AGENDA ITEM 2: ASIA/PAC/AIR NAVIGATION SYSTEM AND RELATED ACTIVITIES

AGENDA ITEM 2.1: ATS/AIS/SAR MATTERS

Agenda Item 2: ASIA/PAC Air Navigation System and Related Activities

2.1 ATS/AIS/SAR Matters

2.1.1 The meeting reviewed the report of the Twelfth Meeting of the APANPIRG Air Traffic Services/Aeronautical Information Services/Search and Rescue Sub-Group (ATS/AIS/SAR/SG/12) which was held at the ICAO Asia and Pacific Regional Office, Bangkok, Thailand from 24 to 28 June 2002, as well as working/information papers covering various ATS/AIS/SAR issues. The meeting expressed its appreciation for the work progressed by the Sub-Group.

RVSM Implementation

2.1.2 The meeting reviewed the work of the ICAO RVSM Implementation Task Force (RVSM/TF).

2.1.3 The Task Force had met five times as below since its activities were reported to the APANPIRG/12:

TF/12: 10-14 September 2001, Denpasar, Indonesia
TF/13: 14-18 January 2002, Singapore
TF/14: 30-31 May 2002, Bangkok, Thailand
(Western Pacific/South China Sea focus)
TF/15: 3-7 June 2002, Bangkok, Thailand
(Bay of Bengal and beyond focus)
Special Coordination Meeting for the Western Pacific/South China Sea
Implementation (RVSM/SCM): 29-31 July 2002, Manila, Philippines

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

Western Pacific/ South China Sea Implementation

Operational Considerations – Phase 1 implementation on 21 February 2002

2.1.5 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).

2.1.6 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:

- a) The meeting noted that 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.
- b) 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.

- c) 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.
- d) 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.
- e) 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

2.1.7 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.

2.1.8 It was noted that States involved in the Phase 2 implementation advised that preparations were progressing satisfactorily in general.

2.1.9 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.

2.1.10 The meeting noted 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.

2.1.11 It was also noted that States concerned would put appropriate measures in place to ensure that operational errors are significantly reduced in order for the target level of safety to be maintained.

2.1.12 The meeting was advised that Section 12.0 of the AIP Supplement on RVSM operations relating to procedures for operation of non-RVSM compliant aircraft in RVSM airspace, was amended, and would be published by States by late July 2002.

Airworthiness and Operation of Aircraft Considerations

2.1.13 The meeting noted with appreciation that the FAA had agreed to maintain the RVSM website (www.faa.gov/ats/ato/rvsm1.htm) for States, operators and the ICAO RVSM Implementation

Task Force, to provide a better understanding of the airworthiness and aircraft operations material available.

2.1.14 It was noted that the Task Force continued reviewing 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.

Safety and Airspace Monitoring Considerations

2.1.15 The meeting was advised that the APARMO was being serviced by the FAA Technical Center, and had reported using a 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.

2.1.16 The meeting recalled that a target of 90-percent operator approval was adopted 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.

2.1.17 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.

2.1.18 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 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.

Bay Of Bengal and Beyond Implementation

2.1.19 The meeting noted that the definition **'Bay of Bengal and Beyond (within the ICAO Asia Region**)" was adopted by the Task Force to reflect a common definition for the airspace in which RVSM will be implemented on 27 November 2003. The RVSM airspace will include the Bangkok, Chennai, Colombo, Delhi, Dhaka, Jakarta, Karachi, Katmandu, Kolkata (Calcutta), Kuala Lumpur, Lahore, Male, Mumbai and Yangon FIRs.

Operational Considerations

2.1.20 The meeting was informed that 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.

2.1.21 It was noted 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 etters of agreement (LOAs) /Supplementary LOAs (SLOAs).

2.1.22 The Task Force would 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. To this end, States concerned would 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.

2.1.23 The meeting was advised 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 co-ordination meeting will be held with the ICAO Middle East Region Task Force in Abu Dhabi, UAE, 19-20 October 2002.

2.1.24 It was advised 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.

Airworthiness and Operation of Aircraft Considerations

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

2.1.26 It was informed that 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, and adopted the existing procedures for the implementation of RVSM in the Bay of Bengal and Beyond.

Safety and Airspace Monitoring Considerations

2.1.27 The meeting noted 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, a collection of traffic movement data for the period 1 February to 31 March 2002 was conducted with cooperation of States. A plan of further traffic movement data collection for 2 months from 15 December 2002 to 15 February 2003, following the implementation of the EMARSSH route restructure, was also noted.

2.1.28 It was informed that the latest 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%.

RVSM Implementation Plan Status Report

2.1.29 The meeting noted the status of the RVSM Implementation Plan for the Asia/Pacific Region updated by the RVSM/TF, which is at **Appendix A** to this Report on Agenda Item 2.1.

Implementation Management

2.1.30 The meeting recalled the advice from the FAA that in order to meet other commitments after February 2002, they would no longer be able to provide the level of support to the Asia/Pacific RVSM/TF that it had in the past. This would also include the services associated with the APARMO. The current FAA Chairpersons and the current APARMO would be available to work closely with the new Chairpersons/Monitoring Organization during the next two meetings in order to provide a smooth transition. The RVSM/TF was in the process of identifying a new Task Force Chairperson, new Chairpersons for the Working Groups as appropriate, and a new organization to provide the services associated with the APARMO as quickly as possible to allow for an adequate transition period with the current Chairpersons.

2.1.31 The meeting was informed that the transition of the Chairmanship of the Task Force and the Working Groups took place following the RVSM/TF/13 meeting in January 2002. In this connection, 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 Working Groups in order to ensure the continuity of the Task Force work.

2.1.32 With regard to a new organization to provide the services associated with the APARMO for the Asia Region, the meeting recalled the offer made by AEROTHAI on behalf of the Department of Aviation of Thailand at the APANPIRG/12. The meeting was further updated with the progress of the transfer of responsibility for RVSM monitoring between AEROTHAI and the FAA Technical Center. Details are addressed in this Report on Agenda Item 3.

Future Work

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

RVSM/TF/16:	23-25 September 2002 in Bangkok, Thailand (Western Pacific/South China Sea Focus)	
Joint Co-ordination Me Forces:	eeting between Asia/Pacific and Middle East RVSM Task 19-20 October 2002 in Abu Dhabi, UAE	
(Target Implementation in Bali, Hanoi, Hong Kong, Jakarta, Ujung Pandang and Vientiane FIRs and Sanya AOR AIRAC date 31 October 2002)		
RVSM Seminar/5:	15 - 17 January 2003 (tentative) and location TBD (Bay of Bengal and Beyond focus)	
RVSM/TF/17:	20 - 24 January 2003 (tentative) and location TBD (Bay of Bengal and Beyond focus)	
RVSM/TF/18:	3 days March 2003 and location TBD	

APANPIRG/13		
Report on Agenda Item 2.1		
	(90-day and 1-year follow up review on Western Pacific/South China Sea focus)	
RVSM/TF/19:	5 days May 2003 and location TBD (Bay of Bengal and Beyond focus)	
RVSM/TF/20:	5 days October 2003 and 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 and location TBD (90-day follow up review on Bay of Bengal and Beyond focus)	
RVSM/TF/22:	2 days November 2004 and location TBD (1-year follow up review on Bay of Bengal and Beyond focus)	

Phraseologies related to RVSM operations for application in the Asia And Pacific Region

2.1.34 The meeting was advised that the RVSM/TF discussed 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 *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*. 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.

2.1.35 Noting that these phraseologies had 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 ATS/AIS/SAR/SG/12 meeting considered it appropriate to include the proposed phraseologies related to RVSM operations in the RVSM Guidance Material. Accordingly, the Sub-Group proposed APANPIRG to adopt the RVSM related phraseologies to be included in the RVSM Guidance Material for the Asia/Pacific Region.

2.1.36 However, ICAO HQ reviewed the report of ATS/AIS/SAR/SG/12 and provided advice in relation to this proposal as follows:

a) Conclusion to come out of APANPIRG/13 need to be along the lines of "incorporation of RVSM phraseologies into the PANS-ATM". Phraseologies and CPDLC preformatted free text messages should not be in Regional Guidance Material except as explanatory material to assist in the implementation of the phraseologies contained in the Regional Supplementary Procedures for regional application or the PANS-ATM for global application. The ICAO Separation and Airspace Safety Panel (SASP) supports the inclusion of standardized RVSM phraseologies in the PANS-ATM. HQ is of the view that RVSM is entering the sphere of international provisions.

b) It was considered that any proposal on this matter would need to harmonize with ICAO recommendations to amendments of the PANS-ATM.

2.1.37 In light of the above comments from ICAO HQ, APANPIRG considered it more appropriate to have such phraseologies related to RVSM operations in the Asia/Pacific Region in the Regional Supplementary Procedures (Doc 7030) as an interim solution until they are standardized in the PANS-ATM for global application. With a view to ensuring harmonization with other Regions, the meeting developed the following Conclusion:

Conclusion 13/1 – Inclusion of phraseologies related to RVSM operations in the ICAO Regional Supplementary Procedures (Doc 7030) for Asia and Pacific Region

That, the phraseologies related to RVSM operations contained at **Appendix B** to this Report on Agenda Item 2.1, be adopted for inclusion in the ICAO Regional Supplementary Procedures (Doc 7030) for application in the Asia and Pacific Region, subject to coordination and harmonization with other Regions.

2.1.38 The United States commented that the ICAO SASP would be an appropriate body to develop standard phraseologies related to RVSM operations to amend the PANS-ATM.

Assessment of Non-RVSM approved operators in Pacific

2.1.39 The meeting recalled that the assessment of the identification of non-RVSM approved operators using Asia/Pacific airspace had been conducted by the APARMO twice before. The APARMO identified potentially non-RVSM approved air carrier operations and summarized representative cases of the identified operators and aircraft types.

2.1.40 In light of the problems uncovered in examination of the State approval status of operations, the APANPIRG/12 meeting agreed that the APARMO should enhance its procedures for registration of State approvals in its database to take into account the special circumstances described above. Noting that the APARMO is in the process of contacting State authorities, where appropriate, to ask that they investigate RVSM approval status of operators and aircraft whose status is otherwise unresolved, the meeting formed the following Conclusion:

Conclusion 12/1 – Observation of non-compliance of RVSM operational approval procedures

That, States are urged to co-operate with APARMO to investigate RVSM approval status of operators and aircraft with the aim of resolving problems of RVSM non-compliant operations.

2.1.41 The APANPIRG/12 meeting also noted the need of the APARMO to collect a 4-week sample of traffic movements in early calendar year 2002 from those Pacific FIRs where RVSM is applied in order to perform another analysis.

2.1.42 The meeting was presented with a comprehensive assessment of the identification of non-RVSM approved operators in the Pacific airspace where RVSM is applied. Using actual Pacific traffic movement data collected during April 2002, the APARMO compared all observed air carrier aircraft operations flying between FL290 and FL390, inclusive, against the RVSM operational

approvals noted in the APARMO Approvals Registry, the North Atlantic (NAT) Central Monitoring Agency (CMA) database, and the MASPS-compliant airframes identified by EUROCONTROL. The traffic movement data used for this analysis were from the Anchorage, Auckland, Brisbane, Naha, Oakland, Tahiti, and Tokyo Flight Information Regions (FIRs).

2.1.43 The meeting noted with concern that there were a number of cases of non-RVSM approved operations in the Pacific where RVSM is applied. In this connection, the meeting was advised that the APARMO would provide the same information to the appropriate Asia-Pacific State Civil Aviation Authorities (CAAs), and suggested that in turn, those CAAs investigate the RVSM approval status of the identified operators and aircraft that are under their jurisdictions. The APARMO will continue to work with State authorities in the Asia-Pacific Region to develop enhanced procedures to properly identify RVSM-approved operations.

2.1.44 In light of the above, the meeting re-emphasized the importance of co-operation of State authorities with the APARMO to investigate RVSM approval status of operators and aircraft with the aim of resolving problems of RVSM non-compliant operations. The meeting also expressed its support to the APARMO efforts to work with States in order to clarify the RVSM approval status of operators and aircraft, in pursuant to the Conclusion 12/1.

Implementation of ATS routes

2.1.45 The meeting was advised that the ATS/AIS/SAR/SG/12 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.

2.1.46 It was informed 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. 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. The meeting noted the suggestion by IATA that the updated list could be circulated to States and international organizations by ICAO well in advance before ATS/AIS/SAR/SG meetings in the future, which would allow States and international organizations sufficient time to prepare comments on some ATS routes implementation status.

2.1.47 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 on 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 raised their concern that their operational requirements for some additional routes were yet to be recognized in the 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.

2.1.48 In addition, IATA pointed out that while some changes to ANP route requirements were agreed upon at various ICAO planning meetings, there had not been action taken to process ANP amendments. IATA indicated their intention to co-operate with ICAO in developing proposals in order to keep the ANP up-to-date.

2.1.49 The meeting was advised that ATS/AIS/SAR/SG/12 identified deficiencies related to ATS routes in the Asia/Pacific Region, and included 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.

2.1.50 The meeting noted that the majority of the ATS routes listed in the air navigation deficiencies had been agreed to by the States concerned at the Third Asia/Pacific Regional Air Navigation Meeting in 1993.

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

2.1.51 The revised South China Sea (SCS) ATS route structure was implemented on 1 November 2001. The meeting was advised that two ICAO meetings, namely the 7th Meeting of SCS Task Force (SCS/TF/7) held in Bangkok, Thailand, 9-11 January 2002 and the 10th Meeting of the South East Asia ATS Coordination Group (SEACG/10) held in Bali, Indonesia, 18-22 March 2002, conducted post-implementation review to discuss the results of South China Sea operations after 1 November 2001.

2.1.52 The meeting noted that the general consensus on the effectiveness of the revised South China Sea route structure 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.

2.1.53 Nevertheless there was still some further work to be accomplished on some ATS routes that created additional track miles and substantial costs to particular airlines. In this regard, IATA presented airline views as below:

a) 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	

* Note: A negative number shows a reduction in flight time, which is an improvement.

