INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF

THE SECOND MEETING OF AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) IMPLEMENTATION CO-ORDINATION GROUP OF APANPIRG (ATNICG/2)

Hong Kong, China
28 May – 1 June 2007

The views expressed in this Report should be taken as those of ATNICG/2 Meeting and not of the Organization. This Report will be submitted to the CNS/MET SG/11 and APANPIRG/18 Meetings for considerations.

Page

PART I - HISTORY OF THE MEETING

Introduction i-1
Attendance i-1
Opening of the Meeting i-1
Officers and Secretariat i-1
Working Arrangements, Language and documentation i-1
Conclusions/Decisions – Definition i-2
Terms of Reference (TOR) of ATNICG i-2
List of Conclusions/Decisions i-2

PART II - REPORT OF AGENDA ITEMS

Agenda Item 1: Adoption of agenda 1
Agenda Item 2: Review outcome of APANPIRG/17 on the first meeting of ATNICG 2
Agenda Item 3: Discuss related elements of the global air navigation plan and the emerging requirements for the ground-to-ground communications 3
Agenda Item 4: Review latest developments in the Aeronautical Communication Panel (ACP) Working Group N and outcome of ACP/1 Meeting 6
Agenda Item 5: Report on the ATNICG Working Group Activities 8
Agenda Item 6: Review States' ATN/AMHS Implementation/Operational activities and issues 10
Agenda Item 7: Discuss issues related to Directory Service - AMHS Address Management 12
Agenda Item 8: Review Tables and Charts for the ground-to-ground part of the CNS FASID 14
Agenda Item 9: Identification of urgent ATN/AMHS Implementation related regional guidance material to be developed 15
Agenda Item 10: Review the Subject/Tasks List of the ATN Transition Task Force and develop future Work Programme of the group 18
Agenda Item 11: Any other business 19

LIST OF ATTACHMENTS

Attachment 1: List of participants
Attachment 2: List of working and information papers

LIST OF APPENDICES

Appendix A: CNS/ATM Implementation Planning Matrix
Appendix B: The Updated FASID Table CNS-1E – ATS Interfacility Data Communication (AIDC) Routing Plan
Appendix C: List of Actions to Analyze Common Address Prefix Proposal
Appendix D: Amendment to ASIA/PAC ICD for AMHS
Appendix E: The Updated List of Subject/Tasks

PART I – HISTORY OF THE MEETING

1.1 Introduction

1.1.1 The Second Meeting of the Aeronautical Telecommunication Network (ATN) Implementation Co-ordination Group (ATNICG/1) of APANPIRG was held in Hong Kong, China from 28 May to 1 June 2007. The Meeting was hosted by the Civil Aviation Department, Hong Kong China.

1.2 Attendance

1.2.1 The Meeting was attended by 75 participants from 18 States: Australia, Bangladesh, Brunei Darussalam, China, Hong Kong-China, Macau-China, Fiji, Germany, India, Indonesia, Japan, Maldives, Nepal, New Zealand, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, and USA. Representatives from ARINC, SITA and six industries also attended the Meeting. A list of participants is at **Attachment 1**.

1.3 Opening of the Meeting

1.3.1 The Meeting was opened by Mr. Lo Shung Man, Director General of Civil Aviation Department, Hong Kong, China. Mr. Lo, while welcoming the participants highlighted the tremendous progress made by Hong Kong China in the field of Civil Aviation. He informed the meeting that Hong Kong air navigation system is handling an average of 780 terminating and 420 transit flights per day. Last year Hong Kong Airport handled 44 million passengers and 3.5 million tons of cargo. In order to cope with the growth of air traffic, Hong Kong China has decided to replace the ATM system by 2012. In addition to the implementation of digital communication systems such as D-ATIS, AIDC etc, Hong Kong has also taken up the implementation of ATN/AMHS systems. He expressed that Hong Kong China was pleased to host the Second Meeting of the ATNICG.

1.3.2 On behalf of Mr. L.B. Shah, Regional Director, ICAO Asia and Pacific Office, Mr. Li Peng, Regional Officer, CNS of the ICAO Regional Office expressed gratitude and appreciation to the Civil Aviation Department of Hong Kong China for hosting the meeting and for the excellent arrangements made. He highlighted some of the significant achievements made in region in the recent past. He emphasized the importance of cooperation and coordination for harmonized implementation of ATN/AMHS in the region. He also identified that objective of meeting was to progress tasks approved by APANPIRG.

1.3.3 Mr. Hoang Tran, Chairman of the ATNICG, in his opening remarks, he expressed his appreciation on the achievements made by Hong Kong, China and thanked Civil Aviation Department, Hong Kong for the arrangements made for the meeting. He cautioned the meeting that replacement of AFTN with ATN/AMHS should be carried out without causing any interruptions to the operation. He also welcomed the participants.

1.4 Officers and Secretariat

1.4.1 Mr. Hoang Tran, Chairman of the ATNICG presided over the Meeting.

1.4.2 Mr. Li Peng, Regional Officer, CNS was the Secretary of the meeting who was assisted by Dr. Sujan K. Saraswati, Regional Officer, CNS of the ICAO Asia and Pacific Office.

1.5 Working Arrangements, Language and Documentation

1.5.1 The ATNICG met as a single body, except on 29 and 31 May 2007 when additional ad-hoc Working Group meetings were held to discuss matters on the regional AMHS management centre, additional regional guidance material and conformance tests. The working language for the

meeting was English inclusive of all documentation and this Report. List of Working Papers and Information Papers are contained in **Attachment 2.**

1.6 Conclusions/Decisions - Definition

1.6.1 The ATNICG of APANPIRG records its actions in the form of Draft Conclusion, Draft Decision and Decision with the following significance:

a) Draft Conclusions deal with matters, which, in accordance with the Sub-Group's Terms of Reference, require the attention of States/Organization or actions by ICAO in accordance with establishment procedures:

b) Draft Decisions relate solely to matters dealing with the internal working arrangements of APANPIRG and its contributory bodies; and

c) Decisions relate solely to matters dealing with internal working arrangement of the ATNICG only.

