7.

5.3 Special emphasis items: flight crew training

5.3.1 The following items should also be emphasized in flight crew training programs:

a) knowledge and understanding of standard ATC phraseology used in each area of operations;

b) importance of crew members' cross-checking each other to ensure that ATC clearances are promptly and correctly complied with;

c) use and limitations in terms of accuracy of standby altimeters in contingencies. Where applicable, the pilot should review the application of static source error correction (SSEC) and position error correction (PEC) through the use of correction cards;

d) problems of visual perception in sighting other aircraft at a distance of 300 m (1000 ft) vertical separation during night conditions, when encountering northern lights, for opposite and same direction traffic, and during turns;

e) characteristics of aircraft altitude capture systems which may lead to the occurrence of overshoots;

f) relationship between the altimetry, automatic altitude control and transponder systems in normal and abnormal situations; and

g) aircraft operating restrictions (if required for the specific aircraft group) related to airworthiness approval.

5.6 Operations manuals and checklists

5.6.1 The appropriate manuals and checklists should be revised to include information and/or guidance on standard operating procedures and altimeter error limitations for ground checks. Appropriate manuals and checklists should be submitted for authority review as part of the application process.

5.7 Controller-pilot Phraseologies

5.7.1 Regionally-agreed controller-pilot phraseologies are found at Appendix G.

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PART 6 – ATC PROCEDURES

6.1 General

6.1.1 Implementation of RVSM requires that:

a) increased vigilance be applied to:

i) the issuance of clearances to aircraft; and

ii) verifying that flight crews properly understand and comply with clearances;

b) measures be taken as necessary to cope with potential concentration of traffic; and

c) controllers be advised of their responsibilities in respect of the action to be taken:

i) when aircraft known not to be suitably equipped are flight planned into the RVSM airspace;

ii) when informed that an aircraft has lost its capability to maintain CFL appropriate to RVSM requirements;

iii) when the pilot requests traffic information to assist in alleviating potential visual perception problems;

iv) to safeguard separation between aircraft when advised by the pilot that the AKD ability has degraded below RVSM airspace requirements; and

v) when displayed altitude differs from CFL by 300 ft or more.

6.2 Military operations

6.2.1 States are reminded of the recognized responsibility in regard to military traffic as specified in the *Procedures for Air Navigation Services /Rules of the Air and Air Traffic Services* (PANS-RAC, Doc 4444), Part II, Section 6. In this regard, procedures must be developed to accommodate military flight operations that do not meet the equipment requirements listed in Part 3 of this document. These procedures shall specify how non-RVSM approved military flight operations will be conducted in RVSM airspace while being segregated from air traffic provided with a 1000 ft VSM above FL 290. Methods of operation may include:

a) the provision of temporary airspace reservations;

b) the provision of block altitudes;

c) the provision of special routes applicable only to military aircraft; and

d) the provision of special routes applicable to military aircraft requiring a 2000 ft VSM above FL 290.

6.3 Verification of approval status

6.3.1 A secondary responsibility is placed upon ATS authorities to institute routine checks of the approval status of aircraft intending to operate in an RVSM airspace. This responsibility is met by:

a) scrutinizing ATS flight plans;

b) withholding ATC clearances for operations that are not in compliance with the airspace requirements.

6.3.1.1 Individual ATS providers in a position to do so, may also expand the verification to include

a) conducting cross-checks against the central data base, and

b) questioning operators not in compliance with the airspace requirements.

6.4 Tactical monitoring of RVSM airspace

6.4.1 The controller shall verify the aircraft's RVSM approval status if a pilot requests to operate in RVSM airspace and the aircraft equipment suffix does not indicate the aircraft is approved. If the pilot does not confirm that the aircraft has State approval, then, except for an emergency situation, the controller shall not issue a clearance to operate in RVSM airspace.

6.4.2 ATS providers should provide information to the APARMO on flights that are not accommodated in RVSM airspace.

6.5 Controller-pilot phraseologies

6.5.1 Regionally-agreed controller-pilot phraseologies are found at Appendix G.

6.6 Phraseology for coordination between ATC units

6.6.1 The following phraseology should be used for coordination between ATC units:

Message	Phraseology
To verbally supplement an automated estimate message exchange which does not automatically transfer Item 18 flight plan information.	**NEGATIVE RVSM** or **NEGATIVE RVSM STATE AIRCRAFT** [as applicable]
To verbally supplement estimate messages of non-RVSM approved aircraft.	**NEGATIVE RVSM or NEGATIVE RVSM STATE AIRCRAFT** [as applicable]
To communicate the cause of a contingency relating to an aircraft that is unable to conduct RVSM operations due to severe turbulence or other severe weather-related phenomenon [or equipment failure, as applicable].	**UNABLE RVSM DUE TURBULENCE [**or **EQUIPMENT,** as applicable**]**

……

APPENDIX G – CONTROLLER – PILOT PHRASEOLOGIES

Message	Phraseology
For a controller to ascertain the RVSM approval status of an aircraft:	(call sign) **CONFIRM RVSM APPROVED**
For a pilot to report non-RVSM approval status: i. on the initial call on any frequency within the RVSM airspace (controllers shall provide a readback with this same phrase), and ii. in all requests for flight level changes pertaining to flight levels within the RVSM airspace; and iii. in all read-backs to flight level clearances pertaining to flight levels within the RVSM airspace. Additionally, except for State aircraft, pilots shall include this phrase to read back flight level clearances involving the vertical transit through FL 290 or FL 410. *See examples that follow.*	**NEGATIVE RVSM***
For a pilot to report RVSM approval status.	**AFFIRM RVSM***
For a pilot of a non-RVSM approved State aircraft to report non-RVSM approval status, in response to the phrase (call sign) **CONFIRM RVSM APPROVED.**	**NEGATIVE RVSM STATE AIRCRAFT***
Denial of clearance into the RVSM airspace:	(call sign) **UNABLE CLEARANCE INTO RVSM AIRSPACE, MAINTAIN** [or **DESCEND TO,** or **CLIMB TO**] **FLIGHT LEVEL** (number)
For a pilot to report when severe turbulence affects the aircraft's capability to maintain the height-keeping requirements for RVSM.	**UNABLE RVSM DUE TURBULENCE***
For a pilot to report that the aircraft's equipment has degraded below the MASPS required for flight within the RVSM airspace. *(This phrase is to be used to convey both the initial indication of the non-MASPS compliance, and henceforth, on initial contact on all frequencies within the lateral limits of the RVSM airspace until such time as the problem ceases to exist, or the aircraft has exited the RVSM airspace.)*	**UNABLE RVSM DUE EQUIPMENT***
For a pilot to report the ability to resume operations within the RVSM airspace after an equipment or weather-related contingency.	**READY TO RESUME RVSM***

Message	Phraseology
For a controller to confirm that an aircraft has regained its RVSM approval status, or to confirm that the pilot is ready to resume RVSM operations.	**REPORT ABLE TO RESUME RVSM**

**** Pilot phraseology***

Example 1: A non-RVSM approved State aircraft, maintaining FL 260, subsequently requests a climb to FL 320.

Pilot: (call sign) REQUEST FL 320, NEGATIVE RVSM
Controller: (call sign) CLIMB TO FL 320
Pilot: (call sign) CLIMB TO FL 320, NEGATIVE RVSM

Example 2: A non-RVSM approved State aircraft, maintaining FL 260, subsequently requests a climb to FL 430.

Pilot: (call sign) REQUEST FL 430, NEGATIVE RVSM
Controller: (call sign) CLIMB TO FL 430
Pilot: (call sign) CLIMB TO FL 430, NEGATIVE RVSM

Example 3: A non-RVSM approved State aircraft, maintaining FL 360, subsequently requests a climb to FL 380.

Pilot: (call sign) REQUEST FL 380, NEGATIVE RVSM
Controller: (call sign) CLIMB TO FL 380
Pilot: (call sign) CLIMB TO FL 380, NEGATIVE RVSM

Example 4: A non-RVSM approved civil aircraft maintaining FL 280, subsequently requests a climb to FL 320.

Pilot: (call sign) REQUEST FL 320, NEGATIVE RVSM
Controller: (call sign) UNABLE CLEARANCE INTO RVSM AIRSPACE, MAINTAIN FL 280.

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ATTACHMENT to State letter AN 13/11.6-02/21

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

1. INTRODUCTION

1.1 These guidelines are based on studies carried out by the ICAO Separation and Airspace Safety Panel (SASP), formerly known as the Review of the General Concept of Separation Panel (RGCSP), to address airspace safety issues associated with pilots applying lateral offsets when navigating by the Global Navigation Satellite System (GNSS). Information received by ICAO indicates that, when navigating by GNSS, there is a widespread practice among pilots to apply a lateral offset as a safety measure to reduce a perceived increase in the risk of collision due to a loss of planned vertical separation. Furthermore, pilots are using various offset values and applying them in different directions, in some cases without obtaining approval from the appropriate air traffic control (ATC) unit. The impact of the use of lateral offsets on overall airspace safety had not previously been evaluated from a safety perspective, and SASP carried out a technical analysis of safety-related issues. These guidelines are based on the results of this analysis and are provided to assist States and regional planning groups to consider air traffic services (ATS) routes and airspace where the use of lateral offsets could be authorized to obtain a safety benefit, thereby enhancing existing levels of safety. Information is provided for pilots and operators on operational issues concerning the effect of lateral offsets on airspace safety and how a safety benefit could be obtained.

1.2 The SASP studies only took into account the effects of lateral offsets on the safety of ATS routes in oceanic and remote area airspace, i.e. where radar service was not provided.

1.3 In regard to the provisions in Annex 2 - *Rules of the Air* that require aircraft to operate on a route centre line, further detailed studies are required on issues related to precision navigation and the risk of collision in the event of a loss of vertical separation for all aircraft operating environments. This includes high density terminal airspace where radar service is provided, and route systems based on required navigation performance (RNP) types less than RNP 10.

2. BACKGROUND

2.1 In accordance with Annex 2, pilots intending to deviate from the centre line of an ATS route are required to obtain authorization from the appropriate ATC unit. Annex 2, Chapter 3, paragraph 3.6.2.1.1, states:

> "Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable:
>
> a) when on an established ATS route, operate along the defined centre line of that route; or
>
> b) when on any other route, operate directly between the navigation facilities and/or points defining that route."

It should be noted that ICAO separation minima, including lateral route spacing, are based on the assumption that aircraft operate on the centre line of a route; any unauthorized deviation from this requirement could compromise safety. In view of the potential reduction to the risk of collision due to a loss of planned vertical separation, which may be achieved by the application of lateral offsets, ATS authorities are encouraged to authorize the use of lateral offsets in line with these guidelines.

3. AIRCRAFT NAVIGATION PERFORMANCE AND AIRSPACE SAFETY

3.1 Aircraft operating navigation systems that use GNSS in the navigation solution achieve significantly better navigation accuracy than those without GNSS, e.g. inertial navigation systems (INS). A recent study of aircraft navigation performance accuracy in the North Pacific area showed that aircraft equipped with the FANS-1 system, which uses the GNSS to obtain the navigation solution, had a standard deviation of cross-track (lateral) deviations of approximately 0.2 km (0.11 NM) whereas aircraft navigating by other means had a standard deviation of 2.2 km (1.17 NM). When an operational error results in a loss of planned vertical separation between aircraft on the same route, a collision may be avoided by virtue of the random, lateral or longitudinal separation between the aircraft. By reducing the magnitude of lateral deviations from the route centre line, the use of GNSS increases the probability of a collision. By using offsets to provide lateral spacing between aircraft, the effect of this reduction in random lateral spacing would be mitigated, thereby reducing the risk of collision.

3.2 In the development of separation minima, aircraft navigation accuracy is taken into account. Therefore, intentional unauthorized deviation by pilots from a route centre line undermines the principles on which airspace and route systems have been designed. In cases where safety analyses have been carried out for route systems, and a minimum safety level has been established, such deviations violate the assumptions on which the analyses were based and may have an adverse effect on the system's actual safety level. However, in some cases a lateral offset could achieve a safety benefit and these guidelines provide information on how this could be obtained.

4. THE EFFECTS ON SAFETY OF LATERAL OFFSETS IN OCEANIC AND REMOTE AREA AIRSPACE

4.1 Lateral offsets should only be applied by aircraft that use GNSS in the navigation solution. The use of lateral offsets by non-GNSS equipped aircraft may in fact increase the risk of collision in some route systems due to the increase in lateral overlap probability of aircraft on adjacent routes.

Application of lateral offsets on bi-directional single routes

4.2 The application of lateral offsets on bi-directional routes by aircraft navigating using GNSS reduces the risk caused by a loss of planned vertical separation, e.g. due to operational errors.

Application of lateral offsets on parallel route systems

4.3 In parallel route systems, the application of lateral offsets does not adversely affect lateral safety under the following circumstances:

a) the route spacing is 93 km (50 NM) or more;

b) the magnitude of the lateral offset does not exceed 1.9 km (1 NM); and

c) the offsets are applied only by aircraft using GNSS navigation systems.

4.4 Offsets applied in parallel route systems under circumstances which differ from those described above could adversely affect the lateral collision risk and are not recommended.

4.5 In the case of aircraft operating in the same direction, a safety benefit would only be attained if aircraft in lateral overlap apply a staggered offset. Procedures would need to be developed for application of such offsets worldwide and further studies are required to provide appropriate procedures.

Application of lateral offsets at track intersections

4.6 Provided that lateral offsets of no more than 1.9 km (1 NM) are applied only to aircraft with GNSS navigation systems, collision risk modelling has shown that the application of lateral offsets on intersecting tracks does not adversely affect system safety at the intersection point.

5. DIRECTION OF LATERAL OFFSET

5.1 The offset should be applied to the **right** of the centre line relative to the direction of flight.

6. MAGNITUDE OF LATERAL OFFSET

6.1 The analysis carried out by SASP has shown that an offset as small as 0.37 km (0.2 NM) significantly reduces vertical risk by reducing the probability that aircraft are in lateral overlap when operating at adjacent flight levels on the same route. An offset of 1.9 km (1 NM) reduces the probability of lateral overlap by approximately two orders of magnitude as compared to the case of no offset. The reduction depends not only on the magnitude of the offset, but also on the proportion of aircraft navigating by GNSS.

Note. - Notwithstanding the above, ongoing work in some regions may demonstrate that the use of lateral offsets up to 3.8 km (2 NM) may provide specific benefits for a particular route system, e.g. the North Atlantic (NAT).

7. OTHER CONSIDERATIONS OF THE USE OF LATERAL OFFSETS

7.1 When planning for the use of lateral offsets, States and regional planning groups should take into account the operational consequences of applying lateral offsets. The arrangements for implementation should take the following points into consideration:

a) the need to promulgate in aeronautical information publications (AIPs) the routes or airspace where application of lateral offsets has been authorized, including the positions at which offsets are commenced and terminated;

b) in airspace where the use of lateral offsets has been authorized, pilots would not normally be required to inform ATC that an offset is being applied;

c) offsets applied during en-route operations at cruising levels should not affect obstacle clearance criteria; in cases where this may be an issue, appropriate restrictions on the use of offsets should be imposed;

d) offsets should not be used in continental radar-controlled airspace; and

e) these guidelines do not apply to the use of tactical offsets by ATC, nor to the application of offsets by pilots when following published contingency procedures to avoid wake turbulence.

8. SUMMARY OF THE USE OF LATERAL OFFSETS

8.1 When considering the use of lateral offsets to enhance safety, the following conditions should be taken into account:

a) offsets should only be applied when approved by the appropriate ATS authorities;
b) offsets are only to be applied in oceanic or remote airspace;

c) the magnitude of the offset should not be more than 1.9 km (1 NM) from the route centre line;

d) the offset should be made to the **right** of the centre line relative to the direction of flight;

e) the offset should be applied only by aircraft using GNSS navigation systems; and

f) offsets should not be applied in parallel route systems when the route spacing is less than 93 km (50 NM).

8.2 These guidelines do not preclude the implementation of lateral offset procedures which differ from those described above. However, in such circumstances:

a) offsets left of track are not to be used; and

b) a safety analysis of the proposed procedures will be required.

8.3 It is recommended that these offset procedures only be implemented on a regional basis, after coordination between all States involved.

-- END --

List of ATS routes which have not been implemented in accordance with the ASIA/PAC Air Navigation Plan

* Editorial note: Changes are arranged to show "deleted text" using strikeout (~~text to be deleted~~), and "new text" in bold Italics (***new text to be inserted***).

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
A202	BANGKOK ***KORAT*** ***VILAO*** DONGHOI ***XONUS*** ***ASSAD*** ***SAMAS*** ***SIKOU*** ~~HONG KONG~~ ***CHEUNG CHAU*** KAGOSHIMA NIIGATA CHITOSE		~~Not~~ ***Partially*** implemented BANGKOK-~~HONG KONG~~ ***CHENG CHAU*** segment ~~will be~~ ***was*** implemented on 1 November 2001 Japan advised that KAGOSHIMA-NIIGATA-CHITOSE segment is covered by a domestic route, and HONG KONG-KAGOSHIMA segment is covered by A1 and M750; thus there is no requirement for A202. Japan has proposed the deletion in co-ordination with Hong Kong China.	~~ICAO - continue ongoing implementation co-ordination with China, Hong Kong China, Lao PDR, Thailand and Viet Nam through SCS/TF~~ ~~China, Hong Kong China, Lao PDR, Thailand and Viet Nam - implement A202 on 1 November 2001~~ Japan - propose deletion of Hong Kong-Chitose segment of A202 in co-ordination with Hong Kong China ICAO - process the amendment proposal	~~China~~ Hong Kong, China Japan ~~Lao PDR~~ ~~Thailand~~ ~~Viet Nam~~
A203	HONG KONG TAIPEI		Not implemented	China - consider implementation by **(**Target Date**)**	China Hong Kong, China
A211	TARAKAN TAWAU		~~Not~~ implemented within Malaysia ***on 29 November 2001*** ***Implementation status within Indonesia needs to be confirmed.***	~~ICAO - co-ordinate with Malaysia and report the outcome to SEACG~~ ~~Malaysia - consider implementation by 12/2001~~ ~~*ICAO has requested Malaysia to co-ordinate early implementation of A211 with States concerned, and awaits input from Malaysia. Co-ordination with Indonesia is on-going.*~~ ***Malaysia advised at SEACG/10 of the implementation of the route on 29 November 2001***	***Indonesia*** ~~Malaysia~~

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
A218	HARBIN (EKIMCHAN) (MYS SHMIDTA) BARROW	(EKIMCHAN) (MYS SHMIDTA) BARROW	The Harbin-Ekimchan segment has not been implemented.	China, Russian Federation - consider implementation by (Target Date) *ICAO has taken action to co-ordinate with States for implementation of the Harbin-Ekimchan segment. Action taken to amend ANP (APAC 99/1-ATS).* *APAC 99/1 to delete Beijing-Harbin was approved on 26/1/00.*	China Russian Federation
A223	RUSAR FUKUOKA		Not implemented	Japan - consider implementation by **(**Target Date**)** ***Japan has advised that domestic route network is available for this segment, and is considering proposing deletion of the requirement.***	Japan
A335	HOHHOT TUMURTAI ULAN BATOR (IRKUTSK)		Not implemented but covered by B458, A575 and A591 China and Mongolia have agreed to delete the requirement, and will propose its deletion	China, Mongolia - propose deletion of the requirement ICAO - process ANP amendment	China Mongolia
A341	SURABAYA KOTA KINABALU SANDAKAN ZAMBOANGA	KINABALU SANDAKAN ZAMBOANGA	The Surabaya-Kota Kinabalu segment has not been implemented	ICAO - co-ordinate with Indonesia/Malaysia for implementation of the Surabaya-Kota Kinabalu segment Indonesia, Malaysia - consider implementation by 12/2001 *ICAO has requested Indonesia to co-ordinate implementation with Malaysia*. Co-ordination on-going. ***Malaysia has advised that the existing route B584 fulfills sufficiently the requirement and would propose deletion of the requirement for Surabaya-Kota Kinabalu segment.***	Indonesia Malaysia

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
A450	DENPASSAR HASSANUDDIN KOROR YAP IS GUAM WAKE KATHS	KOROR NIMITZ WAKE IS KATHS	Denpassar-KOROR not implemented.	ICAO - co-ordinate with Indonesia for promulgation of the Denpassar-Hassanuddin segment in AIP with route indicator A450; and co-ordinate with Indonesia/United States for promulgation of the Hassanuddin-Koror segment in AIP with route indicator A450 Indonesia - consider implementation by (Target Date) *ICAO has requested Indonesia to coordinate implementation with USA.* *USA has agreed to the implementation, and an reply from Indonesia is being awaited.*	Indonesia United States
A469	CONSON IS HO CHI MINH		~~The route has been implemented as a domestic route W9.~~ Viet Nam has advised that W9 ~~will be~~ ***was*** replaced with L643 as part of the revised SCS route structure on 1 November 2001; thus propose deletion of the requirement.	Viet Nam -propose deletion ICAO - process ANP amendment	Viet Nam

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
~~A470~~	~~MERSING~~ ~~CONSON IS~~ ~~PHAN THIET~~ ~~PHUCAT~~ ~~HONG KONG~~ ***CHEUNG CHAU*** MAGOG SHANTOU XINGLIN FUZHOU YUNHE TONGLU HANGZHOU LISHUI BANTA PIXIAN	~~MERSING~~ ~~CONSON IS~~ ~~PHAN THIET~~ ~~PHUCAT~~ and ***CHEUNG CHAU*** MAGOG SHANTOU XINGLIN FUZHOU YUNHE TONGLU HANGZHOU LISHUI BANTA PIXIAN	MERSING - ~~HONG KONG~~ ***CHEUNG CHAU*** segment ~~will be~~ ***was*** deleted from the ANP requirement by ***APAC 95/16*** as part of the revised SCS route structure, and the rest of the route ~~will be~~ ***was*** implemented accordingly on 1 November 2001.	~~ICAO - continue on-going implementation co-ordination with China and Viet Nam through SCS/TF~~	~~China~~ ~~Viet Nam~~
A473	JALALABAD NEPALGUNJ KATHMANDU		No implemented Domestic route W41 established Nepalgunj - Kathmandu.	ICAO - co-ordinate with Nepal for promulgation of the route in AIP with route indicator A473 India - implement the Jalalabad - Nepalgunj segment by ***10/2002*** Nepal - implement the Nepalgunj-Kathmandu segment as A473 by ***10/2002***	India Nepal

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
A581	BAGO CHIANG MAI CHIANG RAI PONUK SAGAG BIDRU KUNMING MAGUOHE QIANXI HUAYUAN LINLI WUHAN	BAGO CHIANG MAI *and* KUNMING MAGUOHE QIANXI HUAYUAN LINLI WUHAN	The segment within the ***Bangkok FIR*** ~~between a Bangkok/Yangon FIR boundary point and Kunming~~ has not been implemented. *(Note. 2 ATS routes with same designator)*	~~China~~, ~~Lao PDR~~, Thailand - implement A581 accordingly by (Target Date) *China, Lao PDR, Thailand proposed an amendment in follow-up to BBACG, and APAC 99/11 to amend A581 was approved on 15 Dec 2000.* ***China advised that A581 was implemented up to SAGAG within China in accordance with the BANP requirement.*** ***Lao PDR advised that SAGAG - FIR boundary with Bangkok was implemented on 25 April 2001.***	~~China~~ Thailand ~~Lao PDR~~
A584	TONGA NIUE APIA FUNAFUTI NAURU KOSRAE	FUA'AMOTU NIUE FALEOLO FUNAFUTI NAURU IS	The Nauru-Kosrae segment has not been implemented	ICAO - process ANP amendment in co-ordination with USA *USA has proposed an amendment to delete the Nauru-Kosrae segment, and an ANP amendment proposal is under prepration.*	United States
B201	NIUE AUCKLAND		Niue has been linked with Auckland via Tonga, i. e. A584 and B575	Fiji, New Zealand- propose an amendment to delete the requirement from ANP ICAO - process ANP amendment in co-ordination with Fiji and New Zealand *Fiji/New Zealand advised that they agreed to delete the requirement, and ICAO will draft an amendment proposal.*	Fiji New Zealand
B204		MEGOK ANIRA	A requirement for this route is not specified in ANP.	ICAO - co-ordinate with Maldives for draft amendment proposal for ANP	Maldives

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
B212	KANGNUNG NIIGATA		Not Implemented	Japan, Rep Korea - consider implementation by (Target Date) *Japan is considering implementation as a conditional ATS route*, and ***will co-ordinate the implementation with Rep Korea.***	Japan Rep of Korea
B213	LHASA CHENGDU		Not implemented	China - consider implementation by (Target Date)	China
B456	MADANG WEWAK VANIMO JAYAPURA	WEWAK JAYAPURA	Madang-Wewak segment not implemented.	ICAO - co-ordinate with Papua New Guinea for amendment to delete the requirement for MADANG- VANIMO segment *Papua New Guinea has advised that they will propose an ANP amendment to delete MADANG and VANIMO from the requirement.*	Papua New Guinea
B591	SHANGHAI TAIBEI HENGCHUN LAOAG SAN FERNANDO LUBANG LADER KOTA KINABALU JAKARTA	TAIBEI HENGCHUN LAOAG SAN FERNANDO LUBANG LADER KOTA KINABALU JAKARTA	The Shanghai-Taibei segment has not been implemented	China - consider implementation by **(**Target Date**)**	China

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
G211	PENANG ANOKO		Not implemented	ICAO - co-ordinate with Malaysia for implementation Malaysia - implement G211 by 12/2001 *ICAO has requested Malaysia to implement G211. Malaysia has advised that the implementation co-ordination is on-going.* ***Malaysia has advised that G211 would be replaced with EMARSSH routes. Therefore, Malaysia will propose deletion of the requirement when an ANP amendment relating to EMARSSH is prepared.***	Malaysia
~~G348~~	PARO BAGDOGRA	~~PARO~~ ~~SUBSU~~	SUBSU-BAGDOGRA segment ~~not~~ ***was*** implemented ***on 27 December 2001.***	~~India - implement SUBSU-BAGDOGRA segment by 31 October 2001.~~ ***India has advised that the missing segment was implemented on 27 December 2001.***	~~India~~
G461	JAKARTA CIREBON SEMARANG SURABAYA	PAGAI HALIM CIREBON SEMARANG SURABAYA		Indonesia - implement G461 accordingly by (Target Date) *APAC 00/1 to amend the requirement was approved on 15 Jan 2001.*	Indonesia
~~G466~~	KUALA LUMPUR KOTA BHARU ~~HO CHI MINH~~ ~~PHUCAT~~ ~~HENGCHUN~~	***KUALA LUMPUR*** ~~BATU ARANG~~ KOTA BHARU ~~TANSONNHAT~~	Tansonnhat-Dalat implemented as W15 Dalat-Phucat is covered by A470 Phucat-Hengchun not implemented Kuala Lumpur-Kota Bharu segment ~~will be~~ ***was*** implemented on 1 November 2001 as part of the revised SCS route structure, and the requirement for the rest ~~will be~~ ***was*** deleted from ANP ***by APAC 01/2.***	~~ICAO - continue ongoing implementation co-rdination with Malaysia through SCS/TF~~ ~~*Coordination ongoing regarding implementation of the new South China Sea route structure.*~~	~~Malaysia~~

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
G473	BAGO MAKAS PHITSANULOK DANANG LUBANG	BAGO MAKAS PHITSANULOK UBON	Ubon-Danang covered by A1 Danang-Lubang not implemented.	ICAO - co-ordinate with States and report the out come to SEACG *Coordination ongoing regarding implementation of the new South China Sea route structure and establishment of Sanya FIR.*	~~Lao PDR~~ ***Cambodia*** Philippines Thailand Viet Nam
G589	AVGOK KANGNUNG		Not implemented	ICAO - co-ordinate with States for implementation	DPR Korea Rep of Korea
~~R207~~	VIENTIANE NAN CHIANG MAI MANDALAY	~~ANBOK~~ ~~NAN~~ ~~CHIANG MAI~~ ~~MANDALAY~~	Vientiane-ANBOK has been implemented as ~~W29~~ ***R207 as of April 2002***	ICAO - co-ordinate with Lao PDR for promulgation of the route in AIP with route indicator R207 Lao PDR- implement the missing segment as R207 by (Target Date) ***Lao PDR has advised that Vientiane-ANBOK segment was implemented on 25/4/2001.***	~~Lao PDR~~
R216	URUMQI (ALMA ATA) (Note: Subject to further study after the RAN/3 Meeting)		Not implemented	ICAO - co-ordinate with States for implementation and report outcome to EAAR China - consider implementation with Kazakhstan by (Target Date**)**	China Kazakhstan
R221	MERSING PULAU TIOMAN	MERSING PULAU TIOMAN ***and*** YUZHNO-SAKHALI-NSK ANIMO	R221: Mersing - Palau Tioman was implemented on 19 April 2001. The Yuzhno Sakhalinsk-ANIMO route has also been implemented as R221.	ICAO - co-ordinate with Russian Federation to redesignate R221 to R466 and report the outcome to EAAR *Russian Federation has been required to promulgate R466 and delete R221 from their AIP.*	Russian Federation

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
R333	DOTMI AKERO		Not implemented ***China advised that AKERO was abolished on 1 November 2001***	China - consider implementation by (Target Date)	China
R335	MAGOG MAKUNG		The route has been implemented as A1 via ELATO, common Taibei/Hong Kong FIR boundary point.	China - consider implementation by (Target Date)	China Hong Kong, China
R345	VIENTIANE TAKHAEK PAKSE STUNG TRENG RUPED		Not implemented Cambodia has advised that the requirement is no longer valid and will propose its deletion in consultation with Lao and Thailand	ICAO - co-ordinate with States for implementation Cambodia- propose deletion in co-ordination with Lao PDR and Thailand	Cambodia Lao PDR Thailand
R455	PONTIANAK KUCHING		~~Not~~ Implemented within Malaysia ***on 29 November 2001*** ***Implementation status within Indonesia needs to be confirmed.***	~~ICAO - co-ordinate with Malaysia for implementation~~ ~~Malaysia - implement R455 by 12/2001~~ ***Indonesia - implement R455 by (Target Date)*** ~~*ICAO has requested Malaysia to implement R455, and Malaysia has advised that co-ordination is on-going.*~~ ***Malaysia has advised that R455 was implemented on 29 November 2001.***	***Indonesia*** ~~Malaysia~~
R459	MANADO BALIKPAPAN ELANG PONTIANAK MINOS TANJUNG PINANG		Manado-Palu has been implemented as W51. Palu-Balikpapan-Tanjung Pinang has been implemented as W36.	Indonesia - promulgate the route in AIP with route indicator R459 by (Target Date) *ICAO has requested Indonesia to co-ordinate implementation of R459.*	Indonesia

ATS routes	Requirements in BANP	Implemented route (if different from BANP route requirement)	Status	Action proposed/*Action taken*	States
R466	(YUZHNO SAKHALINSK) ANIMO		The Yuzhno Sakhalinsk-ANIMO route has been implemented as R221.	ICAO - co-ordinate with Russian Federation to redesgnate route indicator R221 to R466 and report the outcome to EAAR *Russian Federation has been requested to re-designate the route with correct designator, and a reply is being awaited*	~~Malaysia~~ Russian Federation
R579	PADANG PEKANBARU MALACCA		Not implemented	ICAO - co-ordinate with Indonesia/Malaysia for implementation Indonesia, Malaysia - implement R579 by (Target Date) *ICAO has requested Malaysia to co-ordinate implementation with Indonesia.* ***Malaysia has advised that this is no longer required due to a low traffic movement, and would propose deletion the requirement.***	Indonesia Malaysia
R593	BOMBAY (HAIMA)		Not implemented	India - consider implementation ICAO - co-ordinate with Oman for implementation and report the outcome to SWACG ***India has advised that the implementation of R593 is being considered in conjunction with the implementation of RVSM in November 2003.***	India Oman

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STATUS OF WGS-84 IMPLEMENTATION

EXPLANATION OF THE TABLE

Column

1 Name of the State, territory or aerodrome for which WGS-84 coordinates are required with the designation of the aerodrome use:

RS - international scheduled air transport, regular use
RNS - international non-scheduled air transport, regular use
RG - international general aviation, regular use
AS - international scheduled air transport, alternate use

2 Runway designation numbers

3 Type of each of the runways to be provided. The types of runways, as defined in Annex 14, Volume I, Chapter 1, are:

NINST - non-instrument runway;
NPA - non-precision approach runway;
PA1 - precision approach runway, Category I;
PA2 - precision approach runway, Category II;
PA3 - precision approach runway, Category III.

4 Requirement for the WGS-84 coordinates for FIR, indicated by the expected date of implementation or an "X" if already implemented.

5 Requirement for the WGS-84 coordinates for Enroute points, indicated by the expected date of implementation or an "X" if already implemented.

6 Requirement for the WGS-84 coordinates for the Terminal Area, indicated by the expected date of implementation or an "X" if already implemented.

7 Requirement for the WGS-84 coordinates for the Approach points, indicated by the expected date of implementation or an "X" if already implemented.

8 Requirement for the WGS-84 coordinates for runways, indicated by the expected date of implementation or an "X" if already implemented.

9 Requirement for the WGS-84 coordinates for Aerodrome/Heliport points (e.g. aerodrome/heliport reference point, taxiway, parking position, etc.), indicated by the expected date of implementation or an "X" if already implemented.

10 Requirement for geoid undulation indicated by the expected date of implementation or an "X" if already implemented.

11 Requirement for the WGS-84 Quality System, indicated by the expected date of implementation or an "X" if already implemented.

12 Requirement for publication of WGS-84 coordinates in the AIP indicated by the expected date of publication or an "X" if already published.

13 Remarks

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STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
AUSTRALIA			X	X						X	X	
YPAD ADELAIDE/												
Adelaide	05	NPA			X	X	X	X				
RS	23	PA1				X	X	X				
	12	NPA				X	X	X				
	30	NPA				X	X	X				
YBBN BRISBANE/					X			X				
Brisbane	1	PA1				X	X					
RS	19	PA1				X	X					
	14	NPA				X	X					
	32	NPA				X	X					
YBCS CAIRNS/					X			X				
Cairns	12	NPA				X	X					
RS	30	NPA				X	X					
	15	PA1				X	X					
	33	NPA				X	X					
YPDN DARWIN/					X			X				
Darwin	11	NPA				X	X					
RS	29	PA1				X	X					
	18	NINST				X	X					
	36	NPA				X	X					
YMML MELBOURNE/					X			X				
Melbourne	09	NPA				X	X					
RS	27	PA1				X	X					
	16	PA1				X	X					
	34	NPA				X	X					
YPPH PERTH/					X			X				
Perth Intl	03	NPA				X	X					
RS	21	PA1				X	X					
	06	NPA				X	X					
	24	PA1				X	X					
	11	NPA				X	X					
	29	NPA				X	X					
YSSY SIDNEY/					X			X				
Kingsford Smith Intl	07	PA1				X	X					
RS	25	NPA				X	X					
	16L	PA1				X	X					
	34R	PA1				X	X					
	16R	PA1				X	X					
	34L	PA1				X	X					
YMAV AVALON/					X			X				
Avalon	18	PA1				X	X					
AS	36	NPA				X	X					
YBRM BROOME/					X			X				
Broome	10	NPA				X	X					
RS	28	NPA				X	X					

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
YSCB CANBERRA/					X			X				
Canberra	12	NPA				X	X					
AS	30	NPA				X	X					
	17	NPA				X	X					
	35	PA1				X	X					
YSCH COFFS HARBOUR/					X			X				
Coffs Harbour	03	NPA				X	X					
AS	21	NPA				X	X					
	10	NPA				X	X					
	28	NPA				X	X					
YBCG COOLANGATTA/					X			X				
Coolangatta	14	NPA				X	X					
AS	32	NPA				X	X					
	17	NPA				X	X					
	35	NPA				X	X					
YMHB HOBART/					X			X				
Hobart	12	PA1				X	X					
RS	30	NPA				X	X					
					X			X				
Learmonth	18	NPA				X	X					
AS	36	NPA				X	X					
YLHI LORD HOWE ISLAND/					X			X				
Lord Howe Island	10	NPA				X	X					
RS	28	NPA				X	X					
YPPD PORT HEDLAND					X			X				
Port Hedland	14	NPA				X	X					
AS	32	NPA				X	X					
	18	NPA				X	X					
	36	NPA				X	X					
YBTL TOWNSVILLE/					X			X				
Townsville	01	PA1				X	X					
AS	19	NPA				X	X					
	07	NPA				X	X					
	25	NPA				X	X					
YBAS ALICE SPRINGS/					X			X				
Alice Springs	06	NPA				X	X					
AS	24	NPA				X	X					
	12	PA1				X	X					
	30	NPA				X	X					
	17	NPA				X	X					
	35	NPA				X	X					
YSDU DUBBO/					X			X				
Dubbo	05	NPA				X	X					
AS	23	NPA				X	X					
	11	NPA				X	X					
	29	NPA				X	X					

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
YPKG KALGOOLIE/					X			X				
Kalgoorlie	11	NPA				X	X					
AS	29	NPA				X	X					
	18	NPA				X	X					
	36	NPA				X	X					
YMLT LAUNCETON/					X			X				
Launceston	14L	ninst				X	X					
AS	32R	ninst				X	X					
	14R	NPA				X	X					
	32L	PA1				X	X					
	18	ninst				X	X					
	36	ninst				X	X					
YBRK ROCKHAMPTON/					X			X				
Rockhampton	04	NPA				X	X					
AS	22	NPA				X	X					
	15	NPA				X	X					
	33	NPA				X	X					
YPTN TINDAL/					X			X				
Katherine	14	NPA				X	X					
AS	32	NPA				X	X					
YHID HORN ISLAND/					X			X				
Horn Island	08	NPA				X	X					
RGS	26	NPA				X	X					
	14	NPA				X	X					
	32	NPA				X	X					
YSNF NORFOLK ISLAND/					X			X				NZZO FIR
Norfolk Island	04	PA1				X	X					
RS	22	NPA				X	X					
	11	PA1				X	X					
	29	PA1				X	X					
YPXM CHRISTMAS ISLAND/					X			X				
Christmas Island	18	NPA				X	X					
RS	36	NPA				X	X					
YPCC KEELING/					X			X				
Cocos Island Intl	15	NPA				X	X					
RS	33	NPA				X	X					
BANGLADESH			X	X						X	X	
VGZR DHAKA/					X			X				
Zia Int'l	14	PAI				X	X		*			* Not yet decided
RS	32	NPA				X	X					
VGEG CHITTAGONG/					X			X				
M.A. Hannan Intl	05	NPA				X			*			* Not yet decided
RS	23	PA1				X	X					
VGSY SYLHET/					X			X				
Osmani Intl	11	PA1				X	X		*			* Not yet decided
RS	29	NPA				X	X					

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STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
BHUTAN												
BRUNEI DARUSSALAM												WBFC FIR
WBSB BRUNEI/					X			X			X	
Brunei Intl	03	PA1				X	X					
	21	PA1				X	X					
CAMBODIA												
CHINA			X	X								Sanya AOR only
HONG KONG, China			X	X						X	X	
VHHH HONG KONG/					X			X	X			
Hong Kong Intl	07L	PA2				X	X		X			
RS	07R	PA2				X	X		X			
	25L	PA2				X	X		X			
	25R	PA3				X	X		X			
MACAO, China												VHHK FIR
VMMC MACAU/					X			X			X	
Macau Intl	16	NPA				X	X		X			
	34	PA2				X	X		X			
COOK ISLANDS												
DPR KOREA												
FIJI			X	X						X	X	
NFFN NADI/					X			X				
Nadi Intl	02	PA1				X	X		X			
RS	20	PA1				X	X		X			
	09	NINST				X	X		X			
	27	NINST				X	X		X			
NFSU SUVA/					X			X				
Nausori Intl	10	NPA				X	X		X			
RS	28	NPA				X	X		X			
FRENCH POLYNESIA (FRANCE)			2003	2003						2003	2003	
NTAA TAHITI/								X				

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
Faaa	04	PA1				2003	X		X			
RS	22	NPA				2003	X	X	X			
NTTB BORA BORA/												
Moto-Mute	11	NPA				2003	X	2003	X			
	29	NPA				2003	X	2003	X			
NTTR RAIATEA												
Utoroa	07	NPA				2003	X	2003				
	25	NPA				2003	X	2003				
NTTG RANGIGORA												
Rangigora	09	NPA				2003	X	2003				
AS	27	NPA				2003	X	2003				
NEW CALEDONIA (FRANCE)			X	X						2001	X	NFFF FIR
NWWW Noumea/					X			X				
La Tontouta	11	PA1				X	X		X			
RS	29	NINST				X	X		X			
WALLIS ISLANDS (FRANCE)												NFFF FIR
NLWW Wallis/												
Hihifo										2001	X	
RS	08	NPA				X	X					
	26	NPA				X	X					
INDIA			X	X							X	
VIDP DELHI/					X			X				
Indian Gandhi Intl	09	NPA				X	X					
RS	27	PA1				X	X					
	10	PA1				X	X					
	28	PA2				X	X					
VABB MUMBAI/					X			X				
ChhatrapatiShivaji Intl	09	PA1				X	X					
RS	27	PA1				X	X					
	14	PA1				X	X					
	32	NPA				X	X					
VOMM CHENNAI/					X			X				
Madras	07	PA1				X	X					
RS	25	NPA				X	X					
	12	NPA				X	X					
	30	NPA				X	X					
VECC KOLKATA/					X			X				
Netaji Subash	19L	PA1				X	X					
Chandra Bose Intl	01R	PA1				X	X					
RS	19R	NPA				X	X					
	01L	PA2				X	X					
VAAH AHMEDABAD/					X			X				
Sardar VallabhBhai	05	NPA				X	X					
Patel Intl	23	PA1				X	X					
RS												

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
VIAR AMRITSAR/					X			X				
Amritsar	16	NPA				X	X					
RS	34	PA1				X	X					
VOBG BANGALORE/					X			X				
Bangalore	09	NPA				X	X					
RS	27	PA1				X	X					
VOCI COCHIN/					X			X				
Cochin Intl	09	NPA				X	X					
RS	27	PA1				X	X					
VAGO GOA/					X							
Goa	08	NPA				X	X					
RS	26	NPA				X	X					
VEGT GUWAHATI/					X			X				
Lokapriya Gopinath	02	PA1				X	X					
Bardoloi Intl	20	NPA				X	X					
RS												
VOHY HYDERABAD/					X			X				
Rajiv Gandhi Intl	09	NPA				X	X					
RS	27	PA1				X	X					
VOTV TRIVANDRUM/					X			X				
Thiruvananthapuram	14	NPA				X	X					
Intl	32	PA1				X	X					
RS												
	Note: Transformation into WGS-84 has been done by mathematical means using MADRAN software developed by NIMA (National Imaginary and Mapping Agency), USA											
INDONESIA			2002	X					X	2001		
WAPP AMBON/					2002			X				
Pattimura	04	NPA				X	X					
RNS	22	PA1				X	X					
WRLL BALIKPAPAN/					2002			X				
Sepinggan	07	NPA				X	X					
RS	25	PA1				X	X					
WRBB BANJARMASIN/					2002			X				
Syamsudin Noor	10	PA1				X	X					
AS	28	NPA				X	X					
WIKB BATAM/					2002			X				
Hang Nadim	04	PA1				X	X					
RS	22	NPA				X	X					
WABB BIAK/					2002			X				
Frans Kaisiepo	11	PA1					X					
RS	29	NPA					X					
WRRR DENPASAR/					2002			X				
Ngurah Rai	09	NPA				X	X					
RS	27	PA1				X	X					
WIII JAKARTA/					2002			X				
HalimPerdanakusuma	06	NPA					X					

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
RNS	24	PA1					X					
WIIH JAKARTA/					2002			X				
Soekarno-Hatta	07L	PA1				X	X					
RS	25L	PA1				X	X					
	07R	PA1				X	X					
	25R	PA1				X	X					
WAJJ JAYAPURA/					2002			X				
Sentani	12	NPA				X	X					
RS	30	PA1				X	X					
WRKK KUPANG/					2002			X				
El Tari	07	NPA					X					
RS	25	PA1					X					
WAAA MAKASSAR/					2002			X				
Hasanuddin	13	PA1				X	X					
RNS	31	NPA				X	X					
WAMM MANADO/					2002			X				
Sam Ratulangi	18	PA1				X	X					
RS	36	NPA				X	X					
WIMM MEDAN/					2002			X				
Polonia	05	PA1				X	X					
RS	23	NPA				X	X					
WAKK MERAUKE/					2002			X				
Mopah	16	NPA				X	X					
RNS	34	NINST				X	X					
WIMG PADANG/					2002			X				
Tabing	16	NINST				X	X					
RS	34	NINST				X	X					
WIPP PALEMBANG/					2002			X				
SM Badaruddin II	11	NPA				X	X					
RNS	29	PA1				X	X					
WIBB PEKANBARU/					2002			X				
SultanSyarifKasim II	18	NPA				X	X					
RNS	34	PA1				X	X					
WIOO PONTIANAK/					2002			X				
Supadio	15	PA1				X	X					
RS	33	NPA				X	X					
WRSJ SURABAYA/					2002			X				
Juanda	10	PA1				X	X					
RS	28	NPA				X	X					
WIKN TANJUNG PINANG/					2002			X				
Kiang	04	NPA				X	X					
RNS	22	NINST				X	X					
WRLR TARAKAN/					2002			X				
Juwata	06	NPA				X	X					
RS	24	NINST				X	X					
WABP TIMIKA/					2002			X				

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CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
Tembaga Pura	12	NPA					X					
RS	30	NPA					X					
WIJJ YOGYAKARTA/					2002			X				
Adi Sucipto	09	NPA					X					
RNS	27						X					
	* The WGS-84 was implemented in almost all International Airport in Indonesia including the NPA with overlay ** The Ground Undulation (Diference between Mean Sea Leval and Elipsoit) will be started in the Year 2002											
JAPAN			X	X							X	
RJFF FUKUOKA/					X			X				
Fukuoka	16	PA1				X	X					
RS	34	NPA				X	X					
RJCH HAKODATE/					X			X				
Hakodate	12	PA1				X	X					
RS	30	NPA				X	X					
RJFK KAGOSHIMA/					X			X				
Kagoshima	16	NPA				X	X					
RS	34	PA1				X	X					
RJBB OSAKA/					X			X				
Kansai Intl	06	PA2				X	X					
RS	24	NPA				X	X					
RJFT KUMAMOTO/					X			X				
Kumamoto	07	PA3				X	X					
RS	25	NPA				X	X					
RJFU NAGASAKI/					X			X				
Nagasaki	14	NPA				X	X					
RS	32	PA1				X	X					
	18	NPA				X	X					
	36	NPA				X	X					
RJNN NAGOYA/					X			X				
Nagoya	16	NPA				X	X					
RS	34	PA1				X	X					
ROAH NAHA/					X			X				
Naha	18	NPA				X	X					
RS	36	PA1				X	X					
RJCC SAPPORO/					X			X				
New Chitose	01L	PA1				X	X					
RS	19R	NPA				X	X					
	01R	PA1				X	X					
	19L	NPA				X	X					
RJAA NARITA/					X			X				
New Tokyo Intl	16	PA3				X	X					
RS	34	NPA				X	X					
RJSN NIIGATA					X			X				
Niigata	04	NPA				X	X					
RS	22	NPA				X	X					
	10	NPA				X	X					

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CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
	28	PA1				X	X					
RJOO OSAKA/					X			X				
Osaka Intl	14R	NPA				X	X					
RS	32L	PA1				X	X					
	14L	NPA				X	X					
	32R	NPA				X	X					
RJSS SENDAI/					X			X				
Sendai	09	NPA				X	X					
RS	27	PA1				X	X					
	12	NPA				X	X					
	30	NPA				X	X					
RJTT TOKYO/					X			X				
Tokyo Intl	16L	NPA				X	X					
RS	34R	PA2				X	X					
	16R	NPA				X	X					
	34L	PA1				X	X					
	04	NPA				X	X					
	22	PA1				X	X					
KIRIBATI												NFFF FIR
LAO PDR												
MALAYSIA			X	X							X	
WMKA ALOR SETAR/					X			X				
Sultan Abdul Halim	04	NPA					X					
RS	22	NINST					X					
WMKB BUTTERWORTH/					X			X				
Butterworth	18	NPA					X					
RS	36	NPA					X					
WMKC KOTA BHARU/					X			X				
Sultan Ismail Petra	10	NPA					X					
RS	28	NPA					X					
WMKD KUANTAN/					X			X				
Kuantan	18	NPA					X					
RS	36	PA1					X					
WMKE KERTEH/					X			X				
Kerteh	16	NPA					X					
RS	34	NPA					X					
WMKF KUALA LUMPUR/					X			X				
Simpang	04	NINST					X					

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CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
RS	22	NINST					X					
WMKI IPOH/					X			X				
Sultan Azlan Shah	04	PA1					X					
RS	22	NINST					X					
WMKJ JOHOR BAHRU/					X			X				
Sultan Ismail	16	PA1					X					
RS	34	NPA					X					
WMKK KUALA LUMPUR/					X			X				
Sepang Intl	14R	PA1				X	X					
RS	32L	PA1				X	X					
	14L	PA1				X	X					
	32R	PA1				X	X					
WMKL LANGKAWI/					X			X				
Langkawi Intl	03	PA1					X					
RS	21						X					
WMKM MALACCA/					X			X				
Malacca	03	NPA					X					
RS	21	NPA					X					
WMKN KUALA TERENGGANU/					X			X				
Sultan Mahmud Shah	04	NPA					X					
RS	22	NPA					X					
WMKP PENANG/					X			X				
Penang Intl	04	PA1					X					
RS	22	NPA					X					
WMSA KUALA LUMPUR/					X			X				
SultanAbdulAzizShah	15	PA1					X					
RS	33	PA1					X					
WMBT PULAU TIOMAN/								X				
Pulau Tioman	02						X					
RS	20	NINST					X					
WMPA PULAU PANGKOR/								X				
Pulau Pangkor	04						X					
RS	22	NINST					X					
WMAP KLUANG/								X				
Kluang	05	NINST										
RS	23	NINST										
WBGB BINTULU/					X			X				
Bintulu	12	NPA					X					
RS	30	NINST					X					
WBGG KUCHING/					X			X				
Kuching Intl	07	NPA					X					
RS	25	PA1					X					
WBGR MIRI/					X			X				
Miri	02	PA1					X					
RS	20	NPA					X					
WBGS SIBU/					X			X				

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
Sibu	13	PA1					X					
RS	31	NPA					X					
WBKD LAHAD DATU/					X			X				
Lahad Datu	11	NINST					X					
RS	29	NPA					X					
WBKK KOTA KINABALU/					X			X				
Kota Kinabalu Intl	02	PA1					X					
RS	20	NPA					X					
WBKL LABUAN/					X			X				
Labuan	14	NPA					X					
RS	32	NPA					X					
WBKS SANDAKAN/					X			X				
Sandakan	08	PA1					X					
RS	26	NPA					X					
WBKW TAWAU/					X			X				
Tawau	17	NINST					X					
RS	35	NPA					X					
MALDIVES			X	X						X		
VRMM MALE/					X			X				
Male Intl	18	PA1				X	X		X			
RS	36	NPA					X					
MARSHALL IS.												KZOK FIR
MICRONESIA, FS												KZOK FIR
MONGOLIA			X	X						2002	X	
ZMUB ULAN BATOR/					X			X				
Byant-Ukkaa	14	NPA				X	X					
	32	NPA				X	X					
RS												
MYANMAR												
NAURU												

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
NEPAL				X						X	X	
VNKT KATHMANDU					X			X				
Tribhuvan Intl	02	NPA				X	X					
RS	20	NINST					X					
NEW ZEALAND			X	X						X	X	
NZAA AUCKLAND/					X			X				
Auckland Intl	05	PA1				X	X		X			
RS	23	PA1			X	X	X		X			
NZWN WELLINGTON/					X			X				
Wellington	16	PA1				X	X		X			
RS	34	PA1				X	X		X			
ZCH CHRISTCHURCH/					X			X				
Christchurch	02	PA1				X	X		X			
RS	20	PA1				X	X		X			
NZNS NELSON/					X			X				
Nelson	02	NPA				X	X		X			
RS	20	NPA				X	X		X			
NZDN DUNEDIN/					X			X				
Dunedin	03	PA1				X	X		X			
RS	21	PA1				X	X		X			
NAPM PALMERSTON/					X			X				
Palmerston North	07	NPA				X	X		X			
RNS	25	NPA				X	X		X			
NZHN HAMILTON/					X			X				
Hamilton	18	NPA				X	X		X			
RNS	36	NPA				X	X		X			
NZQN QUEENSTOWN/					X			X				
Queenstown	05	NPA				X	X		X			
RNS	23	NPA				X	X		X			
NZWP WHENUAPAI/					X			X				
Whenuapai (Mil)	03	PA1				X	X		X			
RNS	21	PA1				X	X		X			
NZOH OHAKEA					X			X				
Ohakea (Mil)	09	PA1				X	X		X			
AS	27	PA1				X	X		X			
NIUE ISLAND (New Zealand)												NZZO FIR
NIUE ALOF/												
Niue Intl												
RS												
PAKISTAN			X	X						X	X	
OPFA FAISALABAD/					X			X				
Faisalabad	03	PA1				X	X		X			
RS	21	NPA										
OPGD GWADAR/					X			X				
Gwadar	06	NINST				X	X		X			
RS	24	NPA										

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
OPRN ISLAMABAD/					X			X				
Chaklala	12	NINST				X	X		X			
RS	30	PA1										
OPKC KARACHI/					X			X				
Quaid-e-Azam Intl	07	NINST				X	X		X			
RS	25	PA1										
OPLA LAHORE/					X			X				
Lahore	18	NPA				X	X		X			
RS	36	PA2										
OPMT MULTAN/					X			X				
Multan	18	NPA				X	X		X			
RS	36	PA1										
OPNH NAWABSHAH/					X			X				
Nawabshah	02	NPA				X	X		X			
AS	20	NPA										
OPPS PESHAWAR/					X			X				
Peshawar	17	NPA				X	X		X			
RS	35	NPA										
OPTU TURBAT/					X			X				
Turbat	08	NPA				X	X		X			
RS	26	NPA										
PALAU												KZOK FIR
PAPUA NEW GUINEA												
	Note: All Navaids coordinates using WGS-84 datum FLT SUP COM 2-1 to 2-7											
PHILIPPINES			X	X							X	Calculated
RPLL MANILA/					X	X					X	Calculated
Ninoy Aquino Intl	06	PA1					X	X	07/2002		X	ATO-NIMA survey
RS	24	PA1					X	X	07/2002		X	
	13	NINST					X	X	07/2002		X	
	31	NINST					X	X	07/2002		X	
RPLB SUBIC BAY/					X	X					X	Calculated
Subic Bay Intl	07R	NPA					X	X	07/2002		X	ATO-NIMA survey
RS	25L	(S Cat1)					X	X	07/2002		X	
	07L	NINST					X	X	07/2002		X	
	25R	NINST					X	X	07/2002		X	
RPMD DAVAO/					X	X					X	Calculated
Francisco Bangol Intl	05	NPA					X	X	07/2002		X	** Old co-ordinates converted
AS	23	NPA					X	X	07/2002		X	
RPLI LAOAG/					X	X					X	Calculated
Laoag Intl	01	NPA					X	X	07/2002		X	* Old co-ordinates converted
AS	19	NPA					X	X	07/2002		X	
RPVM LAPU-LAPU/					X	X					X	ATO-NIMA survey

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
Mactan Cebu Intl	04	PA1					X	X	07/2002		X	
RS	22	PA1					X	X	07/2002		X	
RPLC PAMPANGA/					X	X					X	Calculated
Clark Intl	02R	PA1					X	X	07/2002		X	ATO-NIMA survey
RS	20L	PA1					X	X	07/2002		X	
	02L	NINST					X	X	07/2002		X	
	20R	NINST					X	X	07/2002		X	
RPMZ ZAMBOANGA/					X	X					X	Calculated
Zamboanga Intl	09	PA1					X	X	07/2002		X	* Old co-ordinates converted
AS	27	PA1					X	X	07/2002		X	
Note: * ATO-NIMA survey final report to be incorporated in the AIP Amendment #2 dated 11 July 2002												
** ATO-NIMA survey final report to be incorporated in the AIP Amendment #3												
REP OF KOREA			X	X						X	X	
RKSI INCHEON/					X			X				
Incheon Intl	15R	PA3				X	X		X			
RS	15L	PA3				X	X		X			
	33R	PA3				X	X		X			
	33L	PA3				X	X		X			
RKSS GIMPO/					X			X				
Gimpo Intl	14R	PA2				X	X		X			
RS	32L	NPA				X	X		X			
	14L	PA1				X	X		X			
	32R	PA1				X	X		X			
RKPK BUSAN/					X			X				
Gimhae Intl	18L	NPA				X	X		X			
RS	36R	PA1				X	X		X			
	18R	NPA				X	X		X			
	36L	PA1				X	X		X			
RKPC JEJU/					X			X				
Jeju Intl	6	PA1				X	X		X			
RS	24	PA1				X	X		X			
	31	NINST				X	X		X			
	13	NINST				X	X		X			
RKTU CHEONG/					X			X				
Cheongju	06L	PA1				X	X		X			
RNS/AS	24R	PA1				X	X		X			
	06R	NINST				X	X		X			
	24L	NINST				X	X		X			
RKJJ GWANGJU/					X			X				
Gwangju	4	PA1				X	X		X			
RNS/AS	22	NPA				X	X		X			
RKTN DAEGU/					X			X				
Daegu	31	PA1				X	X		X			
RNS/AS	13	NPA				X	X		X			
RKNN GANGNEUNG/					X			X				
Gangneung	26	NPA				X	X		X			