- b) Hong Kong-Jakarta city pair has suffered significantly since 1 November 2001, and is reported by one airline alone to carry an additional 4.6 million USD annual increase to their one flight a day operation. IATA has been seeking an acceptable solution through meetings with States concerned.
- c) There is also significant penalty for aircraft flying from Brunei to the Middle East/Europe by an additional 110NM, which gives a time penalty of 16 minutes over the route (Kota Kinabalu-Phuket) flown prior to implementation of the revised route structure.
- d) 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. However, there

are 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.

2.1.54 It was noted that IATA would continue co-ordination with States concerned and ICAO in arriving at viable solutions. It was also noted that these issues would be addressed at a 1-year review meeting of the SCS/TF scheduled for December 2002.

AIS Automation Task Force (AATF)

2.1.55 The meeting was informed that the ATS/AIS/SAR Sub-Group's AIS Automation Task Force (AATF) met twice as below:

- a) AATF/8 was held in Bangkok, Thailand, 16-18 October 2001, and attended by 9 experts from China, Hong Kong China, Japan, Singapore and Thailand.; 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, 20-23 May 2002. The meeting was attended by 12 experts from China, Hong Kong China, Japan, Singapore, Thailand, and IFALPA.

2.1.56 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 since its Seventh meeting (AATF/7) in Brisbane, Australia, in February 2001 and contributed to the work of the Task Force significantly.

Guidance Manual for AIS in the Asia/Pacific Region

First Edition of the Guidance Manual for AIS in the Asia/Pacific Region

2.1.57 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.

2.1.58 This draft guidance material was 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

2.1.59 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.

2.1.60 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.

2.1.61 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 after new guidance material relating to the use of the Internet for information transfer becomes available. The meeting was advised that 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)

2.1.62 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.

2.1.63 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.

2.1.64 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.

2.1.65 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.

2.1.66 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, advice from EUROCONTROL indicated that European States would not send NOTAM containing Item X and Purpose D to the outside the European Region.

2.1.67 AATF/9 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 2.1.

2.1.68 The meeting noted that 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.

2.1.69 The meeting reviewed the draft Chapter 3 forwarded from ATS/AIS/SAR Sub-Group and agreed that this material be published as the first amendment to the Chapter 3 of the Guidance Manual, to replace the existing COP published in 1997.

2.1.70 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 Conclusion:

Conclusion 13/2 – 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 2.1, 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

2.1.71 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.

2.1.72 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.

2.1.73 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 cannot be pursued.

2.1.74 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.

2.1.75 The meeting noted that at AATF/9, Japan presented a draft document of the guidance material on 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.

2.1.76 It was advised that when reviewing the draft Chapter 4, ATS/AIS/SAR/SG/12 made some modifications to paragraph 3.10 of the draft material.

2.1.77 The meeting considered the draft material incorporating the above change, appropriate for publication as Chapter 4 of the Guidance Manual, which is at **Appendix D** to the Report on Agenda Item 2.1.

2.1.78 Accordingly, the meeting formed the following Conclusion pertaining to the draft Chapters 3 and 4:

Conclusion 13/3 – 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 2.1) 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.

NOTAM Checks to be sent as NOTAM, and multi-part NOTAM messages

2.1.79 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.

2.1.80 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.

2.1.81 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.

2.1.82 The meeting noted that procedures adopted by AATF were incorporated into the draft Chapter 3 of the Guidance Manual for AIS in the Asia/Pacific.

AIS Seminar 2002

2.1.83 The meeting recalled 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.

2.1.84 When reviewing the Report of the APANPIRG/12, the ICAO Council, at the 5^{h} 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. In this connection, the meeting expressed its appreciation for the Council approval of SIP for an AIS seminar in 2002.

2.1.85 It was informed that an AIS Seminar for Asia/Pacific is planned in Bangkok, Thailand, from 17 to 20 December 2002. The objectives of the seminar are to:

- a) increase the level of awareness by AIS/MAP providers regarding the need for, and application of, the SARPs contained in Annex 15;
- b) accelerate the application of quality systems supporting AIS/MAP across the regions;
- c) provide briefings relating to international directions and advances being made in the fields of AIS/MAP; provide a forum for open discussions relating to AIS matters of mutual interest between providers and users;
- d) provide a forum for AIS/MAP users to articulate their specific needs and requirements; and
- e) provide a forum where technological advancements and enhancements in the field of AIS/MAP can be displayed and demonstrated.

2.1.86 The meeting noted that the seminar would 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.

2.1.87 The meeting also noted that a special session focusing on ISO 9000 series standard was being considered to be included in the seminar programme for better understanding of ISO, which is recommended in Annex 15.

Completion of the Work Programme of AATF

2.1.88 The meeting noted that ATS/AIS/SAR/SG/12 meeting carefully examined, in light of the Terms of Reference of the Task Force, the status of works completed since AATF/6.

2.1.89 It was advised that the Sub-Group 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.

2.1.90 The meeting was further advised that in light of the discussions on the update of the Task List and completion of the Work Programme, the Sub-Group was of the view that there would be no need to convene a meeting to pursue the Terms of Reference, and that the Task Force be suspended. Therefore, the ATS/AIS/SAR/SG/12 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.

2.1.91 The meeting noted this Decision of ATS/AIS/SAR/SG/12.

2.1.92 In addition, 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.

2.1.93 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.

2.1.94 Furthermore, the meeting noted the concern expressed by Japan in relation to the progress of the development of a standardized aeronautical data exchange model. 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. 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 decisions with regard to their plan to develop AIS systems in order to meet operational requirements in a timely manner. Japan also stated that the establishment of an AIS Panel could be among ideas to be considered in facilitating the work.

Implementation of the Amendment of the ICAO Asia/Pacific Air Navigation Plan (APAC 98/8-ATS/COM/MET/SAR/AIS) on the Realignment of the Common Nadi/Auckland Oceanic FIR Boundary

2.1.95 The meeting was advised that on 27 November 2001, the ICAO Council approved the proposal for amendment of the ICAO Asia/Pacific Air Navigation Plan (Doc 9673) (serial number APAC 98/8-ATS/COM/MET/SAR/AIS) concerning realignment of the common Nadi/Auckland Oceanic FIR boundary which had been jointly proposed by Samoa and Tonga.

2.1.96 Subsequently, ICAO convened a special co-ordination meeting in Bangkok, Thailand, 27 February-1 March 2002 to foster the implementation of the approved amendment. A target implementation date of 8 August 2002 was agreed upon by all States concerned. Working Groups comprising representatives from Fiji, New Zealand, Tonga, Samoa, United States, American Samoa met three times at various locations and developed procedures and protocols required for the implementation of the realigned FIR boundary.

2.1.97 The meeting noted that the realigned FIR boundary was implemented on 8 August 2002 as agreed without any trouble.

2.1.98 The meeting recognized the demonstration of cooperation and close coordination among States concerned in this successful implementation.

Implementation of WGS-84 in the Asia/Pacific Region

2.1.99 The meeting was presented with a table in the uniform format showing the implementation status of WGS-84 in the Asia/Pacific States, which was reviewed and updated by the ATS/AIS/SAR Sub-Group.

2.1.100 In this regard, the meeting noted that India, Japan, Philippines and the United States had provided their updated information to ICAO before and during the ATS/AIS/SAR/SG/12 meeting. A minor correction was made to the information relating to Kolkata airport by India during the meeting. This updated table of WGS-84 implementation status is at **Appendix E** to the Report on Agenda Item 2.1.

2.1.101 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.

2.1.102 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.

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

Carriage and operation of pressure -altitude reporting transponders and ACAS

2.1.104 The meeting was provided with updated tables of the status of States' implementation plans for the mandatory carriage and operation of pressure-altitude reporting transponders and those of ACAS II in the Asia/Pacific Region. These tables are at **Appendix F** to the Report on Agenda Item 2.1.

2.1.105 The meeting recalled that 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". In this connection, the meeting was of the view 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.

2.1.106 The meeting noted with interest that as the number of aircraft being equipped with ACAS II has increased, the number of ACAS resolution advisory (RAs) reported by pilots and controllers has been significantly reducing in Japan. 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 ACAS II (TCAS version 7) has contributed to the reduction of the number of nuisance RAs.

2.1.107 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 2002, meeting the Annex 6 requirement.

2.1.108 The meeting was informed 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).

2.1.109 It was also informed 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 fitted with ACAS II will not be allowed to operate within the FIRs of China. With effect from 1 January 2002, all aeroplanes shall also be equipped with a pressure-altitude reporting transponder as required in ICAO Annex 10, Volume IV.

2.1.110 The meeting re-emphasized the critical importance of aircraft not equipped with a pressure reporting transponders not being permitted to share airspace used by aircraft equipped with ACAS. The performance of ACAS is totally dependent on all aircraft in the vicinity being equipped with pressure-altitude reporting transponders, in order to detect conflicting traffic and issue a Traffic Alert (TA) or Resolution Advisory (RA).

2.1.111 In addition, the meeting recalled that APANPIRG/11 stated that when States were planning implementation of ACAS II, consideration should be given to the needs of State aircraft.

Revised ICAO Guidelines on Use of Lateral Offsets

2.1.112 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.

2.1.113 In consideration of APANPIRG Decision 12/9, the meeting noted that ICAO guidelines on the use of lateral offsets and the effect on airspace safety were issued by 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 increase the lateral risk between aircraft on adjacent tracks due to the magnitude of the offset being used.

2.1.114 The meeting was advised that the SASP had carried out 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 should be amended to allow for 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. The revised guidelines were issued by State letter AN 13/11.6-02/21 dated 31 May 2002.

2.1.115 The meeting also noted that in Annex 2 - Rules of the Air, paragraph 3.6.2.1.1 authorization is required prior to a pilot applying a lateral offset, and this 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 offset 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 the ICAO guidelines should not be delayed until Doc 7030 is amended.

2.1.116 In consideration of the revised guidelines, the meeting noted the reference to wake turbulence procedures in 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".

In this regard, the meeting further noted that wake turbulence procedures for the Asia/Pacific Region had been incorporated in Doc 7030.

2.1.117 Furthermore, the meeting noted that States should coordinate and harmonize implementation of lateral offset procedures in line with the ICAO guidelines on a sub-regional basis. In this regard, it was noted that the Informal South-Pacific ATS Coordinating Group (ISPACG) was considering implementation of 1 NM lateral offsets in the South Pacific airspace on 5 September 2002. The meeting was of the opinion that the results of this implementation effort should be carefully analyzed before proceeding with a regional implementation programme. Accordingly, the meeting agreed that this item should be reviewed with a degree of priority by the Sub-Group at its next meeting.

2.1.118 To facilitate the ATS/AIS/SAR/SG developing a regional implementation programme, the meeting recognized that it would be helpful for the Sub-Group to have information on planning by States to implement offset procedures. Also, in light of the revised guidelines, which permits States to implement different procedures as described above, States should be reminded that implementation of lateral offsets should be undertaken in a coordinated and harmonized manner in line with the ICAO guidelines. Accordingly, the meeting formulated the following Conclusion

Conclusion 13/4 – Survey of State planning to implement lateral offset procedures

That, the Asia/Pacific Regional Office undertake a survey of State planning to implement lateral offset procedures, and to remind States that implementation of lateral offset procedures should be done in a coordinated and harmonized manner based on the ICAO guidelines, and taking into account planning by States in adjacent FIRs and regions.

2.1.119 The meeting recognized that the SASP was continuing its work to develop the guidelines, which had global applicability, and development of global procedures should be carried out by ICAO Headquarters. Therefore, to avoid duplication, the Sub-Group should not be tasked to develop global procedures but contribute to the work of SASP as appropriate, and develop regional offset procedures in coordination with other regional planning groups. In light of the foregoing, the meeting cancelled Conclusion 12/9 and replaced it with the following Conclusion:

Conclusion 13/5 – Development of lateral offset procedures for application in the Asia/Pacific Region

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

Proposal to amend the Regional Supplementary Procedures, ICAO Doc 7030

2.1.120 The meeting was presented with a proposed amendment to the *Regional Supplementary Procedures*, Doc 7030 in relation to the application of 55.5 km (30 NM) using ADS and 93 km (50 NM) lateral and longitudinal separation minima within the Asia/Pacific Regions. Also, editorial changes were proposed to related sections to enhance readability. The meeting noted that the proposal is in line with the PANS-ATM, Doc 4444, Amendment 1, applicability date 28 November 2002. As a consequence, the meeting formulated the following Conclusion:

Conclusion 13/6 – Amendment to the Regional Supplementary Procedures

That, the MID/ASIA and PAC *Regional Supplementary Procedures*, ICAO Doc 7030 be amended in accordance with the proposed amendment in Appendix x to the Report on Agenda Item 2.1.

Inclusion of SIGMET in VOLMET broadcasts

2.1.121 The meeting was reminded that APANPIRG/10 formulated Conclusion 10/3, which stated:

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.

2.1.122 As a result of this conclusion, a 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 would be significantly affected, for comments before it would be formally circulated.

2.1.123 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. They advised that States with very large FIRs would have difficulty in transmitting SIGMET in addition to other required meteorological information in the limited timeframe of 5 minutes.

- 2.1.124 The meeting recalled that there were several options addressed at previous meetings:
 - 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 whereby 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 (NAT ANP, Table ATS 2 refers). It was felt that these procedures would be difficult to apply in the ASIA/PAC Region.
 - 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 were:
 - 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).

Although this may have been a practical solution, it went against the SARPS in ICAO Annex 3.

- 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, similar to para. c) above, 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.

2.1.125 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.

2.1.126 The meeting noted that during ATS/AIS/SAR SG/11, IATA presented 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.

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

2.1.128 IATA suggested that 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 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.

2.1.129 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.

Search and Rescue Matters

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

2.1.130 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. The Matrix Table was updated by the meeting and is shown at **Appendix G** to the Report on Agenda Item 2.1.

Provision of SAR and SAR Agreements

2.1.131 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.

2.1.132 APANPIRG/6 also 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.*

2.1.133 The meeting was advised that ICAO had received SAR agreements based on a multilateral basis between Malaysia and Singapore, Philippines, Thailand, Indonesia and Brunei Darussalam.