1.7 Terms of Reference (TOR) of ATNICG

Title and Terms of Reference

Title: Aeronautical Telecommunication Network Implementation Co-Ordination Group (ATNICG)

Terms of Reference (TOR)

Coordinate ATN implementation and transitional issues in the Asia and Pacific region and address relevant system management, operational procedures and emerging issues that may arise.

Composition**:**

The Group will be composed of experts nominated by:

Australia, China, Hong Kong, China, Fiji, India, Indonesia, Japan,
New Zealand, Republic of Korea, Singapore, Thailand and United States

Reporting:

The Group will present its report to APANPIRG through the CNS/MET Sub-group.

1.8 List of Conclusions/Decisions

Draft Conclusion 2/1 - Guidance Document for AMHS Conformance Testing
Decision 2/2 - Use of European AMC service through focal point
Decision 2/3 - Analyze common address prefix
Draft Conclusion 2/4 - ATN/AMHS Implementation Workshop
Draft Conclusion 2/5 - Amendment to AMHS ICD
Draft Decision 2/6 - Revision to the Subject/Tasks List of ATNICG

Agenda Item 1: Adoption of agenda

The Agenda adopted by the meeting was as follows:

Agenda Item 1: Adoption of provisional agenda

Agenda Item 2: Review outcome of APANPIRG/17 on the first meeting of ATNICG

Agenda Item 3: Discuss related elements of the global air navigation plan and the emerging requirements for the ground-to-ground communications

Agenda Item 4: Review latest developments in the Aeronautical Communication Panel (ACP) Working Group N and outcome of ACP/1 Meeting

Agenda Item 5: Report on the ATNICG Working Group Activities

Agenda Item 6: Review States' ATN/AMHS Implementation/Operational activities and issues *(member States are expected to provide their latest implementation status in the form of Attachment 1A)*

Agenda Item 7: Discuss issues related to Directory Service - AMHS Address Management

Agenda Item 8: Review Tables and Charts for the ground-to-ground part of the CNS FASID

- AIDC
- AMHS
- ATN Routers

Agenda Item 9: Identification of urgent ATN/AMHS Implementation related regional guidance material to be developed.

Agenda Item 10: Review the Subject/Tasks List of the ATN Implementation Coordination Group and develop future work programme of the group.

Agenda Item 11: Any other business.

Agenda Item 2: Review outcome of APANPIRG/17 on the first meeting of ATNICG

2.1 The meeting reviewed the outcome of the Seventeenth meeting of APANPIRG and noted that the report of ATNICG/1 had been reviewed by the Tenth meeting of the CNS/MET Sub-group of APANPIRG and subsequently by the Seventeenth Meeting of APANPIRG held in August 2006. The meeting noted that the new format of subject/tasks list developed by ATNICG/1 was highly appreciated by the APANPIRG/17. It was recommended as a sample of task list for the other Sub-Group and Task Forces.

2.2 The meeting noted that APANPIRG/17 under its Conclusion 17/21 adopted the amended Regional Strategy for Implementation of ATN.

2.3 The meeting also noted that the ATNICG Working Group meeting held in December 2006 had reviewed and updated the Subject/Tasks List adopted by APANPIRG/17 based on the progress made.

Agenda Item 3: Discuss related elements of the global air navigation plan and the emerging requirements for the ground-to-ground communications

Global Air Navigation Plan

3.1 The Secretariat presented a paper on the significant attributes of Global Air Navigation Plan (Third Edition – 2007). It was mentioned that ICAO recognized that technology was not an end in itself and that an integrated global air navigation system based on clearly established operational requirements was needed. Global ATM Operational Concepts (Doc 9854) created by Air Traffic Management Operational Concept Panel (ATMCP) and the industry roadmap were taken as the basis for proposing second amendment to the Global Air Navigation Plan. The proposed amendment was accepted by ICAO Council on 30 November 2006 at its 179th Meeting. Most significant differences in the second amendment are that the revised plan is published in a single volume and it includes a set of twenty three Global Plan Initiatives.

ICAO CAR/SAM AMHS Transition Plan

3.2 The Meeting noted the AMHS implementation activities progressed by the Second and the Third meetings of the ATN Task Force in the Caribbean and South America Region (CAR/SAM).

3.2.1 The Second CAR/SAM ATN Task Force held in November 2006 developed an AMHS Transition Plan and adopted a strategy for implementation of AMHS over TCP/IP utilizing IPv4 to replace their Aeronautical Fixed Telecommunications Network (AFTN) switches. The Transition Plan was considered as a prime document that addresses various issues such as network incompatibility between ICAO regions, timely coordination and management of AMHS addressing scheme and the upgrading of regional telecommunication backbone network. The above decision was made based on the on-going direction of the Aeronautical Communication Panel, Working Group N to adopt Internet Protocol Suite (IPS) using IPv6.

3.2.2 The CAR/SAM ATN Task Force recommended initial use of the Internet Protocol Version 4 (IPv4) to expedite the implementation of AMHS service in the region during the initial period. IPv6 was recommended for inter-regional connectivity. A transition phase is proposed using a dual stack transition mechanism where both IPv4 and IPv6 are implemented in all of the Routers and incrementally in AMHS systems.

IPS Using IPv6

3.2.3 The Third CAR/SAM ATN Task Force meeting was held in March 2007. It was concluded that the use of TCP/IP version 6 is not practical in the immediate future. The meeting developed an evolution plan to use IPv4 and progress to IPv6 when it becomes available.