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
RNS/AS	8	NINST				X	X		X			
RKTH POHANG/					X			X				
Pohang	10	NPA				X	X		X			
AS	28	NPA				X	X		X			
RKTY YECHEON/					X			X				
Yecheon	28	PA1				X	X		X			
AS	10	NPA				X	X		X			
SAMOA											X	NFFF FIR
NSFA FALEOLO/					X			X				
Faleolo Intl	08	PA1				X	X			X	X	
RS	26	NPA				X	X			X	X	
NSFI FAGALII/												
Fagalii	10											
RG	28	NINST										
NSMA MAOTA/												
Maota	08											
RG	26	NINST										
NSAU ASAU/												
Asau	08											
RG	26	NINST										
SINGAPORE			X	X						X	X	
WSSS SINGAPORE/					X			X				
Changi Intl	02L	PA2				X	X		X			
RS	20R	PA1				X	X		X			
	02R	PA1				X	X		X			
	20L	PA2				X	X		X			
WSSL SINGAPORE/					X			X			X	
Seletar	03	NINST					X		X			
RG	21	NINST					X		X			
WSAP SINGAPORE/					X			X			X	
Paya Lebar	02	NPA				X	X					
AS	20	NPA				X	X					
SOLOMON ISLANDS												
SRI LANKA			X	X							X	
COLOMBO/												
Bandaranaike Intl	22	PA1			X	X	X			X	X	AIP Supplement
RNS	04	PA1				X					X	
THAILAND			2001	2001							2002	
VTSE CHUMPHON/					2001			X				
Chumphon												
RG	06	NPA					X		X			
	24	NPA					X		X			

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
VTPH PRACHUAP KHIRI KHAN/								X				
Hua Hin												
RG	16	NPA					X		X			
	34	NINST					X		X			
VTUK KHON KAEN/								X				
Khon Kaen	03	NPA					X		X			
RNS	21	NPA					X		X			
VTSG KRABI/								X				
RNS	14	NPA					X		X			
	32	NPA					X		X			
VTUQ NAKHON RATCHASIMA/								X				
Nakhon Ratchasima												
RG	06	NPA					X		X			
	24	NPA					X		X			
VTCN NAN/								X				
Nan												
RNS	02	NPA					X		X			
	20	NPA					X		X			
VTSC NARATHIWAT/								X				
Narathiwat												
RG	02	PA1					X		X			
	20	NPA					X		X			
VTSK PATTANI/								X				
Pattani												
RG	08	NPA					X		X			
	26						X		X			
VTPP PHITSANULOK/								X				
Phitsanulok	14	NPA					X		X			
RS	32	PA1					X		X			
VTSR RANONG/								X				
Ranong												
RG	02	PA1					X		X			
	20						X		X			
VTSB SURAT THANI/								X				
Surat Thani	04	NPA					X		X			
RNS	22	PA1					X		X			
VTST TRANG/								X				
Trang												
RG	08	NPA					X		X			
	26						X		X			
VTUU UBON RATCHATHANI/								X				
Ubon Ratchathani	05	NPA					X		X			
RS	23	PA1					X		X			
VTUD UDONTHANI/								X				
Udon Thani												
RNS	12	NPA					X		X			

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
	30	PA1					X		X			
VTSM SURATHANI/					X			X				
Samui												
RS	17	NPA				X	X		X		X	
	35	NPA				X	X					
VTPO SUKHOTHAI/					X			X				
Sukhothai												
RS	18	NPA				X	X		X		X	
	36	NPA				X	X					
VTCC CHIANG MAI/												
Chiang Mai Intl	18	NPA			2001	X	X	X				
RS	36	PA1										
VTSS SONG KHLA/												
Hat Yai Intl	08	NPA			2001	X	X	X				
RS	26	PA1										
VTSP PHUKET/	09	NPA			2001	X	X	X				
Phuket												
RS	27	PA1										
VTCT CHIANG RAI/												
Chiangrai Intl	03	PA1			2001	X	X	X				
RS	21	NPA										
VTBU RAYONG/												
Ban U-Taphao	18	PA1			2001	X	X	X				
AS	36	NPA										
VTBD BANGKOK/					2001			X				
Bangkok Intl	03R	NPA				X	X					
RS	03L	PA1				X	X					
	21R	NPA					X		X			
	21L	PA1					X		X			
TONGA			X	X						X	X	NFFF FIR
NFTF FUA'AMOTU/					X			X				
Fua'amotu Intl	11	NPA				X	X		X			
RS	29	NPA				X	X		X			
	17	NINST				X	X		X			
	35	NINST				X	X		X			
TUVALU												NZZO FIR
UNITED STATES			X	X						X	X	
PANC ANCHORAGE/					X			X				
Anchorage Intl	14	PA1				X	X		X			
RS	32	NINST				X	X		X			
	6L	PA1				X	X		X			
	24R	NINST				X	X		X			
	6R	PA3				X	X		X			
	24L	NINST					X		X			
PAED ANCHORAGE/					X			X				
Elmendorf AFB	5	PA1				X	X		X	X	X	

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
AS	23	NINST										
	15	NINST										
	33	NINST										
PACD COLD BAY/					X			X				
Coldbay	14	PA1				X	X		X			
AS	32	NPA				X	X		X			
	26	NINST										
KPAE EVERETT/					X			X				
Paine Field	34L	NPA				X	X		X			
AS	16R	PA1				X	X		X			
	11	NINST										
	29	NINST										
	34R	NINST										
	16L	NINST										
PAEI FAIRBANKS/					X			X				
Eielson AFB	13	PA1				X	X		X			
AS	31	PA1				X	X		X			
PAFA FAIRBANKS/					X			X				
Fairbanks Intl	19R	PA1				X	X		X			
RS	01L	PA3				X	X		X			
	19L	NINST										
	01R	NINST										
KFAT FRESNO/					X			X				
Yosemite Intl	29R	PA3				X	X		X			
AS	11L	NPA										
	29L	NINST										
	11R	NINST										
PHTO HILO/					X			X				
General Lyman Field	03	NINST				X	X		X			
AS	21	NINST										
	26	PA1				X	X		X			
	08	NINST										
PHNA HONOLULU/												
Barbers Point	04R	NPA										No WGS-84
AS	22L	NINST										data available

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
PHNL HONOLULU/					X			X				
Honolulu Intl	8L	PA1				X	X		X			
INTL	26R	NINST					X					
RS	04L	NINST					X					
	22R	NINST					X					
	04R	PA1					X					
	22L	NINST					X					
	26L	PA1				X	X		X			
	8R	NINST					X					
PHOG KAHULUI/					X			X				
Kahului	32	NINST										
AS	02	PA1				X	X		X			
	05	NINST					X					
	20	NPA				X	X		X			
KLAX LOS ANGELES/					X			X				
Los Angeles Intl	06L	PA1				X	X		X			
RS	24R	PA3				X	X		X			
	6R	PA1				X	X		X			
	24L	PA1				X	X		X			
	07L	PA1				X	X		X			
	25R	PA1				X	X		X			
	07R	PA1				X	X		X			
	25L	PA3				X	X		X			
KOAK OAKLAND/					X			X				
Oakland Metropolitan	11	PA1				X	X		X			
AS	29	PA3				X	X		X			
	09R	NPA										
	27L	NPA										
	09L	NPA										
	27R	PA1				X	X		X			
KONT ONTARIO/					X			X				
Ontario Intl	26R	PA1				X	X		X			
AS	08L	PA1				X	X		X			
	26L	PA3				X	X		X			
	08R	NPA				X	X		X			
KPMD PALMDALE/					X			X				
Palmdale	22	NPA				X	X		X			
AS	25	PA1				X	X		X			
	07	NPA				X	X		X			
KPDX PORTLAND/					X			X				
Portland Intl	03	NINST				X	X		X			
AS	21	NPA				X	X		X			
	10R	PA3				X	X		X			
	28L	PA1				X	X		X			
	10L	PA1				X	X		X			
	28R	PA1				X	X		X			

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
KSMF SACRAMENTO/					X			X				
Metropolitan	16R	PA3				X	X		X			
AS	34L	PA1				X	X		X			
	16L	PA1				X	X		X			
	34R	NPA				X	X		X			
KSFO SANFRANCISCO/					X			X	X			
San Francisco Intl	10L	NINST										
RS	28R	PA3				X	X		X			
	10R	NINST					X					
	28L	PA1				X	X		X			
	01L	NINST					X					
	19R	NINST					X					
	01R	NINST					X					
	19L	PA1				X	X					
KSJC SAN JOSE/					X			X				
San Jose Intl	12R	PA1				X	X		X			
RS	30L	PA1				X	X		X			
	12L	NPA				X	X		X			
	30R	NPA				X	X		X			
	11	NINST					X					
	29	NINST					X					
KBFI SEATTLE/					X			X				
Tacoma Intl	13R	PA1				X	X		X			
RS	31L	PA1				X	X		X			
	13L	NINST				X	X		X			
	31R	NINST										
KGEG SPOKANE/					X			X			X	
Spokane Intl	25	NPA				X	X		X		X	
AS	07	NINST				X	X					
	21	PA2				X	X					
	03	PA3				X	X					
KSCK STOCKTON/					X			X				
Metropolitan	11L	PA1				X	X		X			
AS	29R	NINST				X	X		X			
AMERICAN SAMOA (United States)												NFFF FIR
NSTU PAGO PAGO/					X			X				
Pago Pago Intl	05	PA1				X	X					
RS	23	NINST				X	X					
GUAM ISLAND (United States)												KZOK FIR
PGUM GUAM/					X			X				
Agana	06L	PA1				X	X					
RS	24R	NPA				X	X					
	06R	NINST				X	X					
	24L	NINST				X	X					
PGUA GUAM ISLAND/					X			X				
Andersen	06L	NPA				X	X					

STATUS OF WGS-84 IMPLEMENTATION

STATE, TERRITORY OR AERODROME FOR WHICH WGS-84 IS REQUIRED			WGS-84 IMPLEMENTATION									REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	
1	2	3	4	5	6	7	8	9	10	11	12	13
AS	24R	NPA				X	X					
	06R	PA1				X	X					
	24L	NPA				X	X					
JOHNSTON ISLAND (United States)												KZOK FIR
PJON JOHNSTON ISLAND/					X			X				
Johnston Atoll	05	NPA				X	X					
RS	23	NPA				X	X					
NORTHERN MARIANA ISLANDS (United States)												KZOK FIR
PGSN SAIPAN/					X			X				
Saipan Intl	07	PA1				X	X					
RS	25	NPA				X	X					
VANUATU												NFFF FIR
VIET NAM			X	X							X	
VVNB HANOI/					X							
Noi Bai Intl	11	PA1				X	X		X			
RS	29	NPA				X	X		X			
VVDN DANANG/					X							
Da Nang Intl	17L	NPA				X	X		X			
RS	35R	PA1				X	X		X			
	35L	NPA				X	X		X			
	17R	NPA				X	X		X			
VVTS HO CHI MINH/					X							
Tan Son Nhat Intl	07R	NPA				X	X		X			
RS	07L	NPA				X	X		X			
	25R	PA1				X	X		X			
	25L	NPA				X	X		X			

2nd Survey on Carriage and Operation of ACAS and Pressure-Altitude Reporting Transponders

(AP-ATM0551 dated 17 August 2000)

Editorial note: Changes are arranged to show "deleted text" using strikeout (~~text to be deleted~~), and "new text" in bold Italics (***new text to be inserted***).

Pressure-Altitude Reporting Transponders

State/Territory	Effective date (dd/mm/yy)	Applicable airspace	Applicable to			Aeronautical Publication
			aeroplanes engaged in international air transport operations	aeroplanes engaged in international general aviation operations	helicopters engaged in international commercial air transport or international general aviation operations	
Australia	Early 1990's	Controlled airspace inside radar coverage	YES	YES	YES	AIP
Bangladesh						
Bhutan						
Brunei Darussalam	1-Jul-01	Brunei terminal control area	YES	YES	YES	
			* State aircraft as well			
Cambodia	1-Jan-03	All airspace within FIR				
China	~~31-Dec-00~~ ***01-1-02***	All airspace within FIR	YES	YES	YES	~~To be~~ published ***as AIC 05/2001***
Hong Kong,China	1980	Controlled airspace within Hong Kong FIR	YES	YES	YES	AIP Hong Kong GEN 1.5-2
Macau, China	2-Jan-97	Controlled airspace within Macau ATZ	All aircraft flying within Macau ATZ			AIP Macau GEN 1.5-1 dated 2 Jan 1997
Cook Islands						
DPR Korea						
Fiji						
France (French Polynesia)	23-Jan-03	All airspace within FIR	YES	YES (All aircraft in general aviation)	YES	AIP
(New Caledonia)						
India	07-9-99	All airspace within FIRs	YES	YES	YES	Civil Aviation Requirements Section2, Series "R", PART IV
Indonesia						
Japan	10-Oct-75	Airspace defined by Minister of Transportation	YES	YES	YES	AIP dated 1 Oct 1975

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Pressure-Altitude Reporting Transponders

State/Territory	Effective date (dd/mm/yy)	Applicable airspace	Applicable to			Aeronautical Publication
			aeroplanes engaged in international air transport operations	aeroplanes engaged in international general aviation operations	helicopters engaged in international commercial air transport or international general aviation operations	
Kiribati						
Lao PDR						
Malaysia	1-Jan-03	All airspace within FIRs	YES	YES	YES	AIC 6/2000 dated 10 Mar 2000
Maldives	2002	Defined portion	YES	YES	YES	
Marshal Islands						
Micronesia, Federated States of						
Mongolia	1-Jan-02	International routes	YES	NO	NO	To be published in Dec 2001
Myanmar	1-Jan-00	All airspace within FIR	YES	YES	YES	Notice to owner T/41 dated 20 Jan 1999
Nauru						
Nepal	Not specified	Not specified	YES	YES	YES	Flight Operations Requirements, Amendment Number 2 dated 18 Feb 2000
New Zealand	01-4-97	Transponder Mandatory Airspace prescribed in NZ Air Navigation Register				Civil Aviation Rules Part 91
Pakistan	1-Jul-01	All airspace within FIR	YES			AIP
Palau						
Papua New Guinea						
Philippines	***31-Jan-01***	***Airspace defined by Air Transport Office (ATO)***	***20%***			
	31-Jan-02		***50%***			
	31-Jan-04		***ALL***			
Republic of Korea	30-Nov-94	All airspace within FIR	YES	YES	NO	Aviation Law

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Pressure-Altitude Reporting Transponders

State/Territory	Effective date (dd/mm/yy)	Applicable airspace	Applicable to			Aeronautical Publication
			aeroplanes engaged in international air transport operations	aeroplanes engaged in international general aviation operations	helicopters engaged in international commercial air transport or international general aviation operations	
Samoa	2000	All airspace within FIR	YES	NO	NO	NOTAM will be issued on 30 Sep 2000
Singapore	Jul-81	All airspace within FIR	YES	YES	YES	AIP in 1981
Solomon Islands						
Sri Lanka						
Thailand	26-Feb-99	*All airspace within FIR:all comercial transport aeroplanes and international operation helicopters *Defined portion:all general aviation and helicopters	YES	YES	YES	
Tonga						
U.S.A.		Defined portion	The requirements are based on the location of aircraft operation, not the weight, engine configuration or type of operation of aircraft			FAR, Part 91
Vanuatu	01-1-00	All airspace within FIR	YES	N/A	N/A	
Viet Nam						

Note: Blank indicates that no information has been provided.

2nd Survey on Carriage and Operation of ACAS and Pressure-Altitude Reporting Transponders

(AP-ATM0551 dated 17 August 2000)

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Airborne Collision Avoidance System (ACAS)

State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	Applicable to		Aeronautical Publication
				turbine-engined aeroplanes of a maximum certified take-off mass in excess of 15000kg or authorized to carry more than 30 passengers engaged in international air transport operations	turbine-engined aeroplanes of a maximum certified take-off mass in excess of 5 700kg or authorized to carry more than 19 passengers engaged in international air transport operations	
Australia	01-1-00	Version 6.04 or greater until 1 Jan 2003, thereafter Version 7	All airspace within FIRs	YES	No plan	Civil Aviation Regulation and AIP
Bangladesh	1-Jan-03	Version 7				AIP will be published
Bhutan						
Brunei Darussalam	1-Jul-01	Version 7	Brunei terminal control area	YES		
Cambodia	1-Jan-03	Version 7	All airspace within FIR	YES		AIP will be published
China	~~31-Dec-00~~ ***11-7-02***	Version 7	***At the specified 10 airports, and along ATS routes A461, A593 and A599***	***YES***	***YES (On 31 Dec 2003)***	***AIC 06/2001 and AIC 08/2001***
	1-Jan-03	Version 7	All airspace within FIR	YES	YES (On 31 Dec 2003)	***To be published***

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(AP-ATM0551 dated 17 August 2000)

Airborne Collision Avoidance System (ACAS)

State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	Applicable to		Aeronautical Publication
				turbine-engined aeroplanes of a maximum certified take-off mass in excess of 15000kg or authorized to carry more than 30 passengers engaged in international air transport operations	turbine-engined aeroplanes of a maximum certified take-off mass in excess of 5 700kg or authorized to carry more than 19 passengers engaged in international air transport operations	
Hong Kong,China	1-Jan-00	Version 6.04 until 1 Jan 2003	All airspace within FIR	YES		AIP Hong Kong GEN 1.5-2
	1-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIC 02/01 dated 1 Feb 2001
Macau, China	1-Jan-00	Version 7	Controlled airspace within Macau ATZ	All fixed wing aircraft registered in Macau greater than 5700 kg or certified for more than 9 passengers seats.		AIC 07/99 dated 1 Dec 1999
Cook Islands						
DPR Korea						
Fiji						
France (French Polynesia)	23-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIP & AIC 010/00 dated 3 Aug 2000
(New Caledonia)	23-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIP & AIC 010/00 dated 3 Aug 2000
India	31-Dec-98	Any Version	All airspace within FIRs	Aeroplane having a maximum certified passenger seating configuration of more than 30 or maximum payload capacity of more than 3 tonnes		
	1-Jan-03	Version 7	All airspace within FIRs	Aeroplane having a maximum certified passenger seating configuration of more than 30 or maximum payload capacity of more than 3 tonnes	YES (on 1 Jan 2005)	Civil Aviation Requuirements, Section2, Series 'I', PART VIII, Revision2 dated 4 Dec 2000

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Airborne Collision Avoidance System (ACAS)

State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	Applicable to		Aeronautical Publication
				turbine-engined aeroplanes of a maximum certified take-off mass in excess of 15000kg or authorized to carry more than 30 passengers engaged in international air transport operations	turbine-engined aeroplanes of a maximum certified take-off mass in excess of 5 700kg or authorized to carry more than 19 passengers engaged in international air transport operations	
Indonesia						
Japan	4-Jan-01	Version 6.04 or greater *upgrading to Version 7 before 2003 is under consideration	Domestic airspace	YES	YES (on 1 Jan 2005)	AIP dated 4 Jan 1996
Kiribati						
Lao PDR						
Malaysia	1-Jan-03	Version 7	All airspace within FIRs	YES	YES	AIC 6/2000 dated 10 Mar 2000
Maldives	Jan-00	Version 7	All airspace within FIR	YES	YES (in Jan 2005)	Published on 14 Sep 1997
Marshal Islands						
Micronesia, Federated States of						
Mongolia	1-Jan-02		International routes	YES	No	To be issued in Dec 2000
Myanmar	1-Jan-03	Version 7	International routes	YES	No	Notice to owner T/42 dated 1 Sep 2000
Nauru						
Nepal	1-Jan-03	Version 7	Not specified	YES	YES (on 1 Jan 2005)	Flight Operations Requirements, Amendment Number 2 dated 18 Feb 2000

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Airborne Collision Avoidance System (ACAS)

State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	Applicable to		Aeronautical Publication
				turbine-engined aeroplanes of a maximum certified take-off mass in excess of 15000kg or authorized to carry more than 30 passengers engaged in international air transport operations	turbine-engined aeroplanes of a maximum certified take-off mass in excess of 5 700kg or authorized to carry more than 19 passengers engaged in international air transport operations	
New Zealand						Civil Aviation Rules regulating the carriage of ACAS in FIRs will be included in Civil Aviaiton Rules Programme for the fiscal year 2000/2001.
Pakistan	1-Jul-01	Version 6.04 or greater	All airspace within FIR	YES		AIP
Palau						
Papua New Guinea						
Philippines	***31-Jan-01***	***Airspace defined by Air Transport Office (ATO)***	***20%***			
	31-Jan-02		***50%***			
	31-Jan-04		***ALL***			
Republic of Korea	1-Jan-00	Version 6.04 or greater & Version 7 after Jan 2003	All airspace within FIR	YES	N/A	Aviation Law
Samoa	2000	Version 6.04 or greater & Version 7 for new installation after Jan 2002	All airspace within FIR	YES	YES (on 1 Jan 2005)	NOTAM will be issued
Singapore	1-Jan-02	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	AIC will be issued
Solomon Islands						
Sri Lanka						
Thailand	1-Jan-03	Version 7	All airspace within FIR	YES	YES (on 1 Jan 2005)	
Tonga						

2nd Survey on Carriage and Operation of ACAS and Pressure-Altitude Reporting Transponders

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Airborne Collision Avoidance System (ACAS)

State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	Applicable to		Aeronautical Publication
				turbine-engined aeroplanes of a maximum certified take-off mass in excess of 15000kg or authorized to carry more than 30 passengers engaged in international air transport operations	turbine-engined aeroplanes of a maximum certified take-off mass in excess of 5 700kg or authorized to carry more than 19 passengers engaged in international air transport operations	
U.S.A.	31-Dec-95	Version 6.04 or greater	Within the territorial limit of 12 miles from the US coast	A passenger or combination cargo/passenger (combi) airplane that has a passenger seat configuration, excluding any pilot seat, of more than 10 seats		FAR, Part 121
Vanuatu	1-Jan-00	Version 6.04 or greater	All airspace within FIR	YES	N/A	Australia CAA Act 1998, Sbusection 9 (1)
Viet Nam						

Note: Blank indicates that no information has been provided.

Analysis of SAR Capability of ICAO States in the ASIA/PAC Region

	Training	Alerting	Legislative	SAR committee	Agreements	Relationships	Communications	Quality Control	Civil/Military	Resources	SAREX	Library	Computerisation	SAR programme	Supply dropping	Special equipment	SAR aircraft	Navigation	ELTs	LUT
Australia	E	E	E	E	E	C	E	E	E	E	E	E	E	E	E	E	E	E	C	E
Bangladesh	B	C	D	A	A	C	C	A	D	A	A	C	A	A	C	C	D	A	D	C
Bhutan																				
Brunei	E	E	E	E	D	E	E	E	E	E	E	C	B	E	D	D	E	E	E	A
Cambodia	B	B	B	B	B	B	C	A	B	B	A	C	A	A	A	A	B	A	A	A
China	E	E	E	E	E	E	D	D	E	D	D	C	B	A	E	E	E	E	E	A
Cook Islands	A	B	B	A	A	C	C	C	B	A	B	A	A	A	A	B	B	A	E	A
DPR Korea	B	D	B	D	A	B	D	D	D	C	B	A	A	A	B	A	C	C	A	A
Fiji	B	C	C	C	C	C	C	B	D	C	D	C	A	C	B	A	C	C	C	A
French Polynesia	C	D	D	D	C	D	E	A	E	C	C	B	A	A	E	D	E	E	E	E
Hong Kong, China	E	E	E	E	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
India	D	C	C	B	B	C	C	A	C	C	C	C	C	D	D	D	C	A	B	E
Indonesia	E	D	E	E	E	D	D	D	E	D	E	D	D	D	C	D	D	D	D	E
Japan	E	E	E	E	D	E	E	E	E	E	E	E	D	E	E	E	E	E	E	E
Kiribati																				
Lao PDR	B	A	B	B	B	A	B	A	B	B	A	C	A	A	A	A	A	A	A	A
Macau, China	E					E	E				E						E			
Malaysia	E	E	C	E	D	E	E	E	E	E	E	D	E	E	E	D	E	E	E	B
Maldives	B	A	A	A	A	A	A	A	D	A	C	A	A	A	A	A	A	A	A	A
Marshall Islands																				
Micronesia	C	B		A	A	B	C					A		B	B					
Mongolia	A	C	C	A	B	B	B	A	B	B	B	C	B	B	A	A	A	A	B	A
Myanmar	B	A	B	C	A	D	C	C	D	A	A	A	A	A	C	A	D	C	A	A
Nauru																				
Nepal	D	D	C	B	A	C	C	B	D	B	A	B	A	D	D	C	D	D	D	B
New Caledonia	C	D	D	D	C	D	E	A	E	C	C	B	A	A	E	D	E	E	E	E
New Zealand	E	E	E	E	A	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Pakistan	C	C	D	D	A	D	D	C	D	C	A	A	A	A	D	A	D	D	C	E
Palau																				
Papua New Guinea	D	E	D	C	D	D	C	C	D	C	C	D	C	C	C	A	A	A	E	A
Philippines	D	C	E	D	D	C	D	D	E	C	C	C	C	C	C	B	C	E	C	A
Rep. of Korea	C	C	C	C	C	D	E	E	E	E	C	A	D	E	D	E	E	E	E	E
Samoa																				
Solomon Islands																				
Singapore	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Sri Lanka	D	A	C	D	B	C	C	D	E	D	B	C	A	A	D	D	C	A	C	A
Thailand	E	E	E	E	D	E	E	E	E	E	E	D	B	B	E	E	E	E	E	B
Tonga	C	B	A	A	B	C	C	A	D	A	A	A	A	A	A	A	C	A	E	A
United States	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Vanuatu																				
Viet Nam	D	D	D	E	C	D	D	B	E	D	C	C	B	C	C	D	D	C	D	B

Updated 29 June 2001

Categorisations:	
A = Not implemented	D = Meets Annex 12 requirements in most areas
B = Initial implementation	E = Fully meets Annex 12 requirements
C = Meets Annex 12 requirements in some areas	Blank = No response

MEMORANDUM OF UNDERSTANDING FOR

CO-OPERATION AMONG

THE DEPARTMENT OF NATIONAL DEFENCE OF CANADA

THE DEPARTMENT OF FISHERIES AND OCEANS OF CANADA

THE UNITED STATES COAST GUARD

THE UNITED STATES AIR FORCE

THE UNITED KINGDOM MARITIME AND COASTGUARD AGENCY

THE UNITED KINGDOM CIVIL AVIATION DIVISION OF THE DEPARTMENT OF ENVIRONMENT, TRANSPORT AND THE REGIONS

AND

THE UNITED KINGDOM MINISTRY OF DEFENCE

CONCERNING
SEARCH AND RESCUE

1. Introduction

1.1 The Department of National Defence of Canada as represented by the Canadian Forces (CF), the Department of Fisheries and Oceans of Canada as represented by the Canadian Coast Guard (CCG), the United States Coast Guard (USCG), the United States Air Force (USAF), the United Kingdom Department of Environment, Transport and the Regions (DETR), as represented by the United Kingdom Maritime and Coastguard Agency (MCA) and the United Kingdom Civil Aviation Division (CAD), and the United Kingdom Ministry of Defence (MOD), hereinafter referred to as the "Participants" of this Memorandum of Understanding (MOU), recognise the benefits that have been enjoyed from previous co-operative arrangements, including the Exchange of Notes dated 24th and 31st January, 1949 between Canada and the United States relating to aeronautical Search and Rescue (SAR) operations along the common boundary of the two countries, and further recognise that additional benefits may be enjoyed from the co-operative arrangements detailed herein.

1.2 The Participants recognise the great importance of co-operation in maritime and aeronautical SAR, and in the provision of expeditious and effective SAR services to save lives and reduce suffering. The Participants also recognise the assumed responsibilities for SAR within the framework of the International Convention on Maritime Search and Rescue, 1979 and of the Convention on International Civil Aviation 1944, with particular attention paid to Annex 12 (Search and Rescue) of the latter Convention, both Conventions as amended.

1.3 The Participants have reached the following understanding.

2. Objectives and Scope

2.1 This MOU establishes a framework for co-operation among the Participants of each country in carrying out activities and sets out their various responsibilities.

3. Responsibilities

3.1 Any Participant, on receiving information of a maritime or aeronautical incident where any person is in distress within its search and rescue region(s) (SRRs), will take urgent measures to provide the most appropriate assistance, regardless of the nationality or status of such a person or the circumstances in which the person is found.

3.2 SAR operations should normally be carried out in accordance with the relevant SAR manuals and recommendations of the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO), taking account of any nationally accepted SAR procedures.

3.3 To ensure that SAR operations are conducted in an efficient and co-ordinated manner, the Participants of each country concerned should consult and co-operate with each other as necessary and appropriate, lending assistance as capabilities allow. If primary responsibility for co-ordination of a SAR response or operation cannot be immediately ascertained, the Participants of each country concerned should consult to resolve the responsibility.

3.4 For any SAR operation involving co-ordination among Participants from more than one country, the Participants will, through appropriate consultation, decide in each case which Participant will have primary responsibility for co-ordinating the SAR operation.

3.5 Entry of SAR units onto or over the territory of the countries of those Participants conducting SAR operations will, to the best of their ability, be expeditiously arranged via the appropriate rescue co-ordination centres (RCCs).

3.6 Solely for the purpose of rendering emergency rescue assistance to persons, vessels, or aircraft in danger or distress, when the location is reasonably well known, SAR facilities of a Participant may immediately enter onto or over the territory of another Participant country, with notification of such entry made as soon as practicable.

3.7 To facilitate the co-ordination referred to in this Section, the Participants of each country concerned will, to the best of their ability, keep each other fully and promptly informed of all relevant SAR operations. They should develop appropriate procedures to provide for the most effective and efficient means of communication.

4. SAR Regions

4.1 The SRRs of the United States of America and Canada are separated geographically by a continuous line connecting the following co-ordinates:

45° 00´ N 040° 00´W, 45° 00′ N 053° 00′ W, 43° 36′ N 060° 00′ W, 41° 52′ N 067°00′W, 44° 30′N 067° 00′ W, north to the intersection with the national boundary, westerly along the transcontinental national boundary to 48° 30′ N 124° 45′W, 48° 30′ N 125° 00 ′W, 48° 20′ N 128° 00′ W, 48° 20′ N 145° 00′ W, 54° 40′ N 140°00 ′W, 54° 40 ′N 136° 00′ W, 54° 00′ N 136° 00′ W, 54° 13′ N 134° 57′ W, 54° 39′ 27" N 132° 41′ W, 54° 42′ 30″ N 130° 36′ 30″ W, northerly along the national boundary to the Beaufort Sea, and thence north to the North Pole.

4.2 The SRRs of the United Kingdom and Canada are separated geographically in the North Atlantic Ocean by a continuous line joining the following co-ordinates:

58° 30′ N 030° 00′ W, and 45° 00′ N 030° 00′ W.

4.3 The establishment of SRRs is intended only to effect an understanding concerning the regions within which a Participant accepts primary responsibility for co-ordinating SAR operations.

4.4 The delimitation of SRRs is not related to, and will not, prejudice the boundaries between countries.

5. Rescue Co-ordination Centres

5.1 The primary operational points of contact under this MOU are the nationally and internationally recognised RCCs of the Participants of each country involved. Participants of each country involved will, to the best of their ability, keep each other informed about their RCCs and associated SRRs, and provide any information which might be useful, in order to expedite and improve co-ordination.

5.2 The primary method for co-ordination of SAR activity will be via RCCs, as referred to in paragraph 5.1. However, this MOU is not intended to preclude any appropriate direct communication which may be considered necessary between any SAR facility or other organisational element of the Participants, when speed of reaction requires it and time is of the essence, or other similar circumstances dictate.

5.3 In addition to that related to specific SAR cases, Participants of each country should exchange information that may serve to improve the effectiveness of SAR operations. This information may include, but not be limited to, communication details, information about SAR facilities; descriptions of available airfields; knowledge of fuelling and medical facilities; and information useful for training SAR personnel.

6. Co-operation

6.1 The subordinate elements of all Participants of each country may provide for further co-ordination and co-operation by the establishment of appropriate operational MOUs and procedures among the Participants. Such will contain provisions consistent with this MOU.

6.2 The Participants of each country will endeavour to promote mutual SAR co-operation, by giving due consideration to collaborative efforts, including, but not limited to:

6.2.1 arranging exchange visits between SAR personnel;

6.2.2 carrying out joint SAR exercises and training;

6.2.3 using ship reporting systems for SAR purposes;

6.2.4 developing SAR procedures, techniques, equipment, facilities, and information systems;

6.2.5 providing services in support of SAR operations, such as the use of aircraft landing fields, fuelling and medical facilities;

6.2.6 co-ordinating, as appropriate, national positions on international SAR issues of mutual interest;

6.2.7 supporting and conducting joint research and development initiatives aimed at reducing search time, improving rescue effectiveness, and minimising risk to SAR personnel; and

6.2.8 conducting regular communications checks and exercises including the use of alternative methods to cater for communications overloads during major disasters.

7. Finances

7.1 Unless otherwise determined by the Participants, each Participant will fund its own expenses for activities pertinent to this MOU.

7.2 The provisions of this MOU are contingent upon the availability of SAR personnel, facilities and funding.

8. Application of this MOU

8.1 This MOU is not intended to create binding obligations under international law.

8.2 Nothing in this MOU in intended to affect in any way rights and duties based on international agreements or other MOU's pertaining to any of the Participants.

8.3 Any dispute regarding the interpretation or implementation of this MOU, or any of its operational MOUs, will be resolved by consultation among the Participants and will not be referred to an international body or third party for settlement.

9. Amendment

9.1 This MOU may be amended only with the written consent of all the Participants.

10. Duration, Withdrawal and Termination

10.1 The Memorandum of Understanding between the United States Coast Guard, the United States Air Force, the Canadian Forces, and the Canadian Coast Guard signed March 16 and March 24, 1995, and the Search and Rescue Agreement between Chief of Defence Staff, Canadian Forces and Commandant, U.S. Coast Guard signed 25 October, 1974, are hereby superseded.

10.2 This MOU will enter into immediate effect, for an indefinite period, upon signature by all Participants.

10.3 Any Participant may withdraw from the MOU, by giving not less than six (6) months notice in writing to the other Participants. Such termination will not affect the applicability of this MOU to the remaining Participants.

10.4 This MOU may be terminated with the mutual written consent of all the Participants or by any superseding arrangement.

10.5 Termination of this MOU will not affect SAR operations in progress at the time of termination unless otherwise determined to by the Participants involved.

…….

United States

National Search and Rescue Plan--1999

POLICY

1. It is the policy of the signatory federal agencies to provide a National Search and Rescue Plan for coordinating civil search and rescue (SAR) services to meet domestic needs and international commitments. Implementing guidance for this Plan is provided in the *International Aeronautical and Maritime Search and Rescue Manual* (IAMSAR Manual discussed below), the *National Search and Rescue Supplement* (a domestic interagency supplement to the IAMSAR Manual), and other relevant directives of the Participants to this Plan.

PURPOSE

2. This Plan continues, by interagency agreement, the effective use of all available facilities in all types of SAR missions. The National Search and Rescue Plan-1986 is superseded by this Plan.

TERMS AND DEFINITIONS

3. The following terms and definitions are based on international usage for civil SAR. For more information about these terms and others commonly used for civil SAR, refer to the IAMSAR Manual, which is jointly published by the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO).

Search and rescue coordinator. A federal person or agency with overall responsibility for establishing and providing civil SAR services for a search and rescue region(s) for which the U.S. has primary responsibility.

Search and rescue region (SRR). An area of defined dimensions, recognized by ICAO, IMO or other cognizant international body, and associated with a rescue coordination center within which SAR services are provided.

Search and rescue services. The performance of distress monitoring, communication, coordination and SAR functions, including provision of medical advice, initial medical assistance, or medical evacuation, through the use of public and private resources including cooperating aircraft, vessels and other craft and installations.

Rescue coordination center (RCC). A unit, recognized by ICAO, IMO or other cognizant international body, responsible for promoting efficient organization of civil SAR services and for coordinating the conduct of SAR operations within an SRR.

Rescue sub-center (RSC). A unit subordinate to an RCC established to complement the latter according to particular provisions of the responsible authorities.

Joint rescue coordination center (JRCC). An RCC responsible for more than one primary type of SAR services, e.g., both aeronautical and maritime SAR incidents. *NOTE: The term "JRCC" will not be used for civil SAR purposes solely on the basis that an RCC is staffed by personnel from, or is sponsored by, more than one organization*.

OBJECTIVES

4. Knowing the importance of cooperation in providing expeditious and effective SAR services, the Participants to this Plan desire to:

- Provide a national plan for coordinating SAR services to meet domestic needs and international commitments, and to document related basic national policies;
- Support lifesaving provisions of the International Convention on Maritime Search and Rescue of IMO, the Convention on International Civil Aviation of ICAO, certain international agreements to which the U.S. is Party, and similar international instruments;
- Provide an overall Plan for coordination of SAR operations, effective use of all available resources, mutual assistance, and efforts to improve such cooperation and services; and
- Integrate available resources which can be used for SAR into a cooperative network for greater protection of life and property and to ensure greater efficiency and economy.

5. This Plan is further intended to:

- Help the U.S. satisfy its humanitarian, national, and international SAR-related obligations;
- Provide national guidance for development of SAR-related systems;
- Describe its Participants and their roles in a pro-lifesaving context;
- Recognize lead federal agencies, respectively, for the types of operations covered by this Plan, and describe geographic regions of SAR responsibility, as appropriate;
- Account for saving property, but on a secondary basis to saving lives;
- Account for all operations up to and including providing initial assistance (food, clothing, medical, etc.) to survivors and delivering them to a place of safety; and
- Have, as a primary concept, cooperation for overall and continual development, coordination and improvement of SAR services.

SCOPE

6. It is intended that this Plan not conflict in any way with SAR responsibilities agreed to by contracting States of the Convention on International Civil Aviation, the International Convention on Maritime Search and Rescue, or other appropriate international instruments to which the U.S. is or may become a Party.

7. No provisions of this Plan or any supporting plan are to be construed in such a way as to contravene responsibilities and authorities of any Participant as defined by statutes, executive orders or international agreements, or of established responsibilities of other agencies and organizations which regularly assist persons and property in distress resulting from incidents of a local nature.

8. This Plan is solely intended to provide internal guidance to all signatory federal agencies. State organizations may wish to retain established SAR responsibilities within their boundaries for incidents primarily local or intrastate in character. In such cases, appropriate agreements are generally made between SAR coordinator(s) and relevant State organizations.

PARTICIPANTS

9. The Participants to this Plan are as follows:

- The agencies of the Department of Transportation (DOT) carry out broad responsibilities in transportation safety. The Coast Guard develops, establishes, maintains and operates rescue facilities for the promotion of safety on, under and over international waters and waters subject to U.S. jurisdiction, conducts safety inspections of most merchant vessels, and investigates marine casualties. The Federal Aviation Administration has air traffic control and flight service facilities available to assist in SAR operations. The Maritime Administration operates a fleet of merchant ships for government use and promotes a safe merchant marine.
- Department of Defense (DOD) components have facilities and other resources that are used to support their own operations. These resources may be used for civil SAR needs on a not-to-interfere basis with military missions.
- The Department of Commerce (DOC) participates in or supports SAR operations through the National Oceanic and Atmospheric Administration (NOAA). NOAA provides nautical and aeronautical charting; information on tides and tidal currents; marine environmental forecasts and warnings for the high seas, and coastal and inland waterways; and satellite services for detecting and locating aircraft, ships or individuals in potential or actual distress.
- The Federal Communications Commission (FCC) promulgates rules and regulations for non-government use of wire and radio facilities for promoting safety of life and property, and cooperates in SAR operations through its long-range direction finder network.
- The National Aeronautics and Space Administration (NASA) has aircraft, spacecraft and worldwide tracking, data acquisition and communications networks which can assist in SAR operations. Additionally, NASA supports SAR objectives through research and development or application of technology to search, rescue, survival, and recovery systems and equipment, such as location tracking systems, transmitters, receivers, and antennas capable of locating aircraft, ships, spacecraft, or individuals in potential or actual distress.
- Land managing components of the Department of the Interior (DOI) provide SAR services on lands and waters administered by DOI and may assist in operations in adjacent jurisdictions. The degrees of responsibility assumed in each DOI field area depends upon the legislative and jurisdictional character of the bureau and field area. Responses range from support of law enforcement authorities or other local units to primary SAR coordination and operations. Similarly, components assume varying degrees of responsibility for preventative measures to protect the visiting public.

10. A federal agency that is not a Participant to this Plan may become a Participant by unanimous vote of the National Search and Rescue Committee, followed by written notification by the agency to the Chairman of the National Search and Rescue Committee of its accession to the Plan.

U.S. SEARCH AND RESCUE REGIONS

11. SRRs are established to ensure provision of adequate land-based communications infrastructure, efficient distress alert routing, and proper operational coordination to effectively support SAR services.

12. SRRs should be contiguous and, as far as practicable, not overlap.

13. Establishment of SRRs is intended to effect an understanding concerning where nations have accepted primary responsibility for coordinating or providing SAR services. The

existence of SRR limits should not be viewed as a basis to restrict, delay, or limit in any way, prompt and effective action to relieve distress situations.

14. All SRRs of the U.S. are established in cooperation with neighboring nations, are internationally recognized, and are described in pertinent documents of IMO or ICAO.

NOTE: U. S. maritime and aeronautical SRRs are established in accordance with the relevant IMO and ICAO Conventions and with the guidance of the IAMSAR Manual. These SRRs are internationally-recognized and documented in the appropriate ICAO Regional Air Navigation Plans and in the IMO SAR Plan. More specific information on U.S. SRRs can also be found in the U.S. "National Search and Rescue Supplement," in which SRR charts will be included for convenient reference.

15. U.S. maritime and aeronautical SRRs will be harmonized with each other to the extent practicable, recognizing, however, that lines separating SRRs must normally be agreed by governments having neighboring SRRs when possible. SRRs will not be allowed to unduly affect or be affected by any political boundaries.

16. For civil SAR there must be, by definition, one RCC associated with each recognized SRR. Comprehensive standards and guidance pertinent to these RCCs have been developed by IMO and ICAO, and may be found in relevant Conventions, the IAMSAR Manual, and other publications which should be held and used by U.S. RCCs. U.S. SAR Coordinators as designated in this Plan are responsible for arranging for SAR services and establishing the RCCs for these SRRs. The U.S. civil SAR system becomes integrated into the global SAR system by establishing recognized SRRs and RCCs which comply with international standards.

17. SRRs may be subdivided as long as the delimitation of the sub-regions coincide with pertinent SRR limits. Where this is not practicable, changes to international limits should be proposed to the appropriate international organization through proper channels by the agency primarily concerned.

PARTICIPANT RESPONSIBILITIES

Primary Responsibilities

18. The SAR Coordinators, designated below, have overall responsibility for establishing RCCs as necessary, and for providing or arranging for SAR services within U.S. SRRs. Only RCCs properly established by these SAR Coordinators should carry out domestic and international coordination of civil SAR operations.

19. U.S. SAR Coordinators are as follows (see paragraph 14):

- The U.S. Air Force for the recognized U.S. aeronautical SRR corresponding to the continental U.S. other than Alaska;
- The U.S. Pacific Command for the recognized U.S. aeronautical SRR corresponding to Alaska;
- The U.S. Coast Guard for the recognized U.S. aeronautical and maritime SRRs which coincide with the ocean environments, and including Hawaii.

NOTE: State and local authorities often designate a person to be a "SAR Coordinator" within their respective jurisdictions. Responsibilities of such personnel may be quite different from the responsibilities of national SAR Coordinators as

designated in this Plan, but often these personnel are important contacts for the national SAR coordinators.

20. The National Park Service (NPS) is the lead agency that provides SAR and other emergency services within national parks.

21. The Department of State has designated the U.S. Coast Guard to lead and coordinate national participation in the SAR and safety-related initiatives of IMO.

22. The Department of State has designated the Federal Aviation Administration to lead and coordinate national participation in safety-related initiatives of ICAO.

23. Based upon invitations from ICAO and IMO, respectively, the U.S. Air Force will provide an aeronautical SAR expert and the U.S. Coast Guard will provide a maritime SAR expert, to serve as members of the ICAO-IMO Joint SAR Working Group.

Support Outside U. S. Search and Rescue Regions

24. SAR Coordinators, as well as other U.S. authorities, may support civil SAR operations anywhere in the world, consistent with their expertise and capabilities and legal authority. This is consistent with the principles of assisting persons in distress without regard to nationality or circumstances and of using all available resources for SAR. It is in the interest of the safety of U.S. citizens who travel or live worldwide. It is also consistent with U.S. humanitarian goals and the advantages of domestic and international cooperation.

25. In accordance with international law, U.S. SAR facilities, in a position to render timely and effective assistance, may exercise the right to enter into or over the territorial seas or archipelagic waters of another state for the purposes of rendering assistance to a person, ship, or aircraft whose position is reasonably well known, is in danger or distress due to perils of the seas, and requires emergency assistance.

26. Participants to this Plan, consistent with their capabilities and legal authority, will support civil SAR operations of other countries in territory and international waters beyond recognized U.S. aeronautical and maritime SRRs. As appropriate, and within their capabilities, DOD combatant commands should provide such support within their respective geographic areas of responsibility.

27. In carrying out civil SAR support functions with other nations, such as training, exercises, and liaison, each Participant will coordinate its activities with other Participants having civil SAR expertise with respect to the support concerned.

Note: A wealth of valuable reference material is available which should be used working with other nations in the area of civil SAR. These include, but are not limited to, the SAR-related conventions, the IAMSAR Manual (three volumes), this Plan, the National Search and Rescue Supplement, information about the AMVER ship reporting system, and many documents of Cospas-Sarsat, IMO, ICAO, etc. Some of these references are available in languages other than English. Participants should be familiar with such references, and use them as appropriate.

28. While it is appropriate, to the fullest extent the Participants have the authority to do so, to maintain liaison and cooperate with authorities of other nations that have comparable civil SAR responsibilities, such support should be carried out in coordination with the U.S. SAR Coordinators, and with other neighboring SAR authorities, as appropriate. Such coordination

will normally include U.S. Coast Guard Headquarters, Office of Search and Rescue, in order to ensure consistency with U.S. obligations under international agreements to which the U.S. is a Party, and compliance with the IAMSAR Manual and other relevant international guidance relevant to implementing such agreements.

29. Participants should not accept a SAR Coordinator or RCC role for SAR operations for SRRs for which other nations are responsible. However, the Participants may provide and support SAR operations in such areas when:

- Assistance is requested (normally this should be in accordance with RCC-to-RCC procedures prescribed in the IAMSAR Manual);
- U.S. citizens are involved; or
- U.S. facilities become aware of a distress situation to which no other suitable facilities are responding, or where other available SAR services appear to be inadequate.

30. For distress situations in international waters or airspace where no SRR exists for which an RCC is responsible, or where it appears that the responsible RCC is not responding in a suitable manner, U.S. RCCs or facilities will assist as appropriate. Such assistance will be subject to availability of resources, legal constraints, and other applicable U.S. policies. *NOTE: Provisions of international conventions dealing with SAR are intended to ensure that wherever any person goes in the world, suitable SAR services and responsibilities will be in place to assist should that person become in danger or distress. However, there may be nations which are not Parties to, or which have not yet fully complied with, these conventions. Therefore, situations may exist for U.S. resources to supplement SAR capabilities in certain geographic areas, or to support these nations by training or other means, consistent with U.S. domestic law, to help develop their SAR capabilities. Participants to this Plan may be take advantage of such situations as appropriate.*

31. When assisting civil SAR authorities of other nations, or other agencies or organizations supporting these authorities, Participants to this Plan should ensure that:

- They have appropriate legal authority and expertise to do so;
- Principles or provisions of conventions or agreements to which the U.S is Party are not violated;
- Applicable procedures set forth in the IAMSAR Manual, National SAR Supplement, and other relevant directives are known and followed;
- Such efforts are carried out in consultation with other Participants to this Plan as appropriate; and that
- The authorities assisted are responsible for the SAR functions in that country.

32. Policies on rendering assistance in foreign territories or territorial waters must have the goal of balancing concerns for saving lives, for sovereignty, and for national security. Provisions for territorial entry as necessary should be addressed in international SAR agreements where relevant, as discussed below, and care should be taken to ensure that such agreements are compatible with national policies in this regard.

33. When any Participant to this Plan is addressing civil SAR-related inquiries or proposals from other nations or organizations outside the U.S., or when hosting or attending international meetings on civil SAR, care should be taken that interested U.S. agencies, organizations, or persons are consulted and involved as appropriate.

CIVIL SAR AGREEMENTS

34. Bilateral or multilateral SAR agreements with other U.S. agencies or organizations, or with authorities of other nations, may be of practical value to civil SAR, and beneficial for purposes including:

- Helping to fulfil U.S. domestic or international obligations and needs;
- Enabling more effective use of all available resources;
- Better integration of U.S. SAR services with the global SAR system;
- Building commitment to support civil SAR;
- Resolving SAR procedures and sensitive matters in advance of time-critical distress situations; and
- Identifying types of cooperative matters and efforts which may enhance or support SAR operations, such as access to medical or fueling facilities; training and exercises; meetings; information exchanges; use of communications capabilities, or joint research and development projects.

35. Negotiation and conclusion of such agreements should consider matters such as the following:

- Which authorities of the governments, agencies, or organizations concerned are the proper ones to be involved with the agreement;
- Which types of SAR operations (e.g., aeronautical, maritime, etc.) or SAR support functions should be included within the scope of the agreement;
- Consistency with international and domestic SAR principles or policies;
- Establishment of lines separating SRRs if relevant;
- Whether other treaties, agreements, etc., exist which should be superseded or accounted for in preparation of a new agreement; and
- Relevant guidance of the IAMSAR Manual, National SAR Supplement, and other pertinent directives.

36. Participants which develop any agreement dealing with civil SAR shall ensure that such efforts are coordinated with other interested Participants.

37. Any such international agreement may not be signed or otherwise concluded without prior consultation with the Secretary of State (see Title 1 USC 112b).

NATIONAL SEARCH AND RESCUE COMMITTEE

38. The sponsor of this Plan is the National Search and Rescue Committee. The National Search and Rescue Committee, consistent with applicable laws and executive orders:

- Coordinates implementation of this Plan;
- Reviews matters relating to the Plan affecting more than one Participant, including recommendations for Plan revision or amendment;
- Encourages federal, state, local and private agencies to develop equipment and procedures to enhance national capabilities for implementing the Plan; and
- Promotes coordinated development of all national resources for this purpose.

39. In particular, the Committee is intended to accomplish the following:

- Oversee this Plan;
- Provide a standing national forum for coordination of administrative and operational civil SAR matters;

- Provide an interface with other national, regional, and international organizations involved with providing or supporting civil SAR services;
- Develop and maintain suitable guidance for implementation of this Plan, such as a National SAR Supplement to the IAMSAR Manual;
- Promote effective use of all available resources for support of civil SAR;
- Serve as a cooperative forum to exchange information and develop positions and policies of interest to more than one Participant;
- Promote close cooperation and coordination between civilian and military authorities and organizations for provision of effective civil SAR services;
- Improve cooperation among the various SAR communities for the provision of effective services; and
- Determine other ways to enhance the overall effectiveness and efficiency of SAR services, and to standardize procedures, equipment, and personnel training where practicable.

SAR SERVICES COVERED BY THIS PLAN

40. This Plan covers civil SAR operations such as:
    - Maritime (involving rescue from a water environment);
    - Aeronautical (including SAR assistance in the vicinity of airports);
    - Land (including SAR operations associated with environments such as wilderness areas, swift water, caves, mountains, etc.)
    - Provision of initial assistance at or near the scene of a distress situation (e.g., initial medical assistance or advice, medical evacuations, provision of needed food or clothing to survivors, etc.);
    - Delivery of survivors to a place of safety or where further assistance can be provided; and
    - Saving of property when it can be done in conjunction with or for the saving of lives.

    NOTE: Outside national parks, state and local authorities or SAR units often accept responsibility for providing domestic land SAR services.

41. Civil SAR does *not* include operations such as:
    - Air ambulance services which did not result from a rescue or recovery operation;
    - Assistance in cases of civil disturbance, insurrection or other emergencies which endanger life or property or disrupt the usual process of government;
    - Rescues from space (although rescue of persons returned from space can be included);
    - Military operations, such as combat SAR or other types of recovery by military operations to remove military or civilian personnel from harm's way;
    - Salvage operations;
    - Overall response to natural or man-made disasters or terrorist incidents; and
    - Typical disaster response operations such as locating and rescuing victims trapped in collapsed structures or other assistance provided under the scope of the Federal Response Plan.

    NOTE: No provision of this Plan or any supporting plan is to be construed as an obstruction to prompt and effective action by any agency or individual to relieve distress whenever and wherever found.

EXTENT OF MUTUAL ASSISTANCE

42. The Participants agree to cooperate as follows:

- Support each other by pooling relevant facilities and support services as appropriate for operations within their respective SRRs, and consistent with each participant's relevant legal authorities;
- Make, and respond to, requests for operational assistance between the designated RCCs, RSCs, or comparable command centers (CCs) of the Participants as capabilities allow;
- Develop procedures, communications, and databases appropriate for coordination of facilities responding to distress incidents, and for coordination between the RCCs, RSCs or CCs of the Participants;
- Normally follow applicable guidance of the IMO, ICAO, or other relevant international bodies regarding operational procedures and communications; and
- In areas where more than one authority may respond to distress situations, agreed procedures should be in place, which balance concerns for saving lives and for jurisdiction.

43. The Participants may also enter into other collaborative efforts with each other such as:

- Mutual visits, information exchanges, and cooperative projects for support of SAR;
- Joint training or exercises;
- Cooperation in development of procedures, techniques, equipment, or facilities;
- Establishment of groups subordinate to the National Search and Rescue Committee as a means for more in-depth focus on matters of common concern; and
- Carry out cooperative efforts similar to those indicated above on an international level.

GENERAL TERMS

44. Cooperative arrangements between a Participant with operational responsibilities and state, local, and private agencies should provide for the fullest practicable cooperation of such agencies for operational missions, consistent with the willingness and ability of such agencies to act, and for such coordination by the responsible RCC, RSC, or CC of their facilities as may be necessary and practicable.

45. Participants with operational responsibilities may request assistance from other federal agencies having capabilities useful for a mission.

46. The federal government does not compel state, local or private agencies to conform to this Plan; such entities can direct and control their own facilities within their boundaries, and cooperation will be pursued through liaison and consultation.

CHARGING FOR SAR SERVICES

47. Each Participant will fund its own activities in relation to this Plan unless otherwise arranged by the Participants in advance, and will not allow a matter of reimbursement of cost among themselves to delay response to any person in danger or distress.

48. The Participants agree that SAR services that they provide to persons in danger or distress will be without subsequent cost-recovery from the person(s) assisted.

49. In accordance with customary international law, when one nation requests help from another nation to assist a person(s) in danger or distress, if such help is provided, it will be done voluntarily, and the U.S. will neither request nor pay reimbursement of cost for such assistance.

PRINCIPLES ACCEPTED BY THE PARTICIPANTS

General

50. Participants coordinating operations should, consistent with applicable laws and executive orders, organize existing agencies and their facilities through suitable agreements into a basic network to assist military and non-military persons and property in actual or potential danger or distress, and to carry out obligations under customary international law and international instruments to which the U.S. is a Party.

51. The Participants will seek to keep political, economic, jurisdictional, or other such factors secondary when dealing with civil lifesaving matters, i.e., where possible, what is best for lifesaving will govern their decisions.

52. Consistency and harmonization will be fostered wherever practicable among plans, procedures, equipment, agreements, training, terminology, etc., for the various types of lifesaving and recovery operations, taking into account terms and definitions adopted internationally as much as possible.

53. Terminology and definitions used throughout the U.S. SAR community will be standardized to the extent possible, and be as consistent as possible with usage in pertinent international conventions and the IAMSAR Manual.

54. If a distress situation appears to exist or may exist, rescue or similar recovery efforts will be based on the assumption that a distress situation does actually exist until it is known differently.

55. Assistance will always be provided to persons in distress without regard to their nationality, status, or circumstances.

56. Generally, cost-effective safety, regulatory, or diplomatic measures that tend to minimize the need for U.S. SAR services will be supported.

57. Close cooperation will be established between services and organizations, which may support improvements in lifesaving functions in areas such as operations, planning, training, exercises, communications and research and development.

58. Recognizing the critical importance of reduced response time to the successful rescue and similar recovery efforts, a continual focus will be maintained on developing and implementing means to reduce the time required for:

- Receiving alerts and information associated with distress situations;
- Planning and coordinating operations;
- Facility transits and searches;
- Rescues or recoveries; and
- Providing immediate assistance, such as medical assistance, as appropriate.

Aeronautical and Maritime Search and Rescue

59. All SAR personnel should be generally familiar with the International Convention on Maritime Search and Rescue of the IMO, the Convention on International Civil Aviation, Annex 12 ("Search and Rescue") of ICAO, the joint ICAO-IMO IAMSAR Manual, the National SAR Supplement, and other primary directives or information applicable to their work in civil SAR.

60. Local cooperative arrangements within the U.S. should be made in advance between SAR, air traffic, and airport authorities for close coordination in handling aircraft emergencies, unless the same authorities hold all the involved responsibilities.

61. The SAR principles and procedures of relevant customary international law and international Conventions and the IAMSAR Manual will serve as the framework for coordination of any SAR operations, and especially those involving multiple countries, organizations or jurisdictions; U.S. organizational or operational SAR plans and provisions of the National SAR Supplement will be consistent with these international provisions to the extent practicable.