2.1.134 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 these agreements to ICAO to be included in the register.

2.1.135 The meeting noted that 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 SAR agreement that was between the U.S, Canada and the United Kingdom. This information is found at **Appendix H** to the Report on Agenda Item 2.1.

SAR Exercises

2.1.136 The meeting recalled that in accordance previous APANPIRG conclusions, States were requested to develop formal programs of SAR exercises and forward their programmes to the ICAO Regional Office on an annual basis by 30 April. Such exercises should be made available for other States to participate as observers.

2.1.137 It was noted by the meeting that some States hold regular joint SAR exercises (SAREXs) with their neighbours which had 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.

2.1.138 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 harmonization of the event with a SAR seminar. In this way, participants at the seminar had a "front seat" to the exercise and were able to give worthwhile comment on the performance at the conclusion of the SAREX.

2.1.139 The meeting however noted 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 was unfortunately deferred.

2.1.140 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.

2.1.141 Subsequently, the ICAO Council endorsed the Special Implementation Project as described above in accordance with the prescribed ICAO procedures. Other pressing matters has caused this event to be deferred and it is now planned to take place in 2003. The ICAO Bangkok office will once again seek the approval of the ICAO Council to hold this event.

2.1.142 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.

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

Search and Rescue Training

2.1.144 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.

2.1.145 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.

2.1.146 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.

2.1.147 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.

2.1.148 The meeting noted that Singapore Aviation Academy programmed courses in search and rescue twice yearly; one course concentrates on Aviation Search and Rescue with the second focusing on Maritime SAR.

National Plans for Search and Rescue

2.1.149 The U.S. recommended to the meeting that every nation should have, either in legislation or other suitable form, high-level provisions for providing SAR services. The meeting was advised that, in the U.S., this is achieved 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.

2.1.150 The meeting further 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

2.1.151 The Plan also 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

2.1.152 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, which is in **Appendix I** to the Report on Agenda Item 2.1.

Requirements for Emergency Location Transmitter (ELT) for SAR

2.1.153 The meeting noted that emergency locator transmitter (ELT) for Search and Rescue shall operate on 406 MHz and 121.5 MHz simultaneously from 1 January 2005 as prescribed in Annex 6 and Annex 10. All emergency locator transmitters installed on or after 1 January 2002 shall operate simultaneously on 406 MHz and 121.5 MHz. The technical characteristics for the 121.5 MHz and 406 MHz components are provided in paragraph 5.2 and 5.3 Chapter 5 of Annex 10 Vol. III. The meeting identified the need to implement ELT in accordance with SARPs provision and considered it as an important item to ensure timely implementation.

Update on the EMARSSH Project

2.1.154 The meeting recalled 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.

2.1.155 Since the APANPIRG/12 meeting, six EMARSSH Task Force meetings have been held; one in Delhi, India, Tehran I.R. Iran, two in ICAO Paris office and two in the ICAO Bangkok office. Continued progress towards implementation has taken place at all of these meetings, with enthusiastic support from all States concerned as well as the aviation industry.

2.1.156 The Eighth Task Force Meeting on a Revised ATS Route Structure – Asia to Middle East/Europe, South-of-the-Himalayas (EMARSSH TF/8) was held in Bangkok, Thailand, from 5 to 9 August 2002.

2.1.157 The purpose of the meeting was to finalise all outstanding issues associated with the EMARSSH project in order to achieve the target implementation date of AIRAC 28 November 2002. These issues included AIS matters, route structure and coordination between adjacent FIRs/States

2.1.158 The meeting was advised that many areas concerning this large project have been addressed but will require further work to ensure a smooth transition to the revised route structure. Amongst these were:

- a) safety management issues;
- b) domestic route requirements;
- c) planning of ATC workload and training requirements;
- d) coordination and cooperation with military organisations;
- e) further work on exclusive or non exclusive use of RNP airspace;
- f) communication requirements as a result of the changed route structure;
- g) Weather deviation procedures;
- h) Transition procedures;
- i) AIS requirements

2.1.159 The meeting was given a status report of progress on these above items.

Safety Management requirements

2.1.160 Traffic data collection in support of safety assessments for RNP10 operations has been initiated. Airservices Australia had kindly 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 before the end of October 2002.

Domestic route requirements

2.1.161 States were reminded to examine their domestic route system to ensure that they harmonize with the EMARSSH route structure.

Planning of ATC workload and Training requirements

2.1.162 States were requested to investigate the impact on ATC workload as a result of changes due to the new route structure through their FIR(s)to ensure that it was compatible with controller abilities The amount of aircraft operation within a portion of airspace at any one time is likely to increase due to the reduction of spacing of routes over the high seas. This will need further consideration when RVSM is introduced over many parts of the EMARSSH route structure in November 2003.

ATS Training for EMARSSH

2.1.163 With regard to ATC training requirements for the EMARSSH project, States were requested to seriously look at this item especially with regard to:

- a) separation procedures dealing with RNP airspace;
- b) familiarisation with changes to many of the ATS route designators;
- c) Weather Deviation Procedures in the Bay of Bengal and Arabian Sea;
- d) new sectorization within an ACC where required; and,
- e) changes to coordination procedures with adjacent FIRs

Coordination and cooperation with military organizations

2.1.164 The meeting noted that the majority of civil/military coordination had been successfully completed regarding changes to EMARSSH routes. In some cases routes through military airspace were only available for limited periods, for example, nighttime operations only. However, these particular times when the routes are available are fortuitous as this is when the majority of aircraft are leaving the Malaysian Peninsular traveling westbound to Europe or the Middle

East. There was still ongoing civil/military coordination in some other areas of the project which is expected to be completed before the scheduled implementation date.

Exclusive or Non-exclusive use of RNP airspace

2.1.165 The meeting was advised that agreement had been reached between States concerned and IATA that RNP10 airspace over the high seas in the Bay of Bengal and Arabian Sea would be exclusive airspace at and above FL280, for aircraft approved for RNP10 operations.

Communications requirements as a result of the changed route structure

2.1.166 The meeting agreed that with the exception of a ground-ground direct speech circuit between Medan and Chennai ACCs, the present communication requirements in relation to the EMARSSH structure were adequate.

Weather deviation procedures

2.1.167 Due to other important matters, which needed to be finalized including AIP Supplements for AIRAC date of 5 September 2002, it was decided to defer this work till after the meeting. The EMARSSH Core Team would study this issue in more detail, and develop procedures for affected States' consideration and will produce either a NOTAM or an AIP Supplement to cover these procedures.

2.1.168 The meeting noted that the EMARSSH implementation date was in the "dry season" in both oceanic areas of the Bay of Bengal and the Arabian Sea. This would allow an appraisal of the Weather Deviation Procedures to be completed prior to the onset of the monsoon season.

AIS requirements

2.1.169 AIP SUP relating to the EMARSSH project had been agreed by States to be distributed on AIRAC 5 September 2002. The meeting recalled that this project may possibly be the largest ATS route structure change ever to be initiated. The EMARSSH routes structure covers three ICAO regions and it is essential that all changes agreed to are harmonized along the routes end-toend. For this reason, it was agreed that sufficient time was given to the aviation industry, charting companies and aircraft database manufacturers to ensure the success of the project.

Outstanding issues carried over from previous EMARSSH meetings

2.1.170 During past EMARSSH Task Force meetings, there were several outstanding issues which still needed to be resolved. These included:

- a) confirmation of agreed routes between Muscat/Mumbai FIRs;
- b) some queries on routes between Tehran/Muscat/Mumbai FIRs;
- c) confirmation of routes across the Bay of Bengal;
- d) confirmation of EMARSSH routes in the Yangon FIR;
- e) re-alignment of a route between Kuala Lumpur/Jakarta FIRs;
- f) confirmation of the starting point for BB10 from the Malaysia Peninsular;
- g) confirmation of EMARSSH routes through the Kabul FIR; and,
- h) agreement of States concerned for a parallel route through Saudi Arabia, Jordan and Syria.
- 2.1.171 All of these matters were addressed at EMARSSH TF/8 and resolved.

Report on progress from States

Islamic Republic of Iran

2.1.172 The I.R. Iran has achieved major changes to their ATS route structure within the Tehran FIR in accordance with EMARSSH requirements. This, in no small part, has been achieved by excellent civil/military coordination. Many of their EMARSSH routes have already been implemented and the others will be implemented on the scheduled date of 28 November 2002. Due to the Afghanistan situation, a few routes joining from the Kabul FIR into the Tehran FIR are not expected to be open by the EMARSSH implementation date.

2.1.173 IFALPA, IATA and ICAO (Asia/Pacific) complimented the CAO (I.R. of Iran) for its progress in airspace modernization, particularly in the areas of COM, NAV and Surveillance.

India

2.1.174 India made a detailed presentation to the meeting listing out the routes and the route details from FIR of entry to the FIR of exit, that have been agreed for implementation on 28 November 2002. India informed the meeting that route segments are being progressed for developing the route system as direct as possible. When such route segments are passing through special use airspace, t is expected that these segments will be available for restricted hours of operations, viz 1630 to 0030 UTC.

Pakistan

2.1.175 Pakistan informed the meeting of the progress made towards implementation of the revised route structure through Pakistan. The meeting was also informed that Pakistan has accepted proposed routings regarding entry/exit points on India/Pakistan FIR, as well as on Pakistan/Iran FIR.

Nepal

2.1.176 Nepal informed the meeting that originally, Himalaya-1 (Nepalganj to Indek), Himalaya-2 (Kunming – Kathmandu), Himalaya-3 (Kathmandu- Nepalganj- Delhi), BB17 and BB18 routes were proposed to be established through Nepal under the EMARSSH project. Due to various issues yet to be resolved by certain States, these originally EMARSSH proposals could not be progressed in sufficient time to meet the implementation date of 28 November 2002. These routes would continue to be pursued towards implementation when the outstanding issues have been resolved.

Myanmar

2.1.177 In coordination with ICAO, Myanmar has advised their readiness and acceptance of the proposed revised route structure through the Yangon FIR.

Bay of Bengal Issues

Letters of Agreement

2.1.178 The meeting the work of Bay of Bengal States' in preparations regarding the signing of Letters of Agreement (LOAs) for the EMARSSH route structure implementation:

a) India reported that it had circulated draft LOAs to Nepal, Malaysia, Indonesia and Sri Lanka and that India plans to complete the signing of all LOAs by mid-September 2002.

- b) Indonesia confirmed it had begun reviewing the draft LOAs provided by India and Malaysia. They will also send a draft LOA to Sri Lanka before 1 October 2002.
- c) Malaysia advised that it is planning to complete the signing of LOAs with its neighbours by 31 October 2002 and that it would commence the training of Malaysian air traffic controllers in the first week of November.
- d) Nepal advised the meeting that it was making preparations to have its LOAs with India and Bangladesh signed before the end of October.
- e) Sri Lanka reported that only small changes would be required in its LOA with India. Sri Lanka expects to sign the LOA with Indonesia before the end of August.
- f) Thailand planned to complete its LOA with Malaysia and Myanmar by 31October 2002.

No-Pre-Departure Clearance (PDC)

2.1.179 No-PDC arrangements currently practiced by Malaysia and Singapore would continue following the implementation of EMARSSH. Malaysia, Singapore and Indonesia were also considering the application of No-PDC to flights planning to operate on routes P574 and N563 which cut across the Jakarta FIR from the Kuala Lumpur FIR. The details of this application of No PDC will be discussed at a later date among the States concerned.

2.1.180 The meeting was also advised that Thailand had requested the addition of FL260 as a No-PDC flight level for flights on M770 (BB10) and L759 (BB9). It was agreed to put this request aside until after the implementation EMARSSH. An assessment could be made at the EMARSSH Implementation Review meeting to determine if the need to include FL260 as a No PDC flight level still existed.

Other route issues in the Bay of Bengal

2.1.181 The meeting noted that Thailand was agreeable to having the eastern end of M770 anchored at RANONG (RAN). In addition, an existing ATS route (part of R325) from Phuket would remain, joining M770 east of RANONG, within radar coverage of Phuket. This route would be the primary route for westbound departures from and overflying the Malaysian Peninsula.

2.1.182 Phuket was a popular destination for flights from Europe during certain seasons of the year. Noting the availability of radar around Phuket, it would be possible for such flights to route along P628, via OLSEL and L645 to Phuket without impeding the air traffic flow on the adjacent EMARSSH routes.

2.1.183 The meeting was advised that there was concern that the alignment of P574 through the Kuala Lumpur, Jakarta and Kuala Lumpur FIRs would generate unnecessary controller workload and increased coordination between Indonesia and Malaysia. In a spirit of cooperation, States concerned agreed to make the transfer of control point between Jakarta and Kuala Lumpur approximately 15 minutes inside the Jakarta FIR to provide sufficient time for Kuala Lumpur ACC to carry out coordination with Chennai ACC with regard to westbound flights.

2.1.184 ATS route A327 from Phuket to PAMTO supported flights to and from Johannesburg. It was noted that currently, flights operating along this route, as well as G465 and R203, were restricted to either FL260 and below or FL390 and above, due to the many major crossing routes over the Bay of Bengal for aircraft with destinations in Europe or the Middle East. The

meeting was briefed that there was a proposal for the route be converted to an RNAV route and for a review of its operation to be carried out with the aim of minimising flight level restrictions.

2.1.185 So as to address the need of non-RNAV equipped aircraft wishing to fly across the Bay of Bengal, the meeting accepted a proposal for the existing route B466 to be retained but redefined with a highest useable level of FL270. As for non-RNAV equipped aircraft wishing to operate between Phuket and Calcutta, the meeting noted that such flights could use existing routes along the northern coast of the Bay of Bengal.

Confirmation of EMARSSH routes through the Kabul FIR

2.1.186 Agreement and approval has been obtained from the Coalition Forces operating in Afghanistan to delete the existing route, V888 and introduce a new RNAV route, N644 which would be parallel to V838 (now renamed L750) for transit international flights operating through the Kabul FIR.. This route is one of several EMARSSH routes which were earlier agreed to by the Afghanistan Ministry of Civil Aviation and Tourism in August 2001. Both of these routes will be implemented on AIRAC date of 5 September as part of the Contingency Air Traffic Management Plan (CATMP) for Transit of the Kabul FIR by International Civil Aircraft.