3.3 The meeting expressed concerns for implementation of IPS using IPv6 in the near term. SARPs for IPS developed by Aeronautical Communication Panel (ACP/1) would become applicable by end of 2008. There are on-going task for Working Group N of ACP to develop guidance material for implementation. Additional guidelines on using IPS may also need to be further developed for regional implementation. It was noted that AMHS Products capable to support IPv6 are very limited and implementation of IPv6 in the near term was not considered practical.

Cost for Leasing Low Speed Circuit

3.4 The meeting noted that more than 100 low speed AFTN circuits are implemented in the CAR/SAM region. The cost for keeping the low speed circuits would be same or even higher than leasing a 64 Kbps or higher signal speed circuit. The same was confirmed by participants for the circuits in some countries in the Asia and Pacific region. Therefore, States should be encouraged to upgrade the signal speed to increase the channel capacity in order to support ATSMHS. However, it

was informed that some AFTN switches used by States were able to support maximum channel speed at 19.2 Kbps only.

Interregional Connection

3.5 The meeting noted that regional connection between Chile and New Zealand is specified in the AMHS transition plan of the CAR/SAM region. However, there is no such link that had been planned in the ASIA/PAC FASID Table CNS 1B. The traffic to/from CAR/SAM region from/to ASIA/PAC region will be via USA. Therefore, requirement for interregional connection with CAR/SAM region using IPv6 would only be required for consideration by USA and NAM Region. The Secretariat was requested to contact CAR/SAM region to reserve the inconsistency observed in the planning for interregional connection for ATN/AMHS implementation.

ICD for AIDC

3.6 The meeting noted that the Asia/Pacific Regional Interface Control Document for ATS Inter-Facility Ground/Ground Data Communication (ICD for AIDC) was updated by AIDC Task Force meeting held from 6 to 9 February 2007. The meeting has proposed a number of amendments to Version 2.0 and has prepared a draft ICD Version 3 which has been posted on ICAO APAC website as *Appendix D* to the Report of the AIDC Task Force meeting.

3.6.1 In accordance with the Subject/Tasks list developed by the ATNICG/1, the ATN based ICD for AIDC was required to be completed by 2007. ATNICG/1 was also of the view that ACP would update the AIDC material defined in Doc 9705. Thailand was requested to proceed with the development of the ATN-based ICD for AIDC. The issue was discussed at the ATNICG WG meeting held in Bangkok in December 2006. The ATNICG WG proposed to postpone the development of ATN based ICD for AIDC till the relevant material being updated by ACP. The ACP WG meeting held in Bangkok in January 2007 completed the draft for updating the technical provisions for AIDC which was endorsed by the ACP/1 meeting held in May 2007. It was noted that the Technical Provisions for AIDC will be published soon in a new ICAO Document (Doc 9880).

Binary Universal Form for the Representation of meteorological data (BUFR)

3.7 The meeting recalled that in accordance with the *Working Arrangements between ICAO and WMO (Doc 7475)*, the codes used for the ground-to-ground dissemination and exchange of OPMET information (METAR/SPECI and TAF) lies with WMO and it is therefore not possible for ICAO to choose the code by itself. The BUFR code form is contained in WMO publication No.306, Manual on Codes Volume I. The meeting was informed that the migration plan to aeronautical MET codes which is still valid included enabling use of the BUFR code form on bilateral basis as of November 2007 and full implementation of the BUFR code form in 2016 for all the exchangers of the OPMET data.

3.7.1 The meeting further noted that the WMO Commission for Basic Systems (CBS) Expert Team (ET) on data representation and codes recently concluded that only the aviation community could evaluate the capability of its information technology (IT) infrastructure and its own ability to support code changes. The meeting recalled that ATNICG/1 had confirmed AMHS would be able to support the requirements for BUFR coded messages through a File Transfer Body Part (FTBP) solution.

3.7.2 It was noted that another Expert Team was being established to develop guidance for the use of XML. It could be expected that the BUFR transition would be frozen until the result of discussion of new ET are known. Agreement by the Air Navigation Commission to this course of action will be sought later in 2007.

3.7.3 The United States informed the meeting that the updated position on BUFR code transition will be provided to the 11th meeting of CNS/MET Sub-group of APANPIRG to be held in July 2007 as MET expert will participate the meeting.

Agenda Item 4: Review latest developments in the Aeronautical Communication Panel (ACP) Working Group N and outcome of ACP/1 Meeting

First Meeting of Aeronautical Communication Panel (ACP/1)

4.1 The meeting noted that ACP/1 was held in Montréal, from 10-18 May 2007. The report of the meeting is posted on the following ACP website:
http://www.icao.int/anb/panels/acp/wgdoclist.cfm?MeetingID=188

4.2 The Secretariat presented an outline on the outcome of ACP/1 and its effect on ATN/AMHS related issues as follows:

4.2.1 The meeting formulated a Recommendation (3/1), inviting ICAO to amend Annex 10, Volume III, Part I, Chapters 1 and 3. Draft SARPs that would be introduced in Annex10 material for the ATN based on the internet protocol suite (TCP/IP) in addition to the already available material for the ATN/OSI. Such introduction would need to take place in a manner that already on-going ATN/OSI implementations, both ground-ground and air-ground, would not become obsolete. Technical material for the ATN/IPS would use standards developed by the Internet Society (ISOC) and the Internet Engineering Task Force (IETF).

4.2.2 In following up the principles of Assembly Resolution A35-14, it was proposed to remove from Annex 10 unnecessary provisions and concentrate on keeping high-level, mostly functional standards in Annex 10 necessary to secure global interoperability of the ATN.

4.2.3 The meeting developed a Recommendation (3/2), inviting ICAO to distribute the *Manual on detailed technical specifications for the ATN/IPS* to ICAO Contracting States. The Manual also contains relevant information to support early implementation of ATN/IPS.

4.2.4 The meeting noted the ongoing updating of the Manual of Technical Provisions of the ATN (Doc 9705) and its publication by ICAO in several parts in the Manual on detailed technical specifications of the ATN/OSI Doc 9880. This updating of the technical material is now complete and publication by ICAO will take place in the near future. Two parts of Doc. 9880 have already been approved.