62. The U.S. Coast Guard will sponsor a global voluntary ship reporting system for maritime and aeronautical SAR and offer pertinent information from the associated database to recognized RCCs worldwide. (This system will be used only for SAR, with its information being treated as "commercial proprietary" as promised to the ships reporting. Continuation of this system as just described will be reconsidered if need for the reporting system changes, or acceptable alternative international systems develop.)

63. Operational responsibilities for maritime and aeronautical SAR will generally be associated with internationally-recognized geographic maritime and aeronautical SRRs, and a single federal agency will be given primary responsibility for coordinating SAR operations within each SRR, with other agencies and organizations providing support as appropriate. However, in some specific sub-areas, such as within national parks, other federal authorities may be responsible.

64. Distress situations involving airborne aircraft will normally be handled by the maritime or aeronautical SAR authorities responsible for the SRR concerned once the distressed aircraft is down, and cooperatively between these authorities and air traffic service authorities as long as the aircraft remains airborne.

NOTE: Land SAR services may include aeronautical SAR operations. Involvement of Participants in such operations may be governed by agreements between SAR coordinators and various state and local authorities. Participants will support such operations as appropriate, bearing in mind the provisions of paragraph 7 of this Plan.

Coordination of Operations

65. Each agency responsible for operations under this Plan will:

- Keep information readily available on the status and availability of key SAR facilities or other resources which may be needed for operations; and
- Keep each other fully and promptly informed of operations of mutual interest, or which may involve use of facilities of another Participant;
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66. SAR Coordinators will delegate to their RCCs the authority to:

- Request assistance via other RCCs/RSCs including those of other nations;
- Promptly respond to requests for assistance from other RCCs/RSCs, including those of other nations as discussed below;
- Grant permission for entry into the U.S. of SAR facilities of other countries; and
- Make arrangements with appropriate customs, immigration, health or other authorities to expedite entry of foreign SAR facilities as appropriate

67. SAR Coordinators will authorize their RCCs to arrange promptly or in advance for entry of foreign rescue units into the U.S. should it ever become necessary. Such arrangements should involve appropriate U.S. authorities as well as proper authorities of the nation or SAR facility involved with the entry. Such entry may include overflight or landing of SAR aircraft, and similar accommodation of surface (land or water) SAR units) as circumstances dictate for fueling, medical, or other appropriate and available operational support, or delivery of survivors, or it could also be in response to a request from a U.S. RCC to the RCC of another nation for assistance of those facilities.

68. Establishment of JRCCs, and of jointly sponsored and staffed RCCs or RSCs, are encouraged where appropriate.

69. Operations of SAR facilities committed to any SAR mission normally should be coordinated, and, as appropriate, directed, by an appropriate RCC or RSC consistent with the provisions of this Plan.

70. On scene coordination may be delegated to any appropriate unit participating in a particular incident under the cognizance of the SAR mission coordinator at an RCC or an incident commander.

71. No provision of this Plan or any supporting plan is to be construed as an obstruction to prompt and effective action by any agency or individual to relieve distress whenever and wherever found.

72. If an RSC is established by any agency, it must operate under the oversight of an RCC, and be responsible for certain tasks or for portions of the RCC's SRR, as determined by the agency concerned.

73. SAR Coordinators shall arrange for the receipt of distress alerts originating from within SRRs for which they are responsible, and ensure that every RCC and RSC can communicate with persons in distress, with SAR facilities, and with other RCCs/RSCs

Incident Command System

74. A coordination system often used in local areas, and for emergency response scenarios involving multiple agencies and multiple jurisdictions, is the Incident Command System (ICS).

75. When SAR forces become involved in situations where ICS is being used, an on scene incident commander will be in charge of coordinating operations overall. In such cases the SAR mission coordinator or person designated by the SAR mission coordinator will normally serve as a SAR Agency Representative to the incident commander.

76. RCCs should normally use the coordination procedures of the IAMSAR Manual and the National SAR Supplement, but should also be familiar with the ICS system, and may use or support ICS as the situation warrants.

Military Roles and Military-Civilian Relationships

77. Arrangements between federal military and civil agencies should provide for the fullest practicable cooperation among themselves, consistent with statutory responsibilities and authorities and assigned SAR functions.

78. Cooperative arrangements involving DOD and Coast Guard commands should provide for the fullest practicable use of their facilities for civil SAR on a not-to-interfere basis with military missions, consistent with statutory responsibilities and authorities and assigned agency functions.

79. Participants with operational responsibilities should develop plans and procedures for effective use of all available SAR facilities, and for contingencies to continue civil SAR operations if military forces are withdrawn because of another emergency or a change in military missions.

80. DOD responsibilities under this Plan include support of civil SAR on a not-to-interfere basis with primary military duties, in accordance with applicable national directives, plans, guidelines, agreements, etc.

Resources

81. To optimize delivery of efficient and effective services, and, where practicable and consistent with agency authorities, provide the organizations and persons interested in supporting these services the opportunity to do so, all available resources will be used for civil SAR. Certain state and local governments, civil and volunteer organizations, and private enterprises have facilities, which contribute to the effectiveness of the over-all SAR network, although they are not Participants to this Plan.

82. To help identify, locate and quantify primary SAR facilities, Coast Guard and DOD commands may designate facilities which meet international standards for equipment and personnel training as “SAR units” (SRUs). (Such facilities do not need to be dedicated exclusively to the associated type of operations, and this designation is not intended to preclude use of other resources.)

83. Recognizing the critical role of communications in receiving information about distress situations and coordinating responses, and noting that such responses sometimes involve multiple organizations and jurisdictions, the Participants will work aggressively to develop suitable SAR provisions for:

- Interoperability;
- Means of sending and receiving alerting;
- Means of identification;
- Effective provisions for equipment registration and continual access to registration data by SAR authorities;
- Rapid, automatic, and direct routing of emergency communications;
- High system reliability; and
- Preemptive or priority processing of distress communications.

Technical and Support Services

84. The Participants will strive together to:

- Apply the most effective systems to save the most lives at the least operational risk and cost; and
- Foster innovation in technical, administrative and informational systems, which will improve the ability of the Participants and associated non-governmental organizations to carry out their civil SAR duties.

85. Management, operational, and support personnel of the Participants will be partners, assisting each other with the goal of maximum operational effectiveness.

86. Priority goals of the Participants shall include:

- Make distress alerts and associated data available to operational personnel as quickly, comprehensively, and reliably as possible;
- Provide communications systems which are highly reliable, simple, problem-free, interoperable, and as functionally effective as possible; and
- Enable operational personnel to be as highly effective in planning and conducting operations as possible, by providing them with the training, equipment, procedures, facilities, information, and other tools necessary to carry out planning and operational duties in a consistent, highly professional, and effective manner.

87. Participants should:

- Encourage development and maintenance of proficiency in SAR techniques and procedures by other agencies participating in civil SAR, and assist them as appropriate;
- Encourage continued development of state and local SAR facilities as appropriate; and
- Enter into agreements, as appropriate, with State, local, and private organizations to provide for the fullest practicable cooperation in civil SAR consistent with their capabilities and resources, and to account for use of federal facilities in SAR missions with which these organizations are involved.

Suspension or Termination of Operations

88. SAR operations shall normally continue until all reasonable hope of rescuing survivors or victims has passed.

89. The responsible RCC/RSC concerned shall normally decide when to discontinue these operations. If no such center is involved in coordinating the operations, the OSC or IC may make this decision. If there is no OSC or IC involved, the decision will be made at an appropriate level of the chain-of-command of the facility conducting the operations.

90. When an RCC/RSC or other appropriate authority considers, on the basis of reliable information that a rescue or recovery operation has been successful, or that the emergency no longer exists, it shall terminate the SAR operation and promptly so inform any authority, facility or service which has been activated or notified.

91. If an operation on-scene becomes impracticable and the RCC/RSC or other appropriate authority concludes that survivors might still be alive, it may temporarily suspend the on-scene activities pending further developments, and shall promptly so inform any authority, facility or

service which has been activated or notified. Information subsequently received shall be evaluated and operations resumed when justified on the basis of such information.

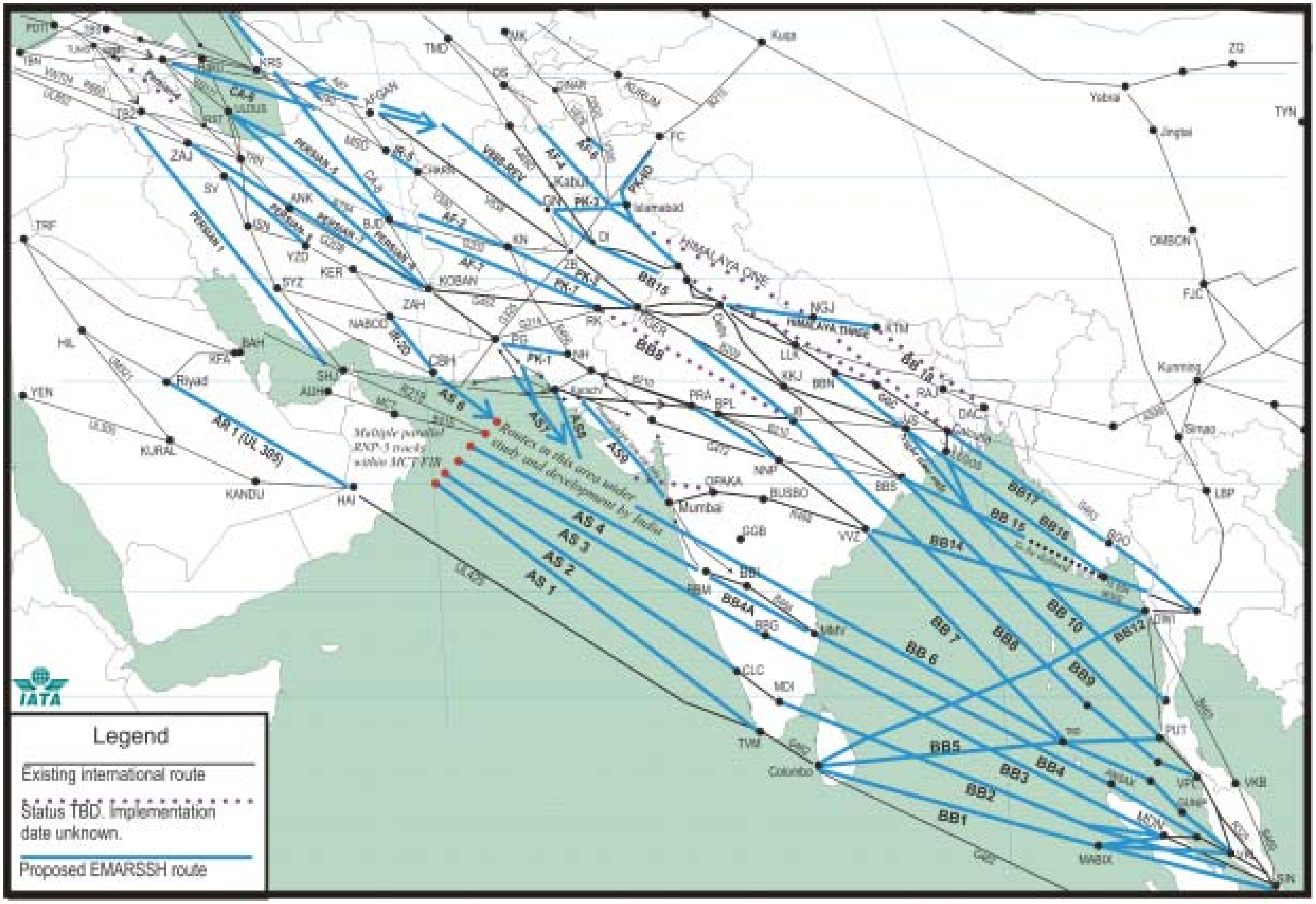
ENTRY INTO FORCE, AMENDMENT, OR TERMINATION

92. This Plan:

- shall enter into force effective January 1, 1999;
- may be amended by written agreement among the Participants; and
- may be terminated or superseded by a new Plan or by written agreement among the Participants.

93. An individual Participant may terminate its status as a Participant to this Plan by notifying the other Participants in writing at least six months in advance of such termination. Since the National Search and Rescue Committee sponsors this Plan, and it is intended that the Participants to this Plan correspond to the member agencies of that Committee, such termination will be deemed to also terminate the Participant's membership on the Committee.

…….


Legend
Existing international route
Status TBD. Implementation date unknown.
Proposed EMARSSH route
IATA
Multiple parallel RNP-5 tracks within MCT FIR
Routes in this area under study and development by India
HIMALAYA ONE
AS 1
AS 2
AS 3
AS 4
AS 6
AR 1 (UL 305)
BB1
BB2
BB3
BB4
BB4A
BB5
BB 6
BB 7
BB8
BB9
BB 10
BB14
BB 15
BB16
BB17
PK-1
PK-3
Kabul
Islamabad
Karachi
Mumbai
Colombo
Riyad
Kunming
Simao
Yabrai
Jingtai
OMBON
Kuqa
ZAJ
KOBAN
ZAH
KANDU
KURAL
TVM
CLC
MDI
VVZ
BBS
NGJ
KTM
MABIX
SIN
VKB
PUT
DWI
LBP
TYN
ZQ

Agenda Item 4: Consider issues and make specific recommendations concerning the provision of ATS/AIS/SAR in the Asia/Pacific Region

4.1 **Revised South China Sea ATS Route Structure implementation – Post Implementation Update**

4.1.1 The Revised South China Sea (SCS) ATS Route Structure was implemented on 1 November 2001. The opportunity was taken at two ICAO meetings post implementation to discuss the results of South China Sea operations after 1 November 2001. The first meeting was the SCS TF/7 meeting held in Bangkok, Thailand on 9-11 January 2002 and also at the 10th Meeting of the South East Asia ATS Coordination Group held in Bali, Indonesia on 18-22 March 2002.

Report of Operations After 1 November 2001

4.1.2 States and international organizations gave a feedback of the effectiveness of the revised South China Sea Route structure. The general consensus was that from a user and provider perspective, the revised structure offered benefits in cost savings and efficiency as well as an easier managed structure than before.

4.1.3 Nevertheless there was still some further work to accomplish on some ATS routes which have created additional track miles and substantial costs to particular airlines. This has been expanded in details in the section concerning SEACG/10 commencing at paragraph 4.2.6 of this report.

Lack of flight plan information in Sanya AOR

4.1.4 The meeting noted that on the day of implementation of the revised route structure, 50% of flights operating in or through the Sanya AOR did not file their FPL messages to Sanya ACC. This resulted in air traffic controllers having insufficient time to plan their traffic picture and created an unnecessary burden on them.

4.1.5 IATA requested China to supply information on this deficiency and they will take appropriate follow-up action in an endeavour to rectify the problem.

Level Assignment for Non-RNP10 Aircraft

4.1.6 The newly established RNP10 routes are generally 60 NM apart, these routes are not laterally separated for non-RNP10 compliant aircraft. As such, appropriate vertical separation shall be applied between non-RNP10 compliant aircraft and any other aircraft on adjacent routes, irrespective of whether the non-RNP10 aircraft is operating within the RNP10 strata or not. With a view to establishing a standard practice, it has been agreed amongst Hong Kong, Sanya and Manila ACCs that non-RNP10 compliant aircraft wishing to operate on the newly established RNAV Routes outside the RNP10 strata (below F290) be assigned with standard semi-circular levels. The meeting agreed that this procedure ensures positive separation between aircraft on adjacent airways and must be practiced by all ATC providers in the South China Sea area.

RNP10 Approval

4.1.7 There were occurrences where some aircraft operators had the wrong impression that aircraft approved for RNP5 can operate in RNP10 airspace. This has been addressed and airlines are now aware of the procedures to be followed.

Airline Review of the revised South China Sea route structure

4.1.8 IATA presented airline feedback on the revised South China Sea route structure along with some suggested improvements to the Sub-Group. With the introduction of the revised South China Sea route structure on 1 November 2001 and the implementation of RVSM on 21 February 2002, some areas saw an improvement to operations, however other areas with smaller traffic flows were significantly penalized. A summary of benefits/disbenifits are found at the table below:

City Pair	Flight time (min)	ATC Delay (min)
HKG-BKK	-5	-1
BKK-HKG	-6	-2
HKG-SIN	+6	-2
SIN-HKG	-3	-1
HKG-JKT	+23	-1
JKT-HKG	+13	+2
HKG-KUL	-1	-1
KUL-HKG	-2	+1
Brunei-MID	+16	

Hong Kong - Jakarta - Hong Kong

4.1.9 The meeting was informed that IATA and the CAA of Singapore (CAAS) met on 11 June and agreed to a very important route segment to the Hong Kong to Jakarta solution. This route was KIKOR (at the Jakarta/Singapore FIR boundary) G220 LUSMO direct MELAS (at the Singapore/Ho Chi Minh FIR boundary). In order for this route to be complete, the following is requested of Viet Nam and Indonesia.

a) Because G220 in the Jakarta/Singapore FIRs tracks north south with minor fluctuations that change the route from an eastbound to a westbound route, the requirement of both Singapore and IATA is to maintain only one direction of flight for the entire route. The CAAS requirement is that flights tracking northbound from MELAS must be treated as westbound flights (FL310, 350, etc.) and flights tracking southbound to MELAS be treated as an eastbound flight (FL290, 330, 370, etc.)

b) In the Jakarta FIR, the airlines would like to utilize G220 as a bi-directional route. In addition, Indonesia is requested to consider an ABASA direct KIKOR alternative routing to the current G220 dogleg to the east.

4.1.10 Indonesia and Viet Nam will review the IATA request and co-ordinate with IATA and ICAO on these proposed changes.

Brunei - Middle East/Europe - Brunei

4.1.11 IATA advised the meeting that the new South China Sea route structure now penalizes aircraft flying from Brunei to the Middle East/Europe by an additional 110NM, which gives a time penalty of 16 minutes over the route flown prior to implementation of the revised SCS route structure. The SEACG/10 meeting discussed this issue and looked at various options to mitigate the additional distance being flown by these aircraft. It was finally suggested that a route from Brunei via M768 to position AKMON then direct to SAMOG and Phuket might serve as an interim solution to the extended present routing. This however, still carries a significant penalty over the pre-November

routing and the representative from Brunei confirmed that Royal Brunei airlines would not use the option suggested by SEACG/10.

Weather Deviations and Proposed changes to N892 and L625

4.1.12 The meeting noted that there is an ongoing concern in the SEACG/10 and the SCS TF meetings on how to procedurally manage weather deviation procedures on the closely spaced parallel tracks. In particular the concern has been for weather deviations on tracks N892 and M771. IATA proposed to SEACG/10 the straightening of both N892 and L625 so that they would be more direct tracks between MABLI and Hengchun on N892 and between LUSMO MEVIN on L625. This in turn would allow an increased distance between the sets of parallel tracks and would give more flexibility to ATC in coping with diversions. The SEACG/10 meeting discussed this issue but could not decide on a course of action. IATA contends that the realignment would resolve much of the weather deviation concerns, would provide more direct routing to airlines and would simplify air traffic management.

Routing between Danang and Hong Kong in Relationship to China's Danger Areas

4.1.13 IATA informed the meeting that there is a 22:30 hour window where RNP10 approved aircraft may fly between Danang and Hong Kong but there is only a 8:00 hour window where non-RNP10 approved aircraft fly between Danang and Hong Kong. This is a significant loss of service compared to the pre 1 November 2001 route options. IATA requested that measures be taken to provide 24-hour service for this traffic flow over the high seas. This could be accomplished by abolishing P901 and realigning A1 to where it does not impact the Danger Areas, realigning the Danger Areas or changing their times of activation.

Bangkok A202 Hong Kong

4.1.14 The meeting was informed that the implementation of A202 between Bangkok and Hong Kong promotes a new level of efficiency between these airports. Airline feedback indicated a 5 to 6 minute decrease of flight time over previous routings. There were two IATA suggestions where A202 could improve its service to airlines. Firstly, to allow flights on A202 beyond Hong Kong. The other issue on A202 is the portion that requires a Chinese altitude assignment. It was discovered by airlines that while FL410 was many times an ideal altitude for the short Bangkok to Hong Kong flights, the Chinese equivalent of 12,600 metres (41,300 feet) exceeds many of the Airbus service-ceiling limit of 41,000 feet.

4.1.15 The Chart is shown at Appendix A to the Report on Agenda Item 4.

4.2 **Review of ATS Co-ordination Groups activities**

4.2.1 The meeting noted that several important ATS Coordination Groups had been established in the Asia/Pacific Region. Their purpose is to foster the implementation of regional air navigation agreements and to provide opportunities for airspace providers and users, having common geographically related ATS interests, to meet and develop solutions to problems that limit the capacity and efficiency of the airspace structure. The Groups also exchange information necessary to ensure a co-ordinated approach to the introduction of the new CNS/ATM systems.

4.2.2 Two of these sub-groups, the Southeast Asia ATS Co-ordination Group (SEACG) and the Bay of Bengal ATS Co-ordination Group (BBACG), are significant to the operations in each of their respective areas especially with regard to ATS routings, ATS procedures and communications requirements.

4.2.3 Additional ATS Coordination Groups are developed from time to time to focus on resolving issues with respect to improving the air traffic service in specified areas.

4.2.4 The meeting was also advised that two important projects were initiated in early 2001. The first was the development of a revised ATS route structure, Asia to Europe and the Middle East, South of the Himalayas (EMARSSH), with a target date for implementation of 28 November, 2002. The second project dealt with post implementation work on a revised South China Sea ATS route structure and the trial application in the implementation of the Sanya area of responsibility (AOR) which commenced on 1 November 2001.

4.2.5 The BBACG did not meet during 2002 as the EMARSSH project is discussing this area in detail during their deliberations on revising the route structure from Asia to Europe and the Middle East, South of the Himalayas.

SEACG/10 Meeting – Denpassar, Indonesia, 18 – 22 March 2002

4.2.6 Due to the limited time that was available, the SCS/TF/7 post implementation meeting agreed that follow-up action on several outstanding items be addressed at the SEACG/10 in order to maintain the continuity of work pertaining to ATS operations in the South China Sea area. It was recognized that the following tasks would need to be further discussed:

a) update on development of communication and surveillance in Sanya AOR;

b) update on monitoring of aircraft navigation errors for RNP 10 operations over the South China Sea;

c) weather deviation procedures proposed by Hong Kong, China;

d) remedial action by Indonesia on SIDs/STARs for Jakarta (both Soekarno-Hatta and Halim) which were not aligned with the new route structure;

e) change proposals to the route structure; and

f) flight planning procedures proposed by Malaysia.

Monitoring of Aircraft Navigation Errors for RNP 10 Operations over the South China Sea (SCS)

4.2.7 An essential aspect of the SCS project was the establishment of RNP 10 monitoring arrangements along four of the routes, *i.e.* L625, M771, N884 and N892. Hong Kong China, Philippines and Singapore were made responsible for the collection of relevant data concerning flight operations along these routes. These States were also required to forward the data collected, each month, to the Civil Aviation Authority of Singapore (CAAS), which is the monitoring authority for RNP 10 operations over the South China Sea.

4.2.8 Singapore provided the meeting with the latest report as follows:

a) no unintended lateral or longitudinal deviation was recorded since RNP 10 monitoring began on 2 November 2001; and,

b) there was, however, one incident reported, which involved an aircraft operating for about 10 minutes in the eastbound direction on a westbound RNAV route in the South China Sea. This incident was assessed by an expert

group at RVSM/TF/13 as a violation of the flight's clearance. The Task Force agreed that the circumstances of the event did not involve any operational or ATC loop error.

Weather Deviation Procedures for South China Sea Airspace

4.2.9 The SEACG/10 was presented with a proposal to establish a set of common ATC operating procedures to cater for weather deviation situations on RNAV Routes P901, L642, M771, N892 and L625 within the airspace where Hong Kong, Sanya, Manila and Ho-Chi-Minh ACCs are responsible for provision of air traffic services.

4.2.10 The handling of weather deviations on these newly established RNAV routes required close co-ordination and co-operation of ACCs concerned. Inappropriate handling of weather deviations may possibly trigger traffic disruption and induce undesirable pressure on the ATC system.

4.2.11 The procedures would be supplementary to the relevant procedures laid down in the ICAO Regional Supplementary Procedures of Middle East/Asia (Doc7030/4 MID/ASIA/RAC-4). They would be applicable before and after 1930 UTC 31 October 2002, when Hong Kong and Sanya ACCs would join the other ACCs in the South China Sea region in RVSM implementation.

4.2.12 In view of the frequent occasions of tropical cyclones and inclement weather in the South China Sea area, extensive weather deviations can be expected, particularly during the summer months. As the newly established RNAV routes within the South China Sea area are designed with 60 NM minimum lateral separation standard and transit a number of FIRs/AOR, the workload induced to pilots and ATC under weather deviation scenarios can be significant. The phased implementation of RVSM on different dates further complicates the issue. The need to establish a standard set of weather deviation procedures within the South China Sea area had therefore been identified by the SCS/TF as one of the outstanding tasks requiring urgent attention. It was necessary to finalize the procedures before the onset of the next typhoon season.

4.2.13 There were two scenarios provided; one for small scale, localized weather deviations and the second for large scale, extensive weather deviations which would normally be associated with a typhoon, which frequent the area in the summer months, known as *The Typhoon Season.*

4.2.14 SEACG/10 subsequently agreed to the following:

a) The procedures which are similar to the current arrangements in the South China Sea for large scale weather deviation due to typhoons were agreed in principle;

b) Weather conditions associated with severe weather conditions over a wide area such as Typhoons often necessitating large diversions of many aircraft and possibly affecting more than one FIR would be named as **Large Scale Weather Deviation Contingency Procedures**;

c) Localized thunderstorms or a band of thunderstorms that necessitate isolated minor weather deviations would be named as **Small Scale Weather Deviation Procedures**;

d) It was recognized that there might be operational concerns during the transition from normal operations to contingency procedures for large scale weather deviation (i.e. the level changes involved for aircraft in the air).

However, as the contingency procedures would indicate an urgent situation requiring immediate attention, a certain degree of operational inconvenience had to be tolerated. After deliberation, it was agreed that the ACC initiating the contingency procedures would provide the downstream/adjacent ACC as much prior notice as practicable to mitigate the impact on ATC operations;

e) Should weather conditions improve to such an extent that aircraft could resume normal navigation along ATS/RNP routes, the initiating ACC would co-ordinate with the downstream/adjacent ACC to deactivate the contingency procedures as soon as possible;

f) It was envisaged that the use of radar could resolve most of the separation problems associated with weather deviation, however, a set of common procedures would be essential before full radar coverage could be established within the South China Sea area; and

g) In light of operational experience gained in the coming months, the package of weather deviation procedures would be reviewed by the SCS/TF at a planned meeting in November 2002.

4.2.15 A Flight Level Allocation System (FLAS) to be applicable during large scaled weather deviation conditions, *e.g.* typhoon was proposed and is detailed below, to be applicable before 1930 UTC 31 October 2002:

FLAS during Large Scaled Weather Deviation Conditions	
ATS/RNAV Routes	*Available levels without co-ordination*** (before 1930 UTC 31 Oct 2002)
L625	F 290*, F330, F410
M771	
N892	F310, F350, F390
L642	
P901	F310, F350#, F390 (SW-bound) F330, F370, F410 (NE-bound)
L628	F280 (W-bound) F270 (E-bound) F370 (E-bound)
N500	
M765	
M768	

* Aircraft planning at F290 to Mainland China destinations except Guangzhou, are required to climb to reach F330 before entering Sanya AOR.

** Availability of other levels subject to prior co-ordination amongst ACCs

Subject to co-ordination if IKELA estimate between 2350 and 1150 UTC

4.2.16 It was noted that the SCS TF had proposed that the table below which describes the FLAS applicable after 1930 UTC 31 October 2002 would require further discussions with States concerned:

FLAS during Large Scaled Weather Deviation Conditions	
ATS/RNAV Routes	*Available levels without co-ordination*** (**After** 1930 UTC 31 Oct 2002)
L625	F 290*, F330, F410
M771	
N892	F320, F340, F360, F380
L642	
P901	F310, F350#, F390 (SW-bound) F330, F370, F410 (NE-bound)
L628	F280 (W-bound) F270 (E-bound) F370 (E-bound)
N500	
M765	
M768	

* Aircraft planning at F290 to Mainland China destinations except Guangzhou, are required to climb to reach F330 before entering Sanya AOR.
** Availability of other levels subject to prior co-ordination amongst ACCs
# Subject to co-ordination if IKELA estimate between 2350 and 1150 UTC

4.2.17 With regard to Small Scale Weather Deviations, procedures would be left to the ACC concerned with appropriate coordination as required if this deviation was likely to impact on an adjacent FIR.

Change Proposals to the Route Structure and Associated Procedures

4.2.18 The SCS/TF decided not to change any of late proposals in the South China Sea ATS route structure leading up to the implementation date of 1 November 2001, but to wait till after the route system had settled down before looking at these issues.

4.2.19 The three main areas of concern were:

a) Hong Kong – Jakarta – Hong Kong;

b) Brunei – Middle East/Europe – Brunei; and

c) alternate routing due congestion of many inbound and outbound routes to/from Kuala Lumpur over PEKAN (PK).

Hong Kong – Jakarta – Hong Kong

4.2.20 As a result of the revised South China Sea route structure, airlines operating on this route segment are suffering severe operational penalties with regard to excessive flight times. On a round trip between the two locations additional penalty is approximately 30 minutes. This was not only a cost in fuel but also causes additional costs in maintenance on the aircraft as well as affecting flight crew limitations.

4.2.21 Considerable time was spent in looking at various options to accommodate a more direct route between these locations. The possible impact, such as disruptions to traffic flying on other South China Sea routes associated with flight safety were also considered. Singapore was of the view that the most viable option was as follows:

a) Hong Kong - Jakarta route:
L642-ENBOK-MONBO-N892-MELAS-LUSMO-G220

b) Jakarta - Hong Kong route:
G220-LUSMO-L625-ARESI-DULOP-M771

4.2.22 Compared to the current routings, the savings in terms of distance under this option would be as follows:

a) Hong Kong - Jakarta: 91 NM

b) Jakarta - Hong Kong: 84 NM

4.2.23 The SEACG/10 agreed that affected States would look into whether the proposed route could be implemented in their respective FIRs. IATA was asked to work with these States to arrive at a viable solution.

Brunei – Middle East/Europe – Brunei

4.2.24 A request from Brunei Darussalam on behalf of Royal Brunei Airlines to shorten the route from Brunei Darussalam to Phuket for their flights to/from the Middle East and Europe was proposed.

4.2.25 The new route for aircraft flying from Brunei Darussalam to the Middle East/Europe was an increase of 110 NM one way and a time penalty of 16 minutes with approximately 700 kg excess fuel over the route previously flown.

4.2.26 Various options to overcome the additional distance being flown by these aircraft were discussed. Brunei Darussalam advised that they would have further discussions with Royal Brunei Airlines and advises States, ICAO and IATA on the outcomes. IATA advised that they would pursue this matter on behalf of Royal Brunei Airlines; however, the Sub-Group was advised that Royal Brunei Airlines would not pursue this matter for the time being.

Alternative routing into Kuala Lumpur from the South China Sea

4.2.27 Due to the congestion over PEKAN (PK) of inbound and outbound aircraft to/from Kuala Lumpur, Malaysia proposed an alternative route for arriving aircraft from Hong Kong to Kuala Lumpur. Although this proposal would reduce congestion over PK, IATA suggested that a more direct routing via a parallel route to the present PK-VKL route should also be considered.

4.2.28 It was agreed that the new parallel route proposal proceed which would relieve the problems in the PK area. Malaysia and Singapore would coordinate arrangements to introduce this parallel route scheme into/out of Kuala Lumpur. It was suggested that this small section could be either in the form of a Standard Instrument Arrival procedure (STAR) or designated a domestic ATS route by Malaysia.

Proposed changes to RNAV routes N892 and L625

4.2.29 During discussions on weather deviation procedures mentioned above, especially with regard to large deviations by aircraft in the typhoon season, it was suggested that consideration should be given to straightening both N892 and L625 so that they would be direct lines between MABLI and Hengchun on N892 and between LUSMO and MEVIN on L625. This would allow an

increase in the distance between the routes and give more flexibility to ATC in coping with weather deviations.

4.2.30 As this would require an in-depth look into the present route structure, SEACG/10 decided to hold over this suggestion to a later appropriate date.

Flight Planning Procedures

4.2.31 The current repetitive flight plan (RPL) format does not provide for a field where information regarding RNP10 and RVSM capability may be inserted. Obtaining such essential information from individual aircraft increases controller workload.

4.2.32 It was noted that if an aircraft scheduled to fly under RPL suffers a degradation in the aircraft's system resulting in the aircraft's inability to comply with RNP10 and/or RVSM requirements, the RPL shall be replaced with a FPL.

4.2.33 In this connection, *Procedures for Air Navigation Services-Rules of the Air and Air Traffic Services* (PANS-RAC, Doc 4444) addresses relevant procedures in Appendix 2-Flight Plan, Section 7-Instructions for the completion of RPL listing form, Item Q, which states:

> "*INSERT* items of information as required by the appropriate ATS authority, items normally notified in Item 18 of the ICAO flight plan and any other information pertinent to the flight of concern to ATS."

Implementation of RVSM in the Western Pacific/South China Sea Area

4.2.34 This subject is detailed in the RVSM section mentioned in another part of this report.

Implementation of Radar Handover Procedures

4.2.35 States within South East Asia have been making significant efforts to develop safe and efficient air traffic control systems on a sub-regional basis in order to meet the ever-increasing demand of air transportation in the region.

4.2.36 As part of ATC modernization system upgrade, many States have installed new radars or plan to do so. Consequently, a major part of South East Asia airspace is now covered by radar, except for the middle section of the South China Sea.

4.2.37 The *Procedures for Air Navigation Services-Air Traffic Management* (PANS-ATM, Doc 4444) states that States should, to the extent possible, facilitate the sharing of radar information in order to extend and improve radar coverage in adjacent control areas (paragraph 8.1.5) and that States should, on the basis of regional air navigation agreements, provide for the automated exchange of co-ordination data relevant to aircraft being provided with radar services, and establish automated coordination procedures (paragraph 8.1.6) in Chapter 8, Radar Services.

4.2.38 PANS-ATM states that transfer of radar control should be effected whenever practicable so as to enable the uninterrupted provision of radar service (paragraph 8.7.5.1).

4.2.39 Transfer of radar control, in other words radar handover, is commonly in use not only between adjacent ATC units in the same State but also between adjacent States even where different radar systems are used. This procedure enables air traffic controllers to provide continuous service for aircraft and to apply further reduced longitudinal separation when agreed on through Letters of

Agreement between the ATC units concerned. This leads to better utilization of airspace and enhancement of efficiency of ATC operations in a cost-effective manner.

4.2.40 Procedures relevant to transfer of radar identification, transfer of radar control, and phraseologies for ATS coordination of radar hand-over are found at sections 8.6.3, 8.7.5, and 12.3.5 respectively in PANS-ATM.

4.2.41 Areas were identified where States could apply radar hand-over procedures at a common FIR boundary. An action plan was developed to implement radar handover procedures where this is currently not applied.

Dissemination of Aeronautical Information

4.2.42 Considerable discussion took place on the importance of accurate and timely notification of changes to AIS information. current aircraft navigation systems and automated ATM systems are driven by databases, which are dependent on accurate information. Consequently, corrupt or erroneous information can have an adverse affect on flight safety. Similarly, if accurate changes are not received in sufficient time, then databases cannot be upgraded and airlines and ATS Providers could find themselves using inconsistent and/or out of date data.

4.2.43 Charting agencies can also face serious difficulties in compiling all the data between States to produce databases and charts in sufficient time to the aviation industry if there are inconsistencies of information produced by States.

4.2.44 In reviewing the “Lessons learned” from recent major regional changes involving several States, the importance of timely, accurate and integrated dissemination of changes to aeronautical information cannot be over-emphasized. It was recognized that late delivery of essential aeronautical information, and in some instances, publication of inaccurate data, could compromise the safe implementation of major changes to the air traffic service system.

4.2.45 In planning changes to the ATS and/or Airways system, States were urged to review their internal and regional processes to ensure that accurate changes to aeronautical information are disseminated in sufficient time to allow AIP data to be processed prior to the effective date.

4.2.46 Due to certain actions which have taken place after 11 September 2001, there is a risk that normal mailing procedures may have excessive delays in mail sorting houses. This could jeopardize AIS information reaching charting companies in sufficient time to do their work, print and distribute to their customers by the appropriate date prior to the implementation date. States were therefore encouraged to use the benefits of email where available, to send an advanced copy of the AIS documentation so that the work required by the charting companies can commence and then cross-checked when the official documents arrive.

4.2.47 Current ICAO documentation specifies that Regional AIS changes involving more than one State or FIR, which is considered as a significant change, should be disseminated with the objective of reaching recipients 56 days in advance of the effective date. The SEACG/10 was reminded that the key words are “reaching the recipient 56 days in advance”, which means that it should be posted well in advance of the 56 day requirement. In the case of major regional and/or global changes, consideration should be given to extending this period of notification to more than 56 days.

COM Action Plan

4.2.48 The status of implementation of the COM Action Plan was reviewed. It was noted with appreciation that most of the COM action items were implemented in time established by SEACG.

Implementation of the new CNS/ATM systems in the Region

4.2.49 It was noted that the following CNS/ATM system elements were introduced for operational use in Hong Kong:

a) Digital-ATIS (D-ATIS) and Digital-VOLMET (D-VOLMET)
Since 19 April 2001 D-ATIS and D-VOLMET have become fully operational to disseminate airfield and weather information as well as routine meteorological broadcast via data link to aircraft.

b) Pre-Departure Clearance System (PDC)

4.2.50 It was further noted that the following trials/evaluations on CNS/ATM system elements were being currently conducted in Hong Kong:

a) ADS/CPDLC System

With this system, aircraft can transmit via data link their position reports on three ATS routes, i.e. P901, L642 and M771, to the south of Hong Kong which are mostly beyond radar coverage. The system enables the display of positional information of the aircraft to the controller and facilitates exchange of ATS control message. The arrangement can help alleviate radio congestion in the HF air-ground communications. Besides ATC operational data, the trials/evaluations included also the downlink of meteorological data on air temperature and wind velocity from the aircraft. Seven airlines with suitably equipped aircraft participated in the evaluations. Recently, the Hong Kong CAD system has been upgraded and expanded to cover full FANS-1/A capability so that B777 and Airbus aircraft will be able to participate in future evaluations in addition to the B747-400 aircraft.

b) AMHS/ATN Ground/Ground Routers and Gateway

In October 2000 Hong Kong began trials with Thailand, Japan and Australia telecommunication centers to evaluate the connectivity, interoperability and capability of the ATN Ground/Ground Routers and ATN Gateway Systems.

c) ATS Inter-facility Data Communications (AIDC)

Hong Kong and Guanzhou ATC units began trials in January 2002 on AIDC to enable transfer of control of aircraft through datalink.

4.2.51 The major activities planned for the next few years by Hong Kong China include:

a) Continue operational trials/evaluations on ADS/CPDLC with the FANS-1/A aircraft;

b) Perform ATN and AMHS operational trials to exchange live AFTN messages and/or other ATS messages;

c) Introduce Surface Movement Guidance and Control System (SMGCS) at the Hong Kong International Airport to provide (i) more positive and accurate surveillance of ground traffic on the airfield including taxiways, apron, runways, sea areas (as applicable in Hong Kong) for aircraft, vehicles and ships, and (ii) runway intrusion alert; and,

d) Carry out VHF Data Link evaluation to assess the exchange of air traffic control data with aircraft in air or on the ground to help alleviate radio congestion.

4.2.52 Hong Kong, China sought continued cooperation and support of all parties concerned in their effort to work with other ATC authorities regarding the feasibility of conducting joint trials/evaluations and/or sharing experience on CNS/ATM development and implementation.

New Air Traffic Control Center in Ho-Chi-Minh

4.2.53 Viet Nam advised that a feasibility study of Ho-Chi-Minh ATC system and a new building for ACC was completed. In support of ATM automation, ADS/CPDLC functions as well as AIDC will be integrated into the new system with radar data and flight plan data. The installation of equipment in the new building of Ho-Chi-Minh ATC center is scheduled to be completed before the end of 2004. From the year 2005, Ho-Chi-Minh ACC and Tan Son Nhat Approach Unit will be located in this new ATC center.

4.2.54 Together with the existing air-to-ground voice communication, VHF data link will be installed to support data communication. VSAT will be used for ground-to-ground voice communication and future ground-to-ground data communication.

Review Functions of SEACG

4.2.55 SEACG/10 reviewed the composition of the Group. Recognizing that the South East Asia area is situated in the centre of the major traffic flow *South-East Asia and China, Republic of Korea and Japan* (AR-9) listed in Chapters 6 and 10 of *the Asia/Pacific Regional Plan for the New CNS/ATM Systems,* it was considered beneficial if other States pertaining to AR-9 are involved in the future discussions of SEACG. To this end, ICAO was requested to take appropriate follow-up action.

4.2.56 In order to reflect the change to the Group's composition and geographical characters, the next meeting will give consideration to the need of changing the name of the Group.

4.2.57 With regard to work associated with CNS/ATM implementation in the South East Asia, many initiatives by States with regard to CNS/ATM had been reported and noted at SEACG meetings. It is critically important for the region to ensure a co-ordinated and harmonized implementation of CNS/ATM systems. However, the Group was of the view that planning aspects of CNS/ATM have already been covered by APANPIRG Sub-Groups; thus duplication of work should be avoided. In this regard, it was suggested that the Group should look at more specific operational aspects relating to CNS/ATM, such as application of ADS separation in the region. The current Agenda Item 4 "Implementation of the new CNS/ATM systems in the Region" may need to be changed to "Operational problems relating to CNS/ATM systems".

Special ATS Coordination Meeting-China, Mongolia, Russian Federation and IATA (CMRI)

4.2.58 Three meetings have been held by the group to date to study possibilities for further improvements in the alignment and use of cross-polar routes at their south ends was arranged by ICAO Asia/Pacific Office and held in Beijing, China, on 9-11 April 2002. The last meeting was held in Beijing, China on 9-11 April 2002. There had been significant progress in work by States concerned to increase the number of entry/exit points from Cross-Polar routes (CPR) into/out of China.

4.2.59 Nevertheless, the lack of a procedure to allow the airline to change to a different international route/entry point into China on the day of flight, does not allow the airline the option to effectively manage the critical elements of flight planning for these Cross-Polar operations. Therefore, airlines flying CPR flights today choose an entry point that allows the greatest number of cross-polar options into their single approved Chinese point of entry. The only intersection that allows transitions from all four cross-polar tracks, is INTEK on A575.

4.2.60 Until these flight-planning issues are resolved, the Cross-Polar Track System cannot realise its potential as a viable route system for long range non-stop service between Asia and North America. Unfortunately, many of the routes developed over TELOK, MORIT, or SIMLI could not be used because the operational and/or commercial risks are too high if only one of these points mentioned above were to be designated as the single point of entry into China. If 4-5 of these border-crossing points could be pre-approved by China then most flight plan requirements would be covered.

4.2.61 The ICAO secretariat suggested that an interim solution which would allow an airline up to three approved border crossings into China per scheduled flight should be considered. IATA advised that the solution offered by ICAO would greatly benefit flight operations and if combined with a favourable air transport agreement with China, Russia and Mongolia should transform the cross-polar tracks into a marketable track system with new city pair services between Asia and North America.

4.2.62 China advised that they would consider the ICAO interim proposal and report back to ICAO with its findings.

11th Meeting of the Russian/American Coordinating Group for Air Traffic Control (RACGAT) 12 – 15 November 2001, Moscow, Russian Federation

4.2.63 The meeting was attended by representatives of the SCAA of Russia, the United States FAA, the Civil Aviation Bureau of Japan, the Civil Aviation Authority of Mongolia, NAV CANADA, International Civil Aviation Organization (ICAO), International Air Transport Association (IATA), Russian State ATM Corporation, the Russian Main Air Traffic Flow Management Center (MATFMC), Russian meteorological services, Russian ATC Enterprises from Northern Siberian and Far East Regions of the Russian Federation, Anchorage ARTCC, FAA Alaskan Region, Cathay Pacific Airways, Japan Airlines, All Nippon Airways, U.S. Airlines (United, Northwest, Continental, UPS), the Russian air carriers (Aeroflot, KrasAir, Sibir Air, Transaero, Volga-Dnepr) and The Boeing Company.

Outstanding Action Items

R1-ATS-2 SCAA and JCAB will evaluate Kamchatka Four as a new route 100nm north of R220

4.2.64 Kamchatka Four alignment has been coordinated at the regional level and sent to the SCAA for validation. Several technical issues need to be resolved before bi-lateral negotiations between SCAA and the JCAB can address the Transfer-of-Control point between Yuzhno-Sakhalinsk and Sapporo ACCs. The Russian side will publish this route in Russian AIP before demonstration flights start.

4.2.65 After demonstration flights are conducted, an assessment of the VHF and HF communication capabilities will be completed. This action will be assigned to the AMC Sub-group for follow-up.

R3-ATS-5 To allow aircraft to transition between assigned altitudes (to/from meters-feet) on G-583 in Russian airspace where the aircraft is laterally separated from R-220

4.2.66 In order to implement the transfer of aircraft from meters to feet within Russian Federation airspace, a requirement of VHF coverage was identified. The AMC subgroup has undertaken an action to evaluate the feasibility of a VHF relay station covering the entry/exit point. If a station can be established, the operational issue can be addressed. This item will remain open.

R7-ATS-4 Ensure funding for the Kamchatka Volcano Eruption Response Team (KVERT)

4.2.67 Currently, the Russian State ATM Corporation continues to finance through KVERT activities. KVERT is beyond the regulatory scope of RACGAT. It's still necessary to identify a Russian-American entity that can be addressed with the issue of permanent financing of this group. US FAA is still coordinating a draft of a letter for this forum.

4.2.68 Discussions concerning the requirements for Volcanic Ash forecasting and eruption reporting are being addressed in the AMC sub-group. The item will remain open.

R9-ATS-1 Establish a general aviation VFR route between Nome, Alaska, to Providenya Bay in the Chukotka region.

4.2.69 The first segment of the VFR route, Nome, Alaska to Providenya Bay was established by NOTAM publication. An initial Letter of Agreement for this route was signed between Anadyr ACC and Nome FSS for advisory services. One demonstration flight was held in September 2001 and another is planned for summer 2002.

4.2.70 Several issues still need to be addressed, including a new LOA with Bay Provideniya ATC Tower, definition of uncontrolled airspace and updated VFR charts which should be ready by 15 May 2002. In addition, further coordination is required with the State ATM Cooperation and the SCAA.

4.2.71 Progress will be reported at RACGAT/12.

R10-ATS-1 New Transition Route from Polar 4 to B337 via UESO direct to BA (NDB) direct to ODORA. Altitudes requested are 9600 meters, 10,600 meters, and 11,600 meters

4.2.72 This new route alignment (named Polar 4D in the Cross Polar RFE Route Catalog) has been agreed upon at the regional level. The route will be published in the Russian AIP in 2002. SCAA will provide an update on this action at RACGAT/12 after which the item will be closed.

R10-ATS-2 To provide availability for FANS equipped aircraft to operate on A218 at 9600 meters west of Mys Schmidta

4.2.73 At RACGAT/11 this action item was further broken into two specific action items (R11-ATS-2 and R11-ATS-3) to investigating procedures for supporting flights on A218 between Magadan ACC and adjacent area control centers, using of 9600 meters. Because this item is entirely contained within those actions, this item is closed. Action Item Closed .

MR5-ATS-3 Assess the feasibility of Reduced Vertical Separation Minima (RVSM) within Oceanic Airspace Delegated to Russian Federation

4.2.74 SCAA reported on the implementation of RVSM in Kaliningrad ACC. RVSM trials are in progress in the southern portion of the Rostov FIR. SCAA advised that RVSM in the Arctic Oceanic areas is quite feasible, and it will alleviate traffic constraints and crossing issues. The fleet equipage is an issue for Russian aircraft, however they operate sparingly in the Arctic airspace.

4.2.75 The Russia State Air Traffic Management (ATM) Corporation will review the feasibility of RVSM transition in Murmansk and Magadan Arctic Oceanic Sectors and report progress at RACGAT/12. Both IATA and NAV CANADA endorsed the RVSM implementation in the Arctic Oceanic Airspace, which would help harmonize flight operations on Cross-polar routes.

4.2.76 US Co-Chair encouraged moving forward with Arctic Ocean RVSM. On 18 April 2002, Edmonton and Alaska implemented RVSM to the Russian boundary. This does not impact separation on the cross-polar routes but complicates the altitude conversion (meters/feet). He requested a side bar with Murmansk, Magadan and Edmonton ACC to discuss appropriate flight level assignment to address the conversion issue while maintaining conventional vertical separation at the common Anchorage/Magadan and Anchorage/Murmansk FIR boundary. This issue will be addressed in Action Item MR6-ATS-1.

R11-ATS-1 New Routes for Investigation in Regions

4.2.77 Several new route segments were proposed at various RACGAT meetings to enhance the flexibility of the flight planning process within the cross-polar and trans-east route system. Several of the routes mentioned below have been coordinated and are awaiting publication in the Russian AIP.

4.2.78 Route segments proposed by IATA at RACGAT/11:

A) LISKI – Pevek - Oymiakon – Chagda
B) N72°00 W168°58.4 – Pevek – Omolon – Takhtayamsk
C) N72°00 W168°58.4 – VIKBI
D) Chokurdah – Oymiakon – Okhotsk – Okha – LIKON – AKSUN
E) Okhotsk – Nikolaevsk-na-Amure

4.2.79 MR/6 agreed to develop a route catalog to develop and manage new proposed routes. IATA and Regional Enterprises will provide data in writing on the proposed new routes based on a form depicted in the catalog. This catalog will be updated at RACGAT and mini-RACGAT meetings. Action Item Closed.

R11-ATS-2 Expand Available Altitudes Between LISKI and Mys Schmidta to Include 9600 Meters

4.2.80 During discussion of Action Item R10-ATS-2 a request was made to consider the use of 9600 meters for all aircraft on A218 between LISKI and Mys Schmidta. Representatives from Chukotkaeronavigatsia, North East Air Navigation and Anchorage ARTCC coordinated technical details related to this request. Use of 9600 meters west of Mys Schmidta on A218 on flights of FANS equipped aircraft has been coordinated at the regional level awaiting publication in the Russian AIP. An update is expected at RACGAT/12.

R11-ATS-3 Evaluate Use of A218 West of Mys Schmidta by Non-FANS-Equipped Aircraft

4.2.81 North East Air Navigation reported that they and Chukotkaeronavigatsia have coordinated amendment to expand the range of flight levels from LISKI to Ballagannoye. The amendment was coordinated at regional level and forwarded to SCAA.

4.2.82 Operations on this route with the use of conventional ATC methods can be allowed after English language training at Omolon Aux. ACC and Keperveyem ACC.

4.2.83 A progress report on this item will be provided at RACGAT/12.

R11-ATS-4 Evaluate and propose possible ways of improving the NOTAM exchange in order to support the flights on Cross-polar and RFE routes.

4.2.84 A review of NOTAM propagation regarding Cross-polar and RFE routes was conducted and no substantial items were identified. Action Item closed.

6th Mini-Russian-American Coordinating Group for Air Traffic Control (RACGAT) Meeting, 20-23 May 2002

4.2.85 The Mini-RACGAT/6 meeting was held in St. Petersburg, Russia, on 22-25 April 2002. Mr. Yuri Averianov of the State Civil Aviation Authority of Russia (SCAA) and Mr. Steve Creamer of the Federal Aviation Administration (FAA) chaired the meeting.

4.2.86 The meeting was attended by representatives of the SCAA of Russia, the United States FAA, the Civil Aviation Bureau of Japan, the Civil Aviation Authority of Mongolia, NAV CANADA, International Civil Aviation Organization (ICAO), International Air Transport Association (IATA), Russian State ATM Corporation, Russian ATC Enterprises from North West, North East, Chukotka, Kamchatka, Northern Siberian and Far East Regions of the Russian Federation, , FAA Alaskan Region, Cathay Pacific Airways, Japan Airlines, U.S. Airlines (United, Northwest, Continental, Delta), and Jeppesen.

4.2.87 The Agreed Action Items as a result of the meeting are at Appendix B to the Report on Agenda Item 4.

17th Meeting of the Informal Pacific ATC Co-ordinating Group (IPACG/17) 15 - 19 April 2002, San Francisco, California, U.S.A.

4.2.88 Some notable items which were discussed at this meeting included:

50 NM ADS Longitudinal Separation Minimum in the NOPAC and CENPAC

4.2.89 JCAB briefed on the implementation of 50 NM automatic dependent surveillance (ADS) longitudinal separation minimum in the North Pacific (NOPAC) and Central Pacific (CENPAC) airspace. JCAB advised that the Oceanic ATC Data Processing System (ODP-3) required a software upgrade and system evaluation prior to a phased implementation of 50 NM longitudinal separation minimum. The initial plan is to replace controller-pilot data link communications (CPDLC) waypoint reporting with ADS waypoint reporting. The application of 50 NM longitudinal separation minimum for step climbing and descending aircraft will be introduced in 2003 within Tokyo oceanic airspace. JCAB intends to implement the 50 NM longitudinal separation minimum using ADS for aircraft at cruise when MTSAT-1R becomes operational in 2004.

Operational Trials Track 14/15

4.2.90 Japan Air Traffic Flow Management Center (ATFMC) and Oakland ARTCC agreed that Tracks 14 and 15 be established as permanent PACOTS tracks and that all Letters of Agreement (LOA) should be amended to reflect this change.

Implementation of RNP10 in the Japan/Hawaii PACOTS

4.2.91 JCAB presented a working paper describing a plan for the implementation of RNP10 in the Japan/Hawaii PACOTS. The implementation plan proposed that Tokyo ACC and Oakland ARTCC could begin generating tracks on the Japan/Hawaii PACOTS with at least 50 NM separation on 3 October 2002. The tracks would be expanded to a minimum of 2 degrees 100 NM track spacing if convective weather was forecasted.

4.2.92 The U.S. Air Force requested an exception for State aircraft if the airspace where RNP10 will be implemented becomes exclusionary. The U.S. Air Force further requested that the process not be one of negotiation but rather one of open flight planning. Oakland ARTCC stated that they would be resistant to a mixed RNP10 environment. IFATCA also opposed a mixed environment due to increased ATC workload and proposed that the spacing between the tracks be based on a target level of safety.

Enhancement of airspace capacity between Hong Kong, Tokyo and beyond to North America.

4.2.93 IATA requested the group's consideration for additional ways to enhance airspace capacity for aircraft departing from Hong Kong and Taipei entering Naha and Tokyo ACC's airspace bound for North American destinations. JCAB agreed to consider the possibility of reducing the 15-minute requirement and will study the parallel route issue and present their progress at the next meeting.

Expansion of Russian Routes

4.2.94 ICAO Asia Pacific Office briefed the group on selected issues discussed at the eleventh meeting of the Russian American Coordinating Group on Air Traffic (RACGAT/11) that may be of interest to IPACG participants. ICAO also informed the group on the progress made at the last China/Mongolia/Russia/IATA (CMRI) working group meeting.

4.2.95 Various issues were discussed at the Fans Interoperability Team (FIT) Meeting. These included:

a) Uplinks with Multiple Message Elements;
b) North and Central Pacific Operations Manual;
c) Status of New JCAB CRA and CRASA;
d) Problem Report Summary;
e) CPDLC Auto Transfer;
f) Statistical Analysis on CPDLC Message Type;
g) Statistical Analysis on CPDLC Response Time to ATC Clearances;
h) CPDLC Altitude Reports; and,
i) ADS Emergency

Proposed Seminar on Datalink Operations

4.2.96 JCAB proposed that it would be beneficial for the operators and providers if a seminar on datalink operation were held. IATA strongly supported the proposal and suggested that the NCPOM should be used for such a seminar. The meeting accepted JCAB's offer to host a 2-day seminar in Tokyo prior to the FIT/6 meeting. The seminar will emphasize training for flight crews and States' regulatory agencies to improve datalink operations.

16th Meeting of the Informal South Pacific ATS Coordinating Group (ISPACG)

4.2.97 The sixteenth meeting of the Informal South Pacific ATS Coordinating Group (ISPACG) was hosted by Le Service d'État de l'aviation Civile en Polynesie Française (SEAC) and held at the Beachcomber Intercontinental Hotel, Papeete, French Polynesia, from 11-15 February 2002.

4.2.98 Accomplishments of the meeting

a) Agreed to a trial in which RNP-10 would be required on PACOTS Tracks 20, 21, W and X

b) Agreed to include a standard clause on data management in the letters of agreement

c) Reviewed the lost communication procedures and identified differences for resolution

d) Reviewed existing contingency plans and agreed that they are adequate

e) Satisfactorily resolved concerns from airlines regarding reductions in distance-based longitudinal separation though application of the time-based "Rule of 11's"

f) Development of a capacity enhancement/action table for use by ISPACG to track the progress toward implementation of operational benefits to airspace users. This table is included as part of the report and is to be reviewed and updated for the next meeting as on ongoing agenda item

4.2.99 Venue and dates for the next meeting were discussed and Airways Corporation of New Zealand (Airways) offered to host ISPACG/17 in New Zealand in February 2003.

4.3 **Proposal to amend ICAO Doc7030 to enable use of 30NM ADS separation minima**

4.3.1 The meeting was presented with a proposed amendment to Regional Supplementary Procedures ICAO Doc 7030 in relation to the use of 30NM ADS separation minima within the Pacific region.

4.3.2 The meeting noted that the proposal had undergone a rigorous review by ISPACG and IPACG and that it was supported by a Collision Risk Model that had been developed by Australia and submitted to the ICAO Separation and Airspace Safety Panel (SASP).

4.3.3 Australia was requested to forward this proposal to ICAO formally so that the Secretariat would undertake appropriate follow-up actions.