2.1.187 Other EMARSSH routes through the Kabul FIR are still awaiting approval from the Coalition Forces, who are the overall authority for airspace within the Kabul FIR. The meeting was advised that the Coalition Forces would regularly review the other EMARSSH routes that are not currently being used for civil operations and will advise when these routes can be implemented.

2.1.188 A chart showing the EMARSSH route structure is at **Appendix J** to the report on agenda item 2.1

Identify ATS Routes To Be Deleted

2.1.189 States were urged to identify existing routes that would become redundant with the implementation of the EMARSSH route structure. Such routes should be deleted from the Air Navigation Plan and appropriate national documentation (e.g. State's AIP). Housekeeping of this nature would minimise any confusion that could arise in flight planning and aircraft operations.

2.1.190 The meeting also recognised that there would be a need for some routes to be retained for domestic traffic operations. States were urged to consider adjusting the upper limits, the operating hours or even the alignment of such routes to ensure that they complement the EMARSSH route structure.

Finalize AIS issues required prior to implementation

2.1.191 The EMARSSH TF/8 meeting considered the draft AIP SUP which had been initially developed during EMARSSH TF/7 (Tehran 13 - 16 May 2002). As a result of discussions, it was concluded that the following items were essential elements for inclusion in the AIP SUP to be issued by individual States:

- a) SIDS/STARS including specific details of new or changed SIDS/STARS associated with the EMARSSH route structure, or those that are to be deleted as a result of deleted or changed routes;
- b) Point to point descriptions of each new EMARSSH route within the respective FIRs;
- c) Point to point description of all international and/or domestic airways or route segments to be revised; and

d) Details of all international and/or domestic airways or route segments that are to be deleted.

2.1.192 The meeting noted that, in addition to the requirements of the AIP SUP issue, States were also reminded of their responsibilities in relation to providing formal written notification to the ICAO regional office for proposed amendments to the Air Navigation Plan, including details of ATS routes which are to be deleted as a result of the implementation of the EMARSSH route structure.

2.1.193 The meeting was advised that, on advice from Jeppesen from an AIS data management perspective, 11 October 2002 is the last date for the cancellation/removal of previously notified data amendments and that consequently, 11 October 2002 would be regarded as the "Go/No Go" date for EMARSSH.

Transition Plan

2.1.194 The draft transitional procedures which had been developed during EMARSSH TF/7 (Tehran 13 - 16 May 2002) were reviewed by EMARSSH TF/8. It was agreed at that meeting that the transition to EMARSSH routes was a "one-time" event, which would require the application of specific procedures.

2.1.195 In finalizing the Transition Plan, the meeting adopted the following principles:

Implementation

- a) The EMARSSH route structure will be implemented effective 28 November 2002 at 0200 UTC; and
- b) The actual transition from the old to the new route structure should be accomplished by ATC giving specific route instructions to a specific intersection for each individual flight.
- 2.1.196 All transitions are to be completed by 0230 UTC.

Traffic Management

2.1.197 The meeting noted that in addition to the Flight Planning requirements detailed above, ATS Units would apply tactical management to assist each and every flight through the transition to the new routes. This may involve the use of amended ATC clearances and/or variations to the actual time of implementation.

2.1.198 It was the view of the Task Force that in some circumstances, it would be prudent for ATC to initiate an early transition, especially in those circumstances where the transition could be wholly contained within the one ATC sector and thus reduce the amount of ATS coordination with the adjoining Sector/FIR.

Radio Failure Procedures

2.1.199 A requirement for special radio failure procedures to cover the specific transition period was considered. These procedures would be unique to the EMARSSH transition and are as follows:

"In the event of radio communication failure, Pilots shall initiate the transition to the revised ATS route structure at 11280200 UTC, and be established on the revised EMARSSH route structure no later than 11280230 UTC".

NOTAM advice

2.1.200 The meeting was informed that because the transition plan was a "one-time event", details of the Transition Plan should be promulgated by NOTAM at least three weeks in advance, to enable crew training on the EMARSSH routes and associated procedures, to be completed ahead of transition. The meeting concluded that as this was a "one time event", special radio failure procedures for the transition period should also be included in the NOTAM.

2.1.201 The meeting thanked the Core Team for providing guidance and leadership to States during this EMARSSH project. The meeting also noted the significant work which has been achieved by States concerned, without which, this important route structure would not have matured.

Frequency Assignment for TIBA and IFBP

2.1.202 The meeting was advised that there had been two regional contingency plans recently activated, the Y2K and the CRAME plan, that included the use of the ICAO 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 further noted that during the Y2K contingency planning process, 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 operations.

2.1.203 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 by NOTAM. 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 would be considered implemented, and if implemented, would be promulgated by IATA. Either procedure required a protected VHF frequency.

2.1.204 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 a State or IATA.

2.1.205 The meeting agreed to formulate the following Conclusion:

Conclusion 13/7 – 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 to include the frequency of 128.95 for the use of TIBA in their contingency plans.

Contingency Planning in the High Seas

2.1.206 The meeting was advised that there had been two recent examples of Restricted Airspace being, or about to be declared over the high seas that had or would have an impact on the provision of air traffic services to international civil operations. 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 was likely to 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.

2.1.207 The meeting was advised that while the closing of airspace was a State's decision in their sovereign airspace, the closure of air space over the high seas is in breach of 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.

2.1.208 The meeting noted that 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.

2.1.209 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.

2.1.210 Article 12 of the Chicago Convention on International Civil Aviation addresses rules of the air that must be applied over the high seas as follows:

Rules of the air

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 manoeuvre 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.

2.1.211 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".

2.1.212 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.
- 4.5.1 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.

2.1.213 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.

2.1.214 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.

2.1.215 The meeting agreed to formulating the following Conclusion:

Conclusion 13/8 – Contingency Planning

That, States review, amend or develop contingency plans that will:

- a) provide a 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 traffic routes within the air transportation system: and,
- c) ensure continuous access to airspace for international civil flights over areas of the high seas.

Development of State Contingency Plans

2.1.216 The meeting recalled that APANPIRG/10 discussed the option of developing a model Regional and State plan, based on the Regional and State Plans for the Y2k project, 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.

2.1.217 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 K** to the Report on Agenda Item 2.1.

2.1.218 The meeting was urged to use this document, in association with their State Y2K Contingency Plans, in the development of State Contingency Plans where this had not already been completed.

ATS Inter-facility Data Communication (AIDC)

2.1.219 The meeting was informed that several States had attempted to use the standard to implement automatic communication between ATC automation systems. Difficulties have been experienced as adjacent FIRs have connected their systems together (eg New Zealand-Australia) resulting in ad-hoc agreements about being made about how adjacent systems should communicate via AIDC. Several lessons have been learned and several deficiencies in the AIDC standard exposed.

2.1.220 It is appropriate that the deficiencies and ambiguities in the existing document be corrected so that States may implement new systems with consistency, confidence and certainty.

2.1.221 The meeting noted that the AIDC Task Force was established by APANPIRG in its Decision 5/1 composed of technical and operational experts from Australia, France, Japan, Malaysia, New Zealand, Pakistan, Singapore, Thailand, Hong Kong China, United States and IATA.

2.1.222 The meeting recognized the need to convene the meeting of the Task Force or reconstitute a new Task Force to re-examine the AIDC Interface Control Document, with the objective of removing errors and correcting omissions and uncertainties.

2.1.223 In view of the foregoing the meeting formulated the draft decision as follows:

Decision 13/9 – AIDC Review Task Force

That, the Task Force established by Decision 5/1 of APANPIRG for the development Interface Control Document (ICD) for ATS Inter-facility Data Communication (AIDC) be reconvened to undertake the task of reviewing and updating the ICD. The task be completed prior to the ATS/AIS/SAR SG/13 meeting in order to permit the Sub Group to review the ICD.

Update the list of ATS/AIS/SAR Subject/Tasks together with priorities

2.1.224 The meeting reviewed and updated the List of Tasks allocated to the Sub-Group by APANPIRG/12. A copy of this list is contained in Appendix L to the Report on Agenda Item 2.1. The meeting developed the following Decision:
Decision 13/10 - ATS/AIS/SAR Subject/Task List

That, the ATS/AIS/SAR Subject/Task List as contained in **Appendix L** to the Report on Agenda Item 2.1 be adopted as the current work assignment for the ATS/AIS/SAR Sub-Group replacing the current Subject/Tasks List as assigned by APANPIRG/12.

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

APANPIRG/13 Appendix A to the Report on Agenda Item 2.1

FIR/AOR	RVSM Implementation Date	Comments
Lanzhou		
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	

PHRASEOLOGIES RELATED TO RVSM OPERATIONS IN THE ASIA AND PACIFIC RVSM AIRSPACE

1. Controller/pilot phraseologies

1.1 Controller/pilot phraseologies are found as follows:

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. 	NEGATIVE RVSM*
See examples that follow.	A FEIDM DVCM*
For a pilot to report RVSM approval status. 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.	AFFIRM RVSM* 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. (<i>This phrase is to be used to convey both the initial</i> <i>indication of the non-MASPS compliance, and henceforth,</i> <i>on initial contact on all frequencies within the lateral limits</i> <i>of the RVSM airspace until such time as the problem ceases</i> <i>to exist, or the aircraft has exited the RVSM airspace.</i>)	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*

APANPIRG/13 Appendix B to the Report on Agenda Item 2.1

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 requests a climb	approved State aircraft, maintaining FL 260, subsequently to FL 320.
	Pilot:	(call sign) REOUEST 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 requests a climb	approved State aircraft, maintaining FL 260, subsequently 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 requests a climb	approved State aircraft, maintaining FL 360, subsequently 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 requests a climb	approved civil aircraft maintaining FL 280, subsequently to FL 320.
	Pilot:	(call sign) REQUEST FL 320, NEGATIVE RVSM
	Controller:	(call sign) UNABLE CLEARANCE INTO RVSM
		AIRSPACE, MAINTAIN FL 280.

2. Phraseologies for coordination between ATC units

2.1 The following phraseologies 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]

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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

EUROCONTROL, DSA/AIM Unit 96, Rue de la Fusée, B-1130 Brussels, Belgium Telephone: +32 2 729 4789 or 729 3132 Fax: +32 2 729 9008

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 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 automation".

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.ST0 5.1000-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 ltem 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 extralayer 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).	005
	The default value shall also be used for Scope AE/AW, but only if appropriate values cannot be defined.	005 if no appropriate value can be found.
QN	All Navigation Aids (VOR, NDB) <u>except</u> : 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.

<u>Remark</u>: 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 noton (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

<u>Remark</u>: 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.

<u>Remark</u>: 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.

<u>Remark</u>: 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:	<u>Item G</u>
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 GND=MSL and a s barometric pressure	('UPPER' = 095) in this case safety margin has been included for 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 <u>only</u> 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 Amendments 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 tme 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 <u>not</u> 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 (NOTAMR 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 NOTAMR 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.

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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 subparagraphs.

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: Processed NOTAM: GG GG 121805 NOTAM Processing Unit 121800 KDCAYNYX address (A1275/00 NOTAMN 121800 KDCAYNYX A)KJFK B)WIE..... (A1275/00 NOTAMN etc. – 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 retransmitted 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:

NOTAM	Plain language	Radius
code		
Q	All Aerodrome related NOTAM (only Scope A)	005
	The default value shall also be used for Scope AE/AW, if applicable	
QAC	CTR	005
QAT	ТМА	050
QN	All Navigation Aids (VOR, NDB)	025
	<u>except</u> : Long Range Navigation Systems, e.g. GPS, en-route DME	
QOB	OBST	005
QOL	OBST LIGHT	005
QPH	Holding Procedure	025
QPX	Minimum Holding Altitude	025
QAP	Reporting Point	005
QAX	Intersection	005

Table of Default Radius Indicators for NOTAM Processing

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 Part, 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.

<u>Request:</u>	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:

Reply:

ZCZC ... GG EDDZYNYX 091430 LFFAYNYX RQR GOOO A0213/00 NOTAM NOT RECEIVED

Example 3: The requested Tahiti NOTAM A0021/00 was cancelled.

ZCZC ... GG LIIAYNYX 301235 LFFAYNYX RQR NTAA A0021/00 NOTAM CANCELLED BY A0023/00 300155 NTAAYNYX * (A0021/00 NOTAMR A0017/00 Q).../.../ etc. Reply:

Reply:

* *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.

ZCZC ... GG EDDZYNYX 110925 LEACYNYX RQR MUHA A1577/00 NOTAM NOT ISSUED

Example 5: The requested Korean NOTAM A0449/00 was replaced.

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:

<u>Request</u> :	ZCZC GG EDDZYNYX 310840 LIIAYNYX RQL EGGN B E F
<u>Reply</u> :	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 $\dot{Q} = Q$)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 Preflight 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 coordinates 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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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	Packet Sniffer	Denial of Service
		(Spoofing)		
One Time	S	S	S	-
Passwords				
Filtering Router	W	W	-	-
Firewall	М	М	-	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.





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

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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.

E UPSCONTECT		List AISPresentation	IS	
AIS Homepage	This p	age contains a list of European AIS Websites and their AIP related in	formatio	n.
AIS Domain	State AIS Websites	Website and Available Information	AIS e-mail	List of contacts
AIS AHEAD	Albania		ø	
AIS SDP	Armenia	AIS website. The Aeronautical Information is published by AIS Russia	đ	
	Austria	AIC, Summary of Amendments, Supplements, Area Bulletin	ø	
AIS Data & Charting	Azerbaijan	CAA website. The Aeronautical Information is published by AIS Russia	đ	
Meetings	Belarus	The Aeronautical Information is published by AIS Russia		
	Belgium	Valid NOTAMs		No.
Interesting Links	Bosnia and Herzegovina	Aeronautical Information Circulars (AIC)	ø	N.
Contact us	Bulgaria			
	Croatia	Croatia Control website	a	
Symposium 2002	Cyprus	DCA Cyprus website	ø	1
	Czech Republic	Integrated Aeronautical Information Package in pdf - requires registration for complete IAIP	ø	1
	Denmark	AIP, AIC of Denmark, Greenland, Faeroe Islands in pdf; checklist of publications	ø	Ra I
	Estonia	Information about AIS and its publications	ø	
	Finland	Information about AIS and its publications; Bulletin Service	ø	1
Charting Questionnaire	FYR of Macedonia	AIP, AIC, SUPL in pdf (access code required)	ø	
	France	Information about AIS and its publications; Supplements, AIC in pdf		N
	Georgia	l'Sakaeronavioatsia' website	a	

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 bitoriented 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.