4.2.5 The meeting noted that the work of SWGN1 and SWGN4 will be combined into Working Group I (IPS). It was agreed to complete the IPS Manual as soon as possible in particular to address mobility and security solution by the end of 2008.

4.2.6 Further work in particular with regard to the air-ground part of the ATN including the future use of CPDLC application over the ATN/IPS was identified. Further work on security in the ATN in particular in air-ground data links was also identified.

4.2.7 It was clarified that using IPS to support air/ground communication was desirable and feasible. However it is not clear at this stage whether IP can be supported over VDLM2. There was also an idea to implement ATN over VDLM2.

Updates on the Development of Technical Provisions for AIDC

4.3 Thailand informed the meeting of the progress of development of Technical Provisions for AIDC. In following up the outcome of first meeting of OPLINK Panel, the ACP WGN meeting in Bangkok 2007 reviewed and approved updates and amendment to technical provisions for AIDC as contained in the Doc 9705. It was anticipated that the updated material for the AIDC technical provisions will be published in a new ICAO document, *Manual on detailed technical specifications of the ATN/OSI* (Doc 9880), Part IIA.

4.3.1 The meeting noted that at ACP/1 meeting in May 2007, it was informed that currently, Part I (CM and CPDLC) and Part IIA (AIDC) of Doc 9880 have been approved and have been, pending formal publication by ICAO, placed on the ACP website. Updates of the relevant material on ATSMHS and upper layer communications service (ULCS) are in progress and are expected to be published in the near future.

Agenda Item 5: Report on the ATNICG Working Group Activities

ATNICG Working Group Meeting

5.1 The meeting reviewed the report of the First ATNICG working group meeting presented by the Rapporteur.

5.1.1 The meeting noted that in accordance with the Decision 1/5 made by the First Meeting of Aeronautical Telecommunication Network (ATN) Implementation Co-ordination Group (ATNICG/1), the First Working Group Meeting of the (ATNICG WG/1) of APANPIRG hosted by Aerothai was held in Bangkok, Thailand, from 4 to 8 December 2006. The Meeting was attended by 35 participants from Australia, China, Hong Kong-China, Fiji, India, Indonesia, Republic of Korea, Singapore, Thailand, USA, Eurocontrol and SITA.

5.1.2 The meeting reviewed with appreciation the progress made and reported by team leaders for tasks assigned by the ATNICG/1 meeting.

ATN Conformance Document and Checklist

5.3 The meeting reviewed a report on development of ATN Conformance Document and checklist presented by the Rapporteur of an Ad Hoc working group consisting of experts from China, Hong Kong - China, Indonesia, Singapore, Republic of Korea and United States (Refer to WP/20 and WP/23).

5.3.1 ATN Conformance document and checklist describes the standard checklist required to ensure interconnectivity and interoperability. The document was adapted with a baseline from the Eurocontrol Conformance Document. The adaptation of the Eurocontrol Manual focuses on the use of AMHS with additional ATN router testing procedure which was developed based on the router testing and trials conducted between Hong Kong China and Japan.

5.3.2 The ATN Conformance Document will cover the system level testing for AMHS and ATN router necessary for interoperability and interconnectivity as an initial step, based on existing technical provisions. Upcoming technologies such as the adoption of Internet Protocol (IP) are proposed to be addressed at later revisions. The structures of the document would be as follows:

AMHS Conformance Document

The main body of the document describes the ATN - AMHS environment summarized from the Guidelines and the ATN/AMHS Document Tree.

Annex A - Guidelines on Quality of Service (QOS)

It is supporting document to provide a guideline on the expected Quality of Service to achieve ATN - AMHS interoperability and Interconnectivity.

Annex B - AMHS Conformance Test and Checklist

It is a guidance document to be used for AMHS system testing. The document identifies tests that need to comply with a test tool. The test tool is typically conducted at a factory level or can be a portable unit. It is kept generic to allow variations in proposals by different vendors but still aligned to ICAO technical provisions.

Annex C – ATN Router Test and Checklist

The document is used for router connectivity testing. The document covers the testing requirements for interoperability and interconnectivity.

5.3.3 The meeting noted that significant changes to the EUR manual were accepted by AFSG/10 meeting held in April 2007.

5.3.4 The Ad Hoc working group meeting proposed to make some consequential changes to the proposed draft of ATN Conformance Document. It was also proposed to adopt default values for MTA names and passwords to facilitate MTA implementation. To accommodate follow-up testing after the AMHS system has been tested as being conformal to the ATN Technical Provisions, guidelines and ANSP requirements, a separate annex was required to be added. It will describe in detail, the interoperability testing between the new AMHS system and a test system or with other vendor systems. This is typically classified as an off-line testing system. These tests will be conducted by both the Vendor and the ANSP to ensure close observation for anomalies, which occurred in the testing. The annex containing these additional procedures will be presented for review by the ATN ICG Working Group Meeting by the end of 2007.

Pre-Operational Testing Procedures

5.4 Following testing of the AMHS system with a test system, the AMHS system should be prepared for "live" interconnections with other MTAs. This testing will be conducted by the ANSPs and supported by the Vendor. The additional procedure for the interconnections testing will be prepared and presented to the next ATNICG Working Group Meeting for review.

Guidance Document for AMHS Conformance Testing

5.5 The meeting considered necessary to make consequential update to the draft Guidance Document for AMHS Conformance Testing based on amendments made in the baseline document. Recognizing the urgent need for adoption of the guidance material of AMHS Conformance Testing, it was agreed that updated draft will be finalized electronically by the team led by Singapore. The meeting agreed to present the final draft for consideration and endorsement by CNS/MET Sub-group meeting to be held in July 2007. Accordingly, the meeting formulated the following draft Conclusion:

Draft Conclusion 2/1 - Guidance Document for AMHS Conformance Testing

That, the Guidance Document for AMHS Conformance Testing be adopted as First Edition for use in the Asia and Pacific Region.