4.4 **Frequency Assignment for TIBA and IFBP**

4.4.1 The meeting was reminded that there had been two regional contingency plans recently activated, the Y2K and the CRAME plan, that included the use of Traffic Information Broadcast by Aircraft (TIBA). TIBA requires the use of a dedicated VHF frequency, which if used in more than one FIR, should be adopted by regional agreement. It was most fortunate during the Y2K contingency planning that an Amendment to Annex 10 replaced the air-air procedures in the Regional Supplementary Procedures (128.95 MHz for ASPAC) with a global protected frequency of 123.45 MHz. This procedure went into effect on 4 November 1999, which in turn conveniently released the regionally protected frequency of 128.95 MHz as the obvious choice for the Y2K TIBA frequency. When procedures were developed for CRAME, 128.95 MHz was once again used as the TIBA frequency for the Asia Pacific Region. If 128.95 had not been immediately available as a protected frequency, then valuable time would have been wasted in trying to obtain a secure frequency for contingency preparation.

4.4.2 The meeting was also briefed that there are two forms of broadcast procedures available, the ICAO TIBA and the IATA In-flight Broadcast Procedure (IFBP). The ICAO TIBA procedure is used when States promulgate the broadcast procedure. However, in airspace where an existing or sudden condition requires implementation of an in-flight broadcast procedure, and TIBA has not been promulgated for the affected airspace, the IATA IFBP will be considered implemented, and if implemented, will be promulgated by IATA. Either procedure requires a protected VHF frequency.

4.4.3 A regionally agreed protected frequency for in-flight broadcasting does not exist for the Asia/Pacific Region. Without such a regional agreement it is only a matter of time before an ATS State Provider will legitimately start using 128.95 MHz for their provision of air traffic services. Recent events have shown the need for the Asia/Pacific Region to be ready with a protected frequency for contingency use. For contingency planning that may require the use of IFBP, IATA suggested that the same frequency that is regionally protected for TIBA could also be used for IFBP. This means that pilots in the Asia/Pacific Region would use the same frequency for contingency in-flight broadcasts, whether promulgated by State or IATA.

4.4.4 The meeting agreed to the following Draft Conclusions to be presented to APANPIRG/13:

Draft Conclusion 12/3 – Adoption of a regionally protected frequency for Traffic Information Broadcasts by Aircraft (TIBA)

That,

a) A designated VHF radio telephony (RTF) frequency of 128.95 MHz be promulgated in the Regional Supplementary Procedures (Doc 7030) for the Asia/Pacific Region for the use of Traffic Information Broadcasts by Aircraft to permit reports and relevant supplementary information of an advisory nature to be transmitted by pilots; and

b) All States in the Asia/Pacific Region are requested to include the frequency of 128.95 for the use of TIBA in their contingency plans.

4.5 **Contingency Planning in the High Seas**

4.5.1 IATA presented the meeting with a working paper that gave two recent examples that impacted air traffic services over the high seas. In one case the high seas airspace was closed to all flights. In the other case the ATS Provider indicated that, as a result of an industrial action, the airspace over the high seas airspace may be designated as a restricted area. IATA indicated that there was a need to review these recent events and to agree on future contingency procedures that are agreeable to the States, ICAO and the civil airspace users.

4.5.2 The meeting was advised that while the closing of airspace was a State's decision in their sovereign airspace, the shutting down of air space over the high seas is a breach to the Convention on International Civil Aviation. The meeting was reminded that airspace over the high seas is not sovereign but is international airspace that is delegated to States, by a regional air navigation agreement, for the provision of air traffic services with the stipulation that those services must be in accordance to the provisions of ICAO.

4.5.3 The ICAO **Annex 11-Air Traffic Services** specifies (chapter 2, section 2.1) how airspace is to be delegated over the high seas, including the matter of delegating the responsibility of the provision of ATS to other States.

> *Those portions of the airspace over the high seas* or in airspace of undetermined sovereignty where air traffic services will be provided *shall be determined on the basis of regional air navigation agreements. A Contracting State having accepted the responsibility to provide air traffic services in such portions of airspace shall thereafter arrange for the services to be established and provided in accordance with the provisions of this Annex.*

4.5.4 This is further explained in the FOREWARD of **Annex 11-Air Traffic Services.**

> The Standards and Recommended Practices in Annex 11 apply in those parts of the airspace under the jurisdiction of a Contracting State wherein air traffic services are provided and also *wherever a Contracting State accepts the responsibility of providing air traffic services over the high seas* or in airspace of undetermined sovereignty.

4.5.5 **Article 12** of the Chicago Convention on International Civil Aviation addresses rules of the air that must be applied over the high seas.

Rules of the air

4.5.6 Each contracting State undertakes to adopt measures to insure that every aircraft flying over or maneuvering within its territory and that every aircraft carrying its nationality mark, wherever such aircraft may be, shall comply with the rules and regulations relating to the flight and maneuver of aircraft there in force. Each contracting State undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention. *Over the high seas, the rules in force shall be those established under this Convention.* Each contracting State undertakes to insure the prosecution of all persons violating the regulations applicable.

4.5.7 The definition of territorial waters, high seas and their relationship to the overlying airspace was defined at the **1982 United Nations Convention on the Law of the Sea**. **Article 2** of the 1982 Law of the Sea Convention recognizes that "*the sovereignty of a coastal state extends beyond its land territory to an adjacent belt of sea, described as the territorial sea. This sovereignty extends to the airspace over the territorial sea as well as to its bed and subsoil*". **Article 3** sets the limit of territorial waters at 12 miles. Thus, "*every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines*".

4.5.8 As far as declaring Restricted Areas over the High Seas, the Chicago Convention states that contracting States can establish "prohibited areas" above their land areas or territorial waters only in accordance with **Article 9** of the Convention.

Prohibited areas

(a) Each contracting State may, for reasons of military necessity or public safety, restrict or prohibit uniformly the aircraft of other States from flying over certain areas *of its territory*, provided that no distinction in this respect is made between the aircraft of the State whose territory is involved, engaged in international scheduled airline services, and the aircraft of the other contracting States likewise engaged. *Such prohibited areas shall be of reasonable extent and location so as not to interfere unnecessarily with air navigation*. Descriptions of such prohibited areas *in the territory of a contracting State*, as well as any subsequent alterations therein, shall be communicated as soon as possible to the other contracting States and to the International Civil Aviation Organization.

(b) *Each contracting State reserves also the right, in exceptional circumstances or during a period of emergency, or in the interest of public safety, and with immediate effect, temporarily to restrict or prohibit flying over the whole or any part of its territory*, on condition that such restriction or prohibition shall be applicable without distinction of nationality to aircraft of all other States.

(c) Each contracting State, under such regulations as it may prescribe, may require any aircraft entering the areas contemplated in subparagraphs *(*a) or *(*b) above to effect a landing as soon as practicable thereafter at some designated airport within its territory.

4.5.9 Detailed definitions of "Danger area", "Prohibited area" and "Restricted area" are found in Chapter 1 of **Annex 2-Rules of the Air** as below.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Prohibited area. An airspace of defined dimensions, *above the land areas or territorial waters of a State*, within which the flight of aircraft is prohibited.

Restricted area. An airspace of defined dimensions, *above the land areas or territorial waters of a State*, within which the flight of aircraft is restricted in accordance with certain specified conditions.

4.5.10 The meeting agreed that in the case of airspace over the high seas, if a State Provider were to encounter an accident or incident that adversely affects their ability to provide air traffic services, it is important that:

a) proper notification is given to ICAO, involved States and the airspace users,

b) a contingency plan is in place where at minimum, flight information services are available to the airspace user,

c) the airspace over the high seas remains open to all civil flights. If a State closes its sovereign airspace then the high seas airspace must remain open for flights that do not impact the sovereign airspace of the affected State, and

d) if the State ATS Provider does not have a contingency plan that will at the minimum provide flight information services, then ICAO should be requested to ask an adjacent State to temporarily take over the affected international airspace with, as a minimum, the provision of flight information services.

4.5.11 The meeting was reminded that flight information service is not air traffic control. However, flight information service coupled with traffic information broadcasts by pilots can play a role in contingency planning and supplementing collision hazard information that may or may not be provided by the contingency air traffic service. In these cases the airspace should be temporarily reclassified by NOTAM as either Class F or G airspace, which legally places the responsibility of separation upon the pilot-in-command and not with the State ATS Provider.

4.5.12 The meeting agreed to the following Draft Conclusion to be presented to APANPIRG/13:

Draft Conclusion 12/4 – Contingency Planning

That, States review, amend or develop contingency plans that will:

a) Provide safe and orderly flow of international air traffic in the event of disruptions of air traffic services and related supporting services,

b) preserve the availability of major world air routes within the air transportation system, and

c) ensure continuous access to airspace for international civil flights over the high seas.

4.6 **Development of State Contingency Plans**

4.6.1 The meeting recalled that APANPIRG/10 discussed the option of developing a model Regional and State plan that could be used for other contingencies which may have an adverse effect on aviation within and through the region. Consequently, APANPIRG/10 formulated the following Conclusion:

Conclusion 10/37 – Development of general contingency plans

That, the Asia/Pacific Regional and State Y2K Contingency Plans and SLOA's or MOUs be used to form the basis on which to develop general contingency arrangements which will permit the continuation of air traffic in the event of any significant degradation of air traffic services and systems.

4.6.2 The meeting was presented with a framework which had been developed by one State which laid out the steps in the development of a State Contingency Plan. This framework is at Appendix C to the Report on Agenda Item 4.

4.6.3 The meeting was urged to use this document in the development of State Contingency Plans where this had not already been completed.

4.7 **Report of the ninth meeting of the APANPIRG CNS/ATM Implementation Coordination Sub-Group (CNS/ATM/IC/SG/9)**

4.7.1 The meeting was provided with a report of the Ninth Meeting of the APANPIRG CNS/ATM Implementation Coordination Sub-Group (CNS/ATM/IC/SG/9) meeting which was held in Bangkok, Thailand 11 – 15 March 2002.

4.7.2 APANPIRG/12 had reviewed the CNS/ATM/IC Sub-Group's Terms of Reference to include business case studies, environmental issues and the development of a framework for regional training. APANPIRG/12 had also rescheduled the CNS/ATM/IC Sub-Group meeting to take place prior to the respective meetings of the ATS/AIS/SAR and CNS/MET Sub-Groups.

4.7.3 The CNS/ATM/IC/SG/9 meeting considered a number of important issues and tasks, including a review and update of the Asia/Pacific Regional Plan for the New CNS/ATM Systems (Draft Issue 6), as well as the development of guidance material in the related areas. The meeting also completed a review of the CNS/ATM implementation matrix. In addition, the meeting considered several specific issues relevant to the work of the ATS/AIS/SAR Sub-Group, which are detailed below.

Develop and propose to APANPIRG an appropriate future work programme

4.7.4 The meeting studied the CNS/ATM/IC/SG work program where responsibilities had been assigned to the ATS/AIS/SAR/SG for consideration and amendment. The following programs were deemed to be ongoing:

a) RVSM implementation task force
b) SCS Task Force
c) RACGAT
d) CMRI (including ITASPS)
e) IPACG
f) ISPACG

g) Long Term Monitoring Performance Working Group (ongoing on a global basis);
h) EMARSSH Task Force
i) CNS/ATM Guidance Material Task Force

4.7.5 The meeting also noted that the following groups had either been suspended or dissolved:

a) Bay of Bengal Task Force
b) AIS Automation Task Force
c) AIDC Interface Control Task Force (ICD)
d) SSR Code Assignment Working Group
e) SSR Code Management Task Force

Key priorities for CNS/ATM implementation in the Asia/Pacific Region

4.7.6 The ATS/AIS/SAR Sub-Group has been assigned responsibility for several elements from the list of key priorities for implementation of CNS/ATM in the Asia and Pacific regions.

4.7.7 In consideration of Key Priorities for CNS/ATM Implementation in the Asia/Pacific Region, the ATS/AIS/SAR/SG/12 meeting noted that in some parts of the region, work had progressed to an advanced stage in relation to these items and that this was due in large part to bilateral or multilateral State initiatives. It was also noted that the same level of implementation had not been achieved in other parts of the region, even though individual States had advanced implementation of certain elements of CNS/ATM.

4.7.8 In view of the above, the meeting was of the opinion that there was a need for overall coordination within those parts of the region that were currently not harmonized with the needs of the user and the plans of adjoining States and that the implementation effort in these areas needed to be re-vitalized.

4.7.9 Accordingly, ATS/AIS/SAR/SG/12 appointed a Working Group to consider how best to progress the implementation of key priorities for CNS/ATM within the Region. The Working Group was comprised of representatives from Australia, Hong Kong China, India, Japan, New Zealand, Singapore, the United States of America and IATA. Mr. Ron Rigney from the ICAO Secretariat chaired the meeting.

4.7.10 The Working Group reported back to the ATS/AIS/SAR/SG/12 meeting, with the following findings:

1. The implementation effort for CNS/ATM needed to be re-vitalized and that the most expeditious means to achieve this goal would be to use either existing sub-regional groups where possible, or form new groups.

2. The specialist groups such as those used in the South China Sea and Bay of Bengal were very good forums in which to further develop the priorities for CNS/ATM. These sub-regional groups had established excellent lines of communication and cooperation, which had resulted in significant outcomes.

3. The Working Group undertook a review of the sub-regional groups, which had been established within the Asia/Pacific Region. These included:

a) Bay of Bengal

i. FANS Action Team –Bay of Bengal (FAT-BOB)
ii. Bay of Bengal ATS Coordination Group
iii. South West Asia ATS Coordination Group

b) Western Pacific/South China Sea

i. South East Asia ATS Coordination Group (SEACG)
ii. South China Sea Restructured Route Implementation Task Force (SCS TF)

c) South/Central/North Pacific

i. Informal South Pacific ATS Coordinating Group (ISPACG)
ii. Informal Pacific ATS Coordinating Group (IPACG)

d) Australasia

i. Informal South Pacific ATS Coordinating Group (ISPACG)

e) Cross-Polar routes

i. Russian-American Co-ordination Group for Air Traffic Control (RACGAT)
ii. China, Mongolia, Russian Federation, IATA (CMRI)

4. In completing its review of these sub-regional groups, the Working Group noted the following observations in relation to State participation:

a) South East Asia ATS Coordination Group (SEACG)

i. SEACG/10 recommended that Japan and Korea be included in the group; and,
ii. Australia was not an active participant
iii. Mongolia is not a participant.

b) Bay of Bengal ATS Coordination Group (BBACG)

i. FANS Action Team – Bay of Bengal (FAT-BOB) has been inactive since 2001.

c) South West Asia ATS Coordination Group (SWACG)

i. Inactive since 1997

5. The Working Group also noted that the following areas did not appear to have any specific CNS/ATM related action groups:

a) Western Pacific/South China Sea; and,

b) Cross Polar region.

6. Accordingly, the Working Group was of the opinion that the most effective way to progress CNS/ATM implementation in areas where it was not currently being implemented on a coordinated basis, was to either:

   a) form new appropriately targeted groups; or

   b) re-energize appropriate existing groups.

7. As a consequence of the above, the Working Group concluded that:

   a) ICAO should establish a CNS/ATM Implementation Action Group for the Western Pacific/South China Sea; and

   b) ICAO should re-energize the FANS Action Team – Bay of Bengal (FAT-BOB).

8. Furthermore, the Working Group was of the opinion that these groups and any others subsequently formed (e.g. Cross-Polar routes and interface between Asia and Middle East), should operate to the following broad Terms of Reference:

   a) To identify elements of the key CNS/ATM priorities which have not been implemented on a coordinated basis;

   b) To consider the implementation of these elements, on a prioritized basis, taking into account user operational requirements, cost-benefit and environmental concerns; and

   c) To develop action plans for the implementation as appropriate on a collaborative basis.

9. The Working Group also recommended to the ATS/AIS/SAR/SG/12 meeting that a Steering Committee be established to coordinate the activities of the CNS/ATM implementation action groups. The Working Group envisaged that the Steering Committee would meet coincidentally with the ATS/AIS/SAR Sub-Group meeting to review reports of these sub-regional groups in relation to CNS/ATM implementation matters and report to each meeting of the ATS/AIS/SAR Sub-Group.

4.7.11 The ATS/AIS/SAR/SG/12 meeting considered the report from Working Group and noted that implementation of the recommended course of action would most likely impact on the ICAO Regional Office in terms of workload and resources. However, the meeting was of the view that there were significant economic, environmental and operating benefits to be realized from a coordinated approach to the implementation of CNS/ATM in the Asia and Pacific region and that the course of action presented by the Working Group presented a practical and expeditious way forward.

4.7.12 In view of the foregoing, the meeting formulated the following Draft Conclusion:

Draft Conclusion 12/5 – Key Priorities for CNS/ATM Implementation

That, in order to facilitate the implementation of the Key Priorities for CNS/ATM in the Asia/Pacific Region, ICAO is requested to:

a) re-convene the FANS Action Team for the Bay of Bengal (FAT-BOB), and form a similar group for the Western Pacific/South China Sea; and,

b) adopt the broad terms of reference for these groups as follows:

i. identify elements of the key CNS/ATM priorities which have not been implemented on a coordinated basis;

ii. consider the implementation of these elements, on a prioritized basis, taking into account user operational requirements, cost-benefit and environmental concerns; and,

iii. develop action plans for CNS/ATM implementation as appropriate on a collaborative basis.

4.8 Automatic Dependent Surveillance (ADS) applications

4.8.1 The meeting considered the various Automatic Dependent Surveillance (ADS) applications either currently in use, or under evaluation within the Asia/Pacific region.

4.8.2 To differentiate between the two main applications, ADS applications can sometimes be designated as either ADS Broadcast (ADS-B), or ADS Contract (ADS-C).

4.8.3 The meeting noted several activities involving ADS-B applications within Australia, Mongolia and the United States. The meeting was presented with a paper on the Australian ADS-B trial and noted the significant interest in the ability to obtain surveillance information from ADS-B at a much lower cost than with a conventional SSR station.

4.8.4 It was noted that ICAO has formalized two ADS-B data links with SARPs in Annex 10 (Mode S Extended Squitter and VDL mode 4), and that there is also a proposal to standardize a third data link, known as the Universal Access Transceiver (UAT), however the meeting noted that these three data links are not inter-operable.

4.8.5 Australia also presented a separate paper on the operational use of ADS-C within The Australian Advanced Air Traffic System (TAAATS). The meeting noted the specific information provided in relation to periodic reports, event reports, ADS contracts and operational usage within Australia.

4.9 ATS Inter-Facility Data Coordination (AIDC) messaging

4.9.1 The meeting noted that Australia and New Zealand had been exchanging AIDC messaging for the past two years, and that this had seen a reduction in the number of ATS voice coordination exchanges. The meeting was also advised that AIDC testing is currently being conducted between Brisbane and Nadi Centres.

4.9.2 The next phase in the development of AIDC messaging between Australia and New Zealand, was the progression to a “CDN Trial”, which would enable the negotiation of changes after coordination has been completed.

4.10 **Advanced Technologies and Oceanic Procedures (ATOP)**

4.10.1 The United States provided the meeting with an update on the Advanced Technologies and Oceanic Procedures (ATOP) program. The ATOP program is a singe, integrated oceanic system with common procedures, training, and support scheduled for the three Air Route Traffic Control Centers (ARTCC) that manage the United States oceanic airspace in Oakland, New York and Anchorage.

4.10.2 System and operational suitability testing is scheduled for July – November 2002 and the first major ATOP deployment is on schedule for Oakland Center in April 2003. Deployment of ATOP at New York Center is scheduled for December 2003 followed by Anchorage Center in April 2004.

4.11 **Afghanistan Update**

4.11.1 The meeting was given a background brief as to the reason for ICAO's involvement in airspace issues in Afghanistan. As a result of the tragic events which took place in New York, USA on 11 September 2001, Coalition Forces commenced a military campaign in Afghanistan which resulted in the closure of Afghanistan airspace to civil aircraft on 19 October 2001.

4.11.2 Due to these military air operations in Afghanistan, Pakistan closed a majority of its airspace which also seriously affected international operations wishing to use alternative routing to from Southern and Southeast Asia to Europe. A contingency routing scheme, Asia, Middle East, Europe was developed which took into account the various options which may have taken place if conditions worsened.

4.11.3 After nearly four months of military operations in Afghanistan, the Coalition Forces, after careful consideration, decided to allow restricted operations to particular civil aircraft to operate into and out of certain Afghan airports. They also gave permission to international civil operators to transit the Kabul FIR using designated ATS routes and flight levels. A NOTAM advising of this decision was issued. For transiting international aircraft, V888, V838 and A466 was available from FL310 to FL390 inclusive. Subsequently G876 and V500 FL270-FL290 was also opened.

4.11.4 Although this gave some relief to the international airlines there were some shortcomings in this initiative. The route design and available levels for the area allocated did not give optimum use as follows:

a) V838 and V888 needed to be treated as one route for separation purposes due to the convergence of angle to approximately 30NM at the Kabul/Ashkhabad FIR boundary;

b) due to aircraft weight and operating performance, the only guaranteed level for use by many of the aircraft flying to Europe was FL310. Some aircraft could reach FL350 and most aircraft were unable to reach FL390 before entering Afghanistan airspace;

c) V500 and V876 were not the most suitable ATS routes for most aircraft.

4.11.5 Additionally, NOTAMs promulgated regarding operations in Afghanistan were sometimes confusing and created problems for the airlines. Finally there were some close proximity reports with military aircraft. All of these factors caused several airlines to continue to avoid this airspace until some assurance was given for normal operations, commensurate with civil international procedures.

4.11.6 An ICAO meeting was arranged in Dubai on 9-10 May 2002 to discuss issues relating to civil operations within and transiting through Afghanistan airspace. Matters discussed at the meeting included the following:

a) Improvements in the AIS material;
b) Improvements in route structure for more efficient use, especially regarding transiting aircraft;
c) ATC problems in Afghanistan;
d) Contingency Air Traffic Management Plan (CATMP) for transiting aircraft;
e) A request for more efficient levels for transiting aircraft, preferably FL280/290

4.11.7 An Action Plan was developed to cover the issues of concern and members of the Coalition Forces who were present at the meeting advised that they would actively pursue the issues commensurate with their responsibilities in fulfilling their military requirements for the operation within Afghanistan.

4.11.8 A target date for implementation of the CATMP was agreed for AIRAC date 8 August 2002, subject to the Afghanistan Ministry of Civil Aviation and Tourism (MCAT) and military requirements. Work has already commenced in advising and obtaining approval for the realignment of V888 with Turkmenistan and Pakistan, which will allow simultaneous operations on both routes.

4.11.9 A draft NOTAM and an AIP SUPP for changes has been prepared and is awaiting publication and distribution once approval has been given by the Coalition Forces, Afghanistan MCAT and neighboring States involved.

4.11.10 The proposed changes to the route structure is at Appendix D to the Report on Agenda Item 4. A copy of the draft CATMP is at Appendix E to the Report on Agenda Item 4.

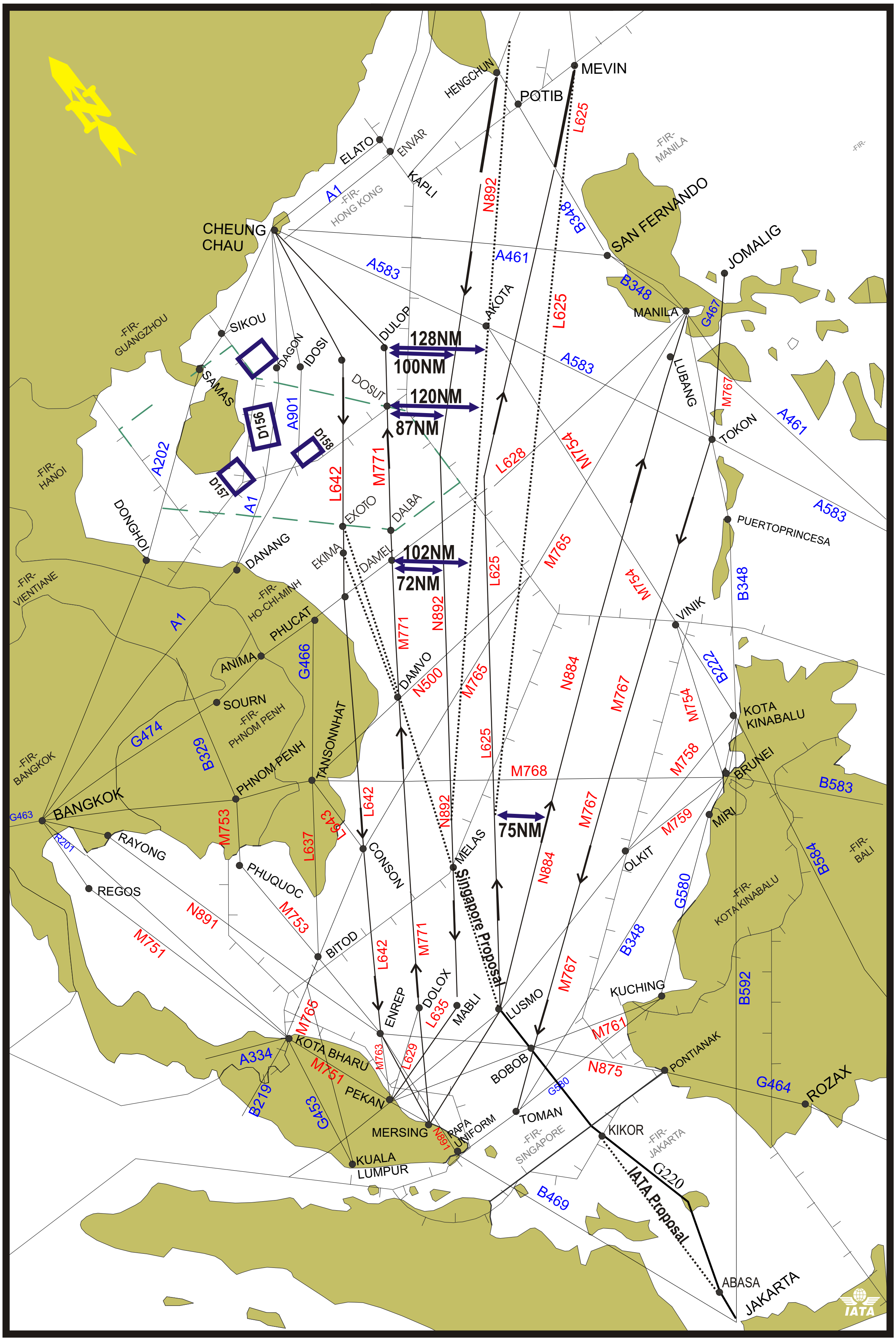
4.11.11 The meeting was advised that these are still uncertain times in this difficult area. The mix of military and civil aircraft requires constant attention and whereas there are plans to improve operations of civil aircraft operating through the Kabul FIR, daily activity may still cause plans to be suspended at very short notice.

4.12 **Safety Management Systems**

4.12.1 The meeting recalled APANPIRG Conclusion 12/42 - State regulatory framework for safety oversight, and the need for States to establish the necessary regulatory framework to provide safety oversight arrangements of their air navigation services, not only in accordance with Annex 11 and PANS-ATM, but also Annex 14 provisions on safety management.

4.12.2 The meeting also noted that the introduction of RVSM and CNS related standards also required a reporting system (part of the Safety Management System) to be in place, to report on the performance of the standard and any abnormal occurrences.

4.12.3 In this context, Australia presented a paper outlining the operational functioning of the Airservices Australia Safety Management System. The paper summarized the reasons for establishing a formal Safety Management System and outlined the basic structure of the system and its component parts. Some of the tools that Airservices Australia had developed to assist the management of the Safety Management System were also outlined, together with aspects associated with the monitoring of the Organization’s performance against its safety goals.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MINI-RACGAT/6
AGREED ACTION ITEMS

Action Item No.	AGENDA ITEM/DESCRIPTION	AGREED ACTION ITEMS
R1-ATS-2	SCAA and JCAB will evaluate Kamchatka Four as a new route 100nm north of R220.	Kamchatka Four alignment has been coordinated at the regional level and sent to the SCAA for validation. Several technical issues need to be resolved before bi-lateral negotiations between SCAA and the JCAB can address the Transfer-of-Control point between Yuzhno-Sakhalinsk and Sapporo ACCs. The Russian side will publish this route in Russian AIP before Demonstration flights start. After demonstration flights are completed, an assessment of the VHF and HF communication capabilities will be conducted. This action will be assigned to the AMC Sub-group for follow-up.
R2-AMC-3	Install permanent satellite voice line between Anchorage ARTCC and ACCs at Petropavolvsk-Kamchatsky and Anadyr.	FAA has sent SCAA a proposal to establish agreements under which the equal sharing of the telecommunications costs associated with the subject circuits called for by CA-50 will be implemented. The FAA, SCAA, and State ATM Corporation will work to finalize these agreements as soon as possible.
R3-ATS-5	To allow aircraft to transition between assigned altitudes (to/from meters-feet) on G-583 in Russian airspace where the aircraft is laterally separated from R-220.	In order to implement the transfer of aircraft from meters to feet within Russian Federation airspace, a requirement of VHF coverage was identified. The AMC subgroup has undertaken an action (R7-AMC-12) to evaluate the feasibility of a VHF relay station covering the entry/exit point. If a station can be established, the operational issue can be addressed. This item will remain open.
R4-AMC-1	Install AIDC systems (system of interaction between air traffic controllers in the data transmission mode)	The FAA and SCAA will revalidate the operational requirements for AIDC implementation. The FAA will provide the SCAA information regarding the technical specifications of Anchorage AIDC capabilities, including compliance with the ICAO ASIA/PAC AIDC ICD.

Action Item No.	AGENDA ITEM/DESCRIPTION	AGREED ACTION ITEMS
R7-ATS-4	Ensure funding for the Kamchatka Volcano Eruption Response Team (KVERT).	Currently, the Russian State ATM Corporation continues to finance KVERT activities. KVERT is beyond the regulatory scope of RACGAT. It's still necessary to identify a Russian-American entity that can be addressed with the issue of permanent financing of this group. US FAA is still coordinating a draft of a letter for this forum. Discussions concerning the requirements for Volcanic Ash forecasting and eruption reporting are being addressed in the AMC sub-group. The item will remain open.
R7-AMC-7	Air-ground communication requirements for polar routes	SCAA and RFE State ATC enterprises will continue to improve the air-ground HF communications supporting the polar routes. SCAA, regional State ATC enterprises, and Users will also continue to improve alternative communications options to HF voice, including the usage of CPDLC.
R7-AMC-11	HF air-ground data link system.	SCAA will participate in an effort by ARINC to establish air-ground HF data links in the Russian Federation. In addition, the SCAA and ARINC will investigate the possible usage of HFDL in the future for ATC purposes.
R7-AMC-12	Installation of additional remote VHF stations.	SCAA to continue with installation of additional remote VHF stations under the RFE modernization program. The SCAA will also investigate the possibility of implementing a new VHF relay station near Ust Bolsheretsk to support the Petropavlovsk-Kamchatsky ACC's control of aircraft on G583, at Kunasir Island to support Kamchatka 4.
R9-ATS-1	Implement a VFR general aviation route between Wales, Alaska, direct to Providenya on the Chukotka peninsula at a minimum altitude of 1500 meters.	The first demonstration was conducted in early September 2001. Several issues were highlighted that will need to be addressed: FAA coordination with U.S. Department of Defense, user charges and VFR flight approval process within the Russian Federation. The Flight Standards VFR working group anticipates another demonstration flight in summer 2002. Future tasks include charting and inclusion into the Russian AIP and drafting a revised LOA between Anadyr ACC and Nome FSS incorporating issues from the demonstration flight. Progress will be reported at RACGAT/12.

Action Item No.	AGENDA ITEM/DESCRIPTION	AGREED ACTION ITEMS
R9-AMC-1	Establish voice communications between the ACCs of Chita, Blagoveshchensk, Khabarovsk, Irkutsk, Kyzyl, Barnaul, Vladivostok and their adjacent ACC's in China, Mongolia and North Korea.	The SCAA and its counterpart CAAs in Mongolia, China and North Korea will continue their cooperative efforts to improve interfacility communications between the subject centers.
R10-ATS-1	Develop a new transition route from Polar 4 to B337 for aircraft destined Japan, Republic of Korea, China and Hong Kong.	This new route alignment (named Polar 4D in the Cross Polar RFE Route Catalog) has been agreed upon at the regional level. The route will be published in the Russian AIP in 2002. SCAA will provide an update on this action at RACGAT/12 after which the item will be closed.
R10-ATS-2	Study the availability for FANS equipped aircraft to transient A218 at 9600 meters west of Mys Schmidta.	At RACGAT/11 this action item was further broken into two specific action items (R11-ATS-2 and R11-ATS-3) to investigate procedures for supporting flights on A218 between Magadan ACC and adjacent area control centers, including the use of 9600 meters. This item is entirely contained within those actions. **Action Item Closed.**
R10-AMC-1	Investigate options for back-up interfacility communications for Anchorage and the RFE centers	SCAA, in cooperation with RFE State ATC enterprises, will investigate the feasibility of implementing backup interfacility communications for the following centers: Anchorage, Petropavlovsk-Kamchatsky, Magadan, and Anadyr.
R10-AMC-2	Implement interim and final solutions to transmit MET information for operations on polar and RFE routes.	MET information on Russian aerodromes needed for operations on polar and RFE routes will be transmitted on an interim basis via GTS to NWSTG and as a final solution via AFTN to NWSTG.
MR5-ATS-3	Assess the feasibility of Reduced Vertical Separation Minima (RVSM) within Oceanic Airspace Delegated to Russian Federation	The Russia State Air Traffic Management (ATM) Corporation will review the feasibility of RVSM transition in Murmansk and Magadan Arctic Oceanic Sectors and report progress at RACGAT/12.

Action Item No.	AGENDA ITEM/DESCRIPTION	AGREED ACTION ITEMS
R11-ATS-1	New Routes for Investigation in Regions	MR/6 agreed to develop a route catalog to develop and manage new proposed routes. IATA and Regional Enterprises will provide data in writing on the proposed new routes based on a form depicted in the catalog. This catalog will be updated at RACGAT and mini-RACGAT meetings. **Action Item Closed.**
R11-ATS-2	Expand Available Altitudes Between LISKI and Mys Schmidta to Include 9600 Meters	Use of 9600 meters west of Mys Schmidta on A218 on flights of FANS equipped aircraft has been coordinated at the regional level awaiting publication in the Russian AIP. An update is expected at RACGAT/12.
R11-ATS-3	Evaluate Use of A218 West of Mys Schmidta by Non-FANS-Equipped Aircraft	North East Air Navigation reported that they and Anadyr have coordinated amendment to expand the range of flight levels from LISKI to Ballagannoye has been coordinated at regional level and forwarded to SCAA. Operations on this route with the use of conventional ATC methods can be allowed after English language training at Omolon Aux. ACC and Keperveyem ACC. Update at RACGAT/12.
R11-ATS-4	Evaluate and propose possible ways of improving the NOTAM exchange in order to support the flights on Cross-polar and RFE routes.	A review of NOTAM propagation regarding Cross-polar and RFE routes was conducted and no substantial items were identified. **Action Item closed.**
R11-AMC-1	Develop an interfacility communications architecture that supports polar, RFE, and associated routes. This architecture should be harmonized with national modernization plans.	The FAA and SCAA will exchange information on current and future interfacility communications requirements and associated modernization plans.
R-11-AMC-2	Identify weather requirements to support VFR General Aviation route B369, including requirements for MET products from Providenya Bay and Lavrentiya airports.	The FAA provided a list of desired meteorological products. Roshidromet will take steps to ensure the provision and dissemination of available TAF, METAR/SPECI, and SIGMET information for the subject airports to international recipients.

Action Item No.	AGENDA ITEM/DESCRIPTION	AGREED ACTION ITEMS
R11-AMC-3	Identify the means of exchange of volcanic ash information.	The FAA has prepared a description of the current ICAO requirements associated with volcanic ash reporting and issuance of Volcanic Ash SIGMET's. Based on the ICAO requirements, Roshidromet will prepare information on their steps to meet requirements of ICAO Annex 3 and national practices.
MR6-ATS-1	Identify appropriate flight level assignment to address RVSM and the feet/meter conversion issue while maintaining conventional vertical separation at the common Anchorage/Magadan and Anchorage/Murmansk FIR boundary.	Anchorage will discuss with Murmansk, Magadan and Edmonton ACCs a revision to the flight level assignment table in the Anchorage/Murmansk and Anchorage/Magadan Letters of Agreement (LOA) to more effectively accommodate the transition from RVSM altitudes measures in feet to meters.
MR6-ATS-2	Standardize separation minima in the Arctic Region between SCAA, NAV CANADA and FAA.	The FAA has submitted an amendment request to ICAO to reduce its Arctic Region minimum longitudinal separation standard from 20 minutes to 10 minutes-in-trail. When approved, the FAA will coordinate changes to the current LOAs between Anchorage/Murmansk and Anchorage/Magadan. An amendment to the Anchorage/Edmonton LOA will also be completed.
MR6-ATFM-1	The MATFMC, ATCSCC and NAV CANADA Flow Management will compile data on flights using the Cross-polar and trans-east routes for use in traffic analysis and forecasting	The MATFMC, ATCSCC, and NAV CANADA Flow Management will develop a collection format at the September 2002 meeting in Herndon. The goal of the collection will be to build a year's worth of data to capture the summer and winter schedule. The ATFM units will begin collecting data and will provide an update at RACGAT/12.
MR6-ATFM-2	Investigate Increased Access to B233 for Flights Operating During Weekdays	IATA requested consideration of standardized procedures to request and receive approval from ATC to use B233 on weekdays. SCAA agreed to evaluate this request and provide an update at RACGAT/12.

NATIONAL ATS CONTINGENCY PLANNING FRAMEWORK

Amendments

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

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

Amendment Number	Amendment Date	Amended By	Date Amended
Initial Issue			

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Checklist of Effective Pages

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Development of Contingency Plans		

Development of contingency plans

Introduction

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

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

Contingency plan objectives

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

Airways Contingency Committees

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

National Airways Contingency Coordination Committee

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

Testing and review

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

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

Air Traffic Services

In ICAO Annex 11, ATS comprises:

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

Airspace over the high seas

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

Considerations

Staffing

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

Procedures

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

Facilities

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

Demand/Capacity

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

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

Options

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

a. Consolidate functions to alternate operating positions (subject to availability of appropriately licensed staff) and, if required, implement traffic metering; or

b. Transfer responsibility for services to another Unit / Centre and if required, implement traffic metering; or

c. Implement traffic metering, to reduce traffic congestion, and / or

d. Reclassify the airspace to another classification (eg Class C to Class A or Class C to Class D); or

e. Re-designate the airspace to Restricted area; and

(1) implement TIBA;

(2) implement MBZ at certain aerodromes; or

f. Reclassify as Class G airspace; or

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

Transfer of Responsibility

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

a. notification procedures where an event can be foreseen, the transfer should take place prior to any risk of failure of communications facilities;

b. areas of responsibility with training and competency requirements;

c. procedures and coordination arrangements;

d. relevant Local Instructions;

e. lateral separation diagrams; and

f. details of a formal amendment process of the foregoing.

Procedures documentation shall detail contingency arrangements with military ATS units.

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

Contingency Services

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

Flight monitoring service

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

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

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

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

Local contingency plans will detail the specific availability.

Resumption of service

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

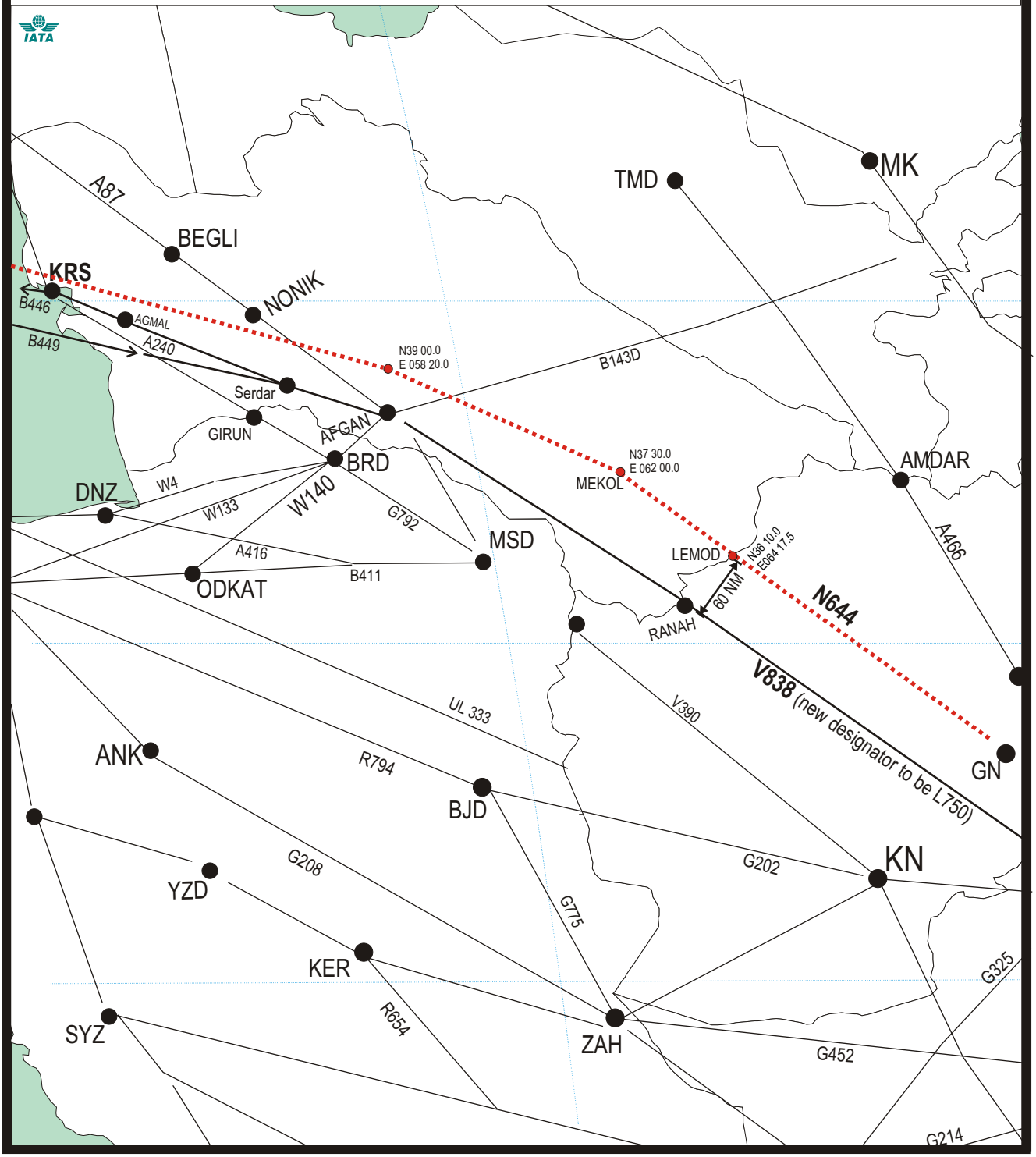
Authorisation

This document is authorised by:

[Insert authority]	**Date**

New Route Proposal N644 to Replace UL850/UB446/V888

From Ghazni (N33 32.0 E68 25.0) dct LEMOD (N36 10.0 E064 17.5) dct MEKOL (N37 30.0 E062 00.0) dct N39 00.0 E058 20.0 dct N40 28.0 E051 30.0 dct ADEKI (N41 17.8 E046 45.0) as bidirectional



11 June 2002

CONTINGENCY AIR TRAFFIC MANAGEMENT PLAN FOR TRANSIT OF THE KABUL FIR BY INTERNATIONAL CIVIL AIRCRAFT

(DUE TO MILITARY OPERATIONS WITHIN AFGHANISTAN)

(DRAFT VERSION 4)

30 JULY 2002

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Overview

Introduction

This Contingency Air Traffic Management Plan (CATMP) has been developed on the basis of the guidelines approved by the Council of ICAO and contained in the Air Traffic Services Planning Manual (Doc.9426, Part II, Section 1, Chapter 1, paragraph 1.6).

The purpose of this plan is to facilitate and maintain a safe and orderly flow of international air traffic transiting through the upper airspace of Kabul FIR and to preserve the availability of the main international air traffic routes through the Kabul FIR.

The successful application of the CATMP presupposes the close co-operation, collaboration and agreement of adjacent Air Traffic Service Authorities, the Coalition Forces as well as aircraft operators.

Objective

In recognition of the arrangements associated with current military activity in Afghanistan, the CATMP is designed to enhance the flow of transiting international civil aircraft through the Kabul FIR.

The primary benefits of the CATMP to Users and Providers include:

a) Access to more efficient routings through the Kabul FIR;
b) Elimination of converging routes and de-confliction of transiting international civil aircraft through the Kabul FIR.
c) Implementation of 10 Minute longitudinal separation minimum based on Mach number technique (MNT); and
d) Increased traffic capacity commensurate with safety requirements.

Background

By authority of the Ministry of Civil Aviation and Tourism (MOCAT) of the Interim Administration of Afghanistan, a Memorandum of Arrangement (MOA) was signed with the Combined Forces Airspace Control Authority (ACA). The ACA was designated as the airspace control authority for Afghanistan airspace (Kabul FIR) for an interim and limited period, effective on 11 February 2002.

ICAO as a signatory to the MOA will work with the MOCAT to facilitate the progressive introduction of a civil authority.

Following a period of initial consolidation, an increase in traffic capacity of transiting international civil aircraft through the Kabul FIR is now provided through the CATMP.

Airspace

Airspace Definition	Transiting international civil aircraft through the Kabul FIR.will initially be restricted to the following ATS routes and FLs: L750, N644, A466 and P500 - FL310 to FL390 inclusive; and, M881 - FL280 and FL290.
FIRs Affected	The adjacent FIRs directly affected by this Plan are Ashkhabad, Dushanbe, Lahore and Samarkand.

Activation

Responsibilities	This Plan will be published by AIP supplement and activated by trigger NOTAM issued by the States concerned after the necessary agreements on procedures have been coordinated.

ICAO Approval

Approval	By Agreement of States and international organizations concerned through ICAO Middle East Regional Office, this Plan is submitted to the President of the ICAO Council for approval on behalf of Council.
Coordination	ICAO will distribute this Plan to all relevant States, the Coalition Forces and international organisations.
Amendment and Review	This Plan should be reviewed by all parties concerned and amended as appropriate.
Revision Conditions	Amendments, revisions and cancellation will be coordinated with affected States, the Coalition Forces, international organizations and ICAO. Proposed amendments to this Plan should be forwarded to the relevant ICAO Regional Office for action.
Contact Names and Telephone Numbers	A list of contact details is contained in Appendix A.

Air Traffic Management

Kabul ATS Responsibilities

As that part of airspace of the Kabul FIR as defined in airspace definition on Page 3 of this Plan is designated Class F Airspace, the Kabul Flight Information Centre (FIC) will provide Flight Information and Air Traffic Advisory Services. Changes of cruising level within the Kabul FIR will not be authorised during the activation of this Plan, except in emergency situations.

If a disruption to services is anticipated, the Kabul FIC will issue NOTAM detailing what is not available, including, where known, an expected date of restoration, giving information on the arrangements for the provision of alternative services where appropriate. This will allow both operators and affected State ATS providers to prepare in advance of any occurrence.

ATS route requirements

The ATS routes, L750, N644, A466, P500 and M881 are approved for use and considered laterally separated under the following conditions:
RNP10 approved aircraft permitted to operate on all ATS routes; and
Non-RNP10 approved aircraft may only operate on A466, P500 or M881.
Route descriptions for new or renamed routes are shown in Appendix C to this Plan. A chart is also attached at Appendix D.

Separation

The adjacent States concerned should ensure that aircraft transiting the Kabul FIR will be separated by 10 minutes longitudinal separation minimum using Mach number technique (MNT). Vertical separation will be a minimum of two thousand (2000) feet between aircraft above FL290 and one thousand (1000) feet at and below FL290.

Level Restrictions:

Due to active military operations, the following restrictions on level assignment will apply for aircraft transiting the Kabul FIR:
westbound L750, N644, A466 and P500 - FL310, FL350 and FL390
eastbound L750, N644, A466 and P500 – FL330 and FL370
M881 – westbound - FL280
M881 – eastbound – FL290

Traffic Acceptance Rates

Due to the reduced amount of ATS routes available through the Kabul FIR, consideration should be given to sequencing of aircraft with similar speed regimes at the same levels, so as to maximise the use of this limited capacity.

Closure of Kabul FIR

In the event of total or partial airspace closure within the Kabul FIR affecting this Plan, Contingency Routing, Asia, Middle East Europe (CRAME) may be used.

Changes to the plan

Changes to this Plan should be agreed by all concerned and approved by the President of the ICAO Council on behalf of Council.

Temporary additions, deviations or subsequent adjustments will be promulgated by NOTAM.

Transfer of Control and Co-ordination

Transfer of Control

The transfer of control and communication should be at the common FIR boundary unless there is mutual agreement between the adjacent ATS units. State ATS Providers should also review current co-ordination requirements in light of contingency operations or short notice airspace closures.

Estimate Messages

If an ACC/FIC is unable to make transfer of control with an adjacent ATS facility, an estimate message should be forwarded to the next ATS address along the intended route of flight.

Communications

Flight Monitoring

The ICAO Traffic Information Broadcast by Aircraft (TIBA) procedure as shown in Appendix B to this Plan should be used for flights transiting the Kabul FIR on VHF 128.95MHz.

Search and Rescue

SAR Alerting

The Kabul FIC provides a SAR Alerting service. Each adjoining ATS Unit shall assist as necessary to ensure that the Kabul FIC is provided with information necessary to support aircraft in distress.

Pilot and Operator Procedures

Intercept Operations

Pilots need to be aware that contingency situations involving military activity carries the possibility of being intercepted by military aircraft. Aircraft operators must therefore be familiar and follow the international intercept procedures contained in Annex 2, *Rules of the Air* to the Chicago Convention, paragraph 3.8 and Appendix 2, Sections 2 and 3, as well as specific intercept procedures that may be contained in a State AIP.

Pilots need to continuously guard the VHF emergency frequency 121.5 MHz and should operate their transponder at all times during flight, regardless of whether the aircraft is within or outside airspace where SSR is used for ATS purposes. Transponders should remain set on the last assigned discrete code or on Code 2000 if ATC has not assigned a code.

Appendices

Appendix A List of contact persons and details

Appendix B ICAO Traffic Information Broadcast by Aircraft (TIBA)

Appendix C Route descriptions routes to be used in this Plan.

Appendix D Chart depicting Transit routes through the Kabul FIR to be used with this Plan.

Agenda Item 5: Review progress of AIS Automation Task Force (AATF)

5.1 **Eighth and Ninth Meetings of AATF**

5.1.1 The meeting was provided with reports of the Eighth and Ninth meetings of ATS/AIS/SAR Sub-Group's AIS Automation Task Force (AATF/8 and 9), which met as below:

a) AATF/8 was held in Bangkok, Thailand from 16 to 18 October 2001, and attended by 9 experts from China, Hong Kong China, Japan, Singapore and Thailand. A total of 11 Working Papers and 9 Information Papers were considered by the meeting; and

b) AATF/9 was hosted by the Air Traffic Management Bureau (ATMB), the General Administration of Civil Aviation of China (CAAC) and held in Beijing, China from 20 to 23 May 2002. The meeting was attended by 12 experts from China, Hong Kong China, Japan, Singapore, Thailand, and IFALPA. A total of 9 Working Papers and 10 Information Papers were considered by the meeting.

5.1.2 Terms of Reference of AATF and the Agenda Items of AATF/8 and 9 meetings are at Appendices A and B to the Report on Agenda Item 5 respectively.

5.1.3 The meeting recalled that the ATS/AIS/SAR/SG/9 formulated the Decision 9/7-AIS Automation Task Force, which was subsequently supported by APNAPIRG/10, and the AATF was re-activated with updated Terms of Reference as proposed by ATS/AIS/SAR/SG/9.

5.1.4 Since it was reactivated, the Task Force met in Bangkok, Thailand in March 2000 (AATF/6), Brisbane, Australia in February 2001 (AATF/7). The activities of these two meetings were reported to the Sub-Group at ATS/AIS/SAR/SG/10 and 11 in accordance with the Terms of Reference.

5.1.5 The meeting noted that the Task Force was originally composed of Australia, China, Japan, New Zealand, Singapore and the United States. IATA and IFALPA were also invited. Experts from Hong Kong China, and Thailand participated as observers in the meetings since AATF/7 and contributed to the work of the Task Force significantly.

5.2 **Guidance Manual for AIS in the Asia/Pacific Region**

First Edition of the Guidance Manual for AIS in the Asia/Pacific Region

5.2.1 It was recalled that the AATF developed a draft Guidance Manual for AIS in the Asia/Pacific Region and forwarded it to the ATS/AIS/SAR/SG/11 and the subsequent APANPIRG/12 meetings for review and adoption.

5.2.2 This draft guidance materials were structured to incorporate a number of separate components into one volume.

Title: ***Guidance Manual for Aeronautical Information Services in the Asia/Pacific Region***

Part 1: **AIS Quality Systems**

- Guidance Material – A Quality System for AIS
- Sample Quality Manual
- QA Implementation Planning Template

Part 2: **Selection and Training Guidelines for AIS Personnel**

Part 3: **Common Operating Procedures for Automated AIS Systems**

Part 4: **Use of the Internet for Information Transfer**

5.2.3 APANPIRG/12 noted that at the ATS/AIS/SAR/SG/11 meeting a number of States sought the early release of the draft guidance materials for use to enhance AIS activities in the Region. Considering that the draft guidance materials developed by the AATF had reached a stage of maturity suitable for distribution to States within the Region after review and understanding that any advice or comment that might be forthcoming from Headquarters would, where appropriate, be incorporated into the draft guidance materials before publication, the APANPIRG/12 meeting formulated the following Conclusion:

Conclusion 12/7 – Guidance Manual for Aeronautical Information Services in the Asia/Pacific Region

That, the Guidance Manual for Aeronautical Information Services in the Asia/Pacific Region *shown at Appendix G to the Report on Agenda Item 2.1 be published in accordance with the established procedures.*

5.2.4 When reviewing the Report of the APANPIRG/12, the ICAO Air Navigation Commission (ANC) noted this Conclusion and that the guidance manual would be published in accordance with established procedures.

5.2.5 AATF confirmed that once the publication of the AIS Guidance Manual was approved, the first edition of the Guidance Manual would contain new materials in Parts 1 and 2, and the existing Common Operating Procedures (COP) for the Asia/Pacific Automated AIS Systems which was issued in 1997, in Part 3. The complete set of the Guidance Manual will be issued as soon as the update of the current COP is completed after further consideration of the EUROCONTROL COP and a new guidance material relating to the use of the Internet for information transfer becomes available.

5.2.6 While reviewing the first edition of the Manual, the AATF/9 realized that the procedure relating to time system contained in Chapter 1, Part 2- Sample Quality Manual, page 1-2-52, of the first edition would be in conflict with a relevant procedure to be contained in the draft Chapter 3 – Operating Procedures for AIS Dynamic Data, in other words, the use of 2400 to indicate the end of day. In this regard, it was clarified that ICAO Annex 5 – Units of Measurement to be Used in Air and Ground Operations specifies that hours should be represented by two digits from 00 to 23 in the 24-hour timekeeping system and may be followed either by decimal fractions of an hour or by minutes and seconds. It also specifies that minutes should likewise be represented by two digits from 00 to 59 followed by either decimal fraction of a minute or by seconds (Attachment E, paragraphs 3.2 and 3.2 refer).

5.2.7 The meeting was advised that the above-mentioned particular procedure was corrected to be in line with Annex 5, and this important correction was incorporated in the first edition of the Guidance Manual for AIS in the Asia/Pacific Region. This first edition of the Guidance Manual would be distributed to States in the Region shortly.

Updating of Guidance Manual Chapter 3 – Operating Procedures for AIS Dynamic Data (OPADD)

5.2.8 The meeting noted that the AATF examined the EUROCONTROL document (EATMP Operating Procedures for AIS Dynamic Data AIS.ET1.ST05.1000-DEL-01 Edition: 1.0 dated 31.01.2000) with the aim of determining the extent of the differences between procedures in this document and the current Common Operating Procedures (COP) for the Asia/Pacific Automated AIS Systems, and updating this Guidance Material by incorporating new procedures, where appropriate.

5.2.9 With a view to aligning the current procedures in the Asia/Pacific Region with those published by EUROCONTROL, as the first step, the Task Force identified differences between the COP in the two documents.

5.2.10 After spending a considerable amount of time in comparing those differences and assessing possible impact on procedures in the Asia/Pacific Region, the Task Force confirmed that inter-regional standardization/harmonization of COP is one of the primary objectives of the AATF.

5.2.11 In addition, the Task Force considered it necessary to identify those procedures pertaining to static data in the current COP for Asia/Pacific, which should remain in the updated COP for the Region.

5.2.12 To this end, members of Japan contacted EUROCONTROL, seeking background information and clarification on OPADD and received the detailed information from the Secretary AIS Operations in EUROCONTROL. Japan provided the Task Force with clarifications on various procedures. The Task Force noted with particular interest that the ICAO ANC concluded that the existing specifications in Annex 15 adequately cover a point raised by the European Air Navigation Planning Group (EANPG), in relation to the proposed addition of Item X and Purpose D in NOTAM. As a consequence, EUROCONTROL advised Japan that European States would not send NOTAM containing Item X and Purpose D to the outside the European Region.