.....

^{*} TCP/IP Protocol – Transmission Control Protocol / Internet Protocol The world-wide defacto standard communication protocol for the Internet.

INTENTIONALLY	
BLANK	
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	(Text format)	-	(1 D1) X
Austria	x	x	X
Brazil	x	-	x
Czech	x	х	x
Denmark	X	-	X
France	Х	-	х
Germany	X	-	Х
Italy	Х	Х	Х
Mexico	Х	Х	Х
Netherland	Х	Х	Х
Romania	Х	-	Х
Slovenia	Х	Х	Х
Spain	Х	Х	Х
Sweden	Х	Х	х
United Kingdom.	х	х	х
United States	х	х	х

Example 1: United States (FAA)

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	• NOTICES TO AIRMEN Domestic/International
Please check with Flight Service at 1-800-W2	BRIEF for the most current NOTAMs.
(Die onderstan Part 1, Forders 2, is provided Qualitate or considerst density	(hy Re National Baghd Data Candar. I he read in <u>ATA-189</u> .)
(Shaded text indicates new	or revised NOTAMs)
PART Section 2. Airports/Facilitie <u>A C D F G H I K L M</u> ?	1 s/Procedural NOTAMs <u>N Q P R S T U Y W</u>
East Central U.S. ILLINDIS INDRAMA MICHIGAN OHIO WINCONSIN	S.
Narth Central U.S. LUWA KANSAR MINNEOTA MISSOURI MISSOURI	

Example 2: United Kingdom (NATS)



Example 3: Germany



Example 4: Spain



Example 5: Australia

		1	19 - 8 ×
AIRSERVICES A	PILOT CENTRE	()	-
	Home - Plot Centre - AP Supplements and Aeron ad cell Information Circulars	 Site Novigation Sitemap / Search Soline Services Sentact Us 	
SUP H10/02	Aeronautical Information (AIP) Supplements Subsectional Solid Amount Applications - Former 07/25	• What's New	
SUP AIRAC H2002 SUP H2102 SUP H2102	Unmanned Aerial Vahicle (UW) Testing Weischpool Victoria [2019-0] Midura AF Strow - 27 April 2002 [2] (1745) Differences from ICAO standards, recommended practices and		
SUP H2502 SUP H4101 SUP H4701	embedures (F1(47%) Amendments - Leonande Airspace Handbook (CAH) - Effective 13 June 2001 Set (147%) Security Awarenees in Aviation (Set (37K)) Security Awarenees in Aviation (Set (37K)) Security Awarenees in Aviation (Set (37K))		
all lassing	Acronautical Information Circulars		
	2002 A 1990)		
Sternin Senst: Online Services Consomity Profile (Pilot Centre Hite Last Wedified: May 17, 2002	Contract Up Politet's New Perhaps & Conventition also & Information (Prophycits and Services)		

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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.



.....

STATUS OF WGS-84 IMPLEMENTATION

EXPLANATION OF THE TABLE

Column

1	Name o designa	of the ation of	State, territory or aerodrome for which WGS-84 coordinates are required with the f the aerodrome use:
	RS RNS RG AS	- - -	international scheduled air transport, regular use international non-scheduled air transport, regular use international general aviation, regular use 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

STATE, TERRITORY FOR WHICH WGS-8	' OR AERO 4 IS REQU	DROME RED		REMARKS								
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	. REWARKS
1	2	3	4	5	6	7	8	9	10	11	12	13
AUSTRALIA			Х	Х						Х	X	
YPAD ADELAIDE/												
Adelaide	05	NPA			Х	Х	х	х				
RS	23	PA1				Х	Х	Х				
	12	NPA				Х	Х	Х				
	30	NPA				Х	х	Х				
YBBN BRISBANE/					Х			х				
Brisbane	1	PA1				Х	х					
RS	19	PA1				Х	х					
	14	NPA				Х	х					
	32	NPA				Х	Х					
YBCS CAIRNS/					Х			Х				
Cairns	12	NPA				Х	Х					
RS	30	NPA				Х	Х					
	15	PA1				Х	Х					
	33	NPA				Х	Х					
YPDN DARWIN/					Х			Х				
Darwin	11	NPA				Х	Х					
RS	29	PA1				Х	Х					
	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			×	^	^	Y				
	02				×	×	×	×				
	03											
K3	21					~	×					
	24					×	×					
	11					X	x					
	29	NPA				X	X					
YSSY SIDNEY/					х			х				
Kingsford Smith Intl	07	PA1				х	х					
RS	25	NPA				х	х					
	16L	PA1				х	х					
	34R	PA1				х	х					
	16R	PA1				х	Х					
	34L	PA1				х	х					
YMAV AVALON/					Х			х				
Avalon	18	PA1				X	Х					
AS	36	NPA				X	Х					
YBRM BROOME/					х			х				
Broome	10	NPA				х	х					
RS	28	NPA				х	х					

STATE, TERRITORY FOR WHICH WGS-8	' OR AEROI 4 IS REQUI	DROME RED		WGS-84 IMPLEMENTATION									
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/					х			х					
Canberra	12	NPA				х	х						
AS	30	NPA				х	х						
	17	NPA				х	х						
	35	PA1				х	х						
YSCH COFFS HARB	OUR/				х			х					
Coffs Harbour	03	NPA				х	х						
AS	21	NPA				х	х						
	10	NPA				х	х						
	28	NPA				х	х						
YBCG COOLANGAT	TA/				х			х					
Coolangatta	14	NPA				х	х						
AS	32	NPA				х	х						
	17	NPA				х	х						
	35	NPA				х	х						
YMHB HOBART/					х			х					
Hobart	12	PA1				х	х						
RS	30	NPA				х	х						
					х			х					
Learmonth	18	NPA				х	х						
AS	36	NPA				х	х						
YLHI LORD HOWE IS	SLAND/				х			х					
Lord Howe Island	10	NPA				х	х						
RS	28	NPA				х	х						
YPPD PORT HEDLA	ND				х			х					
Port Hedland	14	NPA				х	х						
AS	32	NPA				х	х						
	18	NPA				х	х						
	36	NPA				х	х						
YBTL TOWNSVILLE	/				х			х					
Townsville	01	PA1				х	х						
AS	19	NPA				х	х						
	07	NPA				х	х						
	25	NPA				х	х						
YBAS ALICE SPRING	GS/				х			х					
Alice Springs	06	NPA				х	х						
AS	24	NPA				х	х						
	12	PA1				х	х						
	30	NPA				х	х						
	17	NPA				х	х						
	35	NPA				х	Х						
YSDU DUBBO/					Х			х					
Dubbo	05	NPA				х	х						
AS	23	NPA				х	х						
	11	NPA				х	х						
	29	NPA				х	х						

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

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQUI	DROME RED		WGS-84 IMPLEMENTATION								
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												
BRUNEL DARUSSAL	АМ											WBFC FIR
WBSB BRUNEI/					X			X			x	
Brunei Inti	03	PA1				X	X					
CAMBODIA	21	PA1				X	X					
	_											
CHINA			х	х								Sanya AOR only
HONG KONG, China	1		х	Х						х	Х	
VHHH HONG KONG	/				х			х	Х			
Hong Kong Intl	07L	PA2				х	х		х			
RS	07R	PA2				х	х		Х			
	25L	PA2				х	х		х			
	25R	PA3				х	х		Х			
MACAO, China												VHHK FIR
VMMC MACAU/					х			х			Х	
Macau Intl	16	NPA				Х	Х		Х			
	34	PA2				Х	Х		Х			
COOKIDEANDO												
DPR KOREA												
FIJI			Х	Х	X					Х	Х	
NFFN NADI/					X			X				
Nadi Intl	02	PA1				х	Х		х			
RS	20	PA1				Х	Х		Х			
	09	NINST				Х	Х		Х			
	27	NINST				Х	Х		Х			
NFSU SUVA/					Х			X				
Nausori Intl	10	NPA				X	X		X			
	∠8 A (FRANCI	NPA E)	2003	2003		X	X		X	2003	2003	
		,						x				

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

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQUI	DROME RED		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
Amritsar	16	NPA				х	х					
RS	34	PA1				х	х					
VOBG BANGALORE/					х			х				
Bangalore	09	NPA				х	х					
RS	27	PA1				х	х					
					x			x				
Cochin Intl	00				X	x	x	~				
PS	27					X	x					
	21				v	~	~					
	0.9				^	v	v					
Gua	00						~					
	20	NPA			×			×				
VEGT GUWAHATI/					X			X				
Lokapriya Gopinath	02	PA1				X	X					
Bardoloi Intl	20	NPA				X	X					
RS												
VOHY HYDERABAD/					Х			Х				
Rajiv Gandhi Intl	09	NPA				Х	Х					
RS	27	PA1				Х	Х					
VOTV TRIVANDRUM	/				Х			Х				
Thiruvananthapuram	14	NPA				х	Х					
Intl	32	PA1				Х	Х					
RS												
	Note: Trans NIMA (Natio	sformation in	nto WGS-84 arv and Map	has been do ping Agency	one by math). USA	ematical mea	ans using M/	ADRAN softw	ware develo	ped by		
INDONESIA			2002	X	,,				Х	2001		
					2002			x				
Pattimura	04				2002	×	v	~				
	22					×	×					
	22				2002	~	~	v				
Seringgen	07				2002	v	v	^				
Sepinggan	07					×	X					
<u>K5</u>	25	PAI						×				
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			Х				
Frans Kaisiepo	11	PA1					Х					
RS	29	NPA					Х					
WRRR DENPASAR/					2002			х				
Ngurah Rai	09	NPA				х	х					
RS	27	PA1				х	х					
WIII JAKARTA/					2002			х				
HalimPerdanakusuma	06	NPA					х					
RNS	24	PA1					x					
WIIH JAKARTA/					2002			х				

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQUI	DROME IRED		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
Soekarno-Hatta	07L	PA1				х	х					
RS	25L	PA1				х	х					
	07R	PA1				х	х					
	25R	PA1				х	х					
WAJJ JAYAPURA/					2002			х				
Sentani	12	NPA				х	х					
RS	30	PA1				х	х					
WRKK KUPANG/					2002			х				
El Tari	07	NPA					х					
RS	25	PA1					х					
WAAA MAKASSAR/					2002			х				
Hasanuddin	13	PA1				х	х					
RNS	31	NPA				х	х					
WAMM MANADO/					2002			х				
Sam Ratulangi	18	PA1				х	х					
RS	36	NPA				х	х					
WIMM MEDAN/					2002			х				
Polonia	05	PA1				х	х					
RS	23	NPA				х	х					
WAKK MERAUKE/					2002			х				
Mopah	16	NPA				х	х					
RNS	34	NINST				х	х					
WIMG PADANG/					2002			х				
Tabing	16	NINST				х	х					
RS	34	NINST				х	х					
WIPP PALEMBANG/					2002			х				
SM Badaruddin II	11	NPA				х	х					
RNS	29	PA1				х	х					
WIBB PEKANBARU/					2002			х				
SultanSyarifKasim II	18	NPA				х	х					
RNS	34	PA1				х	х					
WIOO PONTIANAK/					2002			х				
Supadio	15	PA1				х	х					
RS	33	NPA				Х	х					
WRSJ SURABAYA/					2002			х				
Juanda	10	PA1				х	х					
RS	28	NPA				х	х					
WIKN TANJUNG PIN	ANG/				2002			х				
Kiang	04	NPA				х	х					
RNS	22	NINST				Х	х					
WRLR TARAKAN/					2002			х				
Juwata	06	NPA				х	х					
RS	24	NINST				Х	х					
WABP TIMIKA/					2002			х				
Tembaga Pura	12	NPA					х					
RS	30	NPA					х					

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				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
WIJJ YOGYAKARTA	/				2002			х				
Adi Sucipto	09	NPA					х					
RNS	27						х					
	* The WG	S-84 was in	plemented i	n almost all	International	Airport in In	donesia incl	uding the NP	A with over	lay		
	The Grou	und Undula	tion (Diferen	ce between	Mean Sea L	eval and Elip	soit) will be	started in the	e Year 2002		V	
			~	^	V			V			^	
RJFF FUKUUKA/	16	PA1			~	×	x	×				
	24					X	X					
K3	54	NEA				^	^					
RJCH HAKODATE/	10				X			X				
Hakodate	12					X	X					
R5	30	NPA	1	I		^	^					
RJFK KAGOSHIMA/					Х	Y		Х				
Kagoshima	16	NPA				X	X					
RS	34	PA1				Х	Х					
RJBB OSAKA/					Х			Х				
Kansai Intl	06	PA2				Х	Х					
RS	24	NPA				Х	Х					
RJFT KUMAMOTO/					Х			Х				
Kumamoto	07	PA3				Х	Х					
RS	25	NPA				Х	Х					
RJFU NAGASAKI/					Х			Х				
Nagasaki	14	NPA				Х	Х					
RS	32	PA1				Х	Х					
	18	NPA				Х	х					
	36	NPA				Х	Х					
RJNN NAGOYA/					Х			Х				
Nagoya	16	NPA				Х	Х					
RS	34	PA1				Х	Х					
ROAH NAHA/					Х			Х				
Naha	18	NPA				Х	Х					
RS	36	PA1				Х	Х					
RJCC SAPPORO/					Х			Х				
New Chitose	01L	PA1				Х	Х					
RS	19R	NPA				Х	х					
	01R	PA1				Х	х					
	19L	NPA				Х	х					
RJAA NARITA/					Х			Х		1		
New Tokyo Intl	16	PA3				Х	х					
RS	34	NPA				Х	х					
RJSN NIIGATA					Х			Х				
Niigata	04	NPA				X	х					
RS	22	NPA				x	x					
	10	NPA				x	x					
	28	PA1				x	x					
RJOO OSAKA/			<u> </u>	<u> </u>	X			X				
Osaka Intl	14R	NΡΔ				x	x					
	111		1	1	1			1	1	1		