Agenda Item 6: Review States' ATN/AMHS Implementation/Operational activities and issues ***(member States are expected to provide their latest implementation status in the form of Attachment 1A)***

ATN/AMHS Implementation Planning Status

6.1 Under this agenda item, the meeting reviewed the ATN/AMHS implementation planning status presented by Australia, Bangladesh, China, Hong Kong China, Fiji, India, Indonesia, Japan, Republic of Korea, Singapore, Sri Lanka, Thailand and USA.

6.1.1 Based on a proposal made by Mr. Ken Morris, expert from Australia, the Secretariat has developed an ATN/AMHS implementation webpage on which information of focal contact point, planning and implementation status and link data are provided. An implementation forum has also been created. The planning information and implementation status of ATN/AMHS in the Region including the information received before the meeting from Malaysia, Macau-China and the Philippines were consolidated and reflected in the form of an ATN Connection Chart at the following ICAO APAC web page under the Regional Planning Projects:
http://www.icao.or.th/apac_projects/atn_amhs.html

6.1.2 The meeting reviewed with interest the Chart uploaded with the latest implementation planning information available at the meeting. It was encouraging to see the progress of implementation of ATN/AMHS made by States in the region.

6.1.3 The meeting reviewed a sample of implementation issue register in Excel format presented by Australia. In order to assist in the implementation of AMHS, it is important to capture any issue which could impact on a successful rollout of systems and communication networks within the region. The register should be accessible by all participating States, so that a knowledge base created and built up containing implementation related issues remains visible. Such information accumulated over time will assist the ATNICG in accomplishing strategic objective task of ATN implementation coordination. A recommended ATN/AMHS implementation forum was demonstrated. A further suggestion was that the final register be restricted to the ATNICG member States and located on the ICAO web site. The information submitted to the register is on a voluntary basis and not compulsory.

6.2 The meeting reviewed and updated the CNS/ATM Implementation Matrix with respect to ATN/AMHS implementation planning. The CNS/ATM Implementation Matrix lists status of implementation of various major CNS/ATM elements within the Region including implementation of ATN and AIDC. The Matrix serves as a planning tool for monitoring the progress of implementation. It was noted that the Matrix was updated by the CNS/MET Sub-group and reviewed by APANPIRG/17 in 2006. The Matrix has been further updated by AIDC Review Task Force in February 2007 and ADS-B Study and Implementation Task Force Meeting in April 2007. The Matrix updated by the meeting is provided at **Appendix A** to this report.

Importance of Specifying Design Capacity and Loading/Stress Testing of AMHS Systems

6.3 Hong Kong China presented a Paper that highlights the importance of specifying the message handling design capacity of AMHS systems and the loading and stress tests for system acceptance. These inclusions are necessary to ensure that the AMHS will operate smoothly without message loss under traffic surge situations such as system/MTA changeover or recovery from outages of the local MTA or remote MTAs, taking account of the continuous growth in aeronautical messages exchange and increase in ATN data speed during the operational life of the AMHS.

6.3.1 The meeting noted that Hong Kong, China's experience in estimating the design capacity and conducting the loading and stress tests on ATN/AMHS systems is useful to verify whether the systems are suitable/capable of operational use. It was recommended that materials

provided in the paper could be used as reference for loading and testing of AMHS systems by the States in the Region.

Use of Internet for ATN/AMHS Functional and Interoperability Testing

6.4 The meeting noted the experience gained by Hong Kong, China in the use of Internet as an alternative communications means to the public X.25 PSDN, IDD or leased circuits for ATN/AMHS functional and interoperability testing at reduced costs.

6.4.1 It was concluded that the public Internet is a flexible means for conducting short-term ATN and AMHS technical trials to verify functionality and interoperability of systems from different equipment manufacturers. Use of the Internet for ATN/AMHS trials also supports multi-partite trials on the message relaying functions and ATN link changeover/re-routing trials that cannot be practically/effectively achieved by using public X.25 PSDN, leased circuits and/or IDD connections.

6.4.2 Using public internet for testing was further confirmed and supported by China, Japan, Thailand and USA. Only concern expressed was the security if it had been for operational use.

Agenda Item 7: Discuss issues related to Directory Service - AMHS Address Management

AMC Coordination Meeting

7.1 As a follow-up action to the ATNICG WG/1 meeting, an ATS Messaging Co-ordination Meeting was held in Brussels from 27 to 29 March 2007. The main objective of the meeting was to evaluate the capability and functions of the AMC and to analyze the possibilities for the establishment of similar functions in the ASIA/PAC region during the short and the medium terms. Representative from China, Hong Kong-China, Singapore, Thailand and USA visited the ATS Messaging Management Centre at Eurocontrol and attended the coordination meeting.

7.1.1 AMHS is currently being deployed in the ICAO ASIA/PAC and EUR/NAT Regions. It was identified that some AMHS off-line management functions are of global nature, and should be co-ordinated on a world wide basis. In support of such deployment, Eurocontrol has developed the concept of ATS Messaging Management which includes AMHS off-line management, under the aegis of the European Air Navigation Planning Group (EANPG), an official ICAO planning and implementation body comparable to APANPRIG in ASIA/PAC Region.

7.1.2 The ATS Messaging Management Centre (AMC) was implemented by EANPG taking into account the functions requiring global co-operation. Its development was completed and the first pilot operation started in November 2006. After the second pilot operation in January 2007, it commenced live operations on 16 February 2007.

7.1.3 The meeting reviewed the report of AMC Coordination meeting and recognized that common procedures and co-ordination should be formulated globally as a matter of urgency for harmonized implementation, especially when most of the States will implement the ATN infrastructure and AMHS in 2007/2008 timeframe.