5.2.13 The Task Force examined the identified differences, taking into account the information provided by Japan. Consequently, at AATF/9 the Task Force reached a consensus on all the differences on procedures identified by the Task Force. These agreements were incorporated in the draft Chapter 3 - Operating Procedures for AIS Dynamic Data (OPADD) of the Manual, which is at Appendix C to the Report on Agenda Item 5.

5.2.14 AATF/9 conducted a thorough examination of the EUROCONTROL document and finalized the updating of the current COP for the Asia/Pacific Region. This draft Chapter 3 contained the procedures for multi-part NOTAM messages and for the exchange of NOTAM Checks as NOTAM adopted at AATF/8.

5.2.15 The meeting reviewed the draft Chapter 3 forwarded from AATF and agreed that this material be published as the first amendment to the Chapter 3 of Guidance Manual, to replace the existing COP published in 1997.

5.2.16 In this connection, the meeting considered it necessary to standardize procedures relating to multi-part NOTAM and NOTAM checks by NOTAM for global application, and formed the following Draft Conclusion for endorsement by APANPIRG:

Draft Conclusion 12/6 – Development of procedures relating to multi-part NOTAM and NOTAM Checks by NOTAM

That, ICAO consider developing procedures relating to multi-part NOTAM and NOTAM Checks by NOTAM based on the procedures contained in the draft Chapter 3 of the *Guidance Manual for AIS in the Asia/Pacific Region* at Appendix C to the Report on Agenda Item 5, for global application, and including them in the *Aeronautical Information Services Manual* (Doc 8126).

Draft Guidance Manual Chapter 4 - Use of the Internet for Information Transfer

5.2.17 The meeting noted that AATF concurred that the use of the Internet increased over the past few years to become a recognized method for the exchange of various types of information, from electronic mail, file transfers, information exchange, and includes secure exchanges for banking and a wide range of other E-Commerce applications.

5.2.18 In a number of cases the Internet provides another medium for the exchange of aeronautical data and information that might not otherwise be available to users. For example, users that are not connected to the AFTN, or where the AFTN is not of a high quality, can obtain information quickly and efficiently without the need for a substantial investment in infrastructure.

5.2.19 The Task Force member of Australia proposed that use of the Internet be extended to encompass the exchange of aeronautical data and information.

5.2.20 However, considering that the Internet was not recognized as an approved communications media by ICAO for the exchange of aeronautical data and information, and due to lack of technical justification, the Task Force was of the view that application of the Internet for aeronautical data and information exchange was still premature at this stage. Standardization of use of the Internet for such purpose on a regional basis can not be pursued.

5.2.21 The meeting was advised that in light of the above, the AATF/8 felt that it would be prudent for the Task Force at this stage only to provide guidelines on the use of the Internet for information transfer in the Guidance Manual for AIS in the Asia/Pacific.

5.2.22 The meeting noted that at AATF/9, Japan presented a draft document of the guidance material of the use of the Internet for information transfer for consideration by the meeting. Based on this document, AATF finalized a draft Chapter 4 of the Guidance Manual, which is at Appendix D to the Report on Agenda Item 5.

5.2.23 The meeting reviewed this draft Chapter 4 and suggested that the following modification be made to paragraph 3.10 of the draft material:

3.10 Copyright

In order to protect the investment in the products of State's AIS as well as to ensure better control of their use, States may wish to apply copyright to those products in accordance with their national laws.

On the Website, a copyright declaration ~~should~~ may be made for prohibition of reusing information. This declaration enables the copyright to be protected under copyright laws and international copyright conventions. In addition, it is important to explain with clarity what kinds of action are prohibited, *i.e.* distribution of copies of the material to the public, including distribution by sale, rental, lending or by way of donation, and modifying, amending, translating or, in any other way, changing the material, or what kinds of action are allowed.

~~The following text is an example of a copyright declaration:~~

~~"This XXXX Website and database contain documents and/or other materials, protected under applicable copyright laws and international copyright conventions. It is prohibited, without the written permission of XXXX, to perform any of the acts mentioned below, with the exception that acts 1 and 2 below may be performed for educational purposes on a non-commercial basis:~~

1. ~~*To reproduce, directly or indirectly, the material in any manner or form, including, but not limited to, printing on paper or on any other medium, electronic storage in any form, including temporary or permanent storage in computer memories or storage media of any kind, and recording of the material on any medium from which it can be retrieved or reproduction of such a recording.*~~

2. ~~*To display or perform the material in public or to communicate the material in any way to other persons, including broadcasting, cable communication and digital or analogue transmission.*~~

3. ~~*To distribute copies of the material to the public, including distribution by sale, rental, lending or by way of donation; or where applicable, by providing electronic access to unauthorized third parties.*~~

4. ~~*To modify, amend, translate or, in any other way, change the material. All requests for permission to perform any of the acts mentioned above (with the exception of acts 1 or 2 for educational purposes on a non-commercial basis) should be submitted in writing to XXXX."*~~

5.2.24 The meeting considered the draft material incorporating the above change, appropriate for publication as Chapter 4 of the Guidance Manual.

5.2.25 Accordingly, the meeting formed the following Draft Conclusion pertaining to the draft Chapters 3 and 4 for adoption by APANPIRG:

Draft Conclusion 12/7 – Guidance Materials concerning the operating procedures for AIS dynamic data (OPADD) and the use of the Internet for information transfer as Chapters 3 and 4 respectively of the Guidance Manual for AIS in the Asia/Pacific Region

That, the guidance materials concerning the operating procedures for AIS dynamic data (OPADD) (at Appendix C to the Report on Agenda Item 5) and the use of the Internet for information transfer (at Appendix D) be published as Chapters 3 and 4 respectively of the *Guidance Manual for AIS in the Asia/Pacific Region* be published in accordance with the established procedures.

5.3 NOTAM Checks to be sent as NOTAM, and multi-part NOTAM messages

5.3.1 The meeting noted that the Task Force considered procedures concerning NOTAM Checks to be sent as a NOTAM to facilitate automatic, rather than manual processing and checking. NOTAM Checks are an important element of the quality system to ensure that holdings by individual States are up-to-date and accurate.

5.3.2 NOTAM Checks are currently sent in a variety of formats, some as NOTAM others as a text message. Automation within the Asia/Pacific Region will be enhanced through the standardization of NOTAM Checks being sent as a NOTAM and then automatically processed without the need for manual intervention.

5.3.3 In the case of NOTAM Checks, a considerable amount of time can be spent manually processing information received from other States. As with any manual system, errors can occur during the checking process, they are labour-intensive and consequently are not cost effective. Automating NOTAM Checks will, to a large degree, overcome these issues.

5.3.4 It was informed that a demonstration using the EUROCONTROL procedures was co-ordinated and carried out among the International NOTAM Offices in Australia, Hong Kong and Singapore. The results from this demonstration were most encouraging, clearly showing that the procedures worked satisfactorily.

5.3.5 The meeting noted that the AATF/8 meeting agreed in principle to the EUROCONTROL procedures with some modifications.

5.3.6 The AATF/8 meeting also reviewed the procedures for multi-part messages proposed by Australia, and agreed to the procedures.

5.3.7 It was noted that these adopted procedures were incorporated into the draft Chapter 3 of the Guidance Manual for AIS in the Asia/Pacific at Appendix C to the Report on Agenda Item 5.

5.4 Amendment for inclusion in the Asia/Pacific FASID

5.4.1 It was recalled that the Task Force developed a draft amendment to the FASID, and it was presented to ATS/AIS/SAR/SG/11 for consideration.

5.4.2 The ATS/AIS/SAR/SG/11 meeting reviewed this draft amendment and agreed, in principle, to the content of the amendment. The Sub-Group noted advice provided by the ICAO Regional Officer CNS with regard to the communication aspects of the draft amendment.

5.4.3 Subsequently, these issues were incorporated into a Working Paper, and the Working Paper 25 (WP/25) was presented to the CNS/MET/SG/5 meeting for their consideration as part of the Terms of Reference a) iii).

5.4.4 The CNS/MET/SG/5 reviewed the requirements for communications for integrated regional AIS system and considered that the improved AFTN would satisfy the operational requirements. It was also noted that most of the AFTN circuits are equipped with alternate routing capabilities. SITATEX was considered as a reliable means for back up in case of AFTN failure. Internet, as a back up, was not considered suitable due to message security, integrity and timeliness problems.

5.4.5 Considering the reliability requirement of 97 percent established for AFTN, the Sub-Group expressed the view that the availability percentage required for the system performance of automated AIS may be changed to 97 percent from 95 percent.

5.4.6 In order to accommodate the operational graphical AIS traffic, ATS Message Handling System (AMHS) has been identified by Japan to support such requirement in Japan. The Sub-Group was also informed that the distribution of AIS data by the Satellite Distribution System for information relating to air navigation (SADIS) broadcast is also available, if the requirement can be defined.

5.4.7 However, the meeting was advised that due to the complexity of technical matters arising from the advice of the CNS/MET/SG/5 meeting, the Task Force felt that it was not possible to further modify the draft amendment for submission to the APNAPIRG through ATS/AIS/SAR Sub-Group.

5.5 **Datalink communications for aeronautical information**

5.5.1 It was noted that the Task Force considered a proposal originated by an Australia member pursuant to the Terms of Reference c).

5.5.2 Taking into account that the Manual of Air Traffic Services Data Link Applications (Doc 9694), in particular Part V, provides guidance as to the operation of data link flight information services (DFIS), the Task Force examined the proposal to add components that relate specifically to the exchange of aeronautical data and information, in particular the need for data protection and integrity as shown in Annex 15-Aeronautical Information Services, Chapter 3.

5.5.3 The meeting noted that the Task Force members endeavored to finalize this matter with the aim of meeting the Terms of Reference c). However, AATF/9 concluded that without the originator of the proposal, it was not possible for the meeting to pursue the matter any further and to make proper recommendations to ATS/AIS/SAR and CNS/ATM/IC Sub-Groups.

5.6 **Preparation for AIS Seminar**

5.6.1 The meeting noted that ATS/AIS/SAR/SG/11 and APANPIRG/12 considered that further work regarding the application of the Asia/Pacific regional guidance materials would also benefit from further exposure at an AIS Seminar. In this regard, noting that ATS/AIS/SAR/SG already listed an AIS seminar in 2002 in its Task List pursuant of APANPIRG Conclusion 2/31, and recognizing requests expressed by States, APANPIRG/12 placed an special emphasis on the need of AIS seminar as a Special Implementation Project (SIP) in 2002 and formulated the following Conclusion:

Conclusion 12/8 – Special Implementation Project for an AIS Seminar in 2002

That, ICAO urgently consider a proposal for an Asia/Pacific Special Implementation Project to be established in order to hold an AIS Seminar in 2002 with the primary objective to improve AIS in relation to AIS automation and quality assurance programme.

5.6.2 When reviewing the Report of the APANPIRG/12, the ICAO Council, at the 5th Meeting of its 165th Session on 1 March 2002, noted the above Conclusion and that such a project would be put forward for the Council's approval through established procedures. Subsequently, this SIP was approved in late March 2002.

5.6.3 It was informed that the Task Force discussed the details of an AIS seminar to be held in the Asia/Pacific Region in 2002.

5.6.4 It was also informed that EUROCONTROL provided the AATF with comprehensive information regarding the EUROCONTROL Symposium "Aeronautical Information Management – One AIM for Europe" held in Toulouse, France in March 2002, and the ICAO Practitioner's Forum on AIS/MAP held in Nairobi, Kenya in November 2001. Additional information was provided by the members of Japan who attended the EUROCONTROL Symposium. The Task Force felt that some of the elements of the European Symposium and the Nairobi Forum could be applied to the AIS Seminar 2002 in the Asia/Pacific.

5.6.5 The meeting agreed that the seminar should provide an opportunity for **technical personnel at work level** to expose themselves to the new trend in the AIS field. It is equally and critically important to raise the awareness among **the management level** of State's civil aviation authorities and/or AIS service providers, on the recent developments and the need for change, in particular after the AIS/MAP/98 Meeting.

5.6.6 The meeting noted that the following two persons were identified and recommended by the Task Force members as main speakers:

a) Mr. Paul Bosman, AIS expert from EUROCONTROL;

b) Mr. David A. Street, Quality Standard expert from NATS, U. K.

5.6.7 The considered that it would be most beneficial for participants if a special session focusing on ISO 9000 series standard could be organized for better understanding of ISO, which is recommended in Annex 15.

5.6.8 Details of the AIS Seminar programme developed by AATF/9 are at Appendix E to the Report on Agenda Item 5. In this regard, the meeting noted that this programme is tentative and may change subject to co-ordination with ICAO HQ and speakers. The AIS Seminar is tentatively scheduled for December 2002.

5.7 **Update of the AATF Task List and Completion of the Work Programme**

5.7.1 The meeting was advised that the Task Force reviewed the current short-term Task List developed at AATF/8, taking into account discussions and conclusions during the AATF/9 meeting.

5.7.2 The AATF/9 carefully examined, in light of the Terms of Reference of the Task Force, the status of works completed since AATF/6. This completed short-term Task List is appended at Appendix F to the Report on Agenda Item 5.

5.7.3 The meeting noted that the development of procedures and standard formats for datalink communications (items b and c) and the preparation for an amendment to relevant part of the Asia/Pacific Air Navigation Plan and FASID (item d) were yet to be completed mainly due to lack of technical expertise among the Task Force members.

5.7.4 However, the meeting considered that the major part of the assignments, such as the development of new guidance materials concerning quality system for AIS, training guidelines for AIS personnel, and the use of the Internet for information transfer, and updating of operating procedures for AIS automation (AIS dynamic data), were completed, within the given timeframe of 3 years as per the Terms of Reference.

5.7.5 In addition, the meeting noted that the Task Force members were appreciative for the recognition for their work by ATS/AIS/SAR Sub-Group and APANPIRG, which led to the approval by the ICAO Council and ANC of a SIP for an AIS seminar in 2002, and the publication of the first edition of the Guidance Manual for AIS in the Asia/Pacific Region.

5.8 **Future Meetings**

5.8.1 The meeting was advised that in light of the discussions on the update of the Task List and completion of the Work Programme, the Task Force was of the view that there would be no need to convene a meeting to pursue the Terms of Reference, and recommended to the Sub-Group that the Task Force be suspended. Therefore, the meeting developed the following Decision of the Sub-Group:

Decision 12/8 – AIS Automation Task Force (AATF)

That, the AIS Automation Task Force be suspended until such time when the need of further work is recognized by the Sub-Group.

5.8.2 The meeting noted that all the members would continue co-ordination with the Secretariat by correspondence via e-mail in order to assist the organization of the AIS Seminar 2002.

5.8.3 Furthermore, the meeting noted that the Task Force members expressed their willingness to provide assistance where required in the future and to undertake further work in relation to static data procedures and data exchange when it is considered appropriate by ATS/AIS/SAR Sub-Group and/or APANPIRG.

5.8.4 The meeting expressed appreciation to the experts of AATF for their efforts, dedication and commitment toward the completion of their work within the given timeframe as well as their offer to provide assistance in the future.

5.8.5 Japan expressed their concern regarding the lack of attention to various AIS-related matters by the meeting, which may be a result of lack of AIS experts available within the Sub-Group. In addition, Japan pointed out that APANPIRG/9 emphasized the need for the strengthening of the Regional Office resources, especially in regard to the filling of the vacant AIS/MAP post. The APANPIRG consequently developed Conclusion 9/51 – Strengthening the Regional Office resources; however, this AIS/MAP post has not yet been filled.

5.8.6 Japan informed the meeting that since the AIS/MAP Divisional Meeting held in Montreal, 23 March – 3 April 1998, the North American and European Regions have been actively pursuing the automation of AIS, in particular in the area of exchange of electronic aeronautical information and data. ICAO established the Aeronautical Data Modeling Study Group (ADMSG) in 1999; however, ADMSG has not made significant progress to resolve various issues yet. Japan was of the view that such slow pace of developing internationally standardized procedures in this field would lead the Asia/pacific Region to a situation where States have difficulties in making decision with regard to their plan to develop AIS systems in order to meet operational requirements in a timely manner.

5.8.7 It was understood that the AIS Automation Task Force completed its assigned tasks in accordance with its Terms of Reference, and as a result, the Task Force activities will be suspended. However, Japan advised the meeting that they would consider addressing this matter at the next Sub-Group meeting in 2003.

**TERMS OF REFERENCE FOR AIS AUTOMATION TASK FORCE (AATF)
(REVISED IN JUNE 2000)**

Terms of Reference

The Task Force shall:

a) Using Doc 8126-AN/872 Chapter 8 as a guide:

   i) Describe the integrated Regional Automated AIS System as it relates to the Asia/Pacific Region;

   ii) Recommend distribution and fall-back procedures;

   iii) In consultation with the COM/MET/NAV/SUR Sub-Group, recommend the communications network requirements for Asia/Pacific Automated AIS Systems;

   iv) Recommend provisions to meet reliability and redundancy requirements;

   and

   v) Recommend common AIS query procedures;

b) Develop procedures and standard formats for the exchange of information both within the Region and with other Regions ensuring that the procedures and standard formats are consistent with those developed by the ADS Panel for datalink communications;

c) Co-ordinate with the CNS/ATM Implementation Coordination Sub-Group to examine methods of disseminating new information to aircraft in flight;

d) Prepare an amendment to the relevant Regional Air Navigation Plan or the Facilities and Services Implementation Document (FASID) as appropriate;

   and

e) Consider:

   i) Outcomes from AISMAP98 in terms of data models;

   ii) Changing technology in terms of the Internet for the distribution of aeronautical information;

   iii) Determination of update requirements for the Guidance Material;

   and

   iv) Updating and incorporation of information (where appropriate) from Appendices A, B and C from the State letter originated by the ICAO Regional Office dated 24 April 1997 relating to the Guidance Material.

WORK PROGRAMME

The Task Force shall meet in plenary session as work is progressed and finalized, but not less than once per year. Work in the intervening period being conducted by correspondence;

The tasks allocated in the Terms of Reference shall be concluded within 3 years;

The Task Force shall report formally to the ATS/AIS/SAR Sub-group at each Sub-group meeting;
aimed at

a) Producing Guidance Materials, including Common Operating Procedures for Automated AIS Systems, Quality Systems, Training for AIS personnel, and use of the Internet for information transfer;

and

b) Providing assistance to States, where required, in the Region for advancement of Automated AIS Systems.

…….

AATF/8
APPROVED AGENDA

Agenda Item 1:	Adoption of the Provisional Agenda
Agenda Item 2:	Report of matters arising from ATS/AIS/SAR/SG/11 and APANPIRG/12 in relation to the work of the AATF
Agenda Item 3:	AATF Work Program
Agenda Item 4:	Update on work from the AISMAP Study Group
Agenda Item 5:	Preparation for AIS Seminar
Agenda item 6:	Any other business
Agenda Item 7:	Update of the AATF Work Program
Agenda Item 8:	Date and venue for the next meeting

AATF/9
APPROVED AGENDA

Agenda Item 1:	Adoption of the Provisional Agenda
Agenda Item 2:	ANC/Council Actions on the APANPIRG/12 Report with Respect to AIS Issues
Agenda Item 3:	AATF Work Program
Agenda Item 4:	Preparation for AIS Seminar
Agenda Item 5:	Any other business
Agenda item 6:	Future Meetings

…….

DRAFT

CHAPTER 3

OPERATING PROCEDURES FOR AIS DYNAMIC DATA (OPADD)

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ACKNOWLEDGEMENTS

This Guidance Material was developed based on the *Operating Procedures for AIS Dynamic Data* which was developed and published in January 2000 by the European Organisation for the Safety of Air Navigation (EUROCONTROL) (the Operating Procedures for AIS Dynamic Data AIS.ET1.ST05.1000-DEL-01, Edition: 1.0).

The AIS Automation Task Force (AATF) of the ICAO Asia/Pacific Air Navigation Planning and Implementation Regional Group's (APANPIRG) ATS/AIS/SAR Sub-Group (ATS/AIS/SAR/SG) reviewed the above Document released by EUROCONTROL with a view to harmonizing procedures to handle AIS dynamic data with other Regions and standardizing Regional procedures to the possible extent. In light of the current status of developments pertaining to AIS automation in the Asia/Pacific Region, the AATF recognized that there was a need to modify some procedures contained in the EUROCONTROL document in order to cater for regional needs whilst bearing in mind the importance of inter-regional harmonization of procedures.

Hereby, the AATF wishes to record their appreciation for the work conducted by the EUROCONTROL and a permission given to copy the document.

For more information concerning the original EUROCONTROL document, contact

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For edition status, see
http://www.eurocontrol.int/projects/eatmp/ais.

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1. INTRODUCTION

1.1 History

In the interest of regional standardization, the *Guidance Material on Common Operating Procedures for the Asia/Pacific Region Automated AIS System* was developed by the AIS Automation Task Force (AATF) under the guidance of the APANPIRG, and was published in March 1997. This Guidance Material was based on the *Common Operating Procedures* (COP) developed by the Common Operating Procedures Group (COPG) of the EUROCONTROL AIS Panel for operation in the integrated EUR Region Automated AIS in an effort to follow up EAMPG Conclusion 32/26. These procedures were in line with the *Aeronautical Information Services Manual* (Doc 8126, 5th Edition), in particular with Chapter 8 – Organization of an Automated Aeronautical Information Services System. The objective of the COP was to provide guidance in relation to the operation of an integrated regional automated AIS system, where commonality was sought throughout the region, or even worldwide, for the benefit of all operators and users of the system.

In 1999, APANPIRG considered the previous work of the AATF, on-going work of the AIS/MAP Divisional Meeting (AISMAP98) held in Montreal, Canada, from 23 March to 3 April 1998, and the *Guidance Material on Common Operating Procedures for the Asia/Pacific Region Automated AIS System*, and agreed that there were a number of issues that had arisen since the AATF was deactivated in 1996. Subsequently, the AATF was reactivated in 1999 with revised Terms of Reference, which included updating the Guidance Material on COP.

In January 2000, EUROCNTROL published a document concerning the *Operating Procedures for AIS Dynamic Data* (OPADD) (the Operating Procedures for AIS Dynamic Data AIS.ET1.ST05.1000-DEL-01, Edition: 1.0), which replaced the *Common Operating Procedures* (COP).

In order to further enhance inter-regional harmonization, the AATF reviewed this OPADD document with a view to incorporating EUROCONTROL procedures, to the possible extent, into the Asia/Pacific COP. During the course of the review, the following aspects were adopted as principles:

a) Procedures which were based on an assumption or would require an amendment to the ICAO Annex 15, should not be considered;

b) Procedures which were unique to the European Region or would have no relevance to the Asia/Pacific Region should not be considered; and

c) The structure of the document should be compatible with the OPADD to the possible extent.

It should be noted that the Guidance Material contained in this Chapter 3 is a living document and needs to be reviewed and updated from time to time, taking into consideration of developments by ICAO and States, and changing technology.

1.2 Purpose

The objective of these procedures is *"the provision of standardized procedures to improve the quality of AI*S" and they concur with the overall AIS Specialist Objectives:

- *"To promote uniformity in the collection and dissemination of aeronautical information, in the interest of safety, quality, efficiency and economy*"; and
- *"To improve overall efficiency of AIS, in terms of speed, accuracy and cost effectiveness, by the increased use of automatio*n".

It should be noted that when the original procedures were being developed, all member States of the European Civil Aviation Conference (ECAC) considered that they act in conformity with the Annex 15 Integrated Aeronautical Information Package provisions. However, significant differences of interpretation of the SARPS were identified and it was acknowledged that a common understanding of procedures for NOTAM creation was a prerequisite for successful automated processing. Therefore, the Operating Procedures contained in the original EUROCONTROL document were developed to reach this common understanding.

1.3 Scope

This Guidance Material on the *Operating Procedures for AIS Dynamic Data* details the procedures related to NOTAM, in general.

The procedures are intended for guidance and may be implemented immediately. The effective date for the marked procedures will be as per the amended Annex 15 edition, except where indicated otherwise by means of a note. The procedures for NOTAM creation detailed in Section 2 will also serve as a benchmark for the processing of incoming international NOTAM, in the sense that where incoming international NOTAM are not prepared in line with these procedures, they can be manually processed in accordance with the principles and procedures laid down in Section 3 - 'NOTAM Processing' of this Material.

The principles and procedures related to maintaining database completeness and coherence, along with the description of messages associated with this function, are provided in Section 4. These messages, such as request and reply messages, are required to fulfill the maintenance function. These messages are based upon the use of AFTN, whereas the use of other communication means, using alternative formats, could be envisaged.

This Material also contains general procedures for SNOWTAM and ASHTAM.

Finally, a set of Appendices comprises Guidance for the Use of the NOTAM Selection Criteria (NSC), Procedures for Multi-Part Messages, System Parameters necessary for the processing and storage of NOTAM in Databases, and a Glossary, which defines the meaning of certain terms used in this document.

1.4 Document Outline

This document describes operating procedures for NOTAM with the objective of harmonizing them to enhance automatic NOTAM handling.

The document contains six Sections and four Appendices as follows:

Section 1 - Introduction, presents the deliverable context, purpose and scope. The scope statement clarifies the applicability of the procedures. Section 1 contains also a deliverable outline and a table of referenced documents.

Section 2 - NOTAM Creation, sets the procedures related to NOTAM creation in general. It provides a standard format for NOTAM Checklists, and standard methods of handling eventual Multi-part NOTAM and NOTAM related to several States. The procedures related to the relationship between NOTAM and AIP publications *i.e.* TRIGGER NOTAM production, in application of the Integrated Aeronautical Information Package are also explained.

Section 3 - NOTAM Processing, sets the procedures for the handling of NOTAM which do not comply with ICAO SARPS. Based on Section 2 content, this Section sets the limits concerning NOTAM correction and the procedures to follow when correction is not possible.

Section 4 - DATABASE Completeness and Coherence Messages, provides the message formats for maintaining AIS Dynamic Data.

Section 5 - PROCESSING of SNOWTAM and ASHTAM, sets the procedures for handling these messages for their incorporation in PIB.

Section 6. - FALL BACK PROCEDURES, provides general principles for Fall Back procedures.

Appendices*:*

1. *Guidance for the use of the NOTAM Selection Criteria (NSC);*
2. *Procedures for Multi-Part Messages;*
3. *System Parameters; and*
4. *Glossary.*

1.5 Referenced Documents

The following documents were used during the production of this Guidance Material:

No	Title	Edition	Date
1	ICAO Annex 15 - *Aeronautical Information Services*	Tenth edition with Amendments up to 31	July 1997
2	ICAO Aeronautical Information Services Manual – Doc 8126-AN/872	Fifth	1995
3	Procedures for Air Navigation Services – ICAO Abbreviations and Codes (PANS-ABC, Doc 8400)	Fifth edition with Amendments up to 24	1999
4	ICAO Regional Guidance Material on the Common Operating Procedures for the Asia/Pacific Region Automated AIS Systems	First	March 1997
5	EUROCONTROL the *Operating Procedures for AIS Dynamic Data*	AIS.ET1.ST05.1000-DEL-01, Edition: 1.0	31 January 2000

2. NOTAM CREATION

2.1 General

The international standard NOTAM format is contained in ICAO Annex 15. It is the reference format for NOTAM and forms the baseline on which this document is developed.

The different types of NOTAM are:

- NOTAMN (New NOTAM);
- NOTAMR (Replacement NOTAM);
- NOTAMC (Cancel NOTAM).

This Section 2 contains the operating procedures to be applied for the creation of NOTAM, and provides:

- Basic rules for NOTAM creation (2.1.1);
- Basic verification to be performed (2.1.2);
- Detailed Procedures relative to each NOTAM Item (2.2 and following).

The procedures relative to the processing of NOTAM are described in Section 3.

2.1.1 Basic Rules for NOTAM Creation

The following basic rules apply to the creation of NOTAM at NOF level:

- A NOTAM shall deal only with one subject and one condition of that subject.
- NOTAM are basically qualified according to the NOTAM Selection Criteria (NSC)1 , as published in ICAO Doc 8126 , Appendix C.
- All published times shall be in UTC
- For NOTAMC no anticipated date in Item B (start of validity) is permitted.
- If Item C contains ‘EST’, the NOTAM requires the later issue of a NOTAMR or NOTAMC.
- Item C shall contain ‘PERM’ solely for NOTAM information that will be incorporated in the AIP. These NOTAM are cancelled according to the rules described in paragraph 2.6 when the AIP is updated.
- Item E should be composed by the Publishing NOF in such a way that it will serve for direct Pre-flight Information Bulletin entry without requiring additional processing by the receiving Unit.
- No correct version NOTAM shall be issued. Erroneous NOTAM shall either be replaced, or cancelled and a new NOTAM issued.
- A NOTAMR shall replace only one NOTAM. Both shall belong to the same NOTAM series.

- A NOTAMC shall cancel only one NOTAM. Both shall belong to the same NOTAM series.
- Publication of several NOTAM in the same AFTN message is not allowed.
- Renumbering of existing NOTAM (containing identical information, but with a new number) is not allowed. Nor shall renumbering be done at the beginning of each year.

2.1.2 Basic Verification

High quality standards in creation of NOTAM require the application of both syntax and semantic verification.

Depending on the sophistication of the AIS system, verification may be performed to varying degrees by either manual methods or by software.

Irrespective of the way it is achieved, the following verification must be performed:

- The ICAO NOTAM format shall be strictly adhered to.
- NOTAM Series/Number/Year/Sub-number (if applicable) are correct and in ascending sequence.
- NOTAM Type: only N, R or C are allowed.
- NOTAM Number referred to in a NOTAMR or C is a valid NOTAM.
- Item A in NOTAMR and C is identical to Item A in the NOTAM referred to.
- Item Q):
  - 'FIR' is a valid entry for the Publishing NOF.
  - NOTAM Code is contained in the NOTAM Selection Criteria (NSC).
  - TRAFFIC, PURPOSE and SCOPE should correspond to those provided in the NOTAM Selection Criteria.
  - LOWER and UPPER (expressed in FL value) are logical, i.e. LOWER inferior or equal to UPPER.
  - Co-ordinates in 'Geographical Reference' Qualifier are situated inside the FIR(s), and correspond to a Radio Navigation Aid, zone or area defined in Item E or to the aerodrome in Item A. Co-ordinates are expressed in degrees of Latitude/Longitude to a resolution of one minute, followed by the radius of influence in NM.
- Item A:
  - The given FIR or FIR(s) are valid for a country, and are valid FIR(s) for the Publishing NOF.

    If more than 1 FIR is concerned, the ICAO country indicator of the Publishing NOF followed by XX or XXX must be stated in 'FIR' of the Item Q, and all FIR(s) (up to 7) shall be stated in Item A.
  - A given aerodrome is a valid aerodrome situated in the FIR stated in Item Q, and is a valid aerodrome for the Publishing NOF.

- Item B: Start of Validity
  - NOTAM ‘N’ and ‘R’:

    10 figure date/time group equal to or greater than the actual date/time of creation.
  - NOTAM ‘C’:

    10 figure date/time group equal to the actual date/time of creation of the NOTAM.

    Note: the date/time group in Item B may precede the date/time group of transmission of the NOTAM by a few minutes, due to the time required for the full completion and review of the NOTAM data.
- Item C: End of Validity

  10 figure date/time group greater than Item B, except for NOTAMC where the Item C is not included.

  The date/time group may optionally be followed by the letters ‘EST’, if appropriate.

  – If no DTG is given, the letters ‘PERM’ must be present (only for information that will be incorporated in AIP).
- Item D: Day schedule - active times

  Months, Days and Hours must be situated inside the time limits indicated by the Start and End of Validity
- Item E: Text

  This entry must be clear and concise in order to provide a suitable PIB entry.

  Use the decoded NOTAM Code, completed where necessary by indicators, identifiers, designators, call signs, frequencies, figures and plain language. ICAO abbreviations should be used where appropriate.
- Items F and G: Lower and Upper Limit

  Shall only be used for Navigation Warnings and Airspace Organization.

  Values shall be verified as to correctness and logic, and on whether the indicated data correspond to the values entered in qualifiers LOWER and UPPER in the Item Q.

  If Items F and G are required, both Items shall always be included.

All data Items in the NOTAM format shall be included according to the NOTAM type.

The following table shows the necessary data Items for each NOTAM type:

Data - Type	NOTAMN	NOTAMR	NOTAMC	Checklist
Identification	Yes	Yes	Yes	Yes
Series/Nr R or C	No	Yes	Yes	Yes
FIR	Yes	Yes	Yes	Yes
NOTAM code	Yes	Yes	Yes	Yes
Traffic	Yes	Yes	Yes	Yes
Purpose	Yes	Yes	Yes	Yes
Scope	Yes	Yes	Yes	Yes
Lower/Upper	Yes	Yes	Yes	Yes
Lat/Long/ Radius	Yes	Yes	Yes	No
Item A	Yes	Yes	Yes	Yes
Item B	Yes	Yes	Yes	Yes
Item C	Yes	Yes	No	Yes
Item D	Optional	Optional	No	No
Item E	Yes	Yes	Yes	Yes
Items F/G	Optional	Optional	No	No

Yes = Entry in Item is compulsory.

No = Entry in Item is not allowed.

Optional = Entry depending on the NOTAM contents.

2.2 NOTAM Identification

2.2.1 NOTAM Series Allocation

- The use of a NOTAM Series identifier is always required, even for countries publishing only one single NOTAM Series.
- Letters A to Z (1 character) are allowed.

2.2.2 NOTAM Number

- Consists of NOTAM number/year (4 digits/2 digits). For Multi-part NOTAM this number shall be followed by a sub-number (1 letter, 2 digits).
- Each series will start on January 1st of each year with number 0001.
- The NOTAM are issued in ascending and continuous sequence.

2.2.2.1 NOTAM Sub-Number (for Multi-part NOTAM only)

In case where a NOF produces a NOTAM exceeding the present AFTN message length (normally 1800 characters including non-printing characters, but as few as 1200 in some countries), it will produce a Multi-part NOTAM.

Each part of the Multi-part NOTAM is a separate NOTAM Message with each Item present from Item Q to Item D (if present) inclusive, and Item E continuing text. Each part shall have the same NOTAM type and has the same NOTAM number followed by a sub-number. Items F and G (if present) are transmitted with the last part only.

The sub-number is placed immediately behind the year of the number/year combination without a space.

The sub-number is identified by one letter ('part identifier' e.g. A = Part 1, B = Part 2, etc.) and a number, always consisting of 2 digits (‘number of parts’, e.g. 05= 5 parts). This enables up to 26 parts Multi-part NOTAM.

Examples:

A1234/00A02 (means Part 1 of 2)
B1235/00B05 (means Part 2 of 5)
A5678/00C03 (means Part 3 of 3)
B6453/00D06 (means Part 4 of 6)

The following example shows the NOTAM Identification of a Multi-part NOTAM consisting of 4 parts.

Example:

(A1234/97A04 NOTAMN
Q) .....
A) .....
B) .....

C) .....
E) .....)

(A1234/97B04 NOTAMN
Q) .....
A) .....
B) .....
C) .....
E) .....)

(A1234/97C04 NOTAMN
Q) .....
A) .....
B) .....
C) .....
E) .....)

(A1234/97D04 NOTAMN
Q) .....
A) .....
B) .....
C) .....
E) .....)

2.2.3 NOTAM Type

- Letters 'N' (new), 'R' (replace) and 'C' (cancel) are allocated to the NOTAM according to its type.

  Example: A0123/97 NOTAMN

- The procedures described in this chapter refer to NOTAMN (new NOTAM), most of them apply also to NOTAMR and NOTAMC.

However, there are some particulars specific to NOTAMR (Replacement NOTAM) and NOTAMC (Cancel NOTAM) creation. These are described in this Section, paragraphs 2.4.7 and 2.4.8.

2.3 NOTAM Qualification (Item Q)

2.3.1 General Rules

The NOTAM Selection Criteria (NSC) are the basis for NOTAM qualification. Guidance for their use is contained in ICAO Doc 8126, Appendix C. Publishing NOF shall basically use the NOTAM Codes and their respective allocated qualifiers provided in the NSC.

Automated (computer assisted) systems will propose these specific criteria for inclusion in the Item Q of the proposed NOTAM.

Use of the NOTAM Code and the corresponding 'Traffic', 'Purpose' and 'Scope' qualifiers is recommended.

Deviation from the published qualifiers is only allowed when required by National regulations or imposed by operational needs.

All fields of the Item Q shall be completed for each NOTAM type.

2.3.2 Qualifier 'FIR'

ICAO Location Indicator of the FIR concerned. A location indicator allocated exclusively to an overlying UIR shall not be used.

Example:

Q) EDXX/QARCH/I/OB/E/250/450/4916N01236E999

A) EDFF EDMM

Note: that the information relates to Rhein UIR and that the indicator EDUU (=Rhein UIR) is not inserted in Item Q.

If more than one FIR of the same country is concerned, the ICAO country indicator (e.g. ED) followed by 'XX' (or 'XXX') shall be inserted instead of a FIR.

In the case of multiple FIR, the ICAO location indicators of all FIR concerned shall be listed in Item A.

Example:

Q) ZXXX/QWELW/. . . . . .

A) ZGZU ZSHA ZBPE. . . . . .

If multiple FIR of different countries are concerned (supra-national), the ICAO country indicator of the Publishing NOF followed by "XX" or "XXX" shall be inserted. The ICAO location indicator of all affected FIR shall also be listed in Item A.

Example:

Q) WMXX/QWELW/.. . . . . .

A) WMFC VTBB

2.3.3 Qualifier 'NOTAM Code'

This Item contains the NOTAM Code.

The basis for the assignment of NOTAM Codes are the NOTAM Selection Criteria (NSC). NOF shall basically use the NOTAM Codes provided in the NOTAM Selection Criteria.

The association criteria defined in the NSC provide a subject-related association of NOTAM with the qualifiers 'TRAFFIC', 'PURPOSE' and 'SCOPE'.

If the NSC do not contain an appropriate NOTAM Code, the following procedures shall be applied:

a) In the exceptional case where the information to be promulgated by NOTAM has no related SUBJECT (2nd and 3rd letters of NOTAM Code) contained in the NOTAM Code list, the following NOTAM Code shall be used in all cases: '**QXXXX**'

   When QXXXX is inserted, free association of the qualifiers 'TRAFFIC', 'PURPOSE' and 'SCOPE' is possible.

   Example:

   Item Q = Q)EKDK/QXXXX/IV/M/E /000/999/5533N00940E999

   NOTAM text = E) ACCORDING TO RESOLUTION 781 UNITED NATIONS HAS DECIDED TO ESTABLISH A BAN ON MIL FLIGHTS IN …..

   The 2nd and 3rd letter combination 'XX' shall only be used in combination with the 4th and 5th letter combination 'XX', except in the case of Amendments or Supplements containing information dealing with different subjects and locations, one Trigger NOTAM with NOTAM Code 'QXXTT' will be issued.

b) Whenever the SUBJECT (2nd and 3rd letters) is contained in the NSC, but the CONDITION of the subject (4th and 5th letters of NOTAM Code) **is not** specified, the letters 'XX' shall be inserted as 4th and 5th letters.

   When "XX" is inserted as 4th and 5th letters, free association of the qualifiers (with the exception of 'SCOPE') is possible. The entries shall be made with regard to the NOTAM contents, and by analogy with the prevailing association of qualifiers to the respective subject (2nd and 3rd letters) in the NSC.

   Example:

   QMRXX (Runway)

   Prevailing qualifiers for '=

   TRAFFIC/PURPOSE/SCOPE are ' IV/NB/A/'

   Entry in Item Q accordingly:

   Q)WSJC/QMRXX/IV/NBO/A/000/999/0121N10358E005

2.3.4 Qualifier 'TRAFFIC'

This qualifier relates the NOTAM to a type of traffic:

I = IFR Traffic

V = VFR Traffic

IV = IFR and VFR Traffic

K = NOTAM is a checklist, see paragraph 2.7.

The appropriate type of traffic shall be taken from the NOTAM Selection Criteria.

The NSC contain certain subjects (2nd and 3rd letters) where the traffic (I, V or IV) depends on the NOTAM contents (e.g. QAP = REPORTING POINT or QMN=APRON). In these cases, the correct traffic entry shall be determined by the Publishing NOF according to NOTAM contents/subject.

Example:

NOTAM code = QAPCI

TRAFFIC = IV (DEPENDS ON SUBJECT (I AND/OR V)

TEXT = **VFR** REPORTING POINT ID CHANGED ...

Entry in Item Q: Q) YBBB/QAPCI/V/OB/E /000/200....

2.3.5 Qualifier 'PURPOSE'

This qualifier relates a NOTAM to certain purposes (intentions) and thus allows retrieval according to the user's requirements. The appropriate ' Purpose' qualifier(s) should be taken from the NSC.

2.3.5.1 'PURPOSE' entries

N = NOTAM selected for the immediate attention of aircraft operators

Due to their importance these NOTAM require immediate attention of aircraft operators. Aircraft Operators may request for specific delivery of such NOTAM or for inclusion into specific Pre-flight Information Bulletins.

The NOTAM will appear in a specific Pre-flight Information Bulletin containing only NOTAM related to subjects of extreme importance selected for immediate attention. NOTAM qualified OB, B or M will not appear, so only NOTAM qualified NB shall appear.

O = Operationally significant NOTAM

The NOTAM will appear in a specific Pre-flight Information Bulletin containing only NOTAM related to subjects of operational significance. NOTAM qualified B or M will not appear, only NOTAM with OB or NB shall appear.

B = NOTAM selected for PIB entry

The NOTAM will appear in a Pre-flight Information Bulletin containing all NOTAM relevant to a general Pre-flight Information Bulletin query.

NOTAM qualified B, OB or NB shall appear in the Pre-flight Information Bulletin.

M = Miscellaneous

The NOTAM is for a 'miscellaneous' purpose and will not appear in a Pre-flight Information Bulletin, unless specifically requested.

K = The NOTAM is a checklist (see paragraph 2.7).

2.3.5.2 'PURPOSE' combinations

The following combinations of one to two letters are permissible (the order of the letters in the combinations has no significance):

- NB, OB, B and M
- K for a NOTAM Checklist.

2.3.6 Qualifier 'SCOPE'

This qualifier relates the NOTAM subject (2nd and 3rd letters) to a specific scope. This qualifier is used to determine under which category a NOTAM is presented in a Pre-flight Information Bulletin, i.e. under 'Aerodrome', 'En-Route' or 'Navigational Warning'.

The details about the processing of the various entries for the production of Pre-flight Information Bulletins are to be described.

The following entries are permissible:

A = Aerodrome

relates the NOTAM to the scope of 'Aerodromes'. Entry of an aerodrome (e.g. RJAA) in Item A is compulsory. A geographical reference in the Item Q shall be given, in this case the aerodrome co-ordinates.

E = Enroute

relates the NOTAM to the scope of 'Enroute information'. Entry of one or more FIR in Item A is compulsory. A geographical reference in the Item Q shall be given according to the contents of the NOTAM.

W = Warning

relates the NOTAM to the scope of 'Navigation Warnings'. Entry of one or more FIR in Item A is compulsory. A geographical reference in the Item Q shall be given according to the contents of the NOTAM.

AE = Aerodrome/Enroute

relates the NOTAM to scopes 'A' and 'E' . Entry of an aerodrome (e.g. VHHH) in Item A is compulsory, and the geographical reference in the Item Q shall be given according to the contents of the NOTAM.

Scope 'AE' is employed where a Navigational Aid is used for both the Aerodrome and the Enroute procedures. The location indicator of the Aerodrome shall be included in Item A. Item Q shall contain the geographical co-ordinates and the radius of the Navigational Aid.

Example:

Q) VTBB/QNVAS/IV/BO/AE/000/999/1354N10036E005

A) VTBD

E) VOR BKK FREQ 117.7MHZ U/S

AW = Aerodrome/ Warning

relates the NOTAM to both scopes 'A' and 'W' . Entry of an aerodrome in Item A is compulsory, and the geographical reference in the Item Q shall be given according to the contents of the NOTAM.

Scope 'AW' is used when the Navigational Warning takes places on or in the near vicinity of an aerodrome, and it affects both the traffic flying enroute and at the aerodrome.

Item A shall contain the aerodrome location indicator, and Item Q shall contain the geographical co-ordinates of the location where the activity takes place, followed by the radius.

Example

Q) WSJC/QWPLW/IV/M/W/000/100/0123N10342E010

A) WSJC

B) 0204072300

C) 0204080100

E) PJE WILL TAKE PLACE WI 10NM RADIUS OF 012315N1034235E

F) GND
G) FL100)

K = Checklist

relates the NOTAM to a checklist, which will not appear in a Pre-flight Information Bulletin. Entry in Item A of the FIR(s) valid for the Publishing NOF is compulsory.

The appropriate entries shall be taken from the NOTAM Selection Criteria.

The NSC contain certain subjects (2nd and 3rd letters) where the SCOPE (A, E,W, AE or AW) depends on the NOTAM contents (e.g. QAA = MNM ALT or QNV = VOR). In these cases, the correct SCOPE entry shall be determined by the publishing NOF according to NOTAM contents.

If the letters 'XX' are inserted as 4th and 5th letters of the NOTAM code, the appropriate SCOPE must be derived from the NOTAM-subject (2nd and 3rd letters of the NOTAM Code) according to the NSC.

Recapitulation of 'SCOPE' qualification possibilities and respective Item A contents:

Qualifier 'SCOPE'	Item A contents
A	Aerodrome
AE	Aerodrome
E	FIR(s)
W	FIR(s)
AW	Aerodrome
K	FIR(s)

2.3.7 Qualifiers 'LOWER/UPPER'

These qualifiers relate a NOTAM influence to a vertical section of airspace specified by lower/upper limits. This allows to specify upper/lower limits in requests for pre-flight information, and by doing so to exclude from the retrieved Pre-flight Information Bulletin obtained, any NOTAM not relating to all or part of the requested vertical section.

- The limits specified in these qualifiers are given as 'flight levels' only. Example: /090/330/ = flight level 090 ' to 330 'UPPER'
- In the case of NAV-Warnings and Airspace Restrictions, the values specified in LOWER and UPPER shall correspond to the values specified in Items F and G and to those which are specified in the NOTAM text (see paragraph 2.4.5).
- In the case of Airspace Organization, the values specified in LOWER and UPPER shall correspond to the vertical limits of the airspace concerned, (if the NOTAM introduces a change to the vertical limits of the airspace, Items F and G shall be present and correspond to the values in LOWER and UPPER).

  Example:
  F) 2000 FT AGL
  G) 7500 FT AMSL
  = LOWER/UPPER: 020/075.

  Note: Due to the possible differences between transition heights and levels (depending on the air pressure), the values entered in qualifiers LOWER and UPPER in the Item Q, only roughly correspond to the indicated data in Items F and G.

  The Publishing NOF should take into account that the values in the Item Q refer to Flight Levels, and that the conversion of the values from the Items F and G shall include the local ' elevation' or 'height', as well as an extra-layer that includes pressure deviations from the ' Standard Atmosphere'.

  At Pre-flight Information Bulletin request, an operational margin should additionally be assured by entering height values that sufficiently cover the flight profile requirements.

- Default values are LOWER = 000, UPPER = 999, for En-Route information (SCOPE ‘E’) as well as for Aerodrome information (SCOPE ‘A’), if the NOTAM do not require certain specific height indications.

  Note: Most aerodrome related information refers to ground installations, and therefore insertion of an Upper Limit is not relevant (hence the default ‘999’). Whenever the aerodrome related information also affects the airspace above, the Lower/Upper Limits need to be specified, and the ‘ SCOPE’ qualifier shall read ‘AE’ or ‘AW’.

2.3.8 Qualifier ‘GEOGRAPHICAL REFERENCE’

2.3.8.1 General rules

This qualifier allows the geographical association of a NOTAM to the location it refers to, and is composed of:

- One set of co-ordinates given in 11 characters, i.e. latitude: NORTH/SOUTH in 5 characters, longitude: EAST/WEST in 6 characters, e.g.: 1045N10725E
- Radius of influence in 3 figures rounded up to the next higher whole Nautical Mile encompassing the total area of influence; e.g. 4.2NM shall be indicated as 5.

  Example: Q)VVTS/QWMLW/IV/OB/W /000/175/1045N10725E005

2.3.8.2 Use of Co-ordinates

- For NOTAM with SCOPE A the co-ordinates of the Aerodrome Reference Point (ARP) shall be inserted
- For NOTAM with SCOPE AE or AW the appropriate co-ordinates shall be inserted. These co-ordinates may be different from the ARP.

  e.g.: A VOR situated at an aerodrome will not necessarily have the same co-ordinates as the ARP. The same applies for a Navigation Warning at or in the close vicinity of an aerodrome, affecting the aerodrome traffic, and whose co-ordinates may also be different from the ARP.
- For NOTAM with SCOPE E or W referring to a given/known point (Navigational Aid, Reporting point, City, etc.) these co-ordinates shall be inserted.
- If a NOTAM with SCOPE E or W refers to an area (FIR, Country, Danger Area etc.), the co-ordinates represent the approximate centre of a circle whose radius encompasses the whole area of influence.
- For NOTAM with SCOPE E or W containing information that cannot be allocated a specific geographical position (e.g. VOLMET, Entry requirements, Communication failure etc.) the co-ordinates represent the approximate centre of a circle whose radius encompasses the whole area of influence (this may be the centre of an FIR or multiple FIR, e.g. for an entire State)

2.3.8.3 Use of Radius

- Radius shall basically be used in a way that it encompasses the total area of influence of the NOTAM.
- Whenever the complete FIR or all the FIR (e.g. for an entire State with more than one FIR) specified in Item A are entirely concerned, then ‘ 999’ shall be filled in the radius.

  The use of the radius value ‘ 999’ shall allow an automated system to retrieve such information only against the FIR(s) indicated in Item A. Adjacent FIR(s), even within the radius of influence, are never affected by this information.

  Example:

  (D0001/00 NOTAMN

  Q) EDXX/QXXXX/IV/OB/E /000/999/5120N01030E999

  A) EDBB EDFF EDLL EDMM EDWW

  B) 0001010000 C) PERM

  E) FLIGHTS TO/FROM THE CONTRACTING STATES OF THE SCHENGEN REGIME MAY BE CONDUCTED TO/FROM ANY AERODROME WITHIN THE FEDERAL REPUBLIC OF GERMANY. THE OBLIGATION TO USE A DESIGNATED CUSTOMS AERODROME IS WITHDRAWN).
- For certain specific NOTAM subjects, the radius shall be standardized for the sake of uniformity and simplicity. These NOTAM codes and their appropriate radius are listed in the following table.

Table of Recommended Default Radius Indicators for NOTAM Creation

NOTAM Code	Plain language	Radius in NM
Q....	All Aerodrome related NOTAM (Scope A only). The default value shall also be used for Scope AE/AW, but only if appropriate values cannot be defined.	005 005 if no appropriate value can be found.
QN...	All Navigation Aids (VOR, NDB ...) except: Long Range Navigation Systems, e.g. GPS, en-route DME…	025
QOB..	OBST	005
QOL..	OBST LIGHT	005
QPH..	Holding Procedure	025
QPX..	Minimum Holding Altitude	025
QAP..	Reporting Point	005
QAX..	Intersection	005

2.4 NOTAM Items

2.4.1 Item A - Location 'FIR/AD'

2.4.1.1 Single-Location NOTAM

ICAO location indicator of one aerodrome or FIR concerned.

- In the case of one FIR, the entry must be identical to qualifier ' FIR' in the Item Q.
- If the NOTAM contents relate to an overlying UIR, the FIR or the UIR location indicator shall be inserted in Item A with appropriate levels of the UIR in the Lower/Upper fields of the Item Q.

The use of solely FIR indicators in Item A is advised, unless specifically required by the NOTAM contents.

Note that in the case of Item Q, only an FIR indicator or the Country indicator followed by XX shall be inserted.

- When an aerodrome indicator is given, it must be an aerodrome situated in the FIR inserted in the Item Q. This shall apply even when the aerodrome is situated within an overlying FIR of another State, e.g. NOTAM for EGJJ shall have LFRR in Item Q.
- If no 4–letter ICAO location indicator for an aerodrome exists, Item A contains the 2–letter country indicator + XX (EDXX) or the single-letter country indicator + XXX (KXXX), with the full name of the aerodrome as first element in Item E.

  Note: States shall take urgent steps to ensure that:

  - all aerodromes which may be the location of international NOTAM have an ICAO location indicator;

  - the same location indicator is not used for an aerodrome and an FIR.

  Examples:

  A)EBBU (1 FIR, ICAO location indicator)

  A)LFPO (Aerodrome, ICAO location indicator)

  A)EDXX (no location indicator published by Germany)

  For the latter example, the full name of the aerodrome,

  e.g. GROSSENHEIN must be stated as first element in Item E.

2.4.1.2 Multi-Location NOTAM

- No multi-location NOTAM is allowed in case of aerodrome information.
- If more than one FIR is concerned:

- all FIR location indicators affected by the information shall be entered in Item A;

- the number of FIR in Item A is restricted to 7 by the current ICAO NOTAM format (length of an AFTN line). If more than 7 FIR are affected, additional NOTAM shall be published.

- the FIR qualifier of the Item Q contains the ICAO country indicator letter(s) + XX (or XXX). For ‘ supra-national’ information, i.e. more than 1 FIR belonging to several countries, the ICAO country indicator of the Publishing NOF (followed by XX or XXX) must be stated in ‘ FIR’ of the Item Q.

Example:

Multiple FIR in one country :

A) RJTG RORG

Item Q ‘FIR’ = RJXX

Multiple FIR in different countries:

A) WMFC WSJC

Item Q ‘ FIR’ = WMFC if the NOTAM is originated by the Kuala Lumpur NOF

2.4.2 Item B - Start of Validity

Ten-figure date-time group, giving year, month, day, hour and minutes at which the NOTAM comes into force.

Remark: A NOTAM is ‘ valid’ from the moment it is published, whereas it only comes ‘ in force’ at the date-time group specified in Item B.

Example: B) 0007011200 (1st of July 2000, 12:00 UTC)

- The start of a day shall be indicated by **0000.**
- For NOTAMC, Item B time shall correspond to the issuing time of the NOTAM. No start of validity projected into the future shall be given.

  Note: ‘WIE’ or ‘WEF’ are not permitted.

2.4.3 Item C - End of Validity

Ten-figure date-time group, giving year, month, day, hour and minute at which the NOTAM expires.

- The end of a day shall be indicated by **2359 (do not use 2400**).
- For NOTAM of uncertain duration of validity, the date-time group shall be followed by ‘ EST’ (estimate).
  Note: ‘APRX DUR’ or ‘UFN’ are not permitted
- Any NOTAM which includes an ‘EST’ shall be replaced by NOTAMR or cancelled by NOTAMC before the ‘ estimated’ end date specified in Item C.
- For NOTAM containing information of permanent validity, the abbreviation ‘PERM’ is used.

Examples:

C) 0007022030

C) 0007031230EST

C) PERM

- The Item C shall not be included in NOTAMC.
- In cases where the activity promulgated by a NOTAM takes place -or not- on (an) alternative date(s), the Publishing NOF shall take the necessary action to ensure that the NOTAM is cancelled or replaced with updated information at the appropriate time.

2.4.4 Item D - Day Schedule 'SCHEDULE'

This Item needs only to be inserted when the information contained in a NOTAM is not relevant for users at certain periods inside the stated period of validity, i.e. between the Items B and C times.

- Periods of activity stated in Item D fall between the Items B and C times and the start of the first activity in Item D always coincides with the Item B time, and the end of the last activity with the Item C time.
- This information is destined for Pre-flight Information Bulletin entry and retrieval.
- Item D shall not exceed 200 characters, if this would be the case additional NOTAM shall be published.
- The maximum time period between 2 consecutive activity periods shall not exceed 7 days. If the time gap between consecutive activity periods is 8 days or more, an additional NOTAM shall be issued.

2.4.4.1 General

Item D shall be structured according to the following rules. These provide clear and unambiguous standard expressions allowing automated processing for Pre-flight Information Bulletin production, while maintaining a good and clear readability in manual environments.

Automated processing (and to a certain extent manual processing) thus allows, whenever times or dates inside Items B and C are not concerned by the activity, that the NOTAM will not be in the content of a PIB.

2.4.4.2 Abbreviations and Symbols Used

Year: The year shall not be inserted in Item D, as it is stated in Items B and C.

When the planned time schedule goes from one year into another, the displayed data shall remain in chronological order i.e. December of this year shall precede January of next year.

Month: JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Month day: 01 02 03 .... 30 31

Day: MON TUE WED THU FRI SAT SUN

Times:Written in 4 digits (e.g.: 1030)

Text: EXC: for ‘except’

DAILY: is optional for a ‘daily’ schedule

EVERY: for a schedule on fixed days

HJ: for the period from Sunrise till Sunset (=SR-SS)

HN: for the period from Sunset till Sunrise (=SS-SR)

H24: for the whole day/dates concerned. Not be used as a single entry.

SR and/or SS: if appropriate to indicate Sunrise or Sunset

AND: shall be included in front of the last date or the last time period specified in Item D, to increase readability in a manual environment.

Signs: ‘ , ‘ (comma) for schedule element or group separation
‘ - ‘ (hyphen) means ‘ TO’ or ‘ FROM-TO’
‘ (blank) is read as ‘ AND’ . Blanks shall not be used in front of the last date or time period.
‘ / ’ (oblique) shall not be used in Item D.

Examples: D) APR 04 06 08 AND 11

D) MAR 04 0600-0800 AND 1000-1200.

2.4.4.3 Special Cases

Sunrise and Sunset:

SR (Sunrise) and SS (Sunset) can be used.

The keywords for expressing begin and end of twilight, are ‘ SR MINUS30’ and ‘ SS PLUS30’ (note that there shall be a blank space after SR and SS).

If the active time of a NOTAM corresponds to sunrise or sunset, the actual times of sunrise on the first day of validity and of sunset on the last day of validity, respectively, shall be inserted in Items B and C.