STATE, TERRITORY FOR WHICH WGS-84	' OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				DEMADKS
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	32L	PA1				Х	х					
	14L	NPA				Х	Х					
	32R	NPA				Х	Х					
RJSS SENDAI/					Х			Х				
Sendai	09	NPA				Х	х					
RS	27	PA1				Х	х					
	12	NPA				Х	Х					
	30	NPA				Х	Х					
RJTT TOKYO/					Х			Х				
Tokyo Intl	16L	NPA				Х	Х					
RS	34R	PA2				Х	Х					
	16R	NPA				Х	Х					
	34L	PA1				Х	Х					
	04	NPA				Х	Х					
	22	PA1				Х	х					
KIRIBATI												NFFF FIR
			-				-					-
LAO PDR												
												-
MALAYSIA			Х	Х							Х	
WMKA ALOR SETAR	2/				×			x				
Sultan Abdul Halim	04	NPA					х					-
RS	22	NINST					x					
WMKB BUTTERWOR	<u> </u>				x			x				
Butterworth	18	NPA					x					
RS	36	NPA					x					-
	1/				x			x				
Sultan Ismail Petra	10				~		x					
RS	28	NPA					x					
WMKD KUANTAN/	20				×			x				
Kuantan	18	NPA			~		x					
RS	36	PA1					x					
					x	İ		x				
Kerteh	16	NPA				1	x			1		-
RS	34	NPA					x					1
					x	1	~	x		1		
Simpang	04	NINST			~		x					1
RS	22	NINST					x					1
WMKLIPOH/					x			x				
Sultan Azlan Shah	04	PA1					х					

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQU	DROME IRED				WGS-84	IMPLEMEI	NTATION				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
RS	22	NINST					х					
WMKJ JOHOR BAHR	RU/				х			х				
Sultan Ismail	16	PA1					х					
RS	34	NPA					х					
WMKK KUALA LUMP	UR/				х			х				
Sepang Intl	14R	PA1				х	х					
RS	32L	PA1				х	х					
	14L	PA1				х	х					
	32R	PA1				х	х					
WMKL LANGKAWI/					х			х				
Langkawi Intl	03	PA1					х					
RS	21						х					
WMKM MALACCA/					х			х				
Malacca	03	NPA					х					
RS	21	NPA					х					
WMKN KUALA TERE	NGGANU/				х			х				
Sultan Mahmud Shah	04	NPA					х					
RS	22	NPA					х					
WMKP PENANG/					х			х				
Penang Intl	04	PA1					х					
RS	22	NPA					х					
WMSA KUALA LUMP	UR/				х			х				
SultanAbdulAzizShah	15	PA1					х					
RS	33	PA1					х					
WMBT PULAU TIOM	AN/							х				
Pulau Tioman	02						х					
RS	20	NINST					х					
WMPA PULAU PANG	KOR/							х				
Pulau Pangkor	04						х					
RS	22	NINST					х					
WMAP KLUANG/								х				
Kluang	05	NINST										
RS	23	NINST										
WBGB BINTULU/					х			х				
Bintulu	12	NPA					х					
RS	30	NINST					х					
WBGG KUCHING/					х			х				
Kuching Intl	07	NPA					х					
RS	25	PA1					x					
WBGR MIRI/					х			х				
Miri	02	PA1					х					
RS	20	NPA					х					
WBGS SIBU/					х			х				
Sibu	13	PA1					х					
RS	31	NPA					х					
	/				x			x				

STATE, TERRITORY FOR WHICH WGS-8	' OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				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
Lahad Datu	11	NINST					х					
RS	29	NPA					х					
WBKK KOTA KINAB	ALU/				х			х				
Kota Kinabalu Intl	02	PA1					х					
RS	20	NPA					х					
WBKL LABUAN/					х			х				
Labuan	14	NPA					х					
RS	32	NPA					х					
WBKS SANDAKAN/					х			х				
Sandakan	08	PA1					х					
RS	26	NPA					х					
WBKW TAWAU/					х			х				
Tawau	17	NINST					х					
RS	35	NPA					х					
MALDIVES			Х	Х						Х		
VRMM MALE/					х			х				
Male Intl	18	PA1				х	х		х			
RS	36	NPA					Х					
MARSHALL IS.												KZOK FIR
MICRONESIA, FS												KZOK FIR
MONGOLIA			Х	Х						2002	х	
ZMUB ULAN BATOR	/				Х			Х				
Byant-Ukkaa	14	NPA				Х	Х					
	32	NPA				Х	Х					
RS												
MYANMAR												
NAURU												
NEPAL				X						X	Х	
VNKT KATHMANDU					Х			Х				
Tribhuvan Intl	02	NPA				х	х					

STATE, TERRITORY FOR WHICH WGS-8	Ó OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				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
RS	20	NINST					х					
NEW ZEALAND			Х	Х						Х	Х	
NZAA AUCKLAND/					Х			Х				
Auckland Intl	05	PA1				х	х		х			
RS	23	PA1			Х	х	х		х			
NZWN WELLINGTON/					х			х				
Wellington	16	PA1				х	х		х			
RS	34	PA1				Х	Х		х			
ZCH CHRISTCHURC	H/				Х			х				
Christchurch	02	PA1				х	х		х			
RS	20	PA1				х	х		х			
NZNS NELSON/					х			х				
Nelson	02	NPA				х	х		х			
RS	20	NPA				Х	Х		х			
NZDN DUNEDIN/					Х			х				
Dunedin	03	PA1				х	х		х			
RS	21	PA1				Х	Х		Х			
NAPM PALMERSTO	٧/				х			х				
Palmerston North	07	NPA				х	х		х			
RNS	25	NPA				Х	Х		Х			
NZHN HAMILTON/					Х			Х				
Hamilton	18	NPA				х	х		х			
RNS	36	NPA		-	-	х	х		х			
ZQN QUEENSTOW	٧/				Х			Х				
Queenstown	05	NPA				Х	Х		х			
RNS	23	NPA				Х	Х		Х			
NZWP WHENUAPAI	/				Х			Х				
Whenuapai (Mil)	03	PA1				х	х		х			
RNS	21	PA1				Х	Х		Х			
NZOH OHAKEA					Х			Х				
Ohakea (Mil)	09	PA1				Х	Х		х			
AS	27	PA1				Х	Х		Х			
NIUE ISLAND (New 2	Zealand)											NZZO FIR
NIUE ALOF/												
Niue Intl												
RS												
PAKISTAN			Х	Х						Х	Х	
OPFA FAISALABAD/					Х			х				
Faisalabad	03	PA1				х	Х		Х			
RS	21	NPA										
OPGD GWADAR/					Х			Х				
Gwadar	06	NINST				х	х		Х			
RS	24	NPA										
OPRN ISLAMABAD/					Х			Х				
Chaklala	12	NINST				х	х		Х			
RS	30	PA1										

STATE, TERRITORY FOR WHICH WGS-8	Ó OR AERO 4 IS REQU	DROME IRED				WGS-84	IMPLEMEI	NTATION				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
OPKC KARACHI/					х			х				
Quaid-e-Azam Intl	07	NINST				х	х		х			
RS	25	PA1										
OPLA LAHORE/					х			х				
Lahore	18	NPA				х	х		х			
RS	36	PA2										
OPMT MULTAN/					х			х				
Multan	18	NPA				х	х		х			
RS	36	PA1										
OPNH NAWABSHAH	/				х			х				
Nawabshah	02	NPA				x	x		x			
AS	20	NPA				~~~~						
OPPS PESHAWAR/	20				x			x				
Peshawar	17				Λ	x	x	~	×			
PS	35					~	~		~			
		NI A			Y			×				
UPTO TORBAT/	0.0				^	v	v	^	×			
	00					^	^		^			
	20	NPA										KZOK FIR
	^											
		avaids coorr	dinatos usin	a WGS-84 d	atum ELT SI		to 2-7					
	1000.7411		Y				10 2 7				×	Calculated
			~	~	v	v					×	Calculated
RPLL MANILA/					~	~	×	v	07/2002		~	Calculated
Ninoy Aquino Intl	06	PA1							07/2002		Х	ATO-NIMA survey
RS	24	PA1							07/2002		X	
	13	NINGT							07/2002			
	31	NIN51			X	V	X	X	07/2002		X	
RPLB SUBIC BAY/					^	^	X	X	07/0000		^	Calculated
Subic Bay Intl	07R	NPA					X		07/2002		Х	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/					Х	X					Х	Calculated
Francisco Bangol Intl	05	NPA					Х	X	07/2002		Х	** Old co-ordinates
AS	23	NPA					X	X	07/2002		Х	
RPLI LAOAG/					X	X					Х	Calculated
Laoag Intl	01	NPA					X	х	07/2002		Х	* Old co-ordinates
AS	19	NPA					X	X	07/2002		Х	converted
RPVM LAPU-LAPU/					Х	X					Х	ATO-NIMA survey
Mactan Cebu Intl	04	PA1					X	х	07/2002		Х	
RS	22	PA1					X	X	07/2002		Х	
RPLC PAMPANGA/					Х	Х					Х	Calculated

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				REMARKS
CITY/AERODROME	RWY No	RWY TYPE	FIR	ENR	TMA/ CTA/ CTZ	APP	RWY	AD/HEL	GUND	QUALITY SYSTEM	AIP	. REWARKS
1	2	3	4	5	6	7	8	9	10	11	12	13
Clark Intl	02R	PA1					Х	Х	07/2002		Х	ATO-NIMA survey
RS	20L	PA1					Х	Х	07/2002		Х	
	02L	NINST					Х	Х	07/2002		Х	
	20R	NINST					х	х	07/2002		х	
RPMZ ZAMBOANGA	/				Х	Х					Х	Calculated
Zamboanga Intl	09	PA1					х	х	07/2002		х	* Old co-ordinates
AS	27	PA1					Х	х	07/2002		х	converted
Note: * ATO-NIMA su	rvey final re	port to be	incorporate	ed in the AI	P Amendm	ent #2 date	ed 11 July 2	2002				
** ATO-NIMA su	rvey final re	port to be	incorporate	d in the Al	P Amendm	ent #3						
REP OF KOREA			Х	Х						Х	Х	
RKSI INCHEON/					Х			Х				
Incheon Intl	15R	PA3				х	х		х			
RS	15L	PA3				х	х		х			
	33R	PA3				х	х		х			
	33L	PA3				х	х		х			
RKSS GIMPO/					Х			Х				
Gimpo Intl	14R	PA2				х	х		х			
RS	32L	NPA				х	х		х			
	14L	PA1				х	х		х			
	32R	PA1				х	х		х			
RKPK BUSAN/					Х			Х				
Gimhae Intl	18L	NPA				х	х		х			
RS	36R	PA1				х	х		х			
	18R	NPA				х	х		х			
	36L	PA1				х	х		х			
RKPC JEJU/					Х			Х				
Jeju Intl	6	PA1				х	х		х			
RS	24	PA1				х	х		х			
	31	NINST				х	х		х			
	13	NINST				х	х		х			
RKTU CHEONG/					х			Х				
Cheongju	06L	PA1				х	х		х			
RNS/AS	24R	PA1				х	х		х			
	06R	NINST				х	х		х			
	24L	NINST				х	х		х			-
RKJJ GWANGJU/					Х			Х				
Gwangju	4	PA1				х	х		х			
RNS/AS	22	NPA				Х	х		х			
RKTN DAEGU/					Х			Х				
Daegu	31	PA1				х	х		х			
RNS/AS	13	NPA				Х	х		х			
RKNN GANGNEUNG	6/				X			X				
Gangneung	26	NPA				х	х		Х			
RNS/AS	8	NINST				Х	х		Х			
RKTH POHANG/					X			X				
Pohang	10	NPA				х	х		х			

STATE, TERRITORY FOR WHICH WGS-8	Ó OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				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	28	NPA				х	х		х			
RKTY YECHEON/					Х			Х				
Yecheon	28	PA1				х	х		х			
AS	10	NPA				х	х		х			
SAMOA											х	NFFF FIR
NSFA FALEOLO/					х			х				
Faleolo Intl	08	PA1				х	х			х	Х	
RS	26	NPA				Х	х			х	х	
NSFI FAGALII/												
Fagalii	10											
RG	28	NINST										
NSMA MAOTA/												
Maota	08											
RG	26	NINST										
NSAU ASAU/												
Asau	08											
RG	26	NINST										
SINGAPORE			Х	Х						Х	Х	
WSSS SINGAPORE/					X			X				
Changi Intl	02L	PA2				Х	х		х			
RS	20R	PA1				Х	х		Х			
	02R	PA1				Х	х		Х			
	20L	PA2			V	Х	Х	V	Х		V	
WSSL SINGAPORE/					~			×			X	
Seletar	03	NINST					Х		Х			
RG	21	NINST			~		Х	v	Х		×	
WSAP SINGAPORE/					^			^			^	
Paya Lebar	02	NPA				Х	Х					
AS	20	NPA				Х	Х					
SOLOMON ISLANDS												
			~									
			X	X							X	
COLOMBO/												
Bandaranaike Intl	22	PA1			Х	Х	Х			Х	Х	AIP Supplement
RNS	04	PA1	0004	0004		Х					X	
			2001	2001	2001			X			2002	
VTSE CHUMPHON/												
Chumphon												
RG	06	NPA					X		X			
	24	NPA		1			X	X	Х			<u> </u>
VTPH PRACHUAP K	HIRI KHAN/											
Hua Hin												
RG	16	NPA	1	1	1	1	Х	Î	Х	1		1