ASIA/PAC Interim AMHS Address Management Database

7.2 APANPIRG/17 meeting held in August 2006 noted the offer made by Eurocontrol for a global database service to be provided to all ICAO Regions. The meeting agreed and supported the proposal. At the same time it was also agreed that the work on the proposed establishment of ASIA/PAC database in Bangkok should progress. The ASIA/PAC database could share data and synchronize data between databases. A need for a coordination procedure between two databases was identified, lack of which may disrupt the operation. It was agreed that Thailand would proceed with the work of establishment of database for regional AMHS address look-up service pending the availability of directory service in the region to be introduced.

7.3 In following up the directives from APANPIRG, Aerothai has developed an interim AMHS database based on specifications and suggestions form Hong Kong China and Japan. The interim database was presented and demonstrated at ATNICG Working Group meeting and this meeting. The database application is provided using web technology. The Working Group agreed, after discussion, that the current implementation is a good start. However, the meeting recognized the need for common and harmonized procedures and agreed that further coordination should take place as a matter of urgency between ATNICG representative and Eurocontrol.

Using European AMC Database in the short term

7.4 The meeting reviewed a proposal made by an Ad Hoc working group established during the meeting. Considering many States in the region plan to implement AMHS by 2008, the AMHS address registration and other related information is needed before the end of 2008. The meeting agreed that, in the short term the AMC database is the only one that can be made available in the Asia/Pacific region. It was recognized that data verification within the region before submission to EUROCONTROL was essential. Data should be submitted by operational staff at the COM

centres. Therefore it is logical to have one focal point for consolidation of information within the region.

7.5 AEROTHAI was requested to act as an information consolidator for the Asia/Pacific and for coordination with EUR region, until the AMHS coordination and management centre (ACMC) in the ASIA/PAC Region having been established. AEROTHAI will act as External COM Center for the Asia/Pacific region and relay AMHS information to AMC following the AMC AIRAC updating cycle. This will be the interim solution. Initial information should be gathered and provided to AMC within 2 months following the ATNICG/2 meeting and then updated monthly afterward.

7.6 In this connection, the meeting noted that in response to the report of AFSG/10 meeting, ICAO Headquarters agreed in principle to the Conclusion 10/11 of AFSG/10 (IP/07 refers), to provide a timely and comprehensive global solution for both formal AMHS address allocation and operational address management. The institutional arrangement is expected to follow the pattern already established for the global management of 5 letter name codes (5LNC), which is based on an agreement between ICAO Headquarters and Eurocontrol.

7.7 AEROTHAI was also requested to relay information from the AMC to member States of ATNICG in the Asia and Pacific Region. The current AMC export format is in CSV or Excel. In light of the foregoing, the meeting formulated the following Decision:

Decision 2/2- Using European AMC service through focal point

That,

a) Member of ATNICG from AEROTHAI be requested to act as a focal point for providing information to AMC and get the relevant information from AMC for distribution within the region; and

b) the required information be collected within 2 months following the ATNICG/2 meeting for submission to AMC.

ATSMHS Coordination and Management Centre

7.8 The meeting further discussed the medium term solution (by end of 2008) for AMHS address management. Medium-term target is to continue the effort for establishment of a regional AMHS Coordination and Management Centre (ACMC) in the Asia and Pacific Region that can automatically exchange data with the AMC. In order to achieve harmonized and identical procedure, the AMHS address management system to be used by the ACMC should be established ideally based on AMC software. It was noted that EUROCONTROL expressed the possibility to release the AMC software source code for adaptation. However an MOU is needed for this process. The meeting requested Secretariat to initiate coordination between the Regional Office and Eurocontrol for using the AMC application source codes and AMC documents. Such MOU should allow ICAO Regional Office to designate the modification/adaptation of AMC application software to entities within the Asia and Pacific Region.

Agenda Item 8: Review Tables and Charts for the ground-to-ground part of the CNS FASID: AIDC, AMHS, ATN Routers

ATS Inter-facility Data Communication Plan

8.1 Under this agenda item, the meeting reviewed the FASID Table CNS-1D which specifies the requirements for ATS Inter-facility Data Communication to be introduced in the Asia and Pacific Region, where required. It was recalled that the ATN Implementation Co-ordination Group in 2006 reviewed the FASID Table CNS-1D. The AIDC Review Task Force meeting held from 6 to 9 February 2007 further updated the AIDC plan. The meeting also noted that the AIDC Task Force formulated a draft Conclusion for consideration by APANPIRG/18 meeting to replace the existing FASID Table with the updated plan.

8.2 The meeting noted that States in the ASIA/PAC region are gradually implementing AIDC or planning to implement it based on operational requirements. It was recognized that such operational requirements need to be reflected in Part IV-CNS of the ASIA/PAC FASID. In accordance with Conclusion 16/27 of APANPIRG/16 meeting, a proposal for amendment of the Table CNS-1D (APAC 05/14-CNS) was processed in November 2005. Subsequently, the Table CNS-1D was updated.

8.3 The meeting reviewed the Planning Table for AIDC and endorsed the draft Conclusion formulated by the AIDC Task Force. The updated FASID Table CNS-1D was further updated and is provided at **Appendix B** to the Report for consideration by CNS/MET Sub-group of APANPIRG. The meeting also noted the name of the Table would be renamed as FASID Table CNS 1E - ATS Inter-Facility Data Communication (AIDC) Implementation Plan.

FASID Tables CNS-1B and CNS-1C

8.4 The meeting recalled that the First Meeting of the ATN Implementation Coordination Group reviewed the Table CNS-1B and Table CNS-1C contained in ASIA/PAC FASID, Part IV CNS. Table CNS-1B specifies the requirements to increase capacity of the existing AFTN circuits and to introduce BBIS and BIS routers to support ATN end system applications to be introduced gradually. Table CNS-1C specifies the requirements for AMHS in the Region.