Examples:

B) 0005110413 C) 0005211701
D) SR MINUS30-SS PLUS30

B) 0005150446 C) 0005201633
D) HJ

B) 0005151920 C) 0005200437
D) SS-SR

Due to their daily variation, these special time formats may not be treated automatically for NOTAM output. If this is the case, the NOTAM will be displayed in the PIB for the whole day concerned.

Legal holiday:

The date must be stated explicitly due to differences existing between States.

Long or complicated schedules:

Should not be given in a structured Item D. Such cases should be 'split' into different NOTAM.

2.4.4.4 Examples

Remark: The examples given pre-suppose a correct calendar and the application of the rule that the start of the first activity in Item D coincides with the Item B time, and the end of the last activity with Item C. Therefore, Items B and C, (i.e. the defined time periods), are not shown in the examples.

Example 1: Repetitive event active every day:

D) 0700-1000

or D) DAILY 0700-1000

Example 2: Repetitive event active on a certain weekday

D) EVERY MON

Example 3: Activity on several days

D) FEB 08 10 AND 12

Example 4: Various day-periods explained by FROM-TO

D) FEB 08-12, FEB 17-20

Example 5: Combination of day-periods and time-periods

D) FEB 08-28 2000-2200, MAR 01-05 1800-2200

D) FEB 08-28 DAILY 2000-2200, MAR 01-05 DAILY 1800-2200

D) WED AND SAT 1000-1400, SUN-TUE 1500-1800

D) FEB 08 10 AND 12 1000-1600, FEB 13-28 1200-1900, MAR 01-05 1000-1300 AND 1500-1700

Example 6: Combination of day-periods (H24 activity) with day-periods having time-periods. Activity full day (H24) on WED and FRI, and from 0600 to 1700 on SUN:

D) WED AND FRI H24, SUN 0600-1700

or D) 01 AND 03 H24, 05 0600-1700

Example 7: Day-period and time-period with specific exceptions

D) THU 0300-1200 EXC FEB 16

or D) SUN 0700-1800 EXC FEB 19 AND MAR 12

Example 8: Activity from WED 1900 to FRI 0600, during 2 consecutive weeks.

D) WED 1900-FRI 0600

or D)01 1900-03 0600, 08 1900-10 0600

Example 9: Activity relative to Sunrise and Sunset

D) SR-SS

D) SR MINUS30-SS

D) SR MINUS30-1500

D) 0800-SS

D) 0800-SS PLUS30.

2.4.5 Item E - NOTAM Text

- Item E is free text in plain English language and does not contain NOTAM Code. The NOTAM Code is translated according to the text provided in the NOTAM Selection Criteria.
- Item E content shall be related to one NOTAM subject only. (Except in case of a trigger NOTAM, paragraph 2.5.1 bullet 6 refers).
- It may contain well known ICAO abbreviations (Doc 8400), and abbreviations used for directions and units of measurements (e.g. N, SE, FT, GND, AMSL, NM, etc.).

  Examples:

  E) RWY 25R ILS LLZ OUT OF SERVICE

  E) OBST ERECTED. CRANE 1.5 NM W THR RWY 07L 2500 FT S RCL 07L/25R HEIGHT 150 FT AGL/191 FT AMSL
- As Item E content is the main information to be provided in a Pre-flight Information Bulletin, it should be composed in such a way that it allows direct Pre-flight Information Bulletin entry.
- The essentials of the information (i.e. translated and amplified NOTAM subject) shall be given in the first line of Item E.
- Unclear and/or incomplete NOTAM-Text as well as unnecessary AIP references shall be avoided.

  Example 1:
  Wrong: E) WARNING WITHDRAWN
  REF AIP ENR 4-2-7.3 PARA 6.5.

  Remark: Information is unclear/incomplete.
  Solution: Clearly describe the circumstances, in the above mentioned case:

  Correct: E) ULTRALIGHT AREA SAN TEADORA 5048N 09339E COMPLETELY WITHDRAWN.

  REF AIP ENR 4-2-7.3 PARA 6.5.)

  Note: Item C = PERM in the above example.

  Example 2:

  Wrong: E) TACAN "ALA" CH88 OUT OF SERVICE REF AIP ENR 2-1.

Remark: AIP Reference not necessary (in this case, the information is of a temporary nature, and does not have a long duration).

Correct: E) TACAN ALA CH88 OUT OF SERVICE.

2.4.6 Items F and G - Lower and Upper Limit

- Lower and Upper limits should be inserted in Items F and G for Navigation Warnings and for Airspace Organization, whenever appropriate.
- Whenever the Item G is present, also the Item F shall be filled.
- Items F and G shall contain:

  an altitude or an height expressed in meters or feet, or a flight level (always expressed in 3 digits). In addition, SFC (surface) and GND (ground) may be used in Item F as well as UNL (unlimited) in Item G.

Recapitulation of expressions/formats possibilities:

Item F:	Item G
SFC	UNL
GND	XXXXXFT AGL
XXXXXFT AGL	XXXXXFT AMSL
XXXXXFT AMSL	XXXXXM AGL
XXXXXM AGL	XXXXXM AMSL
XXXXXM AMSL	FLXXX
FLXXX	

Notes:

- Only a single entry is permitted in each Item, i.e. G)10000FT (3280M) AGL shall not be used.

- Abbreviations FT or M shall be divided from AGL or AMSL by a blank character. No other character (e.g. "/", "-"...) shall be used. e.g. “3000 FT/AMSL” shall not be used.

- . The values in qualifiers ‘LOWER’ and ‘UPPER’ of the Item Q must correspond to the flight levels or altitudes specified in Items F and G. If Items F and/or G are expressed in height, the values specified in the ‘LOWER’ or ‘UPPER’ qualifiers shall contain corresponding FL figures. Conversion shall take into account the ground elevation and possible deviations in barometric pressure from the ‘Standard Atmosphere’.

  Example: F) FL250 (‘LOWER’ = 250)
  G) FL310 (‘UPPER’ = 310)

  Example: F) 1500FT AGL (‘LOWER’ = 030)
  G) 7500FT AMSL (‘UPPER’ = 095) in this case GND=MSL and a safety margin has been included for barometric pressure variation.

- Where event is notified in a form such as “activity UP TO FL040 (after ATC approval up to FL080)”, the higher value (e.g. FL080) shall be used in Item G and in the ‘UPPER’ qualifier.

2.4.7 Procedures Related to NOTAM ’R’ Creation

NOTAMR are replacement NOTAM.

- NOTAMR are issued in the same series as the NOTAM to be replaced,
- NOTAMR replace only one NOTAMN or R.

  Example: A0124/97 NOTAMR A0106/97
- NOTAMR deals with precisely the same subject as the NOTAM referred to.
- NOTAMR has the same Item A contents as the NOTAM referred to.
- NOTAMR is not permitted for the replacement of an individual part of a Multi-part NOTAM.

2.4.8 Procedures Related to NOTAM ‘C’ Creation

NOTAMC are Cancel NOTAM.

- NOTAMC are issued in the same series as the NOTAMN or R referred to.
- NOTAMC cancel only one NOTAMN or R.

  Example: A0234/97 NOTAMC A0123/97
- NOTAMC has the same Item A contents as the NOTAM it cancels.
- NOTAMC become valid at the time they are issued, and immediately cancel the NOTAMN or R referred to.
- No future start of validity (cancellation) in Item B is permitted.
- In case of cancellation of a Multi-part NOTAM, all parts are cancelled by the NOTAMC. Cancellation of individual parts is not permitted.
- NOTAMC shall be published whenever NOTAM are incorporated in an AIP AMDT (see paragraph 2.6 and 2.8.3).

The qualifiers are as follows:

– Qualifier ‘NOTAM CODE’

SUBJECT: 2nd and 3rd letters identical to the original NOTAM

CONDITION: 4th and 5th letters, the following entries are permitted:

- Q..AK = RESUMED NORMAL OPS
- Q..AO = OPERATIONAL
- Q..AL = OPERATIVE SUBJECT PREVIOUS CONDITION
- Q..CC = COMPLETED
- Q..XX = OTHER (PLAIN LANGUAGE)

– Qualifiers ‘TRAFFIC', ‘PURPOSE’, 'SCOPE', ‘LOWER/UPPER’ and ‘COORDINATES, RADIUS’ may be identical to the cancelled NOTAM. Maintaining the original qualifiers allows additional use of NOTAMC for the preparation of ‘ Updates’ of Pre-flight Information Bulletins.

- NOTAMC shall not contain Items C, D, F and G.
- For all NOTAMC, the text of the decoded NOTAM Code shall be inserted in Item E together with details on the NOTAM subject.

  Example:

  NOTAM Code = QNVAK
  Item E = VOR DKB RESUMED NORMAL OPS

- In order to facilitate work in manual environments, NOTAMC, which are to be followed immediately by a NOTAMN (instead of NOTAMR), shall contain XX as 4th and 5th letters of the NOTAM Code, and at the end of the text in Item E the remark: ‘NEW NOTAM TO FOLLOW’.

  Example:

  NOTAM Code = QMRXX

  Item E = RWY 07L/25R NEW NOTAM TO FOLLOW

2.5 Trigger NOTAM and related procedures

2.5.1 General rules

When an AIP Amendment or an AIP Supplement is published in accordance with the AIRAC procedures, a Trigger NOTAM shall be originated giving a brief description of the contents, as well as the effective date and the reference number of the AIP Amendment or Supplement.

This NOTAM must come into force on the same date as the Amendment or Supplement referred to.

The text of such NOTAM is included in the Pre-flight Information Bulletins, to ensure that pilots and operators are reminded, that changes of operational significance take place from a given effective date.

Information concerning any circumstances listed in Annex 15, Appendix 4, Part 1 and 2, shall be disseminated under the regulated ‘AIRAC’ system, either as an AIRAC AIP Amendment, or as an AIRAC AIP Supplement. Due to time constraints, normal AIP Supplements are sometimes published when the nature of the information required the publication of an AIRAC AIP Supplement. In such exceptional cases, the operational nature of the information should prevail and the normal AIP Supplement shall also be Triggered.

AIRAC AIP Amendments and AIRAC AIP Supplements shall always be triggered by a NOTAM.

NON-AIRAC AIP Supplements shall only be triggered by a NOTAM when containing information that normally required the publication of an ‘AIRAC’

AIP Supplement. The 'Subject' and 'Condition' shall relate the information to at least PURPOSE 'OB', according to the NOTAM Selection Criteria.

Trigger NOTAM are issued according to the following rules:

- Trigger NOTAM are issued at the publication date of the AIRAC AIP Amendment or the AIP Supplement (AIRAC or, in exceptional cases, NON-AIRAC)
- They are issued in the appropriate NOTAM series, according to the information contained.
- Trigger NOTAM are issued according to the NOTAM Selection Criteria.

  - As Trigger NOTAM are issued only relative to information of operational significance, the NOTAM Selection Criteria shall provide PURPOSE 'OB' or ' NB'.
- Trigger NOTAM shall follow the same rules on creation as a normal NOTAM, incl. Item Q procedures.
- The NOTAM Code for a Trigger NOTAM shall always contain 'TT' as 4th and 5th letter (= condition). The 2nd and 3rd letter (= subject) shall be selected from the NSC and 'XX' may be used in case of more than one subject or location.

The exclusive ' TT' condition indicator can be used to retrieve specific Trigger NOTAM from any Publishing NOF, and can additionally be used for the inclusion (or non-inclusion) of Trigger NOTAM into Pre-flight Information Bulletins, at a specific time before their effective date.

- In the case of Amendments or Supplements containing information dealing with different subjects and/or locations (FIR(s) or Aerodromes), only one Trigger NOTAM for each location may be issued, dealing with the different subjects.

  Publishing NOF may group all the information that relates to one (or several) FIR - regardless of the subject - in order to reduce the amount of NOTAM to be published.

  Examples:

  Q)RJTG/QAGTT/IV/BO/A/000/999/3546N14023E005
  A) RJAA
  E) TRIGGER NOTAM – AIP SUP213/02
  OPERATIONAL RESTRICTIONS AT NEW TOKYO INTL AIRPORT

Note: for Aerodromes a separate Trigger NOTAM for each aerodrome, shall be issued. Different subjects relating to the same aerodrome, may however be grouped in the same NOTAM.

Q)RJTG/QXXTT/I/OB/A/000/999/3546N14023E005
A) RJAA
E) TRIGGER NOTAM – PERM AIRAC AIP AMDT 292/98
NEW SID AND CHANGE OF NARITA TERMINAL CONTROL AREA

In the above cases the NOTAM qualifiers TRAFFIC, PURPOSE and SCOPE shall be filled according to the subject of highest operational importance.

- The text in Item E should not exceed 300 characters and shall always start with the words “Trigger NOTAM”, followed by a reference to the published AIRAC AMDT or SUP concerned.

2.5.2 Trigger NOTAM relative to AIRAC AIP AMDT

- AIRAC Amendmen*ts* represent permanent changes to the AIP on a predefined date.
- AIRAC AIP Amendments become effective on the AIRAC cycle date (**Effective date**). Item B shall always contain the AIRAC effective date.
- The validity of Trigger NOTAM relative to AIRAC AIP Amendments will be from the effective date until 15 days thereafter.

  Therefore, Trigger NOTAM relative to AIRAC AIP Amendments must contain in Item B the effective date of the change and in Item C the AIRAC effective date plus 15 days.
- Trigger NOTAM relative to AIRAC AIP Amendments must contain in Item E a reference to the Amendment, and an indication that ‘permanent’ changes are taking place.

  Example:

  Q) VTBB/QARTT/I /OB/E /065/460/1108N09945E999
  A) VTBB
  B) 0003230000 (effective date)
  C) 0004072359 (effective date + 15 days)
  E) TRIGGER NOTAM - PERM AIRAC AIP AMDT 3/00
  REALIGNMENT OF ATS RTE W34

  Note: the term ‘PERM’ is inserted in Item E to stress that Item C contains an artificial end-date and that the information is of a permanent nature.

2.5.3 Trigger NOTAM relative to AIP SUP (AIRAC and NON-AIRAC)

- Due to time constraints, AIP Supplements containing information to be published under the AIRAC system are sometimes published as NON-AIRAC AIP Supplements. For all Supplements containing such information (AIRAC and NON-AIRAC), a Trigger NOTAM shall be issued.
- AIP Supplements become effective at the date stated in the Supplement.
- Information to be published under the AIRAC system does not always start on an AIRAC cycle date (e.g. major works, large air exercises etc. ...). Consequently, both the AIP Supplement and the Item B of the Trigger NOTAM shall contain the effective date of the start of the information.

- AIP Supplements normally contain information of a temporary nature, either ‘known’ or ‘unknown’ (until aprx. ...). The Supplements of ‘unknown’ duration shall be replaced in due time by another Supplement and a corresponding Trigger NOTAMR, or shall be replaced by a NOTAMR, or cancelled by a NOTAMC.
- The validity of Trigger NOTAM relative to AIP Supplements of ‘unknown’ duration, shall be described in Item C by a 10-figure date/time group followed by ‘EST’. (Cancellation or Replacement required).
- The validity of Trigger NOTAM relative to AIP Supplements of a ‘known’ duration shall be the entire duration of the Supplement, i.e. Item B contains the effective date, and Item C the ‘ end date’ of the Supplement. The NOTAM stays in the PIB for the entire duration of the Supplement.
- Trigger NOTAM relative to AIP Supplements shall contain in Item E a reference to the Supplement.

  Example:

  Q) WMFC/QRDTT/IV/OB/AE /000/400/0433N09948E035

  A) WMKB

  B) 0003230000 (effective date of the info)

  C) 0012232359 (end of validity of the info)

  E) TRIGGER NOTAM - AIRAC AIP SUP 008/01

  CHANGE IN LATERAL LIMITS OF WMD413

- Any change to an (AIRAC) AIP Supplement, especially in connection with a Trigger NOTAM, shall be published by the Publishing NOF in a way that the information itself is always clear and without any ambiguities. No detailed procedures for such cases will be given here because of the great variety and the complexity of the different circumstances possible. However, special care should be taken that the begin date (Item B) and the end date (Item C) sufficiently cover the operational needs imposed for the display of the information in Pre-flight Information Bulletins.

2.5.4 Cancellation by NOTAM of AIP Supplements containing AIRAC information

- For these AIP Supplements, an associated Trigger NOTAM has been issued, the procedures for cancellation/replacement of Trigger NOTAM apply, see paragraph 2.8.5.

2.5.5 Cancellation by NOTAM of AIP Supplements containing non-AIRAC information

- For these AIP Supplements, normally no Trigger NOTAM has been issued. In case of cancellation before their end of validity, a NOTAMN may be issued. Such NOTAM shall always contain PURPOSE qualifiers ‘M’ and shall remain in force for up to 15 days in order to allow recipients to remove the cancelled data from their AIP.

2.6 Publication of permanent information by NOTAM

Note: Permanent information shall not be distributed through a NOTAM only. This information shall be incorporated in an AIP Amendment.

When the urgency of publication of an Amendment to the AIP is such that the 'normal' AIRAC or NON-AIRAC Amendment publication is considered to be unsuitable, the responsible NOF will issue a NOTAM ' PERM' according to the following rules:

- The NOTAM is issued according to the NOTAM Selection Criteria.
- The NOTAM must contain in Item B the effective date of the change, and in Item C the term ' PERM' to indicate that the change itself is of a permanent nature.
- The NOTAM shall never include the expected publication date or the effective date of the Amendment in Item C.
- The NOTAM will be cancelled by the appropriate AIP Amendment on the next suitable occasion. A reference to the cancelled NOTAM shall be made on the cover sheet of this Amendment.

  Furthermore, a NOTAMC shall be issued 15 days after the effective date of the AIP Amendment, to cancel the 'PERM' NOTAM on that date (see paragraph 2.8.3).

  Note: It is assumed that the AIP Amendments will be available at all receiving units by the time the NOTAMC is sent.

  Note that 'Effective date' in this instance can be equal to an AIP Amendment publication date. This broadens Annex 15 use of this expression which relates currently to AIRAC AIP Amendments only.

  The NOTAMC shall contain a reference to the AIP Amendment in Item E.

  e.g. "INFORMATION INCORPORATED IN AIP AMDT NR 04 EFF 22/04/00.
- Incorporation in AIP of permanent NOTAM within 3 months after publication is required. Reissuing of "PERM" NOTAM with the same contents is not allowed.
- In cases where a NOTAM is issued to correct a mistake in an AIP AMDT, Item E shall remind of the operational content of the AMDT and not only of the mistake.

  Example:

  text such as "E) AIRAC AIP AMDT 10/00 PART AD : EGNX 1-12 RWY 08/26 EXTENSION READ 1850 M INSTEAD OF 1805 M"

  shall read "E) RWY 10/28 EXTENSION, AIRAC AIP AMDT 10/00PART AD: EGNX 1-12 RWY08 READ 1850 M INSTEAD OF 1805 M".

  This allows users to be aware of the subject when reading the PIB and to refer to the AIP AMDT content only if necessary.

2.7 Checklist Production

Checklists are issued as a NOTAM in the series they refer to. A separate Checklist shall be issued for each NOTAM Series.

Checklists have the following particulars:

- The Checklist is issued as NOTAMR with an estimated (EST) validity of not more than 1 month.
- The next Checklist NOTAMR replaces the previous Checklist with immediate effect.

  Consequently Item B is the issuing time of the Checklist and supersedes the previous one immediately.
- Checklists shall still contain the numbers of the NOTAM incorporated in a normal AIP AMDT or AIP SUP until the time that these NOTAM are cancelled by the publication of a NOTAMC.
- Qualifier 'FIR' of the Item Q is either:

  - the FIR indicator, or

  - the country indicator letter(s) followed by an appropriate number of X (2 or 3) if there is more than one FIR in a country, or

  - the country indicator of the Publishing NOF followed by 'XX' or 'XXX' if publishing for FIR in different countries.
- The NOTAM Code is a special dedicated NOTAM Code: 'QKKKK'.
- Qualifiers TRAFFIC, PURPOSE and SCOPE will be given the artificial value 'K'.
- LOWER/UPPER are default values 000/999.
- Qualifiers 'QKKKK' (NOTAM code) and 'K' (TRAFFIC, PURPOSE, SCOPE) are used to allow selective retrieval of the Checklist. It also prevents the Checklist from appearing in a Pre-flight information Bulletin.
- Item A shall contain the FIR or a list of all the FIR concerned by the Checklist.
- Item C is the estimated time of validity, normally indicating 1 month later than the issuing time, followed by 'EST'
- Item E is divided in two sections:

1. First Section, identified by the keyword 'CHECKLIST'

   Contains the list of the valid NOTAM numbers which have been promulgated in the same series as the Checklist, in a format suitable for automatic and manual processing. Note that the list shall not contain the number of the replaced NOTAM checklist nor its own NOTAM checklist number.

   - The text in Item E shall start with the word "CHECKLIST"

- The numbering of NOTAM is grouped by year (indicated by 4 digits) using the word 'YEAR' plus ' =' sign, followed by the year of publication without blanks (e.g. YEAR=1999).

- Each NOTAM number (always 4 digits) is separated by a blank with no other punctuation mark.

- Each indicator of a different year shall start on a new line.

2. Second Section, identified by 'LATEST PUBLICATIONS'

Contains the list of the latest publications, in a format suitable for manual processing only.

Example:

(B0040/02 NOTAMR B0021/02
Q)VTXX/QKKKK/K/K /K /000/999/
A) VTBB B) 0203310900 C) 0204300900EST
E)CHECKLIST
YEAR=2000 0101 0232 0244 0288 0345 0511
YEAR=2001 0101 0104 0347 0601 0653 0674 0687
YEAR=2002 0004 0006 0009 0010 0011 0012 0014 0018 0025
0027 0029 0034 0035
LATEST PUBLICATIONS
AIRAC AIP AMDT 004/02 EFFECTIVE 20 APR 02
AIP SUP 001/02
AIC A001/02

Note: Whenever the numbering of AIP AMDT takes place on a yearly basis, a reference to the year of publication will be added to the number.

- When the publication of the Checklist contains an error, the following procedures will apply:

-A valid NOTAM number was not inserted in the Checklist:

A NOTAMR shall be published replacing the omitted NOTAM with the new number. This procedure will allow consistency of the data in the database of all recipients, whatever the method of processing of Checklists.

-An invalid NOTAM number was erroneously inserted in the Checklist:

A revised Checklist (NOTAM**R** replacing the erroneous Checklist) will be published without the invalid NOTAM number (no correct version).

2.8 Cancellation of NOTAM

2.8.1 Cancellation of NOTAM by End of Validity

NOTAM (N, R and Trigger) with a defined End of Validity time (10-figure DATE/TIME group in Item C), cease to be both in force and valid at that time.

2.8.2 Cancellation/Replacement of NOTAM by another NOTAM

NOTAM which are to become invalid before their given End of Validity, or did not have a defined End of Validity (i.e. have 'EST' or ' PERM' in Item C) may be replaced or cancelled at any time.

- Cancellation by NOTAMC: The original NOTAMN or R is cancelled at publication of the NOTAMC (Item B = issuing time)
- Replacement by NOTAMR: The original NOTAMN or R is replaced at publication of the NOTAMR (Item B = issuing time or later than issuing time), with the NOTAMR having its own validity.

2.8.3 Cancellation of NOTAM by AIP Amendment

- Cancellation by AIP Amendment occurs in cases when a NOF has issued a NOTAM 'PERM' (see paragraph 2.5) containing information of permanent validity, which is to be incorporated into the AIP by AIP Amendment.
- As the NOTAM itself has no finite validity (Item C = 'PERM'), the NOF issues a NOTAMC which cancels the NOTAM 'PERM', 15 days after the effective date of the AIP Amendment that contains the 'PERM' information.

  Note: It is assumed that the AIP Amendments will be available at all receiving units by the time the NOTAMC is sent.

  Note: 'Effective date' in this instance can be equal to an AIP Amendment publication date. This broadens Annex 15 use of this expression which relates currently to AIRAC AIP Amendments only.
- The NOTAMC shall contain in Item E a reference to the AIP Amendment that incorporates the originally published NOTAM.

  e.g. INFORMATION INCORPORATED IN AIP AMDT 04/00 EFF 20/04/00
- The numbers of the NOTAM incorporated in the AIP Amendment shall be published on the cover page of the AIP Amendment. Recipients shall not remove these numbers from their NOTAM database, as this will be done upon receipt of a NOTAMC.

2.8.4 Replacement of NOTAM by AIP Supplement

- Publication of an AIP Supplement to replace and modify information of an existing NOTAM may occur at any time.
- A Trigger NOTAM shall be published against this AIP Supplement. The Publishing NOF shall ensure that the already existing NOTAM is cancelled at the Item B date of the Trigger NOTAM. Depending on the case this may be done with a NOTAMR or with a NOTAMC.

2.8.5 Cancellation/Replacement of Trigger NOTAM

- Basic cancellation rules for NOTAM apply.
- Trigger NOTAM relative to AIRAC AIP AMDT shall be self-canceling 15 days after the effective date of the AMDT (Item C = Effective date + 15 days).
- Trigger NOTAM relative to AIP SUP shall be cancelled according the following rules:

  1. Item C is a fixed date:

  The Trigger NOTAM will be automatically cancelled on this date.

  Exceptionally the end date specified in the AIP SUP may be brought forward by NOTAM. In this case, at the date of cancellation (new end of validity), a Trigger NOTAMR is issued that remains in force up to 15 days. It can be in force less than 15 days, if the originally published end of validity of the Supplement is reached within this 15 days period. In this case, the Item C date of the Trigger NOTAMR shall be identical to the end of validity date of the Supplement. Such 'cancellation' Trigger NOTAM shall always clearly indicate in Item E that the planned end date has been brought forward.

  Example:

  A2673/01 NOTAMN
  Q)WMFC/QFATT/IV/BO/A/000/999/0244N10142E005
  A)WMKK
  B) 0104200600
  C) 0109301600
  E)TRIGGER NOTAM – AIRAC AIP SUP 14/01
  AERODROME RESTRICTIONS DUE TO MAJOR CONSTRUCTION WORKS.

  A2910/01 NOTAMR A2673/01
  Q)WMFC/QFALT/IV/BO/A/000/999/0244N10142E005
  A)WMKK
  B) 0109171600
  C) 0109301600
  E) REF AIRAC AIP SUP 14/01
  WORKS HAVE BEEN COMPLETED. THE RESTRICTIONS PUBLISHED IN SUP 14/01 ARE NO LONGER IN FORCE.

  2. Item C is an estimated date (EST):

  A Trigger NOTAMR shall be published to replace the existing Trigger NOTAM at the appropriate time (= before the Item C time has been reached). Such Trigger NOTAMR shall follow the same rules on creation as explained in paragraph 2.5.

  Trigger NOTAM with an estimated end date shall be cancelled by the publication of a normal NOTAMC at the appropriate time (= the time at

which the Publishing NOF is informed that the situation described in the AIP SUP has stopped).

2.8.6 Cancellation of NOTAM by Checklist

- Cancellation of NOTAM solely on the basis of the Checklist is not allowed.
- Whenever a NOTAM has been inadvertently omitted from the Checklist, a NOTAM**R** with the same contents as the omitted NOTAM will be published as soon as practicable. This NOTAMR shall replace the NOTAM number that was omitted from the Checklist.

……..

3. NOTAM PROCESSING

3.1 Introduction

The current standard NOTAM format was introduced in ICAO Annex 15, 8th Edition published on 14 November 1991. All NOTAM should be produced in this format, following the procedures on NOTAM creation explained in Section 2 of this Guidance Material.

However, there are still NOTAM published according to the former NOTAM Class I format that need to be converted in order to allow their automatic processing.

Some countries are also not adhering completely to the Integrated Aeronautical Information Package and do not publish Trigger NOTAM for operationally significant publications.

As a result, differences and discrepancies exist internationally in NOTAM published. NOTAM have to pass through a series of phases where their conformity to the ICAO format is analyzed, and their contents assessed prior to their storage in automated NOF systems. The purpose of this Section on "NOTAM processing", is to define and describe the principles and detailed procedures applied throughout these different phases.

3.2 Objective

The goal of NOTAM processing is to bring all received NOTAM in accordance with the procedures laid down in Section 2 of this Material on NOTAM Creation, so as to allow their storage into automated systems.

NOTAM processing should result in a standardized level of service, regardless which Unit was responsible for the processing.

This Chapter addresses NOTAM Processing principles and procedures which support NOTAM storage and their consequent potential retransmission. The production of Pre-flight Information Bulletin is not addressed here.

3.3 Definitions

- **Processing** - the examination of NOTAM received from other NOF in order to verify suitability for acceptance into an automated AIS system, undertaking conversion, translation, syntax correction, data correction, editing and/or summarizing as required.
- **Automatic processing** - the processing and storage of NOTAM received from other States without any human intervention.
- **NOTAM Processing Unit** - any unit that is responsible for the reception, processing and further distribution of NOTAM originated by other NOF. This unit may do these functions for its own purposes only, or may act on behalf of other NOF.

- **Publishing NOF** - the NOF responsible for the creation of the NOTAM, as opposed to the originator of the AFTN message within which the NOTAM is contained (which are not necessarily the same).
- **Client NOF** - any NOF which has subscribed to the services provided by a NOTAM Processing Unit.

3.4 Procedures for the processing of NOTAM

The procedures described in this Chapter refer to NOTAMN (new NOTAM). Most of them apply also to NOTAMR and NOTAMC.

Specific procedures relative to NOTAMR (Replacement NOTAM) and NOTAMC (Cancel NOTAM) and the particulars of their processing are described in this Chapter after the NOTAM ' N' procedures.

3.4.1 General Principles

- The original NOTAM shall be stored as received by the NOTAM Processing Unit and made available on request.

  Whilst it is expected that most Client NOF will work with the processed version of the NOTAM, the NOTAM Processing Unit should be able to systematically provide:

  - the processed version;
  - the original version; or
  - both versions.

  depending upon requirements of the clients.
- The NOTAM Processing Unit shall keep track of any message (free text or 'correct version' NOTAM) which is related to the original NOTAM.
- The NOTAM Processing Unit, whether this is an individual Unit of one State, or a centralized Unit handling on behalf of a group of States, will perform the following processing functions:

  - **conversion** into the standard format;
  - **syntax correction** of obvious mistakes in syntax;
  - **data correction** of detected mistakes in data;
  - **editing** text in order to clarify it;

3.4.2 Conversion of original NOTAM Class I

- **Conversion** - the transposition of a NOTAM received in the old format into a correctly formatted NOTAM in Annex 15
- On reception of NOTAM from countries that do not adhere to the NOTAM format, the NOTAM Processing Unit has the function to transform these into the correct ICAO Annex 15 NOTAM format before storage and eventual retransmission.

In this case each Item of the original NOTAM is transposed into the standard NOTAM Item, and those not present (e.g. Item Q) are added.

- Converted NOTAM shall be qualified according to the NOTAM Selection Criteria published in ICAO Doc 8126. For this purpose, the NOTAM Code must be identified from Item E:

  - If the NOTAM Code is present in Item E, it is moved into the Item Q for further qualification, and decoded in Item E according to the text provided in the NOTAM Selection Criteria.

  - If no NOTAM Code is contained in Item E, the subject and condition have to be derived from the NOTAM contents.

3.4.3 Syntax correction

- **Syntax correction** - changing syntax where these are obviously wrong, it may be carried out automatically by a system or manually by an operator.
- Correction of syntax shall be based on the format described in ICAO Annex 15 and in Section 2 of this Manual.

3.4.4 Data correction

- **Data correction** - changing data elements where these are obviously wrong. This may be carried out automatically by a system or manually by an operator. (It does not include correction by the Publishing NOF).
- Correction of data shall only be carried out when the error is such that there can be no possible ambiguity. Where appropriate, corrections will be made using validated Static data. Where there is ambiguity or any doubt whatsoever the Publishing NOF shall be consulted and the procedures for "NOTAM SUBJECT TO QUERY" shall be applied (see paragraph 3.4.6).

3.4.5 Editing

- **Editing** - changing the wording of the free text of a NOTAM to make it clearer or express explicitly ideas that are implicit in that text.
- Editing might be carried out in order to clarify text, or to draw specific attention to important elements which are implied by the original text but not stated explicitly. Under no circumstances shall editing change the sense of the original NOTAM.
- When the sense of the original NOTAM is not clear, the procedures for "NOTAM SUBJECT TO QUERY" shall be applied (see paragraph 3.4.6).

3.4.6 Procedures for dealing with NOTAM SUBJECT TO QUERY

- Whenever a received NOTAM contains ambiguities that cannot be clarified by the NOTAM Processing Unit, a query shall be addressed to the Publishing NOF. However, such NOTAM will be retransmitted as "NOTAM SUBJECT TO QUERY" by the NOTAM Processing Unit without delay to all relevant addressees.

- The NOTAM Processing Unit shall add the reason for the query after the statement ‘NOTAM SUBJECT TO QUERY’.
- If the Publishing NOF follows ICAO procedures the corrected version will consist of a NOTAMR (if the queried NOTAM is already in force) or a NOTAMC followed by a NOTAMN (if the queried NOTAM is not in force). In either case the new NOTAM is processed normally by the NOTAM Processing Unit.
- If the reply is in the form of a ‘Correct Version’ NOTAM retaining the Series and Number of the queried NOTAM, it will be processed by the NOTAM Processing Unit, and retransmitted as an ordinary NOTAM. The words ’Correct Version’ will be removed.

When it is received by a “Client NOF” the latter must recognize that:

– it is a duplicate Series and Number;

– that it was transmitted by a NOTAM Processing Unit;

and automatically use it to overwrite the previous version in their NOTAM database.

- If the reply is in the form of a free text message the NOTAM Processing Unit will edit the last processed version of the queried NOTAM in accordance with the information provided, and the statement ’NOTAM SUBJECT TO QUERY’ will be removed. The corrected NOTAM will then be distributed retaining the Series and Number of the original. When received by a NOTAM Processing Unit ‘Client NOF’ it will be treated as in the previous case.

3.4.7 Procedures for correction of NOTAM

- If an obvious error is found by the NOTAM Processing Unit, appropriate action will be taken to correct the received NOTAM and a query shall additionally be sent to the Publishing NOF.
- If the NOTAM Processing Unit detects re-occurring errors, it shall address a letter to the Publishing NOF, indicating the correct procedure.
- When a NOTAM Processing Unit is alerted that an error has occurred in a NOTAM processed by itself, the NOTAM Processing Unit will determine the origin of the error, and:

  – either re-send the NOTAM after correction, when the error was made by the NOTAM Processing Unit; or

  – proceed with a request to the Publishing NOF, if the error was already contained in the original NOTAM (rules for ‘NOTAM SUBJECT TO QUERY’ have to be applied).

3.5 NOTAM Verification

Basically all NOTAM Items shall be checked according to the rules described in Section 2 on NOTAM Creation. In addition, the following general verification shall be performed by the NOTAM Processing Unit:

- Check if the NOTAM has already been received and differentiate between a 'Dupe' and a 'Correct Version' NOTAM.
- Check if there is a logical sequence in the origin time of the AFTN messages whenever an 'identical' NOTAM is received.
- NOTAM Series/Number/Year/Sub-number, relative to the Publishing NOF, are valid and in logic ascending sequence. If not, appropriate request for missing NOTAM is sent by the NOTAM Processing Unit to the Publishing NOF. (see Section 4, Database completeness and Coherence messages)
- NOTAM Number referred to in a NOTAMR or C is a valid NOTAM from the same Publishing NOF.

Additional specific verification will be done as explained in the following sub-paragraphs.

3.5.1 NOTAM Identification

For storage in automated systems, the NOTAM identification consists of establishing the relation between the NOTAM series, number and the "Numbering Reference", which is in most cases the Publishing NOF 4-letter location indicator. This allows unique identification of NOTAM and easy tracking of missing numbers.

3.5.1.1 Publishing NOF Identification

- The identification of the ' Publishing NOF' is not straightforwardly contained in the NOTAM format. According to SARPS in ICAO Annex 10, the location indicator (AFTN address) of the Publishing NOF is given in the AFTN message origin of the original NOTAM.
- When transmitting or re-transmitting a NOTAM, the NOTAM Processing Unit enters its own AFTN address into the message origin line according to the same SARPS.
- However, to assist Client NOF, the NOTAM Processing Unit shall retain the origin line of the original message within which the NOTAM was received and attach it in a line introduced before the opening bracket of the processed NOTAM.

Example: a USA NOTAM re-transmitted by a NOTAM Processing Unit:

Original NOTAM:
GG .....
121800 KDCAYNYX

(A1275/00 NOTAMN
A)KJFK B)WIE.....
etc. –

Processed NOTAM:
GG .....
121805 NOTAM Processing Unit address
121800 KDCAYNYX
(A1275/00 NOTAMN
Q)KZNY/Q …./…..
- A)KJFK
  B) 0008121800
  - etc

- This original origin line shall remain with the processed NOTAM, upon each further retransmission.

  Note: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, it shall be removed by the NOTAM Processing Unit before retransmission.

3.5.1.2 NOTAM Series Allocation

- The NOTAM Processing Unit retains the Series and NOTAM Number of the original NOTAM upon retransmission.
- Whenever the NOTAM Series letter has been omitted, the NOTAM Processing Unit shall try to derive it from the NOTAM sequence number and include this series.
- If the Publishing NOF does not use a NOTAM Series letter, the NOTAM Processing Unit will automatically allocate a Series letter (normally 'A') for such NOTAM.

3.5.1.3 NOTAM Number

- When a NOTAM is received that is out of the numerical sequence, a query for the missing NOTAM number(s) will be initiated, according to Section 4 procedures (Database completeness and coherence messages).
- If the NOTAM number consists of less than 4 digits the NOTAM Processing Unit will add the leading zeros. When the 'Year' indicator is missing, it shall also be added.

3.5.1.4 NOTAM Sub-Number (Multi-part NOTAM)

- Whenever a Multi-part NOTAM is received without having the format specified in Section 2, it shall be converted into the correct Multi-part NOTAM format by the NOTAM Processing Unit.

3.5.2 NOTAM Type

- If the Publishing NOF did not include the NOTAM type in the original NOTAM, the NOTAM Processing Unit will have to insert the appropriate NOTAM type letter.
- If the Publishing NOF wrongly allocated the NOTAM type in the original NOTAM, the NOTAM Processing Unit inserts the appropriate type.
- In both cases, the Publishing NOF will be informed about the change.

3.5.3 NOTAM Qualification (Item Q)

3.5.3.1 General Rule

Whenever the Item Q is missing, it shall be inserted by the NOTAM Processing Unit.

3.5.3.2 Qualifier 'FIR'

The NOTAM Processing Unit shall check that this field contains the ICAO Location Indicator of the FIR concerned, or if more than one FIR is concerned in Item A, the ICAO Country indicator of the Publishing NOF followed by 'XX' or 'XXX'. In this case, the ICAO location indicators of all FIR concerned (up to 7) shall be listed in NOTAM Item A.

Example:

Q) ZXXX/QWELW/ . . . . . .
A) ZGZU ZSHA ZBPE . . . . . .

3.5.3.3 Qualifier 'NOTAM CODE'

- The NOTAM Selection Criteria are the basis for NOTAM code allocation and qualification as described in Section 2.
- Overwriting of the original qualifiers (Traffic, Purpose and Scope) should be avoided, unless to correct obvious mistakes.
- Downgrading of the qualifier 'Purpose' is not allowed.
- Whenever the NOTAM Code in the Item Q is not filled, the NOTAM Processing Unit shall include the NOTAM Code, corresponding to the Item E content, together with the appropriate 'Qualifiers'.
- If the NOTAM code does not correspond to the text of Item E, and the text of Item E is clear and unambiguous, the NOTAM code may be brought in line with the text, provided that this does not imply a downgrading in the 'Purpose' qualifier of the NOTAM. The Publishing NOF shall be informed about the change.
- For NOTAM received with a NOTAM Code that is not contained in the NSC, the NOTAM Processing Unit shall allocate a 'NOTAM Code' in accordance with the subject and the condition of the subject specified in the NOTAM text. The Publishing NOF shall be informed about the change.
- When a Trigger NOTAM is received without the 4th and 5th letter 'Condition' indicator "TT", the NOTAM Processing Unit shall replace the original 4th and 5th letter 'Condition' indicator by "TT".

3.5.3.4 Qualifier 'TRAFFIC'

- When the 'TRAFFIC' qualifier is missing, it shall be filled according to the NOTAM Selection Criteria, or, if not specified therein, according to the NOTAM contents.

3.5.3.5 Qualifier 'PURPOSE'

- When the 'PURPOSE' qualifier is missing, it shall be filled according to the NOTAM Selection Criteria, or, if not specified therein, according to the NOTAM contents.
- The 'PURPOSE' qualifier of a NOTAM shall not be modified by a NOTAM Processing Unit, unless it implies an upgrading.

3.5.3.6 Qualifier 'SCOPE'

- When the 'SCOPE' qualifier is missing or is not filled according to the NOTAM Selection Criteria, it shall be filled according to the NOTAM contents, following the procedures described in Section 2 of this Manual.

3.5.3.7 Qualifiers 'LOWER/UPPER'

- It shall be made sure that the values specified in LOWER and UPPER are in logical order, and correspond to the values specified in Items F and G for Navigation Warnings and Airspace Restrictions.

  Example:

  F) 2000 FT AGL
  G) 7500 FT AMSL
  = LOWER/UPPER: 020/075

- If Items F and G are filled and:

  – the values in the Item Q extend beyond the limits of Items F and G, they shall be left unchanged;

  – the values in the Item Q do not equate but lie between the limits of Items F and G, they shall be modified to correspond to Items F and G

  – the limits in the Item Q are 000/999, they shall be modified to correspond to Items F and G.

The NOTAM Processing Unit shall define these values in accordance with the procedures specified in paragraph 2.3.7.

3.5.3.8 Qualifier 'GEOGRAPHICAL REFERENCE'

- The Geographical Reference shall be present in each NOTAM re-transmitted by a NOTAM Processing Unit. If this value is not contained in a received NOTAM, the NOTAM Processing Unit has to add it, following the procedures described in Section 2 of this Manual.
- If no radius has been included by the Publishing NOF, and if no radius can be extracted from the Static Database, the NOTAM Processing Unit will include a 'Default Radius Indicator', as specified in the following table:

Table of Default Radius Indicators for NOTAM Processing

NOTAM code	Plain language	Radius
Q	All Aerodrome related NOTAM (only Scope A) The default value shall also be used for Scope AE/AW, if applicable	005
QAC	CTR	005
QAT	TMA	050
QN	All Navigation Aids (VOR, NDB ...) except: Long Range Navigation Systems, e.g. GPS, en-route DME…	025
QOB	OBST	005
QOL	OBST LIGHT	005
QPH	Holding Procedure	025
QPX	Minimum Holding Altitude	025
QAP	Reporting Point	005
QAX	Intersection	005

3.5.4 NOTAM Items

3.5.4.1 Item A - Location 'FIR/AD'

- If the location indicator is not filled or contains a typing error, the NOTAM Processing Unit shall try to deduce it from the Item Q and from the Item E content. The NOTAM Subject to Query procedure shall be applied.
- If the location indicator is unknown to the NOTAM Processing Unit (aerodrome location indicator not in the Static Database), the NOTAM Processing Unit shall replace the location indicator by the Country indicator, followed by 'XX'. The NOTAM Subject to Query procedure shall be applied.

3.5.4.1.1 Single-Location NOTAM

- This shall always be the ICAO Location Indicator of one aerodrome or FIR.
- In the case of one FIR, the entry must be identical to the qualifier 'FIR' in the Item Q. If not, this entry shall be corrected by the NOTAM Processing Unit.
- When an aerodrome indicator is given, it must be an aerodrome situated in the FIR inserted in the Item Q. If not, the FIR in the Item Q shall be changed according to the Static Database.

- For aerodromes without ICAO location indicator Item A shall contain the 2–letter country indicator + XX (e.g. EDXX), with the full name of the aerodrome as first element in Item E.

  If Item A of a received NOTAM contains the full name of an aerodrome, the NOTAM Processing Unit shall replace it by a 4–letter code consisting of the 2–letter country indicator and XX (e.g. LFXX), and shall incorporate the full name into Item E.

  Examples:

  A) EBBU (1 FIR)

  A) LFPO (ICAO location indicator)

  A) EDXX (no location indicator published by Germany)
  E) PRITZWALK AD

  In the latter example, Item E shall contain the full name of the aerodrome as its first element.

3.5.4.1.2 Multi-Location NOTAM

- According to the current NOTAM format there can be only up to 7 FIR location indicators in Item A. If more than 7 FIR were entered, only the first 7 listed will remain in Item A. One or more NOTAM shall be issued with identical data as in the original NOTAM until all original FIR have been covered.
- In cases where a NOTAM contains 'supra-regional' information covering several FIR belonging to more than 1 country, qualifier 'FIR' of the Item Q shall contain the Publishing NOF' s Country Code followed by 'XX'. If this procedure is not applied by the Publishing NOF, the NOTAM Processing Unit shall correct the Item Q.

3.5.4.2 Item B – Start of Validity

- This shall be a 10-figure date-time group, giving year, month, day, hour and minutes at which the NOTAM comes into force. NOTAM Processing Unit shall make sure that all NOTAM are retransmitted in the correct format.

  Example: B) 0007011200

- For NOTAM received with WIE (With Immediate Effect), Item B will be replaced by a 10 figure date/time group corresponding to the time of origin of the original NOTAM.

3.5.4.3 Item C - End of Validity

- This shall be a 10-figure date-time group, giving year, month, day, hour and minutes at which the NOTAM ceases to be in force and becomes invalid.

- For NOTAM received with 'UFN' (Until Further Notice) in Item C, the NOTAM Processing Unit will retransmit the NOTAM as received, with Item C unchanged (=UFN).
- NOTAM containing 'EST' must be replaced by NOTAMR at the appropriate time, or cancelled by NOTAMC. NOTAM Processing Unit are responsible for the following action regarding such NOTAM:

  – NOTAM received with 'EST' and retransmitted: If the Publishing NOF does not react at the end of the estimated validity, the NOTAM Processing Unit is supposed to make request action from the Publishing NOF one hour prior to or shortly after the 'EST' time, as the significance of the NOTAM may warrant.

  – NOTAM received with 'UFN' and retransmitted:'

  No further action will be initiated by the NOTAM Processing Unit for such NOTAM.

3.5.4.4 Item D - Day Schedule 'SCHEDULE'

- If the Item D of the original NOTAM is not structured according to the procedures as detailed in Section 2 paragraph 2.4.4, it shall be edited by the NOTAM Processing Unit in accordance with these specifications.
- Item D shall not exceed 200 characters. If it does, then the Item D time schedule shall be removed and inserted at the start of Item E. This procedure will however, exclude automatic retrieval into Pre-flight Information Bulletins on the specified days and times.

3.5.4.5 Item E - NOTAM Text

- The NOTAM Processing Unit shall check the correspondence between the Item E text and the NOTAM code.
- In case of a non-standard ICAO NOTAM format, The NOTAM Processing Unit must identify the subject and select the relevant NOTAM Code. If Item E contains more than one subject, the subject of highest operational importance, based on the ' Purpose' qualifier in Item Q, shall be inserted in the Item Q.

  If the NOTAM Code is already present in Item E of the original NOTAM, it shall be moved to the Item Q and decoded in Item E, using the text provided in the NOTAM Selection Criteria.
- All navigational data, navigation aids, frequencies, location indicators, heights and any logical combinations shall be verified as to correctness.
- Whenever the text in the Item E is ambiguous, the NOTAM Processing Unit shall retransmit the original NOTAM with Item E as received according to the procedures described in paragraph 3.4.6.

3.5.4.6 Item F and G - Lower and Upper Limit

- NOTAM Processing Unit shall make sure that Lower and Upper limits in Items F and G are inserted for Navigational Warnings (Qualifier 'SCOPE' = W or AW) and for Airspace Organizations ('SCOPE' = E or AE). If these Items are missing, the NOTAM Processing Unit shall add them after verification of the data in Item E, or in the Item Q 'Lower/Upper' qualifiers, or in the Static Database, and/or after consultation with the Publishing NOF.
- If the values specified in Items F and G do not cover the limits mentioned in Item E, the NOTAM Processing Unit shall:

  - change the values in Item F or in Item G to correspond to the lowest (Item F) or the highest (Item G) value mentioned Item E; and

  - the 'NOTAM SUBJECT TO QUERY' procedure shall be used, and the Publishing NOF shall be contacted to clarify the content of the NOTAM.

  Note: the original values will not be changed, whenever the limits in Item F or G are respectively lower or higher than the limits specified in Item E.
- If no Lower limit (Item F) has been specified in a NOTAM that contains an Item G, but from the Item Q or from the Item E it is obvious that the Lower limit is "Sea or Ground", then the term 'SFC' (surface) shall be inserted in Item F.

  Example: Item Q shows: LOWER/UPPER = 000/090

  Item F) ' SFC' shall be inserted in the processed NOTAM.

  Note: the NOTAM Processing Unit shall use SFC, as use of GND may be inappropriate due to the unavailability of precise topologic information concerning the area of influence of the NOTAM.

3.5.5 Checklist Processing

3.5.5.1 General Principles

- A received Checklist will be processed and retransmitted to all Client NOF by the NOTAM Processing Unit without undue delay.
- In case of any ambiguities, e.g.:

  – valid NOTAM not on checklist,

  – NOTAM on checklist is not in the database, etc.

  The NOTAM Processing Unit addresses the Publishing NOF for clarification.
- When, as a result of a query, omitted NOTAM numbers are restored in the corrected version of a Checklist, the NOTAM Processing Unit shall:

  - retransmit the revised checklist to their client-NOF

  - on request, retransmit the omitted NOTAM to their Client NOF.

3.5.5.2 Checklist Received as a NOTAM

When a Checklist is received as a NOTAM, but it is not in the agreed NOTAM Checklist format (see Section 2), the NOTAM Processing Unit shall convert it as described hereafter:

- NOTAM Series, Number and Type shall be retained.
- Qualifier 'FIR' of the Item Q is

  - the FIR of the Publishing NOF, if responsible for only 1 FIR; or

  - the 2–letter country indicator of the Publishing NOF followed by XX, if the Publishing NOF is responsible for multiple FIR (in the same or in different countries).
- The NOTAM Code is always ' QKKKK' or will be changed into 'QKKKK' by the NOTAM Processing Unit.
- Qualifiers TRAFFIC, PURPOSE and SCOPE will be given the artificial value 'K', even if another qualifier was included by the Publishing NOF.
- LOWER/UPPER are default values 000/999, or should be changed accordingly by the NOTAM Processing Unit.
- Item A shall contain the list of all valid FIR for the Publishing NOF, if these are not all included, the NOTAM Processing Unit shall add them.
- Item C is the estimated time of validity, usually exactly one month after the publication date and time of the current checklist, followed by 'EST'. Whenever another Date/Time Group is filled by the Publishing NOF, the NOTAM Processing Unit shall not change it.
- Item E is divided in two parts:

  1. **NOTAM Number Part**, identified by 'CHECKLIST'

  Contains the valid NOTAM promulgated in a particular series, in a format suitable for automatic and manual processing as described in Chapter 2 paragraph 2.7.

  If required, the NOTAM Processing Unit shall convert the Checklist according to this format.

  2. **Latest Publication Par**t, identified by 'LATEST PUBLICATIONS'

  Contains the list of the latest publications (Amendments, Supplements, NOTAM Class II and AIC).

  This part shall be transmitted as received. If this part is not present in the original NOTAM, the NOTAM Processing Unit shall retransmit the Checklist without this Latest Publication Part.

3.5.5.3 Checklist not Received as a NOTAM

- Whenever a NOTAM Checklist is not received as a NOTAM (i.e. when no NOTAM number has been allocated to the Checklist), the NOTAM

Processing Unit shall adapt the received AFTN message to the Ad-hoc Checklist format, as described in Section 4.

- The processed checklist shall also be retransmitted as an AFTN message. The message shall start with the word 'CHECKLIST', the 4-letter indicator of the Publishing NOF or any other location indicator to which the numbering of the NOTAM refers and the corresponding NOTAM Series. The valid NOTAM numbers will be included in the next line(s) according to the format described in Section 4, but retaining the latest publication part only if included in the original message.

Example:

CHECKLIST RJAA A
YEAR=1999 1678 1789
YEAR=2000 0012 0022 0056 0057 0058 0073 0099
0102 0123 0124 0125
LATEST PUBLICATIONS
AIRAC AIP-AMDT 005/ 00 EFF 20 APR 00
AIP-SUP 001/00
AIP-AMDT 413
AIC A001/00

3.6 Missing NOTAM

- In case of missing NOTAM the NOTAM Processing Unit requests the missing NOTAM from the Publishing NOF by a request message.
- Time parameters depending on the Publishing NOF will be defined by the NOTAM Processing Unit for initiating the first request message and succeeding repetition of the message.
- Client-NOF should request a missing NOTAM to the NOTAM Processing Unit only once.

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4. DATABASE COMPLETENESS AND COHERENCE MESSAGES

Note: This Section describes a set of messages based upon the use of AFTN, whereas the use of other communication means, thus alternative formats, could be envisaged to fulfill the same functions. In this sense the content of this Chapter is indicative only.

4.1 General Principles

The maintenance of dynamic data is essential for the efficient operation of a NOTAM Processing Unit, a Publishing NOF or for an aeronautical database administrator. The application of 'query messages' is required to ensure the database completeness and coherence between NOTAM Processing Unit and Client-NOF. These query messages, described in this Chapter, were developed so as to permit automatic and manual processing of queries.

The basic requirements for messages destined for the maintenance of the dynamic data are:

- Request for one or more NOTAM.
- Request for a List of valid NOTAM.

In order to facilitate automatic processing, the requests and the replies to the requests, are identified by means of 3 - letter identifiers.

- Request for NOTAM: 'RQN'
- Request for a List of valid NOTAM: 'RQL'
- Reply to these requests: 'RQR'

4.2 Request for the Repetition of NOTAM (RQN)

4.2.1 General Specification

- For every request, the 4 - letter indicator of the Publishing NOF or any other location indicator to which the numbering of the required NOTAM refers, shall be included.
- Request messages shall only refer to one Publishing NOF.
- A reply message shall contain only one NOTAM, or a status text regarding the requested NOTAM, normally followed by the requested NOTAM.
- The reply message of a processed NOTAM shall always include the original origin line (DTG + Publishing NOF address).

  Note: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.
- The maximum number and series of requested NOTAM in a single request message will be based on the individual system specifications of the NOTAM Processing Unit.

- A single request for multiple NOTAM shall result in multiple reply messages (from the NOTAM Processing Unit).

The requests and replies are generally transmitted via the AFTN network. Therefore, the examples below are presented in the AFTN format.

4.2.2 Codes and symbols used

‘RQN’ designator for ‘Request NOTAM’.

‘ZBBB’ 4-letter indicator of the Publishing NOF or other location indicator to which the numbering of the NOTAM refers.

‘A0123/00’ NOTAM Series Identifier and NOTAM Number.

‘ - ‘ (hyphen) is used to indicate ‘TO’ or ‘FROM-TO’.

‘ ‘ (blank) is interpreted as ‘AND’.

‘RQR’ designator for the reply

Note: no brackets will be used when transmitting a ‘Request NOTAM’ message.

4.2.3 Examples of the Request for NOTAM

- Request of a single NOTAM:

Example 1 :

Kuala Lumpur NOF requests from Tokyo NOF the China NOTAM A1688/01

Request: ZCZC…
GG RJAAYNYX
160830 WMKKYNYX
RQN ZBBB A1688/01

Reply: ZCZC…
GG WMKKYNYX
160835 RJAAYNYX
RQR ZBBB A1688/01
091635 RJAAYNYX *
(A1688/01 NOTAMN
Q).../..../.... etc.)

* *Note*: Where a Client NOF’ s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.

Example 2:

PARIS NOF requests from FRANKFURT NOF the Polish NOTAM A1253/00.

Request: ZCZC...
GG EDDZYNYX
160900 LFFAYNYX

RQN EPWW A1253/00

Reply: ZCZC...
GG LFFAYNYX
160905 EDDZYNYX
RQR EPWW A1253/00
152355 EPWWYNYX *
(A1253/00 NOTAMN
Q)..../..../.... etc.)

* *Note*: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.

- Request of several NOTAM with continuous numbering:

Example 3:

PARIS NOF requests from ROMA NOF for Cyprus NOTAM between A0199/00 and A0210/00.

Request: ZCZC...
GG LIIAYNYX
281030 LFFAYNYX
RQN LCNC A0199/00-A0210/00

Reply: ZCZC...
GG LFFAYNYX
281035 LIIAYNYX
RQR LCNC A0199/00
261730 LCNCYNYX *
(A0199/00 NOTAMN
Q)..../..../.... etc.)

* *Note*: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.

Note: The full Reply consists of 12 messages containing one NOTAM each.

- Request of several NOTAM with discontinuous numbering:

Example 4:

PARIS NOF requests from FRANKFURT NOF for Russian Federation NOTAM A0400/00, A0410/00 and NOTAM between A0420/00 and A0425/00.

Request: ZCZC...
GG EDDZYNYX
281530 LFFAYNYX
RQN UUUU A0400/00 A0410/00 A0420/00-A0425/00

Reply: ZCZC...
GG LFFAYNYX
281540 EDDZYNYX
RQR UUUU A0400/00
270810 UUUUYNYX *
(A0400/00 NOTAMN
Q).../..../.... etc.)

* *Note*: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.

Note: The full Reply consists of 8 messages containing one NOTAM each.

4.3 Content of Reply Messages (RQR)

4.3.1 General Specification

- A Reply message contains only one NOTAM. If a request was made for multiple NOTAM it will result in multiple reply messages.
- If the queried NOTAM has a particular status, concerning its validity or availability, this will be communicated through the reply.

  - If the NOTAM is no longer valid, a ' Status line' will precede the transmission of the requested NOTAM.