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQUI	DROME IRED				WGS-84	IMPLEMEI	NTATION				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
	34	NINST					х		х			
VTUK KHON KAEN/								Х				
Khon Kaen	03	NPA					х		х			
RNS	21	NPA					х		х			
VTSG KRABI/								X				
RNS	14	NPA					х		х			
	32	NPA					х	N/	х			
VTUQ NAKHON RAT	CHASIMA/							X				
Nakhon Ratchasima												
RG	06	NPA					х		х			
	24	NPA					Х	V	Х			
VTCN NAN/								~				
Nan												
RNS	02	NPA					Х		Х			
	20	NPA					Х	v	Х			
VTSC NARATHIWAT	/							^				
Narathiwat												
RG	02	PA1					Х		Х			
	20	NPA					Х	× ×	Х			
VTSK PATTANI/								~				
Pattani												
RG	08	NPA					X		X			
	26						X	X	X			
VTPP PHITSANULO	(/ 								~			
Phitsanulok	14	NPA DA4					X		X			
KO	32	PAT					^	Х	^			
VISR RANUNG/												
Ranong	02						×		×			
KG	20	PAT					×		×			
	/ 20							Х				
Surat Thani	04						x		x			
RNS	22	PA1					x		X			
VTST TRANG/								Х				
Trang												
RG	08	NPA					x		х			
	26						х		х			
VTUU UBON RATCH	ATHANI/							Х				
Ubon Ratchathani	05	NPA					х		х			
RS	23	PA1					х		х			
VTUD UDONTHANI/								x				
Udon Thani												
RNS	12	NPA					Х		х			
	30	PA1					Х		х			
VTSM SURATHANI/					Х			X				
Samui												

STATE, TERRITORY FOR WHICH WGS-8	' OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				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
RS	17	NPA				х	х		х		Х	
	35	NPA				х	х					
VTPO SUKHOTHAI/					х			Х				
Sukhothai												
RS	18	NPA				х	х		х		х	
	36	NPA				Х	Х					
VTCC CHIANG MAI/												
Chiang Mai Intl	18	NPA			2001	Х	Х	х				
RS	36	PA1										
VTSS SONG KHLA/												
Hat Yai Intl	08	NPA			2001	Х	Х	х				
RS	26	PA1										
VTSP PHUKET/	09	NPA			2001	х	х	х				
Phuket												
RS	27	PA1										
VTCT CHIANG RAI/												
Chiangrai Intl	03	PA1			2001	Х	Х	х				
RS	21	NPA										
VTBU RAYONG/												
Ban U-Taphao	18	PA1			2001	х	х	х				
AS	36	NPA										
VTBD BANGKOK/					2001			х				
Bangkok Intl	03R	NPA				Х	Х					
RS	03L	PA1				Х	Х					
	21R	NPA					Х		Х			
	21L	PA1					Х		х			
TONGA			Х	Х						Х	Х	NFFF FIR
NFTF FUA'AMOTU/					х			Х				
Fua'amotu Intl	11	NPA				Х	Х		х			
RS	29	NPA				Х	Х		Х			
	17	NINST				Х	Х		х			
	35	NINST				Х	Х		Х			
												NZZO FIR
UNITED STATES			X	X						X	X	
PANC ANCHORAGE	/				Х			Х		_		
Anchorage Intl	14	PA1				Х	X		Х			
RS	32	NINST				Х	Х		Х			
	6L	PA1				Х	Х		Х			
	24R	NINST				Х	Х		Х			
	6R	PA3				Х	Х		Х			
	24L	NINST					Х		Х			
PAED ANCHORAGE	/				X			Х				
Elmendorf AFB	5	PA1				Х	Х		Х	Х	Х	
AS	23	NINST										
	15	NINST										
	33	NINST	1	1	1	1	1	1	1	1		

STATE, TERRITORY FOR WHICH WGS-84	TATE, TERRITORY OR AERODROME OR WHICH WGS-84 IS REQUIRED					WGS-84	IMPLEME	NTATION				DEMADKS
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
PACD COLD BAY/					х			х				
Coldbay	14	PA1				х	х		х			
AS	32	NPA				x	x		x			
	26	NINST										
KPAE EVERETT/					х			х				
Paine Field	34L	NPA				х	х		х			
AS	16R	PA1				х	x		х			
	11	NINST										
	29	NINST										
	34R	NINST										
	16L	NINST										
PAEI FAIRBANKS/					х			х				
Eielson AFB	13	PA1				х	х		х			
AS	31	PA1				х	х		х			
PAFA FAIRBANKS/					х			х				
Fairbanks Intl	19R	PA1				х	х		х			
RS	01L	PA3				х	х		х			
	19L	NINST										
	01R	NINST										
KFAT FRESNO/					х			х				
Yosemite Intl	29R	PA3				х	х		х			
AS	11L	NPA										
	29L	NINST										
	11R	NINST										
PHTO HILO/					х			х				
General Lyman Field	03	NINST				х	х		х			
AS	21	NINST										
	26	PA1				х	x		х			
	08	NINST										
PHNA HONOLULU/												
Barbers Point	04R	NPA										No WGS-84
AS	22L	NINST										data available

STATE, TERRITORY FOR WHICH WGS-84	OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEMEI	NTATION				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/					х			х				
Honolulu Intl	8L	PA1				х	х		х			
INTL	26R	NINST					х					
RS	04L	NINST					х					
	22R	NINST					х					
	04R	PA1					х					
	22L	NINST					х					
	26L	PA1				х	х		х			
	8R	NINST					Х					
PHOG KAHULUI/					Х			Х				
Kahului	32	NINST										
AS	02	PA1				х	х		х			
	05	NINST					х					
	20	NPA				Х	Х		Х			
KLAX LOS ANGELES	6/				Х			х				
Los Angeles Intl	06L	PA1				х	х		х			
RS	24R	PA3				х	х		х			
	6R	PA1				Х	х		х			
	24L	PA1				х	х		х			
	07L	PA1				х	х		х			
	25R	PA1				х	х		х			
	07R	PA1				Х	Х		х			
	25L	PA3				Х	Х		Х			
KOAK OAKLAND/					Х			Х				
Oakland Metropolitan	11	PA1				Х	Х		Х	_		
AS	29	PA3				Х	Х		Х			
	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			
	08K	NPA			×	×	X	×	X			
KPMD PALMDALE/					X	X	X	X	X			
Paimdale	22					X	×		X			
A5	25					×	×		×			
	07	-71 74			Y	~	~	¥	~			
Portland Intl	03	NINGT			~	¥	Y	~	Y			
	21	NDA				×	×		× ×			
	10P	DV5				×	×		× ×			L
	281	PΔ1				× ×	× ×		× ×			
	101					× ×	×		v			
	28R	PA1				x	x		x			

STATE, TERRITORY FOR WHICH WGS-8	Ó OR AERO 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				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 SACRAMENT	O/				х			х				
Metropolitan	16R	PA3				х	х		х			
AS	34L	PA1				х	х		х			
	16L	PA1				х	х		х			
	34R	NPA				Х	х		х			
KSFO SANFRANCIS	ÇO/				х			х	х			
San Francisco Intl	10L	NINST										
RS	28R	PA3				х	х		х			
	10R	NINST					х					
	28L	PA1				х	х		х			
	01L	NINST					х					
	19R	NINST					х					
	01R	NINST					х					
	19L	PA1				х	х					
KSJC SAN JOSE/					х			х				
San Jose Intl	12R	PA1				х	х		х			
RS	30L	PA1				х	х		х			
	12L	NPA				х	х		х			
	30R	NPA				х	х		х			
	11	NINST					х					
	29	NINST					х					
KBFI SEATTLE/					х			х				
Tacoma Intl	13R	PA1				х	х		х			
RS	31L	PA1				х	х		х			
	13L	NINST				х	х		х			
	31R	NINST										
KGEG SPOKANE/					х			х			х	
Spokane Intl	25	NPA				х	х		х		х	
AS	07	NINST				х	х					
	21	PA2				х	х					
	03	PA3				х	х					
KSCK STOCKTON/					Х			Х				
Metropolitan	11L	PA1				Х	х		х			
AS	29R	NINST				Х	Х		Х			
AMERICAN SAMOA	(United Sta	ates)										NFFF FIR
NSTU PAGO PAGO/					Х			Х				
Pago Pago Intl	05	PA1				Х	Х					
RS	23	NINST				Х	Х					
GUAM ISLAND (Unit	ed States)											KZOK FIR
PGUM GUAM/		D.4.			X	~	~~~~	Х				
Agana	06L	PA1				X	X					
RS	24R	NPA				X	X					
	06R	NINST				X	X					
	24Ĺ	NINST				X	X					
PGUA GUAM ISLANI	D/				Х			х				
Andersen	06L	NPA				Х	Х	1				

STATE, TERRITORY FOR WHICH WGS-84	OR AEROI 4 IS REQUI	DROME RED				WGS-84	IMPLEME	NTATION				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				х	х					
	06R	PA1				х	х					
	24L	NPA				х	х					
JOHNSTON ISLAND	(United Sta	ates)										KZOK FIR
PJON JOHNSTON IS	LAND/			X X								
Johnston Atoll	05	NPA				Х	Х					
RS	23	NPA				х	х					
NORTHERN MARIAN	IA ISLAND	S (United	States)									KZOK FIR
PGSN SAIPAN/					Х			Х				
Saipan Intl	07	PA1				Х	Х					
RS	25	NPA				х	х					
VANUATU												NFFF FIR
VIET NAM			Х	Х							Х	
VVNB HANOI/					Х							
Noi Bai Intl	11	PA1				х	х		х			
RS	29	NPA				х	х		х			
VVDN DANANG/					Х							
Da Nang Intl	17L	NPA				х	х		х			
RS	35R	PA1				х	х		Х			
	35L	NPA				х	х		х			
	17R	NPA				x	х		Х			
VVTS HO CHI MINH/					Х							
Tan Son Nhat Intl	07R	NPA				х	х		х			
RS	07L	NPA				х	х		х			
	25R	PA1				х	х		х			
	25L	NPA				Х	Х		Х			

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

				Applicable to		
State/Territory	Effective date (dd/mm/yy)	Applicable airspace	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	Aeronautical Publication
Australia	Early 1990's	Controlled airspace inside radar coverage	YES	YES	YES	AIP
Bangladesh						
Bhutan						
Brunei Darussalam	1-Jul-01	Brunei terminal control	YES	YES	YES	
Drunor Daraboalam		area		* State aircraft as w	ell	-
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	<u> </u>	All aircraft flying within Ma	icau ATZ	AIP Macau GEN 1.5-1 dated 2 Jan 1997
Cook Islands	I					
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	<u> </u>					
Japan	10-Oct-75	Airspace defined by Minister of Transportation	YES	YES	YES	AIP dated 1 Oct 1975

2nd Survey on Carriage and Operation of ACAS and Pressure-Altitude Reporting Transponders (AP-ATM0551 dated 17 August 2000)

Pressure-Altitude Reporting Transponders

				Applicable to		
State/Territory	Effective date (dd/mm/yy)	Applicable airspace	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	Aeronautical Publication
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		20%			
	31-Jan-02	Airspace defined by Air Transport Office (ATO)	50%			
	31-Jan-04		ALL			
Republic of Korea	30-Nov-94	All airspace within FIR	YES	YES	NO	Aviation Law

2nd Survey on Carriage and Operation of ACAS and Pressure-Altitude Reporting Transponders (AP-ATM0551 dated 17 August 2000)

Pressure-Altitude Reporting Transponders

				Applicable to		
State/Territory	Effective date (dd/mm/yy)	Applicable airspace	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	Aeronautical Publication
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 ba	sed on the location of air ope of operation of aircraf	craft operation, not the weight, t	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)

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).

				Applica	able to	
State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	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	Aeronautical Publication
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

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

(AP-ATM0551 dated 17 August 2000)

				Applica	able to	
State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	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	Aeronautical Publication
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 Mac for more than <u>9</u> passengers seats.	cau greater than 5700 kg or certified	AIC 07/99 dated 1 Dec 1999
Cook Islands						-
DPR Korea						
Fiji			Γ	I		
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
	31-Dec-98	Any Version	All airspace within FIRs	Aeroplane having a maximum certified passenger seating configuration of more than 30 or maximum <u>payload capacity of more</u> than 3 tonnes		
India	1-Jan-03	Version 7	All airspace within FIRs	Aeroplane having a maximum certified passenger seating configuration of more than 30 or maximum <u>payload capacity of more</u> than 3 tonnes	YES (on 1 Jan 2005)	Civil Aviation Requuirements, Section2, Series 'I', PART VIII, Revision2 dated 4 Dec 2000

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

(AP-ATM0551 dated 17 August 2000)

				Applica	able to		
State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	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	Aeronautical Publication	
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	

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

(AP-ATM0551 dated 17 August 2000)

				Applica	able to	
State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	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	Aeronautical Publication
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		20%			
	31-Jan-02	Airspace defined by Air Transport Office (ATO)	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

(AP-ATM0551 dated 17 August 2000)

Airborne Collision Avoidance System (ACAS)

				Applica	able to		
State/Territory	Effective date (dd/mm/yy)	Required TCAS types	Applicable airspace	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	Aeronautical Publication	
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/pasenger seat configuration, excludir seats	ssenger (combi) airplane that has a ng any pilot seat, of more than 10	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.