8.4.1 The meeting noted that these Tables and associated Charts have been approved and published in the First Edition, 2006 of ASIA/PAC ANP Vol. II, FASID.

8.4.2 The meeting noted that most of the States were ready to implement the facilities and services as specified in Tables CNS-1B and CNS-1C within the established target dates. Some States had shifted the target date to 2008 or 2009. It was also noted that failure to implement the planned facilities and services within the established target date(s) may be considered as a deficiency on the part of the State(s) concerned.

Agenda Item 9: Identification of urgent ATN/AMHS Implementation related regional guidance material to be developed.

Conversion/Redundancy/Security

9.1 The United States presented information paper that describes the FAA' AMHS Protocol Implementation Architecture and its basic operation. The paper provides background information on the standard OSI protocol stack and on convergence over TCP/IP using the RFC 1006 technique. It then describes the allocation of functions in the FAA's environment. The FAA has developed an RFC-1006 Gateway which resides in their ATN router. The RFC 1006 gateway translates from TCP/IP to OSI and vice versa. The FAA's implementation architecture will be transparent to a remote MTA and ATN router. It was noted that under this architecture there is a common address prefix for the Router and the MTA. For each interface, one connection in each direction is supported.

9.2 The meeting noted FAA's planned redundancy approach for the initial Salt Lake City configuration and the planned approach once Atlanta is upgraded with an AFTN/AMHS Gateway. For the Salt Lake City configuration hardware redundancy of the AFTN/AMHS Message Switching Node, Router Redundancy, and Interface Redundancy is described. For the combined Salt Lake City and Atlanta configuration, redundancy using Manual procedures to redirect the RFC-1006 Gateway connections or X.25 circuits is introduced. An automated method using MTA redirection is also described.

9.3 The United States made a presentation on the ATN/AMHS Security. The presentation highlighted the Security Objectives, Security Policy, Security Checklist, Security Implementation Plan, Technical Controls for AMHS Security and Regional Security Document requirements. It was recommended to establish a Security Working Group to develop a simplified checklist. The paper also recommended development of a Security Implementation Plan which identifies the technical and operational security controls to be used. The meeting considered it necessary to develop a high level document on Security which can identify the area where States should look into. This task should be addressed by the ATNICG Working Group.

Analyze Common Address Prefix Proposal

9.4 The United States proposed a modification to the Asia/Pacific ATN NSAP Addressing Plan. It was proposed that the Asia, Pacific and North America ICAO regions operate as a single "combined region" for the purpose of routing. This means that all states in these regions will have the same 5-Byte NASP address prefix to designate a combined "Asia/Pacific/NAM" region. This would permit the goal of shortest path routing to be achieved, which otherwise may not be achieved due to aggregation of routing information on the inter-regional border. The United States further explained the proposed draft changes to Asia/Pacific ATN NSAP Addressing Plan and provided a concrete draft changes to the Asia/Pacific IDRP Routing Policy.

9.5 A working paper on the same subject from Japan expressed some observation on the proposed changes and recommended to task the Working Group to further study the changes to the routing policy.

9.6 An Ad Hoc working group established during the meeting discussed this issue and agreed to add a new task into the List of Subject/Tasks to further study Asia/Pacific IDRP Routing Policy. The Ad Hoc working group concluded the discussion with a list of actions to analyze common Address Prefix which is provided in **Appendix C** to this report. In view of the foregoing, the meeting formulated the following Decision:

Decision 2/3 - Analyze common address prefix

That, the study and analysis on the common address prefix be added into the list of subject/tasks. The initial result of the study and analysis be reported to the Second ATNICG Working Group Meeting.

9.7 The representative of AMC, Germany expressed that an interregional task force should be setup to address the common address prefix as it involves all regions. The Secretariat responded that it would be brought to the attention of ICAO Headquarters for the need of global coordination or study on this matter. Mr. Mark Brown from Japan was requested to be team leader for such Study and Tomas J. McParland from USA was requested to initiate informal coordination with experts in the other regions for common study on this matter.

Outcome of AFSG/10

9.8 The meeting reviewed the report of the AFSG/10 as presented by Secretariat and the USA. The meeting noted with appreciation for the papers on the same topic provided by the Aeronautical Fixed Services Group (AFSG) of the European Air Navigation Planning Group (EANPG) and valuable information attached to the papers.

9.9 The meeting noted the Conclusion AFSG10/04 on request for arrangements for an AMHS workshop on transition issues for EUR States in 2008. The meeting considered that technical and operational trainings are very important for the smooth implementation of ATN/AMHS in the Asia and Pacific Regions. Therefore, in a timely manner similar workshop/Seminar for the exchange of experiences gained and lesson learned should be conducted. The meeting recalled the ATN Seminars being hosted by Aerothai once every two years. The next one will be in early 2008. Accordingly, the meeting formulated the following draft Conclusion.

Draft Conclusion 2/4 - ATN/AMHS Implementation Workshop

That, ICAO be invited to coordinate with State concerned to conduct an ATN/AMHS workshop to address implementation issues in early 2008.

9.10 The meeting noted Conclusion AFSG 10/12 on the Regional coordination for AMHS implementation. The meeting invited members of ATNTICG to look into the registration of PDAI issue as identified in the Conclusion AFSG 10/13.

Revised ICD for AMHS

9.11 The meeting recalled that at the 1st ATNICG Meeting, Singapore reported on the necessity of amending the AMHS Interface Control Document (ICD) because it did not support the use of CAAS addressing and IPM-88. The meeting confirmed the necessity and agreed to amend the ICD accordingly. The task was assigned to Japan.

9.12 The ICD was reviewed and amended to allow use of CAAS addressing, as shown in the table below. Further more, the opportunity was taken to revise text concerning the Network layer of the AMHS protocol stack to clarify sub-networks and the corresponding SNDCF protocols.