  - If the NOTAM is not available, only a relevant ' Status line' will be transmitted.
- Only one status line shall be included in the reply and it shall contain only one status expression.
- Database should allow repetition of no longer valid NOTAM for a period of 2 months.
- NOTAM Processing Unit shall provide their Client NOF with a list of the available NOTAM series for each Publishing NOF. This list shall contain the 4-letter indicators that uniquely identify the Publishing NOF or any other location indicator to which the numbering of the NOTAM in the series refers to.

4.3.2 Standard Expressions in Reply Messages

The following mandatory statements shall be mentioned in the reply when appropriate:

'NOTAM EXPIRED':	Item C time was reached
'NOTAM REQUESTED':	The NOTAM Processing Unit has requested the requested NOTAM but not yet received it.
'NOTAM CANCELLED BY A1324/00':	NOTAM was cancelled by a NOTAMC

'NOTAM NO LONGER IN DATABASE'	NOTAM was either expired, replaced or cancelled since more than 2 months
'NOTAM NOT ISSUED':	The Publishing NOF has not issued the requested NOTAM
'NOTAM REPLACED BY C3042/00':	NOTAM was replaced by a NOTAMR
'NOTAM VALIDITY SUBJECT TO QUERY':	NOTAM not on the Checklist, but no information about its cancellation is received.

4.3.3 Examples for Status of NOTAM

Example 1: The requested Egyptian NOTAM A0400/00 is expired.

Reply:
ZCZC ...
GG LFFAYNYX
281600 LIIAYNYX
RQR HECA A0400/00
NOTAM EXPIRED
031530 HECAYNYX *
(A0400/00 NOTAMN
Q).../.../.... etc.)

* *Note*: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.

Example 2: The requested Senegal NOTAM A0213/00 was not received at the NOTAM Processing Unit.

Reply:
ZCZC ...
GG EDDZYNYX
091430 LFFAYNYX
RQR GOOO A0213/00
NOTAM NOT RECEIVED

Example 3: The requested Tahiti NOTAM A0021/00 was cancelled.

Reply:
ZCZC ...
GG LIIAYNYX
301235 LFFAYNYX
RQR NTAA A0021/00
NOTAM CANCELLED BY A0023/00
300155 NTAAYNYX *
(A0021/00 NOTAMR A0017/00
Q).../.../.../ etc.

* *Note*: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.

Example 4: The requested Cuban NOTAM A1577/00 was not issued.

Reply: ZCZC ...
GG EDDZYNYX
110925 LEACYNYX
RQR MUHA A1577/00
NOTAM NOT ISSUED

Example 5: The requested Korean NOTAM A0449/00 was replaced.

Reply: ZCZC ...
GG LFFAYNYX
282055 LIIAYNYX
RQR RKSS A0449/00
NOTAM REPLACED BY A0452/00
101735 RKSSYNYX *
(A0449/00 NOTAMN
Q)../../../ etc.)

* *Note*: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it shall be removed by the NOTAM Processing Unit before retransmission.

Note: The importance of transmitting the requested NOTAM is emphasized, even when it is already cancelled or replaced. Otherwise, there might be inconsistencies in the database, as NOTAM could not be removed then, (NOTAM A0017/00 in Example 3).

Example 6: The requested Japan NOTAM A0587/00 is not on the Checklist, but no information about its cancellation is yet received.

Reply: ZCZC ...
GG LFFAYNYX
201935 EDDZYNYX
RQR RJAA A0587/00
NOTAM VALIDITY SUBJECT TO QUERY
112350 RJAAYNYX *
(A0587/00 NOTAMN
Q).../.../...

* *Note*: Where a Client NOF' s system would be adversely affected by inclusion of this initial origin line, on request by the Client NOF, it

shall be removed by the NOTAM Processing Unit before retransmission.

4.4 Request for a List of valid NOTAM (RQL)

4.4.1 General Specification

- The ‘List of valid NOTAM’ is a free text message. Contrary to the regular checklist, this list of valid NOTAM is not a NOTAM itself, as it does not receive a number of the series it refers to.
- For every request, the 4–letter indicator of the Publishing NOF or other location indicator to which the numbering of the NOTAM refers shall be stated for the required checklist.
- Request messages shall refer to only one Publishing NOF. Multiple series of the same Publishing NOF may be requested in one message.
- A reply message shall contain the checklist of only one NOTAM Series.
- A request for multiple NOTAM series shall result in multiple reply messages each containing one series checklist.
- The reply message is identified by the unique 4-letter indicator and the NOTAM series identifier. The ‘List of valid NOTAM’ according to the NOTAM Processing Unit database content is provided in a way similar to the structure of Item E of a regular NOTAM checklist, without the latest publication part.
- Whenever the regularly published NOTAM checklist is requested, the Client NOF should use the RQN procedure, clearly indicating both NOTAM series and number.

4.4.2 Codes and Symbols used

‘RQL’	designator for ‘request list’ .
‘LFFA’	4-letter indicator of the Publishing NOF or other location indicator to which the numbering of the NOTAM refers to.
‘ A’	NOTAM Series Identifier.
‘ ‘	(blank) is interpreted as ‘AND’.
‘RQR’	designator for the reply.

4.4.3 Examples of the request for a List of valid NOTAM

- Request of a single NOTAM Series:

Example 1:

PARIS NOF requests from ROMA NOF the list of valid Cyprus NOTAM in series Alpha:

Request: ZCZC ...
GG LIIAYNYX
281040 LFFAYNYX
RQL LCNC A

Reply: ZCZC ...
GG LFFAYNYX
281055 LIIAYNYX
RQR LCNC A
YEAR=1997 0322 0452
YEAR=1998 0001 0006 0010 0015 0016
0021 0035 0039.

- Request of multiple NOTAM Series

Example 2:

ROMA NOF requests from FRANKFURT NOF the list of valid NOTAM from the United Kingdom in series Bravo, Echo and Foxtrot:

Request: ZCZC ...
GG EDDZYNYX
310840 LIIAYNYX
RQL EGGN B E F

Reply: ZCZC ...
GG LIIAYNYX
310850 EDDZYNYX
RQR EGGN B
YEAR=1997 1678 1789
YEAR=1998 0012 0022 0056 0057 0058
0123 0124 0125

Note: The full Reply consists of 3 Messages containing one NOTAM Series each.

5. PROCEDURES FOR SNOWTAM AND ASHTAM

5.1 Introduction

These operational messages are described in ICAO documentation and distributed via the AFTN. As they are operationally relevant, their processing is required to enable database storage and consequently further retrieval for their incorporation in PIB. The concerned messages are:

- SNOWTAM
- ASHTAM

5.1.1 General procedures

These messages are expected to be received in their defined format. Therefore, it is anticipated that they shall neither be edited nor corrected. If a message is detected as received obviously incorrect (e.g. garbled), a query shall be addressed to the originator for clarification. This processing can be done by individual or centralized Units.

5.2 SNOWTAM

5.2.1 Definition

A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice or standing water associated with snow, slush and ice on the movement area by means of a specific format.'

During periods when deposits of snow, ice or water associated with these conditions remain on the aerodrome pavements, information on such conditions should be disseminated to all to whom the information is of direct operational significance. Use of the ICAO abbreviations (Doc 8400) and plain language is also permissible.

Example: GG EDZZ.... .....
300645 EDDKYDYX
SWED0012 EDDK 12300645
(SNOWTAM 0012
A) EDDK B) 12300630 C) 14L F) 2/2/2 G) 30/30/40 H) 5/5/5
C) 14R F) 5/5/5 G) 30/30/40 H) 9/9/9
C) 07 F) 5/5/5 G) 40/30/30 H) 9/9/9
R) WET S) 12300800 T) SNOW REMOVAL IN PROGRESS)

Note: for details of SNOWTAM Items refer to the ICAO Annex 15, Appendix 2.

5.2.2 Procedures

The incorporation of SNOWTAM in PIB is highly recommended, as it improves pre-flight briefing and provides airline operators with more comprehensive information.

The verification of a SNOWTAM should be made in the first line of the AFTN message text. This heading starts with the SNOWTAM indicator 'SW' followed by the designator for the State e.g. 'ED', and a serial number in a four-figure group. The aerodrome to which the SNOWTAM refers is indicated with its four-letter location indicator. The observation time is shown as an eight-figure group (MMDDHHMM).

Example: SWED0012 EDDK 12300645

These five indicators provide data to differentiate the SNOWTAM, and allow retrieval with a particular aim.

Whenever a significant change of the weather condition occurs, a new SNOWTAM will be published. Therefore it is necessary for the system to always check for the latest SNOWTAM. The former SNOWTAM can be recognized easily, due to the lower serial number and the earlier observation time. The previous SNOWTAM is outdated then and shall not appear anymore in PIB.

The maximum validity of a SNOWTAM is 24 hours. Therefore it shall be assured that a SNOWTAM will not appear in a PIB more than 24 hours after its observation time.

5.3 ASHTAM

5.3.1 Definition

A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

When notification of such activity is made, the ASHTAM provides information on the status of activity using a 'volcano level of alert colour code'.

The ASHTAM also provides information on the location, extent and movement of the ash cloud and air routes and flight levels affected.

Example:
G .....
11250800 LICCZPZX
VALI0001 LIRR 11250800
ASHTAM0001
A) ROMA
B) 0745
C) ETNA
D) Lat/Long
E) YELLOW ALERT
F) Existence and horizontal/vertical extent of ash cloud

G) Direction of movement of ash cloud
H) Air routes and flight levels affected
I) Closure of airspace and/or air routes or portions of air routes, and alternative air routes available
J) Source of information
K) Plain language remarks

For details, refer to ICAO Annex 15, Appendix 3.

5.3.2 Procedures

The incorporation of ASHTAM in PIB is highly recommended, as it improves pre-flight briefing and provides airline operators with more comprehensive information.

The verification of an ASHTAM should be made in the first line of the AFTN message text. This heading starts with the ASHTAM indicator 'VA' followed by the designator for the State, e.g. 'LI', and a serial number in a four-figure group. The FIR to which the ASHTAM refers is indicated with its four-letter location indicator. The observation time is shown as a eight-figure group.

Note: These procedures are based on the ASHTAM format described in Annex 15, as very few example of ASHTAM were available at the time of composing this document.

Example: VALI0001 LIRR 11250800

These five indicators provide data to differentiate the ASHTAM, and allow retrieval with a particular aim.

Whenever there is a change in the level of alert, a new ASHTAM will be published. Therefore it is necessary for the system to check if a ASHTAM was issued for the concerned FIR before. The former ASHTAM could be recognized easily then, due to the lower serial number and the older observation time. The previous ASHTAM is outdated then and shall not appear anymore in PIB.

The maximum validity of a ASHTAM is 24 hours. Therefore it shall be assured that ASHTAM will not appear in a PIB after 24 hours of its observation time.

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6. FALL BACK PROCEDURES

6.1 GENERAL PRINCIPLES

States may develop Fall Back procedures to ensure continued operations of their NOTAM System in the event of failure of their NOF(s).

Fall Back procedures should take into consideration the continuation of service to clients regularly served by the NOF.

Fall Back procedures must include the procedures to be followed as the failed NOF returns to normal services.

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Appendix 1

Guidance for the use of the NOTAM Selection Criteria

1. General

The basis for the assignment of NOTAM are the NOTAM Selection Criteria (NSC). They are provided in form of tables in Doc 8126 and constitute a rationalized version of the ICAO NOTAM Code contained in the PANS ABC (Doc 8400). They also provide the English language text to be used in Item E of the NOTAM.

The NSC provide a subject-related association of NOTAM with the qualifiers 'TRAFFIC', 'PURPOSE' and 'SCOPE'. This allocates the first basis for the preparation of Pre-flight Information Bulletins already during the origination of the NOTAM.

NSC are used for the following:

a) the storage and retrieval of information;

b) to determine whether a particular item is of operational significance; and

c) the relevance of particular items for various types of flight operations.

Publishing NOF shall use the NOTAM Codes and respective allocation of the qualifiers as provided in the NSC and make sure, that their NOTAM Database contains and maintains the respective tables. Every Publishing NOF should make sure that the correct NOTAM Code in the sense of *describing the most important information* is selected from the NSC.

Example: Work in progress on or near the runway (QMRHW) is qualified M but may affect the safe use of the runway (i.e. RWY limited). In this case the subject/condition "RWY limited (QMRLT)" should be taken from the NSC.

2. NOTAM Code

The NOTAM Code corresponding to the NOTAM content shall be taken from the NOTAM Selection Criteria.

If the NSC do not contain an appropriate NOTAM Code, the following procedures shall be applied:

a) In the exceptional case where the information to be promulgated by NOTAM has no related SUBJECT (2nd and 3rd letters of NOTAM code) contained in the NOTAM code list, the following NOTAM Codes shall be used in all cases:

QXXXX

When QXXXX is inserted, free association of the qualifiers 'TRAFFIC', 'PURPOSE' and 'SCOPE' is possible.

Example:
Item Q = Q)EKDK/QXXXX/IV/M/ E/000/999/5533N00940E999
NOTAM text = E) ACCORDING TO RESOLUTION 781 UNITED NATIONS HAS DECIDED TO ESTABLISH A BAN ON MIL FLIGHTS IN …..

The 2nd and 3rd letter combination 'XX' shall only be used in combination with the 4th and 5th letter combination 'XX', except in the case of Amendments or Supplements containing information dealing with different subjects and locations, one Trigger NOTAM with NOTAM Code 'QXXTT' will be issued.

b) Whenever the SUBJECT (2nd and 3rd letters) is contained in the NSC, but the CONDITION of the subject (4th and 5th letters of NOTAM Code) **is not** specified, the letters ' XX' shall be inserted as 4th and 5th letters.

When "XX" is inserted as 4th and 5th letters, free association of the qualifiers is possible with the exception of ' SCOPE' which is fixed by the NOTAM subject (2nd and 3rd letters). The entries for Traffic and Purpose shall be made with regard to the NOTAM contents, and by analogy with the prevailing association of qualifiers to the respective subject (2nd and 3rd letters) in the NSC.

Example:

QMRXX (Runway)
prevailing qualifiers for "QMR" (Traffic/Purpose/Scope) are "IV/NB/A/".
Entry in Item Q accordingly:
Q) LIRR/QMRXX/IV/NB/A /000/999 /4053N01417E005

If the NOTAM contents do not justify the insertion of the prevailing association of the subject from the NSC, NOTAM shall be assigned the appropriate qualifiers taking into account the operational needs especially for the output/query side.

Example:

NOTAM Code QFAXX,
TEXT GRASS CUTTING IN PROGRESS
prevailing qualifiers for "QFA" = (Traffic/Purpose/Scope) are "IV/NB/A".
Entry in Item Q:
Q) LFFF/QFAXX/IV/ M/A /000/999/4856N00250E005

c) Special combinations of NOTAM – codes for Cancellations:

NOTAM Code combinations for the NOTAMC (Cancellation) are not included in the NOTAM Selection Criteria.

For Cancellations, all field entries (Qualifiers) of the Item Q shall be identical to the qualifiers used in the original NOTAM except the CONDITION, 4th and 5th letters of the NOTAM Code which should be taken from the following list:

- Q..AK = RESUMED NORMAL OPS
- Q..AO = OPERATIONAL
- Q..AL = OPERATIVE SUBJECT PREVIOUS CONDITION
- Q..CC = COMPLETED
- Q..XX = OTHER (PLAIN LANGUAGE)

3. TRAFFIC

This entry relates the NOTAM to a type of traffic: I for IFR, V for VFR or IV for both. The appropriate type of traffic shall be taken from the NOTAM Selection Criteria.

The NSC contain certain subjects (2nd and 3rd letters) where the traffic (I, V or IV) depends on the NOTAM contents (e.g. QAP = REPORTING POINT or QMN = APRON). In these cases, the correct traffic entry shall be determined by the Publishing NOF according to NOTAM contents.

Example:
NOTAM code = QAPCI
TRAFFIC = IV (DEPENDS ON SUBJECT (I AND/OR V)
TEXT = **VFR** REPORTING POINT ID CHANGED .....
Entry in Item Q: Q) LFFF/QAPCI/V/BO/E/000/200/4856N00250E005

The letter K in this qualifier indicates that the NOTAM is a Checklist.

4. PURPOSE

This qualifier group relates a NOTAM to certain purposes (intentions) and thus allows retrieval according to the User requirements. The following entries are possible:

N = NOTAM selected for the immediate attention of aircraft operators

Due to their importance these NOTAM require immediate attention of aircraft operators. Aircraft operators may request for specific delivery of such NOTAM or for inclusion into specific Pre-flight Information Bulletins.

The NOTAM will appear in a specific Pre-flight Information Bulletin containing only NOTAM related to subjects of extreme importance selected for immediate attention. NOTAM qualified OB, B or M will not appear, so only NOTAM qualified NB shall appear.

O = Operationally significant NOTAM

The NOTAM will appear in a specific Pre-flight Information Bulletin containing only NOTAM related to subjects of operational significance. NOTAM qualified B or M will not appear, only NOTAM with OB or NB shall appear.

B = NOTAM selected for PIB entry

The NOTAM will appear in a Pre-flight Information Bulletin containing all NOTAM relevant to a general Pre-flight Information Bulletin query. NOTAM qualified B, OB, or NB shall appear in the Pre-flight Information Bulletin.

M = Miscellaneous

The NOTAM is for a 'miscellaneous' purpose and will not appear in a Pre-flight Information Bulletin, unless specifically requested.

K = The NOTAM is a checklist.

Permissible Purpose letters combinations (one to three letters) are:

- NB, OB, B and M (the order of the letters in the combinations has no significance);
- K for a NOTAM Checklist.

5. SCOPE

This qualifier relates the NOTAM subject (2nd and 3rd letters) to a specific scope. This qualifier is used to determine under which category a NOTAM is presented in a Pre-flight Information Bulletin, i.e. under 'Aerodrome', 'En-Route' or 'Navigational Warning'.

The following entries are permissible:

A = Aerodrome

relates the NOTAM to the scope of 'Aerodromes'. Entry of an aerodrome location indicator (e.g. RJBB) in Item A is compulsory. A geographical reference in the Item Q shall be given, in this case the co-ordinates of the aerodrome.

E = Enroute

relates the NOTAM to the scope of 'Enroute information'. Entry of one or more FIR in Item A is compulsory. A geographical reference in the Item Q shall be given according to the contents of the NOTAM.

W = Warning

relates the NOTAM to the scope of 'Navigation Warnings'. Entry of one or more FIR in Item A is compulsory. A geographical reference in the Item Q shall be given according to the contents of the NOTAM.

AE = Aerodrome/Enroute

relates the NOTAM to scopes 'A' and 'E'. Entry of an aerodrome in Item A is compulsory and the geographical reference in the Item Q shall be given according to contents of the NOTAM.

Scope 'AE' is employed where a Navigational Aid is used for both the Aerodrome and the Enroute procedures.

The location indicator of the Aerodrome shall be included in Item A. Item Q shall contain the geographical co-ordinates and the radius of the Navigational Aid.

Example: Q)WSJC/QNMAU/IV/OB/AE/000/999/0125N10402E025
A) WSSS

E) VOR/DME VTK FREQ 116.5MHZ/CH112Y NOT AVBL

AW = Aerodrome/Warning
relates the NOTAM to both scopes A and W. Entry of an aerodrome in Item A is compulsory and the geographical reference in the Item Q shall be given according to the contents of the NOTAM.

Scope 'AW' is used when the Navigational Warning takes places on or in the near vicinity of an aerodrome, and it affects both the traffic flying enroute and at the aerodrome.

Item A shall contain the aerodrome location indicator, and Item Q shall contain the geographical co-ordinates of the location where the activity takes place, followed by the radius.

Example: Q)LOVV/QWPLW/IV/M/AW/000/160/4720N01113E010
A) LOWI
B) 9910201400
C) 9910202200
E) MIL PJE WILL TAKE PLACE AT SEEFELD 471940N0111300E RADIUS 10NM
INFORMATION ABOUT THE DROPPING ZONE MAY BE OBTAINED BY INNSBRUCK TWR 120.100MHZ OR BY WIEN INFORMATION ON 124.400MHZ.

Note: co-ordinates for LOWI Ad are 471539N0112040E, but the actual co-ordinates of the site where the activity takes place are filled in Item Q.

K = Checklist

relates the NOTAM to a checklist, which will not appear in a Pre-flight Information Bulletin. Entry in Item A) of the FIR(s) valid for the publishing NOF is compulsory.

The appropriate entries shall be taken from the NOTAM Selection Criteria.

The NSC contain certain subjects (2nd and 3rd letters) where the scope (A, E, W, AE or AW) depends on the NOTAM contents (e.g. QAA = MNM ALT or QNV = VOR). In these cases, the correct Scope entry shall be determined by the Publishing NOF according to NOTAM contents/subject.

If the letters "XX" are inserted as 4th and 5th letters of the NOTAM code, the appropriate SCOPE must be derived from the NOTAM-subject (2nd and 3rd letter of the NOTAM code) according to the NSC.

Recapitulation of 'SCOPE' qualification possibilities and respective Item A contents:

Qualifier 'SCOPE' Item A) contents
A Aerodrome
E FIR(s)
W FIR(s)
AE Aerodrome
AW Aerodrome

K (Checklist) FIR(s).

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Appendix 2 - Procedures for Multi-Part Messages

AFTN MESSAGE LENGTH

The text of a single message transmitted over the AFTN can normally contain a maximum of 1800 characters including non-printing characters, but may contain as few as 1200 in some countries.

Where a unit produces a message (or NOTAM) exceeding the present AFTN message length, the message needs to be divided into two or more parts.

At present, if a long message is created using an automated system, the system may divide the message at inappropriate places, such as the middle of a sentence.

A procedure is needed that will automatically divide a message at an appropriate place or alert the person creating it, that the message length has reached 1800 characters.

PROPOSAL

The following procedure is suggested for use by automated systems to deal with multi part messages:

1. Use a prescribed electronic NOTAM Promulgation Form.
2. Reserve a certain number of characters for Item E after taking into account the message overhead and other Items like A, B, C, D, F and G.
3. Allow the operator to enter freely in Item E.

The operator can click on the preview button to view the multi parts of the message and make adjustments, if necessary, before sending out the message to the AFTN.

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Appendix 3 - System Parameters

1 Data Definition

In order that procedures for NOTAM Creation (Chapter 2), NOTAM Processing (Chapter 3) and NOTAM storage can be performed, the associated database must contain the necessary data.

The data are divided into 2 categories:

- Static Data

  Data known to the aviation world and documented in publications like AIP, e.g. FIR(s), Aerodromes, Navaids, Areas, Maps, Rules, Subjects to which a NOTAM may be related and other aeronautical information like AIC etc. and Data required to enable NOTAM creation and processing, e.g. reference lists, standard routes, distribution files, selection criteria, association criteria etc.

- Dynamic Data

  All NOTAM, SNOWTAM, ASHTAM, Checklists received, coherence messages exchanged.

The list of static data which might be used for NOTAM processing is contained in Appendix C, Figure C-2, of ICAO Doc 8126. Elements of this list will also be used for NOTAM Creation, as well as for ASHTAM and SNOWTAM.

2 System Parameters

NOTAM database management is governed by a certain number of system parameters.

2.1 System Parameters for Data Storage

- NOTAM are stored in the database from their publication/reception until their indicated end of validity, replacement or cancellation (including. removal from the monthly checklist). Expired, replaced or cancelled NOTAM shall no longer appear in Pre-flight Information Bulletins, nor in the checklist.
- Expired, replaced or cancelled NOTAM shall remain available from the database for a period of at least 30 days after their deletion. Note that for NOTAM Processing Units this period shall be at least 60 days.
- SNOWTAM and ASHTAM shall also be stored for a period of at least 30 days from their expired validity.

2.2 System Parameters for Data Archiving

When NOTAM and other Messages are no longer valid for operational database needs (e.g. Pre-flight Information Bulletin production) storage is required to comply with legal obligations.

Long-term storage is possible on various media. The duration of the storage can vary from one Administration to another, depending upon the type of data and upon national legal requirements.

It is recommended that a NOTAM Processing Unit will store NOTAM for a period of time (one to several years) to be defined, depending upon the source of information, i.e.:

- NOTAM produced by a client-NOF and retransmitted by the NPU;
- Original NOTAM received from non-client NOF;
- Processed NOTAM version from the NOTAM Processing Unit.

2.3 System Parameters for 'EST' NOTAM

NOTAM that contain ' EST' in the Item C (end of validity) require an action by the Publishing NOF for their replacement or cancellation before the 'EST' time is reached.

Therefore, the 'EST' produces the following conditions:

2.3.1 At NOF Level (NOTAM Creation)

The NOF System shall ensure that a reminder is provided before the ' estimated' end of validity, to produce a NOTAMR or a NOTAMC. Individual parameters can be installed, depending upon the type of information, and the operational possibilities of the Unit.

2.3.2 At NOTAM Processing Unit Level

See Section 3, paragraph 3.5.4.3 last bullet.

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Appendix 4 - GLOSSARY

ACTIVE NOTAM
A NOTAM is active between the date-times stated in Items B and C taking into account the time schedule in Item D.

AIRAC AIP AMENDMENT
Permanent changes of operationally significant information to be contained in the AIP, and published in accordance with AIRAC procedures.

AIRAC AIP SUPPLEMENT
Temporary changes of operationally significant information to be contained in the AIP, and published by means of special pages in accordance with AIRAC procedures.

AIRSPACE RESTRICTION
Any changes to the limits, structure and/or availability of airspace.

AUTOMATIC PROCESSING
The processing and storing of NOTAM received from states without any human intervention.

CANCELLED NOTAM
A NOTAM for which the Item C date-time has been brought forward by another NOTAM (NOTAMC or NOTAMR).

CHECKLIST
A NOTAM published regularly in a NOTAM series containing a list of valid NOTAM numbers grouped by year promulgated in this series.

CLIENT NOF
Any NOF which has subscribed to the services provided by a NOTAM Processing Unit.

CONVERSION
Transposition of a NOTAM received in the old format in the correctly formatted ICAO NOTAM.

DATA CORRECTION
Changing data elements where these are obviously wrong.

DEFAULT VALUES
A predetermined and agreed value to be inserted in fields that need to be filled but for which a specific value could not be defined.

EDITING
Changing the wording of the free text of a NOTAM to make it clearer or express explicitly ideas that are implicit in that text.

END OF VALIDITY (= Item C)
The ten figure date-time group at which the NOTAM ceases to be in force and valid.

EST
Suffix added to the ten figure date-time group in Item C for NOTAM with an estimated date/time of end of validity.

EXPIRED NOTAM
NOTAM whose date of end of validity stated in Item C has been reached.

GEOGRAPHICAL REFERENCE
Eighth field of the Item Q containing co-ordinates and radius. Geographical association of a NOTAM to the co-ordinates of the location it refers to and the radius with the precision of 1 Nautical Mile.

MULTI-PART NOTAM
NOTAM exceeding the AFTN message length (normally 1800 characters) and therefore requiring more than one message.

NOTAM CLASS II
NOTAM sent formerly by post mail, have been replaced by AIP SUPPLEMENT within the ICAO Annex 15 Integrated Aeronautical Information Package. Therefore, these are not to be used.

NOTAM CODE
A code group containing a total of five (5) letters always starting with 'Q', to indicate the coding of information regarding the establishment, condition or change of radio aids, aerodrome and lighting facilities, dangers to aircraft in flight, or search and rescue facilities.

NOTAM CONDITION
Expressed as the 4th and 5th letter of the NOTAM Code, to describe the hazard or status of operation of the NOTAM Subject (2nd and 3rd letter of the NOTAM Code) reported on.

NOTAM IN FORCE
A NOTAM is in force once it has reached the date stated in Item B and has neither been cancelled nor replaced nor reached its end of validity stated in Item C.

NOTAM Processing Unit
Any unit that is responsible for the reception, processing and further distribution of NOTAM originated by other NOF.

NOTAM SELECTION CRITERIA (NSC)
The basis for the assignment of NOTAM codes. The association criteria defined provide a subject related association of NOTAM with the qualifiers TRAFFIC, PURPOSE and SCOPE.

NOTAM SUBJECT
Expressed in the second and third letters section of the NOTAM code to identify the facility, service or danger to aircraft in flight reported upon.

NOTAM SUB-NUMBER
In the case of Multi-part NOTAM, a 3-character group placed immediately behind the year of the number/year combination and composed of one letter and a number consisting of 2 digits.

OPERATIONAL SIGNIFICANCE
Information essential for the safe and efficient conduct of a flight.

PROCESSING
The examination of NOTAM received from other NOF in order to verify suitability for acceptance into an automated AIS system, undertaking conversion, syntax correction, data correction and editing as required.

PUBLISHING NOF
The NOF responsible for the creation of the original NOTAM.

QUALIFIER LINE (ITEM Q)
This Item is divided in eight fields, each separated by a stroke and contains the necessary qualifiers to facilitate data retrieval.

RADIUS
A three digit figure in Nautical Miles to be used in the QUALIFIERS line that, together with the co-ordinates, defines the circle which encompasses the whole area of influence of the NOTAM.

SUPRA NATIONAL INFORMATION
Information concerning an activity or condition which affects the airspace/FIR of two or more States.

SYNTAX CORRECTION
Changing the published format structure of the NOTAM where these are obviously wrong.

START OF VALIDITY (= Item B)
The ten figure date-time group at which the NOTAM comes into force.

TRIGGER NOTAM
NOTAM alerting recipients and PIB users of the existence and subject content of AIRAC AIP Amendments and Supplements. In the case of Supplements, these may not always follow the AIRAC cycle.

VALID NOTAM
NOTAM which has been published and has not reached the end of its validity and has neither been cancelled nor replaced.

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CHAPTER 4

USE OF THE INTERNET FOR INFORMATION TRANSFER

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1. INTRODUCTION

This Chapter 4 of the Guidance Manual is designed to provide general guidelines for States that consider using the Internet for information transfer.

The use of the Internet has increased over the past few years to become a recognized method for the exchange of various types of information, from electronic mail, file transfers, information exchange, and includes secure exchanges for banking and a wide range of other e-commerce applications. Low-cost, easy access by public and global connectivity are just a few examples of benefits identified.

There are some cases the Internet provides another medium for the exchange of aeronautical data and information that might not otherwise be available to users. For example, users that are not connected to the AFTN, or where the AFTN is not of a high quality, can obtain information quickly and efficiently without the need for a substantial investment in infrastructure.

However, it should be born in mind that the Internet has not been recognized as an approved communications media by ICAO for the exchange of aeronautical data or information. Therefore, at present, the Internet service should be implemented for some specified services.

2. APPLICATION

The following are the possible areas where the Internet can be used in the AIS field:

a) Pilot briefing;
b) Flight planning;
c) Retrieval of aeronautical information.

Some States have been using the Internet for the above purposes. Examples of systems and/or procedures currently in place or being planned are described in Appendices to this Part for information.

The higher level services, such as exchange of aeronautical data and information between AIS units, operators, States, may be another area for future applications. However, standardization of use of the Internet for such purpose on a regional basis has not reached the stage of maturity, and need to be considered in light of technological developments of the Internet and ATN as well.

3. CONSIDERATIONS

Due consideration should be given to the following elements ensure that the integrity of the aeronautical data and information is protected in accordance with the provisions of Annex 15 while in storage or in transit when the use of the Internet is planned:

3.1 Security

The Internet is easily accessible to anyone with a computer and a network connection. However, along with the convenience and easy access to information come new risks. Among them are the risks that valuable information will be lost, stolen, corrupted, or misused and that the computer systems will be corrupted. If information is recorded electronically and is available on networked computers, it is more vulnerable than if the same information is printed on paper and locked in a file cabinet. Intruders can create new electronic files, run their own programs, and hide evidence of their unauthorized activity.

Basic Security Concepts

Three basic security concepts important to information on the Internet are *confidentiality*, *integrity*, and *availability*. Concepts relating to the people who use that information are *authentication*, *authorization*, and *non-repudiation*.

When information is read or copied by someone not authorized to do so, the result is known as *loss of confidentiality.* For AIS information, confidentiality is a very important attribute.

When information is modified in unexpected ways, the result is known as *loss of integrity.* This means that unauthorized changes are made to information, whether by human error or intentional tampering. Integrity is particularly important for critical safety data such as AIS.

Information can be erased or become inaccessible, resulting in *loss of availability.* This means that people who are authorized to get information cannot get what they need. Availability is often the most important attribute in services that depend on information such as AIS. Availability of the network itself is important to anyone who relies on a network connection. When a user cannot get access to the network or AIS service provided on the network, they experience a *denial of service.*

To make information available to those who need it and who can be trusted with it, organizations use authentication and authorization. *Authentication* is proving that a user is whom he or she claims to be. That proof may involve something the user knows (such as a password). *Authorization* is the act of determining whether a particular user (or computer system) has the right to carry out a certain activity, such as reading a file. Authentication and authorization go hand in hand. Users must be authenticated before carrying

out the activity they are authorized to perform. Security is strong when the means of authentication cannot later be refuted - the user cannot later deny that he or she performed the activity. This is known as *non-repudiation.*

Figure -1 below illustrates those security activity flow:

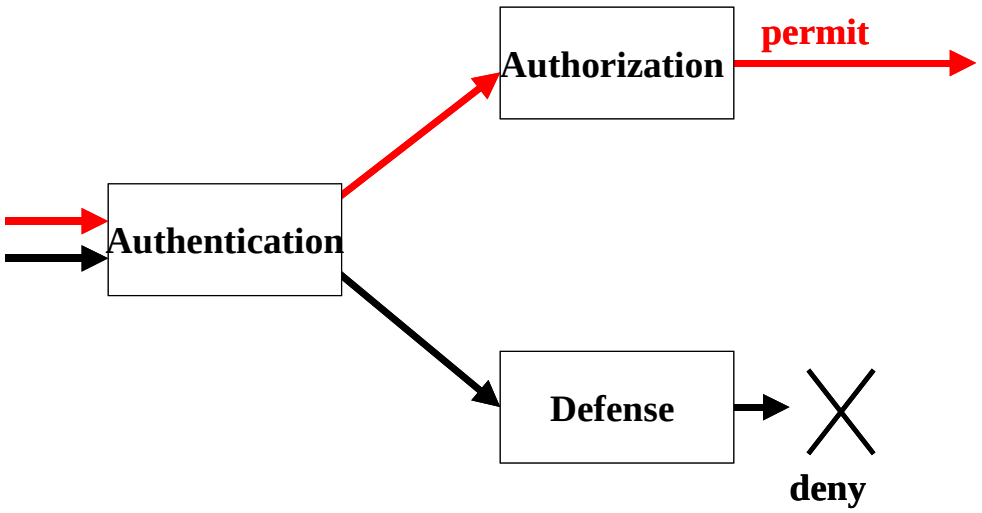

Figure -1 Security Activity Flow

Network Security Attacks

A typical attack pattern consists of gaining access to a user's account, gaining privileged access, and using the victim's system as a launch platform for attacks on other sites.

Attacks can be broadly classified into several kinds as follows:

a) Probe

A probe is characterized by unusual attempts to gain access to a system or to discover information about the system. One example is an attempt to log in to an unused account.

b) Account Compromise (Spoofing)

An account compromise is the unauthorized use of a computer account by someone other than the account owner. An account compromise might expose the victim to serious data loss, data theft, or theft of services.

c) Packet Sniffer

A packet sniffer is a program that captures data from information packets as they travel over the network. That data may include user names, passwords, and proprietary information in clear text.

d) Denial of Service

The goal of denial-of-service attacks is not to gain unauthorized access to machine or data, but to prevent legitimate users of a service from using it. A denial-of-service attack can come in many forms. Attackers may "flood" a network with large volumes of data or deliberately consume a scarce or limited resource, such as process control blocks or pending network connections.

i) ***Improving Security***

Against the above attacks, the Internet systems should have appropriate security system and management in accordance to the recommendations of ISO 17799.

ii) ***Security Technology***

A variety of technologies have been developed to help organizations secure their systems and information against intruders. These technologies help protect systems and information against attacks, detect unusual or suspicious activities, and respond to events that affect security.

iii) ***Operational Technology***

Intruders actively seek ways to access networks and hosts. System administrators face the dilemma of maximizing the availability of system services to valid users while minimizing the susceptibility of complex network infrastructures to attack. In response, technologies have evolved to reduce the impact of such threats. No single technology addresses all the problems. Nevertheless, organizations can significantly improve their resistance to attack by carefully preparing and strategically deploying personnel and operational technologies. Data resources and assets can be protected, suspicious activity can be detected and assessed, and appropriate responses can be made to security events as they occur.

iv) ***One-Time Passwords***

Intruders often install packet sniffers to capture passwords. Therefore, all passwords should at least be encrypted. A better solution is to use one-time passwords because there are times when a password is required to initiate a connection before confidentiality can be protected.

Remote users carry a device synchronized with software and hardware on the dial-up server. The device displays random passwords, each of which remains in effect for a limited time period (typically 60 seconds). These passwords are never repeated and are valid only for a specific user during the period that each is displayed. In addition, users are often limited to one

successful use of any given password. One-time password technologies significantly reduce unauthorized entry.

v) ***Firewalls***

Intruders often attempt to gain access to networked systems by pretending to initiate connections from trusted hosts. To counter these address-spoofing attacks and enforce limitations on authorized connections into the network, it is necessary to filter all incoming and outgoing network traffic.

A firewall is a collection of hardware and software designed to examine a stream of network traffic and service requests. Its purpose is to eliminate from the stream those packets or requests that fail to meet the security criteria established by the organization. A simple firewall may consist of a filtering router, configured to discard packets that arrive from unauthorized addresses or that represent attempts to connect to unauthorized service ports. More sophisticated implementations may include bastion hosts, on which proxy mechanisms operate on behalf of services. These mechanisms authenticate requests, verify their form and content, and relay approved service requests to the appropriate service hosts. Because firewalls are typically the first line of defense against intruders, their configuration must be carefully implemented and tested before connections are established between internal networks and the Internet.

The firewall and the filtering router should be implemented as shown in Figure –2 below.

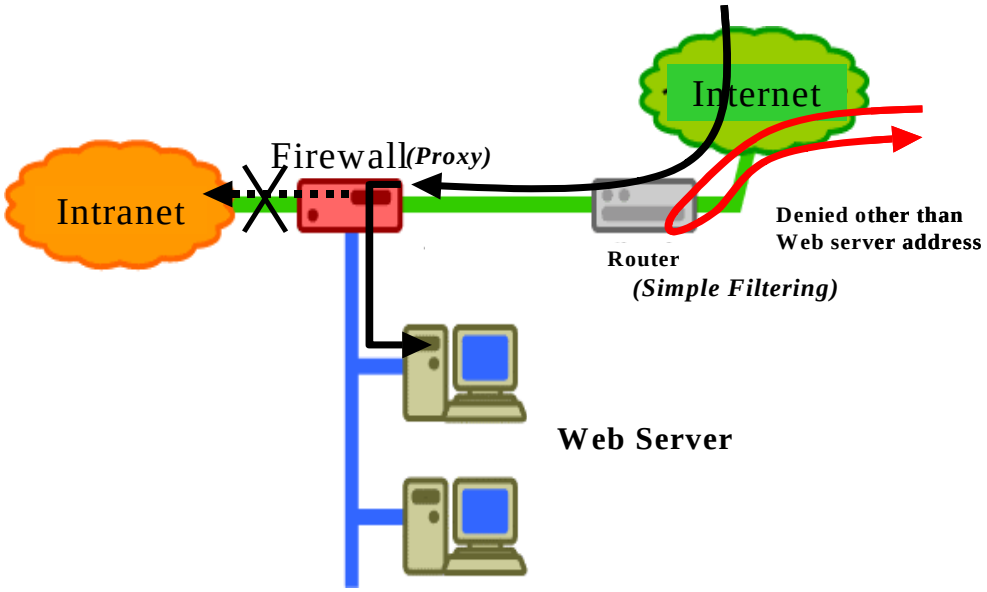

Figure -2. Firewall and Filtering router

vi) ***Monitoring Tools***

Continuous monitoring of network activity is required. Network monitors may be installed at strategic locations to collect and examine information continuously that may indicate suspicious activity. It is possible to have automatic notifications alert system administrators when the monitor detects anomalous readings. Such notifications may use a variety of channels, including electronic mail and mobile paging. Sophisticated systems capable of reacting to questionable network activity may be implemented to disconnect and block suspect connections, limit or disable affected services, isolate affected systems, and collect evidence for subsequent analysis.

vii) ***Cryptography***

One of the primary reasons that intruders can be successful is that most of the information they acquire from a system is in a form that they can read and comprehend. Intruders may reveal the information to others, modify it to misrepresent an individual or organization, or use it to launch an attack. One solution to this problem is, through the use of cryptography, to prevent intruders from being able to use the information that they capture.

Encryption is the process of translating information from its original form (called *plaintext*) into an encoded, incomprehensible form (called *ciphertext*). Decryption refers to the process of taking ciphertext and translating it back into plaintext. Any type of data may be encrypted, including digitized image. Two methodologies of cryptography are popular in the Internet area.

One is cryptography by Common Key method shown as Figure.-3, and another is cryptography by Public Key and Private Key method shown as Figure.-4.

(1) Cryptography by Common Key method

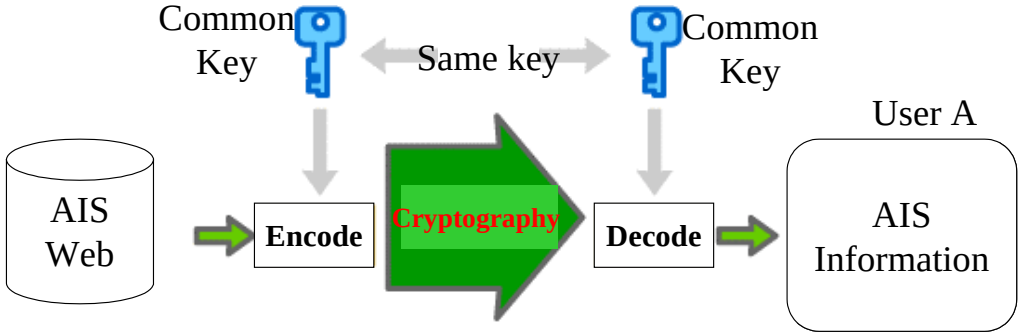

Figure – 3: Cryptography by Common Key method

The Common Key must be issued by the system administrator in AIS center. The information between AIS web and User A can be encoded and decoded only by the Common Key.

(2) Cryptography by Public Key and Private Key method

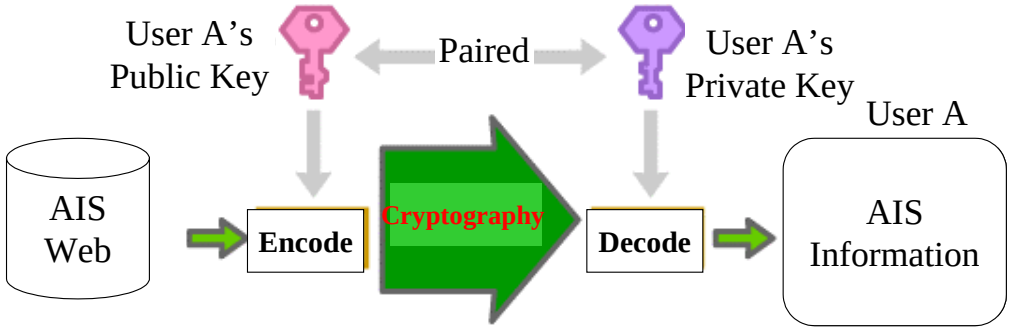

Figure – 4: Cryptography by Public Key and Private Key method

The Public Key must be issued by the Certificate Authority. The information and data between AIS Web and User A can be encoded only by the Public Key and decoded only by the Private Key paired with the Public Key for User A.

Current laws in several countries restrict cryptographic technology from export or import across national borders. In the era of the Internet, it is particularly important to be aware of all applicable local and foreign regulations governing the use of cryptography.

Table –1 indicates efficient security technology versus threat and attack.

	Probe	Account Compromise (Spoofing)	Packet Sniffer	Denial of Service
One Time Passwords	S	S	S	-
Filtering Router	W	W	-	-
Firewall	M	M	-	W
Monitoring	For detection	For detection	For detection	Only one method for this threat
Cryptography Common key	-	W	W	-
Cryptography Public/Private key	-	S	S	-

Secure level: **W** – Weak, **M** – Medium, **S** – Strong

Table-1 Security technology vs. Threat

viii) ***Security-Related Procedures***

Procedures are specific steps to follow that are based on the computer security policy. Procedures address such topics as retrieving programs from the network, connecting to the site's system from home or while traveling, using encryption, authentication for issuing accounts, configuration, and monitoring.

ix) ***Security Practices***

System administration practices play a key role in network security. Checklists and general advice on good security practices are readily available. Below are examples of commonly recommended practices:

- Ensure all accounts have a password and that the passwords are difficult to guess. A one-time password system is preferable.
- Use tools such as checksums*, a strong cryptographic technique, to ensure the integrity of system software on a regular basis.

* A checksum is a count of the number of bits in a transmission unit that is included with the unit so that the receiver can check to see whether the same number of bits arrived. If the counts match, it's assumed that the complete transmission was received. Both TCP communication layers provide a checksum count and verification as one of their services

- Use secure programming techniques when writing software. These can be found at security-related sites on the World Wide Web.
- Be vigilant in network use and configuration, making changes as vulnerabilities become known.
- Regularly check with vendors for the latest available fixes and keep systems current with upgrades and patches.
- Regularly check on-line security archives, such as those maintained by incident response teams, for security alerts and technical advice.
- Audit systems and networks, and regularly check logs. Many sites that suffer computer security incidents report that insufficient audit data is collected, so detecting and tracing an intrusion is difficult.

3.2 Integrity

As mentioned earlier, *integrity* is particularly important for critical safety data such as AIS. Also the security system should assure the integrity of AIS information. However, information is often displayed in out of order, garbling or ambiguous format to user's terminal. This may occur usually depending on the Browser software. Therefore, it is important that the system administrator announces the appropriate Internet Browser software, *e.g.* Netscape, Internet Explorer, Java, and its version to users.

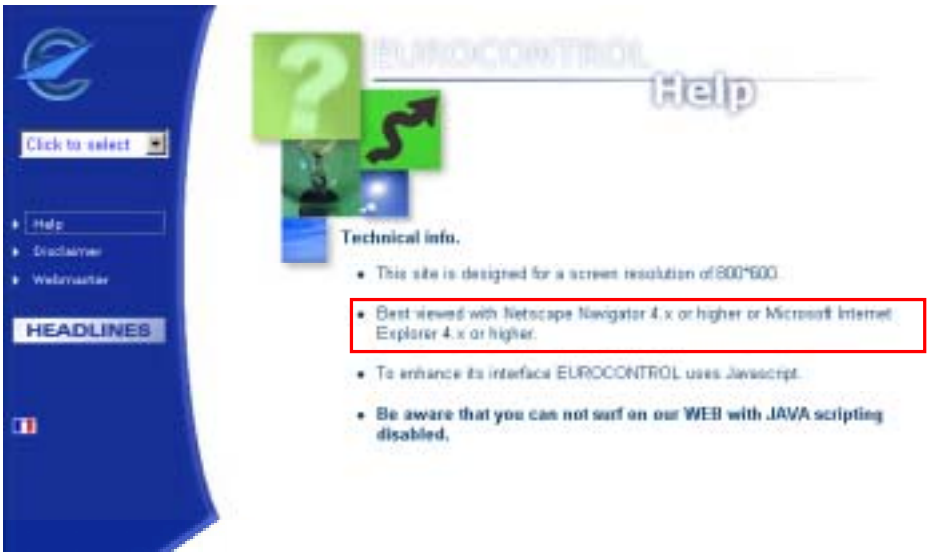

Figure - 5: Announcement of recommended Internet Browser Software

3.3 Availability

As mentioned in the Security section, *availability* is also one of the most important attributes in AIS. When a user cannot get access to AIS service, they experience not only a denial of service but also the lack of significant information for his or her flight. Therefore, the Internet system for AIS should have higher-level availability than the average Internet information system.

The following specifications should be considered as requirements:

a) Operating for 24 hours, 7days/week, 365 days/year;
b) Recovering from system failure within 30 minutes;
c) The period of planned out of service due to maintenance should be within 15 minutes;
d) Total period of out of service in one month, including planned and system failure should not be over 4 hours; and
e) The AIS Web site should respond for user's request within 8 seconds[*2].

High level availability will require the redundancy in system hardware and software. Thus, the AIS Website system should be configured with a dual system, the cross-links network, etc. Figure – 6 illustrates a simple example for such configuration.

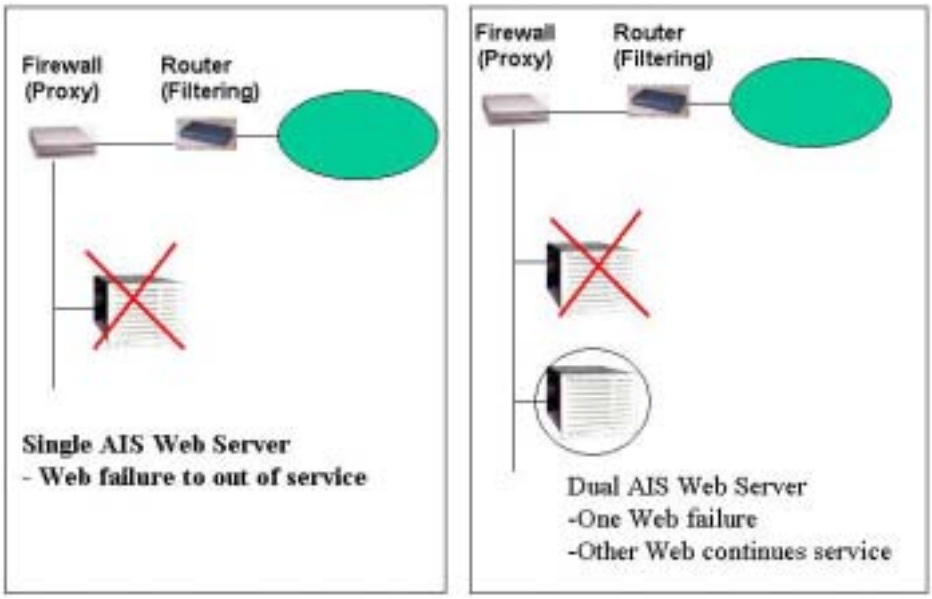

Figure – 6: an example of AIS Website configuration

[*2] 8 seconds rule – one of criterion for the Internet Web site performance from the report "The need for speed", EC, 1999

3.4 Accessibility

Accessibility means how easy to access the AIS Website. In this regard, a concept of unified AIS Website naming has been proposed by European States, *e.g.* xx.AIS.aero, xx.AIS.info. This is considered to enhance accessibility when established though it would need co-ordination and central management on a global or regional basis. The actual AIS sites of individual States are redirected from the unified AIS Website. The AIS site of each State will have a link to the other States' AIS sites to further enhance the accessibility.

Figure – 7 below is an example of the unified regional AIS site.

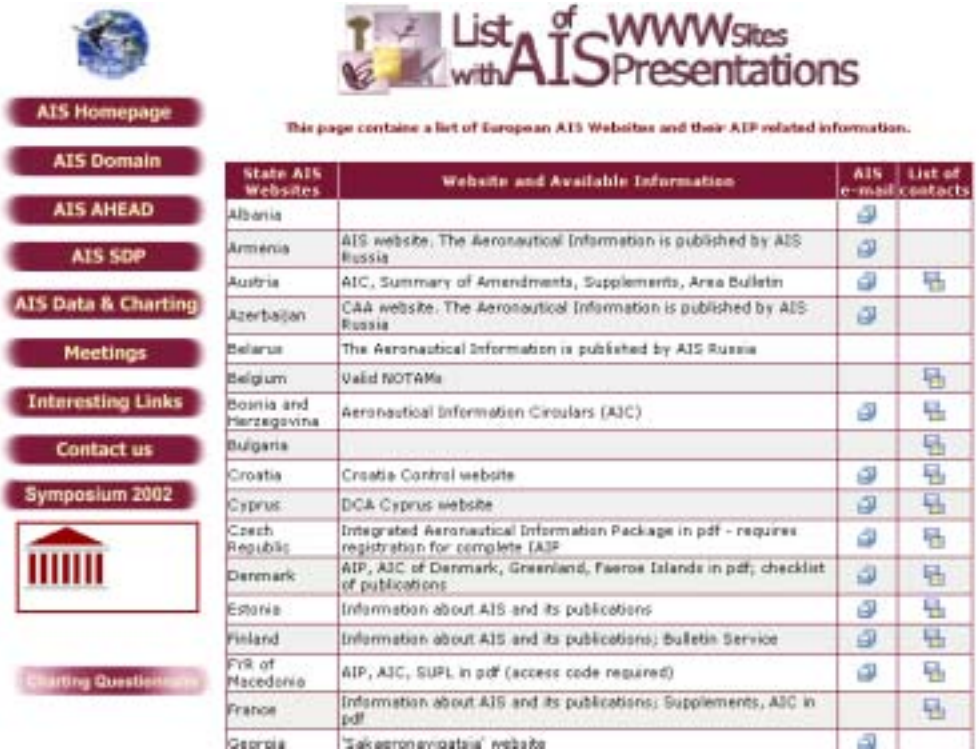

Figure – 7: an example of the unified regional AIS site.

3.5 Reliability

Reliability is very closely related to the availability and integrity. High reliability will be achieved only with the high availability and integrity. In order for a system to achieve this high reliability, all components of the system, such as system hardware, software, database, network, power, should have a highly reliable configuration, such as dual, back-up system, alternate network, mirrored database.

In general, the cost of system increases in proportion to the level of the reliability. However, it is considered critically important for service providers to ensure that the requirement for the high reliability in combination with the availability and integrity as described earlier be met.

3.6 Integration

Integration of information and data is a basic principle of AIS. The airspace users need all valid NOTAMs concerning origin, flight-route, and destination. This is a principle of PIB. Therefore, the AIS Internet system should provide the same level of function in terms of the integration of information and data.

This system should be developed, following the steps of integration as below:

a) PIB (Primary integration);

b) Indicate the multiple events by NOTAMs, *e.g.* runway close and construction in taxi, on the graphical format (PDF or other graphical method);

c) Integration of NOTAMs with weather data;

d) Integration of NOTAMs and weather data with other additional useful ATM information, *e.g*. use of airspace, traffic flow control, etc.

Extensible Mark-up Language (XML), one of the Internet technologies, is considered as one of efficient tools to realize those integration functions.

3.7 Performance Requirements

Performance requirements of the Internet system depend on the volume of simultaneous accesses to the Website. The system should be designed and implemented satisfying the appropriate response time based on an estimated volume model. It is considered appropriate if this appropriate response time does not exceed 8 seconds, as defined in the Availability section, paragraph 3.3 e).

3.8 Quality of Service (QoS)

The Internet Website should assure the certain level QoS. In particular, the AIS Internet system should assure the high level QoS of accessibility and information.

a) Authentic users should always have an access to the information and obtain it with no limitation;

b) The system should provide valid information in a timely manner; and

c) The services should be able to accommodate both any users' hardware and software.

3.9 Linkages with Other Systems

a) ATN/AMHS

The ATN, the communication standard of CNS/ATM concept is based on ISO OSI protocol model, which is different from the TCP/IP* protocol, used in the Internet field. Therefore, the AIS services on the Internet will not be possible to transit to the ATN.

The ATN/AMHS is a next generation network of the current AFTN and has the ability of bits-transference, so that the ATN/AMHS will be the best solution for the exchange of aeronautical information including bit-oriented information including graphical data and map data. However, it is considered that the AIS Internet services would still have the merits for users that are not connected to the ATN.

b) Air-Ground Datalink

The ATN will also provide a new air-ground datalink infrastructure and ATS communication. Provision of NOTAM via datalink is being considered a one of components the datalink flight information services (DFIS). Airlines are currently investigating the possibility of using the Internet from the cockpit via satellite communication or VHF digital link. It is possible that in the future, the AIS Internet services will be used via air-ground datalink subnets.

3.10 Copyright

In order to protect the investment in the products of State's AIS as well as to ensure better control of their use, States may wish to apply copyright to those products in accordance with their national laws.

On the Website, a copyright declaration may be made for prohibition of reusing information. This declaration enables the copyright to be protected under copyright laws and international copyright conventions. In addition, it is important to explain with clarity what kinds of action are prohibited, *i.e.* distribution of copies of the material to the public, including distribution by sale, rental, lending or by way of donation, and modifying, amending, translating or, in any other way, changing the material, or what kinds of action are allowed.

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* TCP/IP Protocol – Transmission Control Protocol / Internet Protocol The world-wide de-facto standard communication protocol for the Internet.