APANPIRG/13 Appendix G to the Report on Agenda Item 2.1

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Australia	E	Е	E	Е	E	С	E	E	E	Е	E	E	E	E	E	Е	E	E	С	E
Bangladesh	В	С	D	А	А	С	С	А	D	А	Α	С	Α	А	С	С	D	А	D	С
Bhutan																				
Brunei	E	Е	Е	Е	D	Е	Е	Е	Е	Е	Е	С	В	Е	D	D	Е	Е	Е	А
Cambodia	В	В	В	В	В	В	С	А	В	В	Α	С	Α	А	Α	А	В	А	Α	А
China	E	Е	E	Е	E	Е	D	D	Е	D	D	С	В	А	Е	Е	Е	Е	Е	А
Cook Islands	Α	В	В	А	Α	С	С	С	В	А	В	А	Α	А	Α	В	В	Α	Е	А
DPR Korea	В	D	В	D	Α	В	D	D	D	С	В	А	Α	А	В	А	С	С	Α	А
Fiji	В	С	С	С	С	С	С	В	D	С	D	С	Α	С	В	А	С	С	С	А
French Polynesia	С	D	D	D	С	D	E	А	Е	С	С	В	Α	А	Е	D	Е	Е	Е	Е
Hong Kong, China	E	Е	Е	Е	D	Е	Е	Е	Е	Е	Е	Е	Е	Е	Е	Е	Е	Е	Е	Е
India	D	С	С	В	В	С	С	А	С	С	С	С	С	D	D	D	С	Α	В	Е
Indonesia	E	D	Е	Е	Е	D	D	D	Е	D	Е	D	D	D	С	D	D	D	D	Е
Japan	E	Е	E	Е	D	Е	E	Е	Е	Е	E	Е	D	Е	Е	Е	Е	Е	Ε	Е
Kiribati																				
Lao PDR	В	А	В	В	В	А	В	А	В	В	Α	С	Α	А	Α	А	Α	Α	Α	Α
Macau, China	E					Е	E				E						Е			
Malaysia	E	Е	С	Е	D	Е	E	Е	E	Е	E	D	E	Е	E	D	Е	Е	E	В
Maldives	В	Α	Α	Α	Α	Α	Α	А	D	А	С	А	Α	А	Α	А	Α	Α	Α	Α
Marshall Islands																				
Micronesia	С	В		Α	Α	В	С					А		В	В					
Mongolia	Α	С	С	Α	В	В	В	Α	В	В	В	С	В	В	Α	Α	Α	Α	В	Α
Myanmar	В	Α	В	С	Α	D	С	С	D	Α	Α	Α	Α	Α	С	Α	D	С	Α	Α
Nauru																				
Nepal	D	D	С	В	Α	С	С	В	D	В	Α	В	Α	D	D	С	D	D	D	В
New Caledonia	С	D	D	D	С	D	E	Α	E	С	С	В	Α	Α	E	D	E	E	E	E
New Zealand	E	E	E	E	Α	E	E	E	E	E	E	E	E	E	E	Е	E	E	E	E
Pakistan	С	С	D	D	Α	D	D	С	D	С	Α	Α	Α	Α	D	Α	D	D	С	E
Palau																				
Papua New Guinea	D	E	D	С	D	D	С	С	D	С	С	D	С	С	С	A	Α	A	E	A
Philippines	D	С	E	D	D	С	D	D	E	С	С	С	С	С	С	В	С	E	С	A
Rep. of Korea	С	С	С	С	С	D	E	E	E	E	С	Α	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 _	С -	D	В	С –	С -	D	E	D	В	C	A	A	D	D	С -	A _	C	A
Thailand	E	E	E	E	D	E	E	E	E	E	E	D	В	В	E	E	E	E	E	В
Tonga	С -	В	A _	A _	В	C -	С -	A _	D -	A _	A _	A _	A _	A _	A _	A _	С -	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	С	D	D	В	E	D	С	С	В	С	C	D	D	С	D	В
Categorications														U	odat	ed 2	9 Ju	ine 2	2001	
A = Not implementer									D =	Me	ets	Ann	ex 1	2 re	aui	rem	ents	in r	nost	are
B = Initial implement	atio								E =	Ful	ly m	eets	s An	nex	12 1	equ	iren	nent		
C = Meets Annex 12	req	uire	mer	nts i	n so	me	area	as	Bla	nk =	= No	res	pon	se						
APANPIRG/13 Appendix H to the Report on Agenda Item 2.1

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.

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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:

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- 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

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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;

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.

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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

Subj	ect	Pages	Issue Date
Document Control			
Development of Plans	Contingency		

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

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	Sub	ject/Task	Priority		Action Proposed / In Progress	Action By	Target Date
1	RAN/3 C 6/9 R 14/22	Subject: Implementati	on 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 Region	t RNP into the Asia Pacific			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 fu ISPACG for I lateral separa	urther SUPPS material by RNP4, 30NM longitudinal and ttion minima		b)	Sub-group to monitor progress	ICAO	On-going
		e) Review tat conjunction v	ole of navigation aids in 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 Cod Asia Region as specified be as efficient as it could	e Assignment System for the in the Mid/ASIA ANP may not l be	В				
	C 4/7 D 4/8	Task: a) Define and	document a Regional SSR		a)	Sub group to monitor progress	ATS/AIS/SAR/SG/9	Completed
	C 4/9 C 4/10 C 9/5	MID/ASIA T	able 3			- 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 Re Plan for Asia	gional SSR Code Management Pacific FASID		b)	Progress in conjunction with SSR Code Assignment Working Group	SSRCA/WG	Completed
		c) Monitor ar Regional SSR the Asia Paci	nd modify as required the -Code Management Plan for fie Region		e)	SSR Code Management Task Force to meet as required by Sub group	ATS/AIS/SAR/SG	Completed

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No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
3	RAN/3 R 14/20	Subject: Insufficient co-ordination in t and implementation of radar facilities with	he provision A in the region			
	APANPIRG C 3/6	Task: a) Identify why there is insuff ordination and develop propos sufficient co. ordination aviets	icient co- als to ensure in the future	a) ICAO to survey States on current and proposed radar facilities	ICAO	Completed
		sufficient co-ordination exists		b) Radar Facilities Table in the ANP to be reviewed based on the survey results	ATS/AIS/SAR/SG/9	Completed
				e) Develop proposal to enhance co-ordination in the exchange of radar information	ATS/AIS/SAR/SG/10	Completed
4	APANPIRG	Subject: Traffic congestion within the	region A			
	C 5/22	Task: Suggest ways of reducing this c means of appropriate traffic r	ongestion by nanagement			
		a) Review South China Sea A7	IS routes	a) Review complete	SCS/TF	Completed
		b) In Trail Climb using ACAS based information in OCA / re	distance mote airspace	b) Monitor work undertaken in the United States. The United States to inform the Sub-group on progress of work	United States	Completed
		e) Review Bay of Bengal ATS structure	route	e) Bay of Bengal Task Force (BB/TF) established. Report to ATS/AIS/SAR/SG/10	BB/TF	Completed
		d) Develop revised ATS Route Southeast Asia to/from Europe/ South of the Himalayas	e Structure – Middle East,	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	
				EMARSSH/TF established - commenced work	EMARSSH/TF	11/02

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No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
5	RAN/3 C 13/14	Subject:AIS AutomationTask:Develop a Regional AIS Automation Plan	В	a) Information on AIS automation to be collected and reviewed	ICAO	Completed
	APANPIRG D 2/35			b) Survey questionnaire concerning details of automated AIS systems developed by ATS/AIS/SG/4 to be distributed to States	ICAO	Completed
				e) Review of survey results	AA/TF	Completed
				d) Develop AIS automation plan and ANP amendment proposal following AIS/MAP Divisional Meeting, April 1998	AA/TF ATS/AIS/SAR/SG	On-going
				e) Develop AIS Guidance Material	ATS/AIS/SAR/SG	Completed
6	APANPIRG C 2/31	Subject: Provision of AIS within the Region	В	a) Increased AIS support from the ICAO APAC Office	APANPIRG ICAO	On-going
		AIS and develop a programme to improve the provision of AIS within the region		b) Update Part 6 of Doe 8700 and 8755 (ANPs for the Asia pacific Region)	ICAO	Completed
				c) Regional AIS seminars to be conducted	ICAO	Dec. 2002
7	APANPIRG D-4/40	Subject: Lack of inclusion of CNS/ATM requirements in regional plans	A			
		Task: a) Ensure regional plans include CNS/ATM-requirements for the provision of ATS		a) Monitor implementation of new CNS/ATM in the ATS/AIS field	ATS/AIS/SAR/SG	Completed
		b) Develop "Concept of Operations" for application in an initial ADS environment		b) Australia to present Working Paper to ATS/AIS/SAR/SG/8	Australia	Completed

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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	Subject: Implementation of RVSM in the Asia Pacific Region		a) Form Asia Pacific RVSM Implementation Task Force	ATS/AIS/SAR/SG	Completed
	D 9/4	Task: Plan for and facilitate implementation of RVSM, as appropriate, in the Asia Pacific Region		b) Plan schedule and facilitate implementation of RVSM in the Asia Pacific Region	RVSM/TF	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
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No.	Reference		Subject/Task	Priority		Action Proposed / In Progress	Action By	Target Date
10	APANPIRG D 3/12 D 3/2	Subject: services a	Inappropriate provision of SAR facilities, and procedures within the Asia Pacific Region	А	a)	Review the SAR system of States in the Asia Region and advise ATS/AIS/SG	States	Completed
	C 4/2	Task:	a) Review SAR facilities, services and procedures in the region		b)	Analyse and review the results collected	ICAO ATS/AIS/SAR/SG	Completed
			b) Assist States without SAR services to provide SAR coverage		c)	Monitor the implementation of the PAC SAR SIP recommendations	ATS/AIS/SAR/SG	Completed
					d)	Encourage States to delegate or negotiate SAR services	ICAO	On-going
					e)	Identify deficiencies	ATS/AIS/SAR/SG	On-going
11	APANPIRG D 3/21	Subject: Region	Transition to WGS-84 in the Asia Pacific	А				
	C 9/2	Task:	Develop a plan and assist with the transition		a)	Information for planning to be provided by States	States	Completed
					b)	Information to be collated for presentation to ATS/AIS/SG	ICAO	Completed
					e)	Transition plan and assistance to States to be considered	ICAO	Completed
		Task:	Monitor and facilitate the transition to WGS-84		a)	Maintain status report of WGS-84 implementation within the Asia Pacific Region	ATS/AIS/SAR/SG	On-going
					b)	Identify States requiring assistance and where possible assist those States	States ICAO ATS/AIS/SAR/SG	On-going
					c)	Identify deficiencies	ATS/AIS/SAR/SG	On-going
12	RAN/3 R 14/13	Subject:	Implementation of ATS route requirements	А	a)	ATS routes identified as not implemented are consider by ATS/AIS/SAR/SG	ATS/AIS/SAR/SG	On-going
	APANPIRG C 5/12	Task:	have not been implemented		b)	ATS/AIS/SAR/SG to monitor progress	ATS/AIS/SAR/SG	On-going
	D 6/21 C 9/8		b) Propose guidelines for the establishment of ATS routes using RNP and/or with ADS functions		c)	Identify deficiencies	ATS/AIS/SAR/SG	On-going

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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"	Ą	Secretariat to follow up and report progress. No further action possible by ATS/AIS/SAR/SG	ICAO	On going
14	APANPIRG	Subject: NOTAM System of GPS RAIM outages	В	a) Develop a position at ATS/AIS/SAR/SG/6	ATS/AIS/SAR/SG/6	Completed
	C 2/33 C 7/7	Task: Develop a position for dealing with notification		b) Develop implementation plan	ATS/AIS/SAR/SG	Completed
				(overtaken by technology enhancements)		
15	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 		The SAR Matrix is discussed by States at all ATS/AIS/SAR/SG Meetings States to update the Matrix by providing information to ICAO	ICAO	Completed On-going
	D.1.1/2	2001 to permit the periodic update of the Matrix.		by 50 April each year		
16	RAN/3 R 7/18	Subject: SAR training and exercises	В	a) Follow up action on KAN/3 Recommendation 7/18	ICAO	Completed
	APANPIRG	Task: Facilitate SAR training and exercises		b) Co-ordinate SAR training available in the region	ICAO	On-going
	C 8/9			c) Facilitate international participation in SAR exercises	States	$\frac{4/01}{2002}$
				d) Australia to organise an international SAREX	Australia	Completed
17	APANPIRG C 6/13	Subject: Appropriate SAR legislation, National SAR Plans and Amendments Task: Establish appropriate documentation and	А	a) Implement appropriate legislation, establish National SAR Committees and Plans to support SAR operations	States	On-going
		National SAR Committee		b) Monitor developments of SAR Agreements between SAR organizations	ATS/AIS/SAR/SG	On-going
				c) Establish and maintain a Register of SAR Agreements	ICAO	On-going

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No.	Reference	Subject/Task	Priority		Action Proposed / In Progress	Action By	Target Date
18		Subject: Need for development of standardised ATS Letters of Agreement (LOA) Task: Develop a suitable LOA for Asia Pacific	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	ATS/AIS/SAR/SG	Completed
		Region wide use		b)	Provide comments to the Regional Office before the next meeting	States	Completed
				e)	Guidance material promulgated by ICAO for use by States	ICAO	Completed
19	APANPIRG	Subject: Lack of consideration of Human Factors in the provision of ATS	В	a)	States to provide input including lessons learned	States	On-going
		Task: Consider ways by which Human Factors aspects in the provision of ATS within the region could be improved		b)	ICAO to conduct seminars	ICAO	10/00 2003
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20	APANPIRG D 8/	Subject: Maintenance of the CNS/ATM/GM for the Region	В	a)	Update the Guidance Material as required	ATS/AIS/SAR/SG States	On-going
		Task: Maintain the CNS/ATM/GM		b)	Develop "Concept of Operations" for application in an initial ADS environment	ATS/AIS/SAR/SG States	Completed
21	APANPIRG C 9/48	Subject: Shortcomings & Deficiencies in the field of air navigation	А	a)	Identify unimplemented items in the ANP	ATS/AIS/SAR/SG	On-going
		Task: Develop and maintain Shortcomings &		b)	Review mission reports	ICAO	On-going
		Deficiencies list		c)	Analyse differences from SARPs	ICAO ATS/AIS/SAR/SG	On-going
				d)	Review accidents / incidents	ICAO ATS/AIS/SAR/SG	On-going
22	APANPIRG/12	Subject: Lateral Offset Procedures	А	a)	Review ICAO Guidelines on Lateral Offsets	ATS/AIS/SAR/SG	On-going
				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		

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No.	Reference	Subject/Task	Priority	Action Proposed / In Progress	Action By	Target Date
23	APANPIRG/13 C12/6	Subject: Regional Contingency Planning Survey Task: That, ICAO survey States in the Asia/Pacific Region to determine the status of contingency planning and the extent to which contingency plans are exchanged between neighboring States.		 a) States to complete their State Contingency Plans, using framework supplied and their Y2K CP b) Coordinate with neighboring States c) Send copy of their Contingency Plan to ICAO 	ICAO/States	On-going