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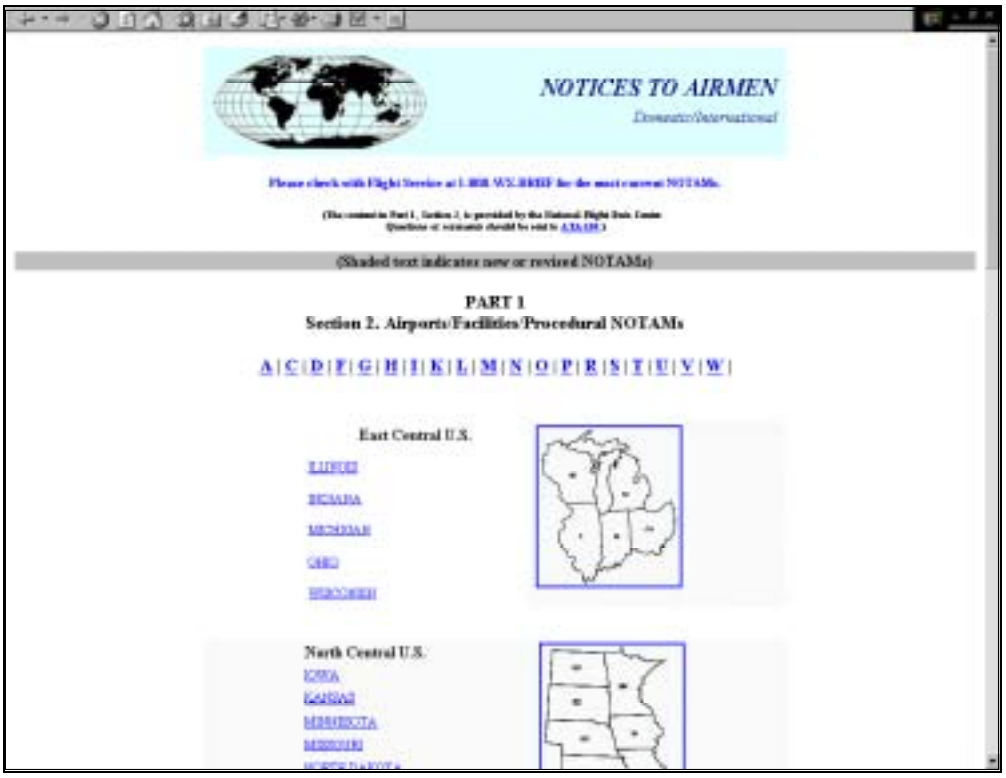
Appendix 1 – States Internet AIS

Status of use of the Internet for AIS by States (as of May 2002)

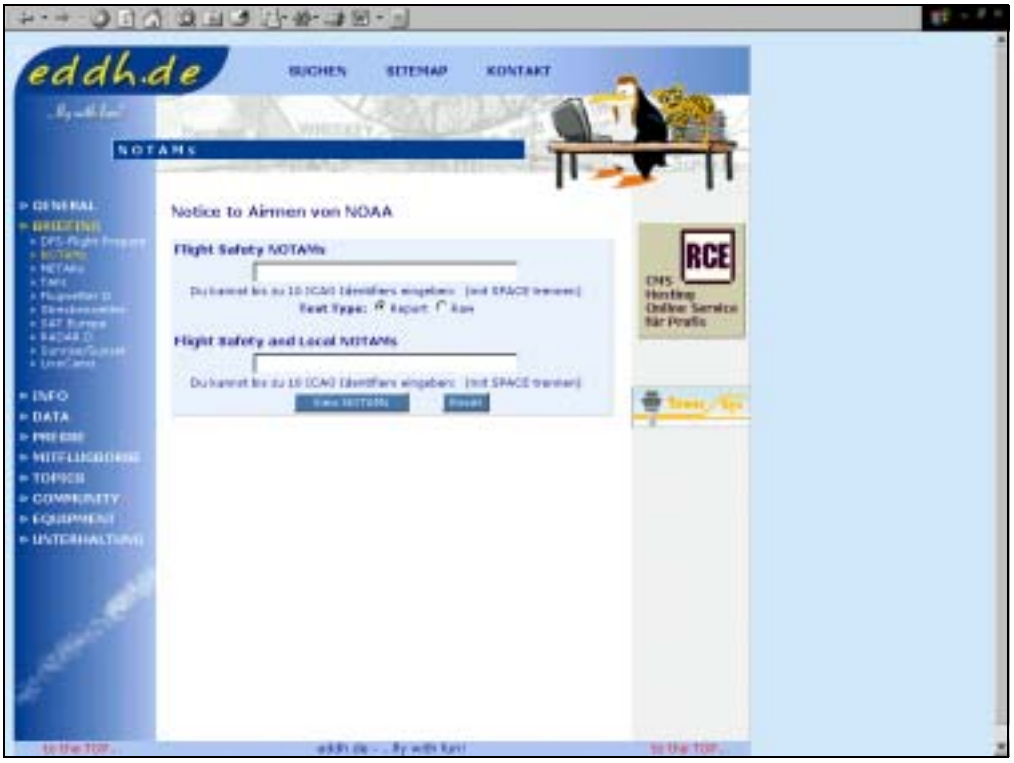
States	NOTAM (Text format)	NOTAM (PDF)	AIP (PDF)
Australia	x	-	x
Austria	x	x	x
Brazil	x	-	x
Czech	x	x	x
Denmark	x	-	x
France	x	-	x
Germany	x	-	x
Italy	x	x	x
Mexico	x	x	x
Netherland	x	x	x
Romania	x	-	x
Slovenia	x	x	x
Spain	x	x	x
Sweden	x	x	x
United Kingdom.	x	x	x
United States	x	x	x

Example 1: United States (FAA)

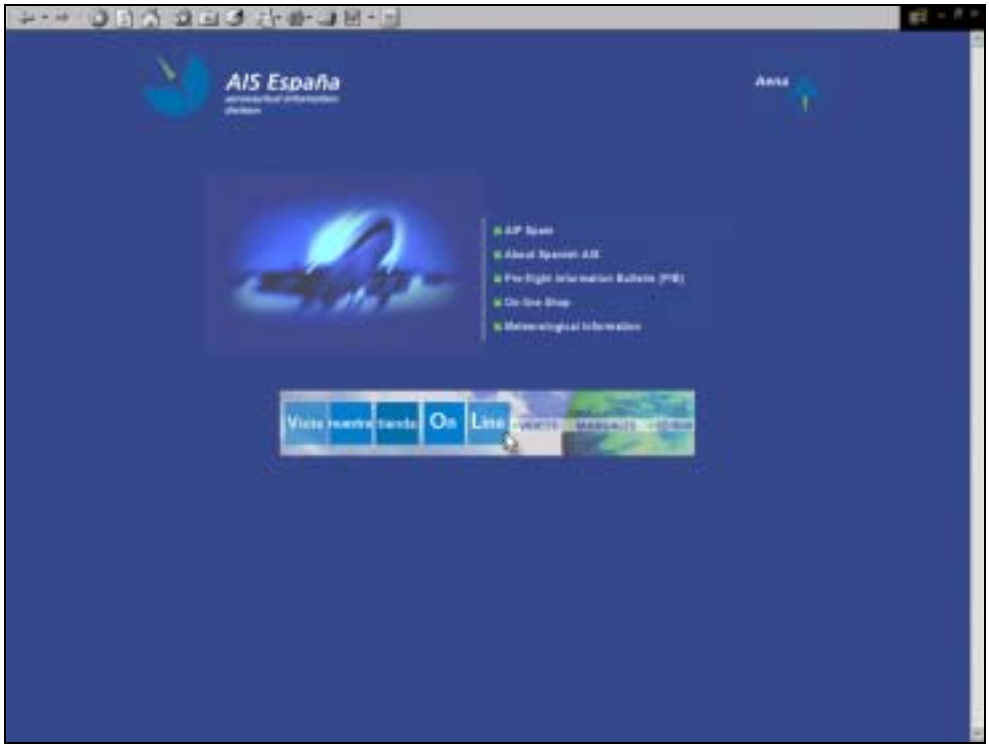


Example 2: United Kingdom (NATS)

Example 3: Germany



Example 4: Spain



Example 5: Australia

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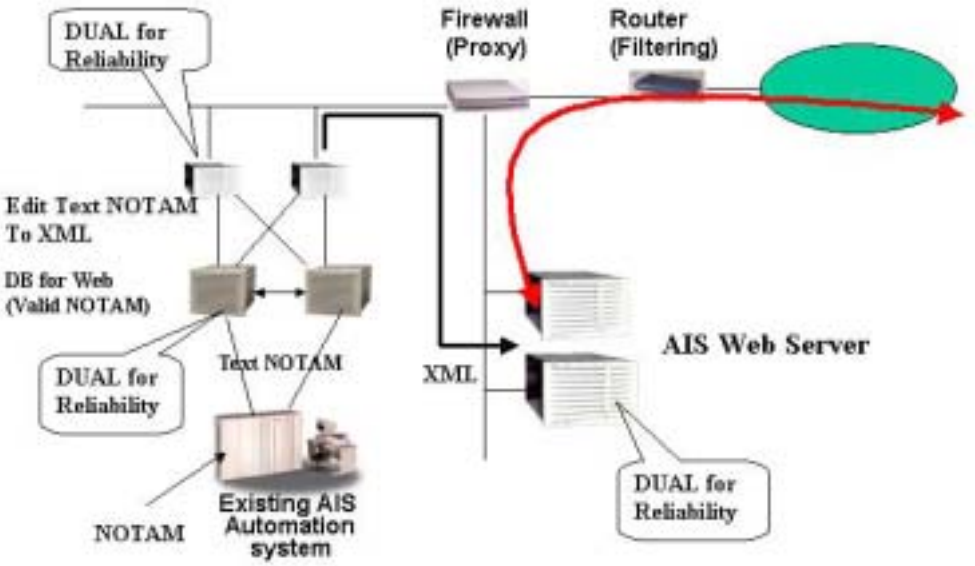
Appendix 2 – An Example for Configuration of the Internet AIS System

The following illustrates an example of a system designed and configured for the Internet AIS with a high reliability and availability. XML technology may also be integrated into this system for services.



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AIS SEMINAR 2002
IN THE ASIA/PACIFIC REGION

1. PURPOSES

The purposes of the AIS Seminar 2002 in the Asia/Pacific Region should be:

(a) increase the level of awareness by AIS/MAP providers at both of **management** and **technical** levels regarding the need for, and application of standardized procedures and practices;

(b) accelerate the application of Quality Systems supporting AIS/MAP across the Region;

(c) provide briefings relating to international directions and advances being made in the field of AIS/MAP;

(d) provide a forum for open discussion relating to AIS matters of mutual interest between providers and users;

(e) provide a forum for AIS/MAP users to articulate their specific needs and requirements; and

(f) provide a forum where technological advancements and enhancements in the field of AIS/MAP can be displayed and demonstrated.

2. LOCATION AND DURATION

The AIS Seminar 2002 shall be held in Bangkok, Thailand under the auspices of the ICAO Asia/Pacific Office in early November 2002 for a period of 4 days.

Subject to demand and sponsorship in the Asia/Pacific Region, and resources availability of ICAO, AIS workshop(s) could be conducted in later years with the aim of enhancing AIS capability and performance at work level.

3. SEMINAR FORMAT

The format for the seminar will be for:

(a) presentations in plenary sessions;

(b) open forum discussions with a moderator;

(c) demonstrations and workshops of technology advancements in the field of AIS/MAP.

4. MODERATOR, SPEAKERS (PRESENTERS) AND PARTICIPANTS

Invitations shall be extended to all States in the Asia/Pacific Region and international organizations concerned. Invitations should also be extended to a range of likely speakers (presenters) from AIS providers, State regulators, users and the aviation industry to make presentations at the seminar.

The Seminar should be moderated by ICAO, preferably a Technical Officer AIS/MAP of ICAO HQ and a Technical Officer of the ICAO Asia/Pacific Office.

In light of the Council's approval of the Special Implementation Project (SIP) for the AIS Seminar 2002, the following two experts are recommended as main speakers:

(a) Mr. Paul Bosman, AIS expert from EUROCONTROL;

(b) Mr. David A. Street, Quality Standard expert from NATS, U. K.

Other speakers (presenters) could include:

- AIS provider(s) in the Asia/Pacific Region;
- Regulators;
- Aircraft manufacturers (Boeing and Airbus);
- Industry Working Groups (RTCA and EUROCAE);
- Charting and Aircraft Database agencies (Jeppesen, Lido AeroNet, NIMA, etc);
- Military;
- IATA;
- IFALPA;
- AATF Task Force members.

5. ISSUES TO BE ADDRESSED

- Importance of Aeronautical Information and ICAO SARPS to CNS/ATM technology;
- Relationship with the Globalization of ATM;
- Benefits to the Global Aviation Community;
- Developments in AIS – An ICAO Perspective;
- Asia/Pacific Regional Developments in AIS, including application of the *Regional Guidance Manual for AIS in the Asia/Pacific Region* and the work of AIS Automation Task Force;
- Transition from AIS to AIM – An Emerging Concept;
- Development in EUROCONTROL and the EAD;
- Quality Systems;
- The Need for High Quality Aeronautical Data and Information;
- Selection and Training for AIS Personnel (TRAINAIR, service providers, training institutes);
- AIS Automation;
- Commonality of Databases;
- Common Operating Procedures for AIS Dynamic Data;
- Common Data Models – SICIM and AICM/AIXM;
- Potential of Internet for AIS;
- Use of XML;
- Technology Developments associated with AIS/MAP;
- ✓ GNSS
- ✓ Databases
- Airborne technology;
- User Requirements;
- ✓ Airline Perspective

- ✓ Manufacturers Perspective
- ✓ Military Perspective
- ✓ Regulatory Perspective.

6. SEMINAR MATERIALS

Materials to be used at the Seminar will include:

- ➢ Handouts and brochures; and
- ➢ Copies of presentations on CD.

7. TENTATIVE PROGRAMME

The Seminar shall be composed of the following Sessions:

(a) Opening Session

(b) Session 1- Update on AIS developments

- i) Developments of SARPS (ICAO HQ)
- ii) Global aspects after AIS/MAP/98 from ICAO (ICAO HQ);
- iii) Regional aspects in the Asia/Pacific Region (ICAO Bangkok Office);
- iv) Developments in the European Region (speaker to be confirmed).

(c) Session 2 – Quality System in AIS

- i) Overall aspects of introduction of Quality System in AIS (ICAO);
- ii) Implementation of Quality System in AIS (speaker to be confirmed);
- iii) ISO in AIS (speaker to be confirmed).

(d) Session 3 – Selection and Training for AIS

- i) TRAINAIR for AIS (ICAO);
- ii) Regional Guidance Manual for AIS-Chapter 2 (ICAO).

(e) Session 4 – Automation of AIS

- i) Automation for Dynamic Data;
- ii) Automation for Static Data;
- iii) Development of Database;
- iv) Use of Internet for AIS;
- v) Exchange of Aeronautical Data/Information

(f) Session 5 – Adherence to AIRAC System (ICAO)

(g) Special Session – ISO 9000 Standards (speaker to be confirmed)

(h) Panel Discussion by Moderator and main Speakers

(i) Summary

(j) Closing Session

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AATF
SHORT-TERM TASK LIST
(UPDATED ON 23 MAY 2002)

Action or Task	By Whom	When	Coordinated by
~~Review Working Paper from Japan re use of XML.~~	~~AATF members~~	~~End of May 2000~~	~~Secretariat~~
~~Update the table regarding Automation in the Region.~~	~~Secretariat~~	~~End of August 2000~~	~~Secretariat~~
~~Update and reissue the Guidance Material.~~	~~AATF members/Secretariat~~	~~Before the next meeting, and reissue Guidance Material when completed~~ ~~Issue by mid October 2001~~	~~Secretariat~~
~~Survey regarding compliance with the Guidance Material, and any difficulties being experienced.~~	~~Secretariat~~	~~End of August 2000~~	~~Secretariat~~
~~Formulation of Guidelines for a Quality System~~	~~Australia, New Zealand and China~~	~~End of June 2000~~	~~New Zealand~~
~~Interim Guidelines for Training.~~	~~Australia and New Zealand~~	~~End of June 2000~~	~~New Zealand~~
~~Review Guidance Material after input from States.~~	~~AATF members/Secretariat~~	~~Before next meeting 1 May 2001~~	~~Secretariat~~
~~Update of Guidance Material on Common Operating Procedures, using "Operating Procedures for AIS Dynamic Data" issued by EUROCONTROL as a base~~	~~All members/Secretariat~~	~~By 15 December 2001 and to be submitted to AATF/9~~	~~Australia and Secretariat~~
~~Release of Quality Assurance Planning template from EUROCONTROL~~	~~Australia~~	~~1 March 2001~~	~~Australia~~

~~Completion of Guidance Material on Quality System, including Quality Manual~~	~~All members/Secretariat~~	~~1st Edition by 31 March, Final by 1 May 2001~~	~~Australia & New Zealand~~
~~Completion of Guidance Material on Training of AIS Personnel~~	~~All members/Secretariat~~	~~1st Edition by 31 March, Final by 1 May 2001~~	~~Australia & New Zealand~~
~~Development of XML test~~	~~Australia, Japan & New Zealand~~	~~1 June 2001 (presentation at ATS/AIS/SAR/SG/11)~~	~~Australia, Japan & New Zealand~~
~~Draft of Guidance Material on Use of Internet for Information Transfer, based on WP of Japan~~	~~All members/Secretariat~~	~~Before AATF/9~~	~~Japan~~
~~Compiling all Guidance Materials into Regional Manual as a package~~	~~All members/Secretariat~~	~~Before ATS/AIS/SAR/SG/11~~	~~Secretariat~~
~~Procedures for multi-part messages~~	~~Australia, China, Hong Kong, China, Singapore, Thailand~~	~~12 Mar 2001~~	~~Australia~~
~~Send a letter to States regarding adherence to NOTAM procedures~~	~~Secretariat~~	~~15 Apr 2001~~ Considered not required (To be covered by AIS Seminar)	
~~Review of draft amendment to FASID~~	~~All members~~	~~12 Mar 2001 AATF/9~~	~~Australia~~
~~Draft amendment to FASID~~	~~Secretariat~~	~~ATS/AIS/SAR/SG/11 & APANPIRG/12~~ ~~ATS/AIS/SAR/SG/12 & APANPIRG/13~~	
~~Review of procedures regarding NOTAM checklist by NOTAM~~	~~All members~~	~~15 Mar 2001~~	~~Australia~~
~~Provide comments for the Chairman re papers for AISMAPSG re GNSS NOTAM and depiction of latitude and longitude~~	~~All members~~	~~15 Apr 2001~~	~~Australia~~
~~Preparation for a report for ATS/AIS/SAR/SG/11~~	~~Australia/ Secretariat~~	~~15 May 2001~~	

~~Review data link communications paper and provide comments to the Chairman to meet the Terms of Reference b) and c)~~	~~All members/Secretariat~~	~~By AATF/9~~	~~Australia~~
Preparation for a report for ATS/AIS/SAR/SG/12	Secretariat	Before ATS/AIS/SAR/SG/12	
AIS Seminar	All members/Secretariat	~~January/February 2002~~ November 2002	Secretariat

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Agenda Item 6: Deficiencies in the Air Navigation Field

6.1 **List of air navigation deficiencies**

6.1.1 The meeting recalled that the under the uniform methodology for the identification, assessment and reporting of air navigation shortcomings and deficiencies as approved by the ICAO Council on 23 June 1998, a situation where a facility was not installed or a service not provided in accordance with an air navigation plan (ANP) was considered to be a **shortcoming**. A situation where an existing facility or service was partially unserviceable, incomplete or not operated in accordance with applicable ICAO specifications and procedures was considered to be a **deficiency**.

6.1.2 The meeting also recalled that the fourth meeting of All Planning and Implementation Regional Groups/Advisory Group (ALLPIRG/4) held in Montreal, February 2001 recognized that difficulties arose as to the use of two definitions. As the net effect for both conditions was the same, it was very difficult for PIRGs to distinguish between situations to be classified as a shortcoming or a deficiency subject to the status of implementation. ALLPIRG/4 agreed that a single definition should be prepared for incorporation into the uniform methodology and felt that the word *deficiency* should be retained in a new single definition, as the negative connotation associated with the word had strong national incentive to assist with the corrective action required.

6.1.3 The meeting also recalled that the Air Navigation Commission (ANC), at the eighth meeting of its 157th Session in May 2001 proposed that the definition for a shortcoming or deficiency, as contained in the uniform methodology, be replaced with a single definition for both situations.

6.1.4 Subsequently, the ICAO Council, at the 164th Session on 30 November 2001, approved the single definition as follows:

> "A *deficiency* is a situation where a facility, service, or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation".

6.1.5 In light of the foregoing, the ANC, at the fourth meeting of its 159th Session (ANC 159-4) on 21 February 2002, reviewed the report of APANPIRG/12 and noted in particular the resolution of several deficiencies and expressed appreciation to APANPIRG for its ongoing efforts in this regard.

6.1.6 Furthermore, the Commission also agreed with APANPIRG's observation that, addressing deficiencies required a concerted effort by States as well as a financial commitment for their resolution. In this regard, the establishment of the International Financial Facility for Aviation Safety (IFFAS), which was approved by the 33rd Session of the ICAO Assembly, could provide a potential mechanism for the mobilization of funds for civil aviation.

6.1.7 The meeting reviewed the list of air navigation deficiencies and requested States to provide formal notification to the ICAO Regional Office that a deficiency has been rectified, to enable the list of air navigation deficiencies to be updated and maintained. In addition, the meeting reaffirmed that the purpose of the identification, assessment and reporting of shortcomings and deficiencies is to identify areas where problems exist and resolve them in a timely manner, and should not be interpreted as any form of criticism. A revised schedule of the air navigation deficiencies in the ATS/AIS/SAR fields in the Asia/Pacific Region is shown at Appendix A to the Report on Agenda Item 6.

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
ATS routes									
A202	China/Hong Kong, China/Japan/Lao PDR /Thailand/Viet Nam	**Partially** implemented	24/11/93	D	~~Co-ordination is in progress among States and ICAO through SCS/TF~~. Hong Kong-Bangkok segment ~~will be~~ **was** implemented on 1 November 2001.	~~ICAO - continue on-going implementation co-ordination related to the Revised South China Sea route structure with States.~~ ~~China/Hong Kong, China/Lao PDR/Thailand/Viet Nam - implementation on 1 November 2001.~~ Japan-propose deletion of Hong Kong-Chitose segment.	~~China~~/Hong Kong, China/ Japan/~~Lao PDR/ Thailand/Viet Nam~~	HongKong-Bangkok segment 1/11/2001; Hong Kong-Chitose segment	B
A203	China/Hong Kong, China	Not implemented	24/11/93	D		China - consider implementation	China/Hong Kong, China		B
A211	Indoensia ~~Malaysia~~	~~Not~~ Partially implemented	24/11/93	D	ICAO has requested Malaysia to co-ordinate the early implementation of A211 with States concerned, and awaits input from Malaysia. **Malaysia has advised at SEACG/10 of the implementation of the route within Malaysia on 29 November 2001.**	ICAO - co-ordinate with Malaysia and report the outcome to SEACG. Malaysia co-ordinating with Indonesia.	Indonesia ~~Malaysia~~ ICAO	~~12/2001~~ **29/11/2001 by Malaysia**	B
A218	China/Russian Federation	Partially implemented	24/11/93	D	ICAO has taken action to co-ordinate with China/Russian Federation for implementation of Harbin-Ekimchan segment and to amend ANP. APAC 99/1-ATS was approved on 26/1/00.	China/Russian Federation - consider implementation	China/Russian Federation		B

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
A223	Japan	Not implemented	24/11/93	D	**Japan has advised that a domestic route network covers the route; thus will propose the deletion.**	Japan - consider implementation	Japan		B
A335	China/Mongolia/Russian Federation	Not implemented	24/11/93	D	China and Mongolia advised that this segment is covered by other ATS routes propoerly; thus will propose its deletion from ANP.	China, Mongolia - propose ANP amendment	China/Mongolia		B
A341	Indonesia/Malaysia	Partially implemented	24/11/93	D	ICAO has requested Indonesia to co-ordinate implementation with Malaysia	Indonesia/Malaysia - consider full implementation	Indonesia/Malaysia	12/2001	B
A450	Indonesia/United States	Partially implemented	24/6/94	D	ICAO has requested Indonesia to co-ordinate implementation with United States. United States has agreed to the implementation, and a response from Indonesia is being awaited.	Indonesia/United States - consider full implementation	Indonesia/United States		B
A469	Viet Nam	Implemented as W9	19/8/94	D	ICAO has requested Viet Nam to implement as A469. Viet Nam advised that W9 will be replaced with L643 on 1 November 2001.	Viet Nam - propose deletion of the requirement as A469	Viet Nam	1/11/2001	B
~~A470~~	~~China/Viet Nam~~	~~Partially~~ implemented	19/8/94	~~D~~	Co-ordination is in progress among States and ICAO through SCS/TF. Mersing-Hong Kong segment ~~will be~~ **was** deleted from the ANP requirement, and the rest ~~will be~~ **was** implemented on 1 November 2001.	~~ICAO - continue on-going implementation co-ordination related to the Revised South China Sea route structure with States~~	~~China/Viet Nam~~	1/11/2001	~~B~~

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
A473	India/Nepal	Not implemented	16/3/99	D	India has advised that realignment is being co-ordinated with Nepal.	India/Nepal- consider implementation	India/Nepal	10/2002	B
A581	~~Lao PDR~~/Thailand	Partially implemented	17/2/97	D	China, Lao PDR and Thailand proposed an amendment to ANP.	ICAO processed APAC99/11 in co-ordination with China/Myanmar/Thailand. APAC99/1 was approved on 15 December 2000. ~~Lao PDR~~/Thailand - implement accordingly.	~~Lao PDR/~~Thailand		B
A584	United States	Partially implemented	24/6/94	D	ICAO has requested United States to implement the missing segment. United States has proposed deletion of the missing segment, and the proposal is under preparation.	ICAO - process an amendment in co-ordiantion with United States	United States ICAO		B
B201	Fiji/New Zealand	Not implemented	24/11/93	D	Fiji/New Zealand have advised that they agreed to delete the requirement, ICAO will process ANP amendment.	Fiji/New Zealand - propose an amendment to delete the requirement in ANP	Fiji/New Zealand ICAO		B
B204	Maldives	The requirements for this route are not detailed in ANP	24/1/96	D		Maldives - propose an amendment to ANP to add the route	Maldives		B
B212	Japan/Rep of Korea	Not implemented	24/11/93	D	Japan is considering implementation as a conditional route and will coordinate with Rep of Korea	Japan/Rep of Korea - consider implementation	Japan/Rep of Korea		B
B213	China	Not implemented	24/11/93	D		China - consider implementation	China		B

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
B456	Papua New Guinea	Partially implemented	24/11/93	D	Papua New Guinea has advised that they will formally propose ANP amendment for deletion of the missing segment.	Papua New Guinea - propose an amendment to ANP. ICAO-process ANP amendment.	Papua New Guinea ICAO		B
B591	China	Partially implemented	22/7/97	D	Co-ordination is in progress among States and ICAO	ICAO - continue on-going implementation co-ordination related to the Revised South China Sea route structure with States	China		B
G211	Malaysia	Not implemented	24/11/93	D	ICAO has requested Malaysia to implement G221. Malaysia has advised that implementation co-ordination is on-going.	Malaysia - consider implementation	Malaysia	12/2001	B
~~G348~~	~~India~~	**Implemented**	2/3/99	~~D~~	Bhutan has advised that route segment in Bhutan airspace has been implemented. **India has advised that the missing segment was implemented on 27 December 2001.**	~~India - implement the route~~	~~India~~	**27/12/2001**	
G461	Indonesia	Implemented with different route specification	24/11/93	D	ICAO has taken action to co-ordinate with Indonesia to amend ANP requirement. APAC00/1-ATS to amend the requirement has been circulated.	ICAO - process APAC 00/1. APAC00/1 was approved on 15 January 2001. Indonesia-implement the requirement accordingly.	Indonesia ICAO		B
~~G466~~	~~Malaysia~~	~~Partially~~ implemented	22/7/97	~~D~~	~~Co-ordination is in progress among States and ICAO.~~ Route requirement ~~will be~~ **was** amended in relation to SCS route structure and ~~be~~ **was** implemented on 1 November 2001.	~~ICAO - continue on-going implementation co-ordination related to the Revised South China Sea route structure with States~~ ~~Malaysia - consider implementation~~	~~Malaysia~~	1/11/2001	B

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
G473	~~Lao PDR~~/Cambodia /Philippines Thailand/Viet Nam	Partially implemented	24/11/93	D	Co-ordination is in progress among States and ICAO	ICAO - continue ongoing implementation co-ordination related to the Revised South China Sea route structure with States	~~Lao PDR~~/Cambodia /Philippines Thailand/Viet Nam		B
G589	DPR Korea/ Rep of Korea	Not implemented	24/11/93	D		DPR Korea/ Rep of Korea - consider implementation	DPR Korea/ Rep of Korea		B
~~R207~~	~~Lao PDR~~	Partially implemented as W29	24/11/93	D	**Lao PDR promulgated the missing segment as R207**	~~Lao PDR - consider promulgation of the route with route designator R207~~	~~Lao PDR~~		~~B~~
R216	China/Kazakhstan	Not implemented	24/11/93	D		ICAO - co-ordinate with States for implementation and report the outcome to EAAR	China/Kazakhstan		B
R221	Russian Federation	R221 was implemented on 19 April 2001 in Malaysia in accordance with the requirement in ASIA/PAC ANP. The same route designator in use in Russian Federation	24/11/93	D	ICAO has requested Russian Federation to delete R221 and promulgate the route as R466 in AIP. Input from Russia is being awaited.	ICAO - co-ordinate with Russian Federation to redesignate the route as R466 as already assigned as a matter of priority	Russian Federation		A
R333	China	Not implemented	24/11/93	D	China is considering future implementation	China - consider implementation	China		B
R335	China/Hong Kong, China	Not implemented	24/11/93	D		China - consider implementation	China/Hong Kong, China		B
R345	Cambodia/Lao PDR/Thailand	Not implemented	24/11/93	D	Co-ordination is in progress among States and ICAO	ICAO - continue ongoing implementation co-ordination related to the Revised South China Sea route structure with States	Cambodia/Lao PDR/ Thailand		B

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
~~R455~~	Indonesia ~~Malaysia~~	~~Not~~ **Partially** implemente	24/11/93	D	ICAO has requested Malaysia to co-ordinate the implementation of R455 with States concerned. **Malaysia has advised that R455 was implemented within Malaysia on 29 November 2001**.	Indoensia/ ~~Malaysia~~ - consider implementation	Indonesia ~~Malaysia~~	~~12/2001~~ **29/11/2001 (by Malaysia)**	B
R459	Indonesia	Implemented as W51 and W36	24/11/93	D	ICAO has requested Indonesia to implement as R459	Indonesia - consider promulgation of the route with designator R459 in AIP	Indonesia		B
R466	Russian Federation	Implemented as R221 in Russian Federation. Route requirement is listed in EUR/NAT ANP	24/11/93	D	ICAO has requested Russian Federation to delete R221 and promulgate the route as R466 in AIP, and awaits input from Russia.	ICAO - co-ordinate with Russian Federation to redesignate the route as R466 as already assigned as a matter of priority	Russian Federation		A
R579	Indonesia/Malaysia	Not implemented	24/11/93	D	ICAO has requested Malaysia to co-ordinate with Indonesia for implementation. Indonesia considered there was no longer requirement due to a low traffic movement; thsu will propose the deletion.	Indonesia/Malaysia - consider implementation	Indonesia/Malaysia	12/2001	B
R593	India/Oman	Not implemented	24/11/93	D		India - consider implementation ICAO - co-ordinate with Oman for implementation and report the outcome to SWACG	India/Oman (SWACG) ICAO		B
~~Revised South China Sea Route Structure~~	~~Cambodia/China/ Hong Kong, China/Malaysia Philippines/Singapore/ Thailand/Viet Nam~~	Implemented	22/7/97	~~D~~	~~Co-ordination is in progress among States and ICAO. States concerned agreed to implement SCS route structure on 1 November 2001.~~	~~ICAO - continue on-going implementation co-ordination related to the Revised South China Sea route structure with States through SCS/TF.~~	~~Cambodia/China/ Hong Kong,China/Malaysia/ Philippines/Singapore/ Thailand/Viet Nam~~	~~1/11/2001~~	

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
WGS-84									
WGS-84	Bhutan	Not implemented	2/7/1999	D	Data conversion completed, but not published		Bhutan		A
WGS-84	Cambodia		28/6/2001	D	Cambodia has previously informed ICAO that their WGS-84 conversion had been completed. Cambodia has now informed ICAO of flaws in their conversion and their intention to start all over again.		Cambodia		A
WGS-84	China	Not implemented * implemented in the Sanya AOR as of 1 Nov 2001	2/7/1999	D	Differences to Annex 15 - *Aeronautical Information Services* are notified		China		A
WGS-84	DPR Korea	Not implemented		D			DPR Korea		A
WGS-84	French Polynesia	Implemented at main airports		D	in progress		French Polynesia	2003	A
WGS-84	Kiribati	Not implemented		D			Kiribati		A
WGS-84	Lao PDR	Partially implemented		D			Lao PDR	TBD	A
WGS-84	Malaysia	Partially implemented		D	in progress		Malaysia	December 2002	A
WGS-84	Nauru	Not implemented		D	Conferring with consultant		Nauru		A
WGS-84	Philippines	Implemented at main airports		D	on-going		Philippines	2003	A

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
WGS-84	Solomon Islands	Not implemented		D			Solomon Islands	1999	A
WGS-84	Vanuatu	Implemented at main airports	2/7/1999	D			Vanuatu	1999	A
Type of ATS									
Area Control Services	India	Some ATS route segments in part of Mumbai FIR are subject to Advisory Services	24/11/93	D	Co-ordination in progress through BBACG	India - implement Area Control Services	India		A
Area Control Services	Sri Lanka	Several ATS route segments are subject to Advisory Services	24/11/93	D	Co-ordination in progress through BBACG	Sri Lanka - implement Area Control Services	Sri Lanka		A
Airspace Classification									
Airspace Classification	China	Not implemented	7/7/99	D			China		A
Airspace Classification	Cook Islands	Not implemented	7/7/99	D			Cook Islands		A
Airspace Classification	DPR Korea	Not implemented	7/7/99	D			DPR Korea		A
Airspace Classification	Japan	Not implemented	7/7/99	D		Implementation in progress	Japan		A
Airspace Classification	Kiribati	Not implemented	7/7/99	D			Kiribati		A
Airspace Classification	Lao PDR	Not implemented	7/7/99	D			Lao PDR		A
Airspace Classification	Nauru	Not implemented	7/7/99	D			Nauru		A
Airspace Classification	Papua New Guinea	Not implemented	7/7/99	D			Papua New Guinea	mid 2001	A

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
Airspace Classification	Republic of Korea	Not implemented	7/7/99	D			Republic of Korea		A
Airspace Classification	Samoa	Not implemented	7/7/99	D			Samoa		A
Airspace Classification	Solomon Islands	Not implemented	7/7/99	D			Solomon Islands		A
Airspace Classification	Sri Lanka	Not implemented	7/7/99	D			Sri Lanka		A
Airspace Classification	Tonga	Not implemented	7/7/99	D			Tonga		A
Airspace Classification	Viet Nam	Not implemented	7/7/99	D			Viet Nam		A
AIP Format									
AIP Format	China	Not implemented	7/7/99	D	**Implementation in progress**		China	**March 2002**	A
AIP Format	Cook Islands	Not implemented	7/7/99	D			Cook Islands		A
AIP Format	Fiji	Not implemented	7/7/99	D			Fiji	Sep 2002	A
~~AIP Format~~	~~India~~	~~Not~~ implemented	7/7/99	~~D~~	**5th edition of AIP India was published in the new Annex 15 format**		~~India~~	**Jan 2002**	~~A~~
~~AIP Format~~	~~Indonesia~~	~~Not~~ implemented	7/7/99	~~D~~	**7th edition of AIP Indonesia was published in the new Annex 15 format**	~~Implementation in progress~~	~~Indonesia~~	**Jan 2002**	~~A~~
AIP Format	Kiribati	Not implemented	7/7/99	D			Kiribati		A
AIP Format	Lao PDR	Not implemented	7/7/99	D			Lao PDR		A
AIP Format	Myanmar	Not implemented	7/7/99	D			Myanmar		A

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
AIP Format	Nauru	Not implemented	7/7/99	D			Nauru		A
AIP Format	New Zealand	Not implemented	7/7/99	D	Differences to Annex 15 - *Aeronautical Information Services* are notified		New Zealand		A
AIP Format	Papua New Guinea	Not implemented	7/7/99	D	under development		Papua New Guinea	TBA	A
~~AIP Format~~	~~Philippines~~	Implemented	7/7/99	D	**7th edition of AIP Philippines was published in the new Annex 15 format**		~~Philippines~~	~~Aug~~ **Oct** 2001	~~A~~
AIP Format	Samoa	Not implemented	7/7/99	D			Samoa		A
AIP Format	Sri Lanka	Not implemented	7/7/99	D			Sri Lanka		A
AIP Format	Tonga	Not implemented	7/7/99	D			Tonga		A
SAR capability									
SARPs in Annex 12	Cambodia	Annex 12 requirements not implemented. No agreements with adjacent States.	20/2/97	D		Cambodia - implement Annex 12 requirements and co-ordinate LOA with adjacent States ICAO - assist to develop SAR capability and to co-ordinate with adjacent States	Cambodia		U
SARPs in Annex 12	Cook Islands	Annex 12 requirements not implemented. No agreements with adjacent States.	31/1/95	D		Cook Islands - implement Annex 12 requirements and co-ordinate LOA with adjacent States ICAO - assist to develop SAR capability and to co-ordinate with adjacent States	Cook Islands		U

AIR NAVIGATION DEFICIENCIES IN THE ATS/AIS/SAR FIELDS IN THE ASIA/PACIFIC REGION

Identification		Deficiencies				Corrective action			
Requirements	**States/facilities**	**Description**	**Date first reported**	**Implementation status (D)***	**Remarks**	**Description**	**Executing body**	**Target date for completion**	**Priority for action****
SARPs in Annex 12	Maldives	Annex 12 requirements not implemented. No agreements with adjacent States.	24/4/1997	D		Maldives - implement Annex 12 requirements and co-ordinate LOA with adjacent States ICAO - assist to develop SAR capability and to co-ordinate with adjacent States	Maldives		U

Agenda Item 7: Update the List of ATS/AIS/SAR Subject/Tasks together with Priorities

7.1 APANPIRG/12 reviewed the updated draft Task List provided by the eleventh meeting of the ATS/AIS/SAR Sub-Group. APANPIRG/12 decided that this Task List would constitute the work programme for the Sub-Group and formulated Decision 12/11:

That, the ATS/AIS/SAR Subject/Task List as contained in Appendix I to the Report on Agenda Item 2.1 be adopted as the current work programme for the ATS/AIS/SAR Sub-Group replacing the current subject/task list as assigned by APANPIRG/11.

7.2 The meeting reviewed and updated the List of Tasks as per Appendix A to the Report on Agenda Item 7 and formulated the following Draft Decision:

Draft Decision 12/9 – ATS/AIS/SAR Subject/Task List

That, the ATS/AIS/SAR Subject/Task List as contained in Appendix A to the Report on Agenda Item 7 be adopted as the current work programme for the ATS/AIS/SAR Sub-Group.

SUBJECT/TASKS IN THE ATS/AIS/SAR FIELDS

The priorities assigned in the list have the following connotation:

A = Tasks of a high priority on which work should be expedited;
B = Tasks of a medium priority on which work should be undertaken as soon as possible but not to the detriment of Priority "A" tasks; and
C = Tasks of a medium priority on which work should be undertaken as time and resources permit but not to the detriment of Priority "A" & "B" tasks.

No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
1	RAN/3 C 6/9 R 14/22	Subject: Implementation of RNP	A	a) i) SUPPS amendment required to extend area of applicability of RNP10 (50NM longitudinal and lateral separation minima) beyond Pacific	ICAO	On-going
	APANPIRG C 2/22 C 3/24 C 4/4 C 4/5	Task: a) Implement RNP into the Asia Pacific Region		~~ii) Review & update RNP Guidance Material. Incorporate ISPACG Operations Manual outlining requirements for RNP10 operational approval of aircraft and operators~~	~~CNS/ATM/GM/TF~~	~~Completed~~
	C 5/2 C 5/3	b) Develop further SUPPS material by ISPACG for RNP4, 30NM longitudinal and lateral separation minima		b) Sub-group to monitor progress	ICAO	On-going
		~~c) Review table of navigation aids in conjunction with States~~		c) ~~Table of required navigation aids to be reviewed~~	~~ATS/AIS/SAR/SG/9~~	~~Completed~~
2	APANPIRG C 2/8 D 3/20 C 4/6	Subject: The SSR Code Assignment System for the Asia Region as specified in the Mid/ASIA ANP may not be as efficient as it could be	B			
	C 4/7 D 4/8 C 4/9 C 4/10 C 9/5	Task: ~~a) Define and document a Regional SSR Code Management Plan and review MID/ASIA Table 3~~		~~a) Sub-group to monitor progress~~	~~ATS/AIS/SAR/SG/9~~	~~Completed~~
				~~- SSR Code Assignment Working Group to convene and establish an SSR Code Management Plan and review MID/ASIA Table 3~~	~~SSRCA/WG~~	~~Completed~~
		~~b) Prepare Regional SSR Code Management Plan for Asia Pacific FASID~~		~~b) Progress in conjunction with SSR Code Assignment Working Group~~	~~SSRCA/WG~~	~~Completed~~
		~~c) Monitor and modify as required the Regional SSR Code Management Plan for the Asia Pacific Region~~		~~c) SSR Code Management Task Force to meet as required by Sub-group~~	~~ATS/AIS/SAR/SG~~	~~Completed~~

No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
3	~~RAN/3 R 14/20~~ ~~APANPIRG C 3/6~~	~~Subject: Insufficient co-ordination in the provision and implementation of radar facilities within the region~~ ~~Task: a) Identify why there is insufficient co-ordination and develop proposals to ensure sufficient co-ordination exists in the future~~	A	~~a) ICAO to survey States on current and proposed radar facilities~~ ~~b) Radar Facilities Table in the ANP to be reviewed based on the survey results~~ ~~c) Develop proposal to enhance co-ordination in the exchange of radar information~~	~~ICAO~~ ~~ATS/AIS/SAR/SG/9~~ ~~ATS/AIS/SAR/SG/10~~	~~Completed~~ ~~Completed~~ ~~Completed~~
4	APANPIRG C 3/22	Subject: Traffic congestion within the region Task: Suggest ways of reducing this congestion by means of appropriate traffic management ~~a) Review South China Sea ATS routes~~ ~~b) In-Trail Climb using ACAS distance based information in OCA / remote airspace~~ ~~c) Review Bay of Bengal ATS route structure~~ d) Develop revised ATS Route Structure – Southeast Asia to/from Europe/Middle East, South of the Himalayas	A	~~a) Review complete~~ ~~b) Monitor work undertaken in the United States. The United States to inform the Sub-group on progress of work~~ ~~c) Bay of Bengal Task Force (BB/TF) established. Report to ATS/AIS/SAR/SG/10~~ ~~d) Establish a Project Team to develop a plan for a revised ATS route structure taking into consideration aircraft capabilities and the new CNS/ATM enhancements.~~ EMARSSH/TF established - commenced work	~~SCS/TF~~ ~~United States~~ ~~BB/TF~~ ~~EMARSSH/TF~~ EMARSSH/TF	~~Completed~~ ~~Completed~~ ~~Completed~~ 11/02

No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
5	RAN/3 C 13/14 APANPIRG D 2/35	Subject: AIS Automation Task: Develop a Regional AIS Automation Plan	B	~~a) Information on AIS automation to be collected and reviewed~~ ~~b) Survey questionnaire concerning details of automated AIS systems developed by ATS/AIS/SG/4 to be distributed to States~~ ~~c) Review of survey results~~ d) Develop AIS automation plan and ANP amendment proposal following AIS/MAP Divisional Meeting, April 1998 e) Develop AIS Guidance Material	~~ICAO~~ ~~ICAO~~ ~~AA/TF~~ AA/TF ATS/AIS/SAR/SG ATS/AIS/SAR/SG	~~Completed~~ ~~Completed~~ ~~Completed~~ On-going Completed
6	APANPIRG C 2/31	Subject: Provision of AIS within the Region Task: Examine and comment on the provision of AIS and develop a programme to improve the provision of AIS within the region	B	a) Increased AIS support from the ICAO APAC Office ~~b) Update Part 6 of Doc 8700 and 8755 (ANPs for the Asia pacific Region)~~ c) Regional AIS seminars to be conducted	APANPIRG ICAO ~~ICAO~~ ICAO	On-going ~~Completed~~ Dec. 2002
~~7~~	~~APANPIRG D 4/40~~	~~Subject: Lack of inclusion of CNS/ATM requirements in regional plans~~ ~~Task: a) Ensure regional plans include CNS/ATM requirements for the provision of ATS~~ ~~b) Develop "Concept of Operations" for application in an initial ADS environment~~	~~A~~	~~a) Monitor implementation of new CNS/ATM in the ATS/AIS field~~ ~~b) Australia to present Working Paper to ATS/AIS/SAR/SG/8~~	~~ATS/AIS/SAR/SG~~ ~~Australia~~	~~Completed~~ ~~Completed~~

No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
8	RAN/3 C 6/5	~~Subject: Lack of procedures and guidelines for the introduction of reduced vertical separation minima (RVSM) above FL290 in the region~~ ~~Task: Develop appropriate procedures, guidelines and implementation plans for the introduction of RVSM and evaluate benefits~~	A	~~a) Progress of IPACG / ISPACG work on RVSM being monitored~~ ~~b) United States to provide update on RVSM plan for Central and North Pacific to ATS/AIS/SAR/SG/8~~	~~ATS/AIS/SAR/SG~~ ~~United States~~	~~Completed~~ ~~Completed~~
	APANPIRG C 3/24 C 9/3 D 9/4	Subject: Implementation of RVSM in the Asia Pacific Region Task: Plan for and facilitate implementation of RVSM, as appropriate, in the Asia Pacific Region		~~a) Form Asia Pacific RVSM Implementation Task Force~~ b) Plan schedule and facilitate implementation of RVSM in the Asia Pacific Region	~~ATS/AIS/SAR/SG~~ RVSM/TF	~~Completed~~ ~~On-going~~ South China Sea and Western Pacific (phase one 2/2002) (phase two 10/2002) Parts of Asia and MID Regions – EMARSSH (11/2003)
~~9~~	~~RAN/3 R 14/3~~	~~Subject: Inappropriate structure of regional Air Navigation Plan and untimely amendment process~~ ~~Task: Develop detailed contents for the Asia Pacific FASID~~	~~A~~	~~a) Develop detailed content for the Facilities and Services Implementation Document (FASID) as a matter of priority~~ ~~b) Prepare draft outline for the Asia pacific FASID~~	~~ATS/AIS/SAR/SG~~ ~~ATS/AIS/SAR/SG~~	~~Completed~~ ~~Completed~~

No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
10	APANPIRG D 3/12 D 3/2 C 4/2	Subject: Inappropriate provision of SAR facilities, services and procedures within the Asia Pacific Region Task: a) Review SAR facilities, services and procedures in the region b) Assist States without SAR services to provide SAR coverage	A	~~a) Review the SAR system of States in the Asia Region and advise ATS/AIS/SG~~ ~~b) Analyse and review the results collected~~ c) ~~Monitor the implementation of the PAC SAR SIP recommendations~~ d) Encourage States to delegate or negotiate SAR services e) Identify deficiencies	~~States~~ ~~ICAO ATS/AIS/SAR/SG~~ ~~ATS/AIS/SAR/SG~~ ICAO ATS/AIS/SAR/SG	~~Completed~~ ~~Completed~~ ~~Completed~~ On-going On-going
11	APANPIRG D 3/21 C 9/2	Subject: Transition to WGS-84 in the Asia Pacific Region ~~Task: Develop a plan and assist with the transition to WGS-84~~ Task: Monitor and facilitate the transition to WGS-84	A	~~a) Information for planning to be provided by States~~ ~~b) Information to be collated for presentation to ATS/AIS/SG~~ ~~c) Transition plan and assistance to States to be considered~~ a) Maintain status report of WGS-84 implementation within the Asia Pacific Region b) Identify States requiring assistance and where possible assist those States c) Identify deficiencies	~~States~~ ~~ICAO~~ ~~ICAO~~ ATS/AIS/SAR/SG States ICAO ATS/AIS/SAR/SG ATS/AIS/SAR/SG	~~Completed~~ ~~Completed~~ ~~Completed~~ On-going On-going On-going
12	RAN/3 R 14/13 APANPIRG C 5/12 D 6/21 C 9/8	Subject: Implementation of ATS route requirements Task: a) Identify ATS routes in the ANP which have not been implemented b) Propose guidelines for the establishment of ATS routes using RNP and/or with ADS functions	A	a) ATS routes identified as not implemented are consider by ATS/AIS/SAR/SG b) ATS/AIS/SAR/SG to monitor progress c) Identify deficiencies	ATS/AIS/SAR/SG ATS/AIS/SAR/SG ATS/AIS/SAR/SG	On-going On-going On-going

No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
~~13~~	~~APANPIRG C 2/33 C 6/19~~	~~Subject: Access to Japan Area "G"~~	~~A~~	~~Secretariat to follow up and report progress. No further action possible by ATS/AIS/SAR/SG~~	~~ICAO~~	~~On-going~~
14	~~APANPIRG C 2/33 C 7/7~~	~~Subject: NOTAM System of GPS RAIM outages~~ ~~Task: Develop a position for dealing with notification~~	B	~~a) Develop a position at ATS/AIS/SAR/SG/6~~ ~~b) Develop implementation plan~~ ~~(overtaken by technology enhancements)~~	~~ATS/AIS/SAR/SG/6~~ ~~ATS/AIS/SAR/SG~~	~~Completed~~ ~~Completed~~
15	RAN/3 R 7/18 APANPIRG C 8/9	Subject: SAR training and exercises Task: Facilitate SAR training and exercises	B	~~a) Follow-up action on RAN/3 Recommendation 7/18~~ b) Co-ordinate SAR training available in the region c) Facilitate international participation in SAR exercises ~~d) Australia to organise an international SAREX~~	~~ICAO~~ ICAO States ~~Australia~~	~~Completed~~ On-going ~~4/01~~ 2002 ~~Completed~~
16	APANPIRG C 6/13	Subject: Appropriate SAR legislation, National SAR Plans and Amendments Task: Establish appropriate documentation and National SAR Committee	A	a) Implement appropriate legislation, establish National SAR Committees and Plans to support SAR operations b) Monitor developments of SAR Agreements between SAR organizations c) Establish and maintain a Register of SAR Agreements	States ATS/AIS/SAR/SG ICAO	On-going On-going On-going
~~17~~		~~Subject: Need for development of standardised ATS Letters of Agreement (LOA)~~ ~~Task: Develop a suitable LOA for Asia Pacific Region wide use~~	~~A~~	~~a) Review draft LOAs as contained in Part II, Chapter 2 of the ATS Planning Manual (Doc 9426) and WP/22 presented to ATS/AIS/SAR/SG/5~~ ~~b) Provide comments to the Regional Office before the next meeting~~ ~~c) Guidance material promulgated by ICAO for use by States~~	~~ATS/AIS/SAR/SG~~ ~~States~~ ~~ICAO~~	~~Completed~~ ~~Completed~~ ~~Completed~~

No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
18	APANPIRG C 9/9	Subject: Lack of consideration of Human Factors in the provision of ATS Task: Consider ways by which Human Factors aspects in the provision of ATS within the region could be improved	B	a) States to provide input including lessons learned (ICAO encourages States to submit reports) b) ICAO to conduct seminars	States ICAO	On-going ~~10/00~~ 2003
19	APANPIRG D 8/	Subject: Maintenance of the CNS/ATM/GM for the Region Task: Maintain the CNS/ATM/GM	B	a) Update the Guidance Material as required ~~b) Develop "Concept of Operations" for application in an initial ADS environment~~	ATS/AIS/SAR/SG States ~~ATS/AIS/SAR/SG States~~	On-going ~~Completed~~
20	APANPIRG C 9/48	Subject: Shortcomings & Deficiencies in the field of air navigation Task: Develop and maintain Shortcomings & Deficiencies list	A	a) Identify unimplemented items in the ANP b) Review mission reports c) Analyse differences from SARPs d) Review accidents / incidents	ATS/AIS/SAR/SG ICAO ICAO ATS/AIS/SAR/SG ICAO ATS/AIS/SAR/SG	On-going On-going On-going On-going
21	APANPIRG/12	Subject: Lateral Offset Procedures	A	a) Review ICAO Guidelines on Lateral Offsets b) Identify bodies developing offset procedures c) Coordinate with all parties concerned d) Identify issues regarding route structures where offsets could be applied e) Consider methodologies for safety assessment	ATS/AIS/SAR/SG	On-going

Agenda Item 8: Any other business

8.1 **Required Communication Performance (RCP)**

8.1.1 The meeting was informed that in accordance with the Task of the ATN Transition Task Force, a document was prepared by Japan on performance and operational requirements and presented to the Fourth Meeting of the Task Force held in Mumbai in April 2002. A number of operational functions were identified that required establishment of performance values to accomplish end-to-end communication requirements. Since such values defining operational requirements would have to be established by the ATS community the Task Force had requested Japan to present the paper to the ATS/AIS/SAR/SG/12 meeting to seek comments.

8.1.2 As requested by the Task Force, Japan presented WP/19 outlining the need to establish operational requirements containing examples of Required Communication Performance (RCP) values for various ATS functions.

8.1.3 The meeting noted with interest the contents of WP/19 and recognized that the introduction of data link should be given priority, however, while introducing new technology consideration should be given to the cost factor. It was clarified that the purpose of the presentation was not for the development of an implementation plan but to assist the Task Force to complete the task assigned by APANPIRG of the development of performance and functional requirements for ATN.

8.1.4 As the WP/19 required an in-depth study, the meeting agreed to request the Secretariat to circulate the paper to States for review and comments. It was also agreed that the resulting comments would be compiled by the Secretariat and presented to the CNS/ATM/IC//SG/10, ATN Transition Task Force/5 and the ATS/AIS/SAR/SG/13 meetings in 2003.

Agenda Item 9: Date and Venue for Next Meeting

9.1 The meeting requested that the next ATS/AIS/SAR Sub-Group Meeting be held on 19-23 May 2003 in Bangkok, subject to concurrence by APANPIRG/13.

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LIST OF WORKING PAPERS (WPs) and INFORMATION PAPERS (IPs)

WORKING PAPERS

WP No.	Agenda Items	Presented by	Subject
1	1	Secretariat	Provisional Agenda
2	4	Secretariat	Review ATS Co-ordination Meetings
3	3	Secretariat	Implementation of ATS Routes
4	3	Secretariat	Implementation of WGS-84 in Asia/Pacific
5	5	Secretariat	Report of the Eighth and Ninth Meetings of the APANPIRG ATS/AIS/SAR Sub-Group's Automation Task Force (AATF/8 & 9)
6	4	Secretariat	Revised South China Sea ATS Route Structure Implementation – Post Implementation Update
7	3	Secretariat	Search and Rescue Matters
8	4	IATA	Frequency Assignment for In-flight Broadcast Contingency Planning
9	3	Secretariat	Update on EMARSSH Project
10	*INTENTIONALLY LEFT BLANK*		
11	*INTENTIONALLY LEFT BLANK*		
12	3	Secretariat	Inclusion of SIGMET in VOLMET Broadcasts
13	6	Secretariat	List of Air Navigation Deficiencies
14		Secretariat	ACAS Transponders
15	7	Secretariat	ATS/AIS/SAR Task List
16	3	Secretariat	Review of Outstanding Conclusions and Decisions of APANPIRG
17	5	Secretariat	Guidance Materials for AIS in the Asia/Pacific Region
18	3	Secretariat	Implementation of Lateral Offsets in Oceanic and Remote Area Airspace
19	8	Japan	Technical Document on ATN Performance; Proposed RCPs
20	4	Australia	Proposal to Amend ICAO Doc 7030 to Enable Use of 30NM ADS Separation Minima
21	4	Australia	Automatic Dependent Surveillance Broadcast (ADS-B) in Australia
22	4	Australia	Safety Management Systems
23	4	IATA	Contingency Planning for the Provision of ATS

WP No.	Agenda Items	Presented by	Subject
			over the High Seas
24	2	Secretariat	APANPIRG/12 Report and ANC/Council Actions
25	4	Secretariat	Report of the Ninth Meeting of the APANPIRG CNS/ATM Implementation Co-ordination Sub-Group (CNS/ATM/IC/SG/9)
26	3	Secretariat	Proposed Amendment to the Guidance Material on the Implementation of a 300m (1000ft) Vertical Separation Minimum (VSM) for application in the airspace of the Asia and Pacific
27	3	Singapore	Establish a Bi-Directonal ATS Route between TOMAN and LUSMO
28	4	IATA	Airline Review of the New SCS Route Structure

FLIMSY

Flimsy No.	Agenda Items	Presented by	Subject
1	4	Secretariat	Summary of Discussions from the Working Group on Key Priorities for CNS/ATM Implementation in the Asia/Pacific Region

INFORMATION PAPERS

IP No.	Agenda Items	Presented by	Subject
1	-	Secretariat	List of Working Papers (WPs) and Information Papers (IPs)
2	4	Jeppesen	Dissemination of AIP Documents according to the AIRAC Concept
3	3	RVSM Task Force	Implementation of Reduced Vertical Separation Minimum (RVSM) in the Asia/Pacific Region
4	8	United States	Report of the Work of the 6th Mini-Russian-American Coordinating Group for Air Traffic Control (RACGAT) Meeting, 20-23 May 2002
5	4	United States	International Search and Rescue Agreements
6	4	United States	National Provisions for Search and Rescue Services
7	3	Secretariat	APASM TF Report
8	8	Philippines	Joint ATO-NIMA WGS-84 Survey in the Philippines
9	5	Secretariat	First Edition of the Guidance Manual for AIS in the Asia/Pacific Region
10	4	Australia	Use of ADS in Australia
11	4	Australia	Use of ATS Inter-Facility Data Coordination (AIDC) Messaging
12	4	United States	Advanced Technologies and Oceanic Procedures (ATOP) Program Update
13	4	Secretariat	Afghanistan Update
14	4	Japan	Carriage and Operation of ACAS in Japan
15	3	China	ACAS and AIP Implementation Progress
16	4	Secretariat	National ATS Contingency Planning Framework