Table	No.	Element	Comment
1.1	1.1.4	content-type	added IPM-88
1.1	1.2.1	recipient-name	added CAAS
2.1	1.1.2	originator	added CAAS
2.1	1.1.4.2	recipient	added CAAS
3.1	1.1.2	originator-name	added CAAS
3.1	1.1.4	content-type	added IPM-88
4.1	1.1.2	ipn-originator	added CAAS

9.13 The meeting reviewed and agreed the proposed changes as indicated in **Appendix D** to this report. In view of the above, the meeting formulated the following draft Conclusion.

Draft Conclusion 2/5 - Amendment to AMHS ICD

That, the revised AMHS ICD provided in the **Appendix D** to the Report be adopted as Edition 2 of ASIA/PAC AMHS ICD.

Agenda Item 10: Review the Subject/Tasks List of the ATN Implementation Coordination Group and develop future work programme of the group

10.1 The meeting reviewed and updated the Subject/Tasks List based on the progress made and new tasks identified. The updated List of Subject/Tasks is provided in **Appendix E.** Accordingly, the meeting formulated a draft Decision as follows:

Draft Decision 2/6 - Revision to the Subject/Tasks List of ATNICG

That, the revised Subject /Tasks List of the ATNICG provided in **Appendix E** be adopted.

10.2 The meeting further reviewed a paper presented by the Chairman of ATNICG. The paper identified the following action items for consideration by the ATNICG working group.

a) Development of the APANPIRG AMHS Uniform Test Procedure as a Reference Document;
b) Modification of the APANPIRG ATN Routing Policy;
c) Modification of the APAPIRG MTA Interface Control Document (ICD);
d) Development of the APANPIRG Procedure for AMHS Address Management;
e) Development of the APANPIRG Generic Information Security Procedure and Concept;
f) Development of an analysis in association to Internet Protocol for AMHS in response to IPS SARP. This analysis should be incorporated into the APANPIRG ATN Transition Plan.

10.3 The meeting agreed that the next ATNICG will review and determine whether above action items should be transferred into the list of subject/tasks of ATNICG and identify team leaders for completing each of the tasks.

Next meeting of the Group

10.4 Considering the need to further progress the urgent tasks, the meeting agreed that next Meeting of ATNICG Working Group will be conducted 4 months later. Aerothai offered to host the Working Group meeting in Bangkok from 19 to 21 September 2007. Aerothai also offered to host the ATN Workshop/Seminar in January 2008 in Chiangmai, Thailand. The next meeting of the ATN Implementation Co-ordination Group will be held in April 2008. The exact date and venue of the meeting will be coordinated with the States concerned and notified to the members immediately after the APANPIRG/18 meeting to be held in September 2007.

Agenda Item 11: Any other business

Note of appreciation

11.1 The meeting expressed its appreciation and gratitude to the Department of Civil Aviation Hong Kong China for the excellent arrangements made for the meeting and the opportunity provided to visit the air navigation facilities at Hong Kong International Airport.

AFTN Routing Directory Amendment

11.2 The meeting noted the integration of AFTN switching function at Fukuoka. The proposed changes to the Regional AFTN routing directory as a result of removal of AFTN switching system at Naha, will be included in the next amendment to the Regional AFTN Routing Directory.

New URL Website for ICAO Regional Office

11.3 The meeting noted that ICAO Asia/Pacific Region Office has introduced new website with URL: www.bangkok.icao.int in the end of April 2007. The new website is hosted in Bangkok. The old URL: www.icao.int/apac hosted in Montreal will provide automatic redirection to the new website. It was further noted that ATN/AMHS related planning documentes are provided in a restricted webpage http://www.icao.or.th/edocs/index.html under the name "More CNS Documents". User name and password were provided to States and to the participants at the meeting. The meeting also noted the regional implementation webpage being introducted at the new website. States were encouraged to provide timely udpates to the information provided therein. The URL and structure of the Aeronautical Communication Panel website was also noted.

Presentation on the System Wide Information Management

11.4 A visual presentation on the System Wide Information Management (SWIM) was presented to the meeting. The concept of SWIM and the strategic goal of implementation of SWIM in the USA were introduced.

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
AUSTRALIA	ATN tests were conducted. BIS Router and Backbone BIS Router and AMHS will be implemented by 2006.	AFTN based AIDC Implemented between Brisbane and Melbourne, Auckland, Nadi and Auckland. AIDC is also in use between Melbourne and Mauritius.	Implemented and integrated with ATM systems to support FANS1/A equipped aircraft.	Implemented.	Implemented.	5 ADS-B sites are operational. A total of 28 ground stations are expected to become operational throughout 2007. Additional 20 stations will be delivered in June 2007 for installation at enroute radar site and other sites. 5NM Separation service being introduced. NFRM on the carriage and use of ADS-B avionics to be issued in Apr.07	FANS 1/A ADS-C implemented.	
BANGLADESH	BIS Router and AMHS planned for 2007.							

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
BHUTAN	ATN BIS Router and UA service 2008.			Procedures developed for NPA.				
BRUNEI DARUSSALAM	ATN BIS Router planned for Sept 2008 and AMSH planned for 2008-2011							
CAMBODIA	BIS Router and AMHS planned for 2007			Procedure developed for NPA				

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
CHINA	ATN BIS Router AMHS will be implemented from 2006. - Tripartite BBIS trial completed with Bangkok and Hong Kong, China in Jan. 2003. - ATN trial with Hong Kong, China conducted 2003/2004. - AMHS with Hong Kong, China planned to conduct in 2006. - AMHS/ATN trial with Macau is under planning. - AMHS/ATN trial with Kuwait is under planning.	AIDC between some of ACCs within China has been implemented. AIDC between several other ACCs are being implemented. Operational trial on the AFTN based AIDC between Sanya and Hong Kong commenced on Aug. 2006 and put into operational use in 2007.	Implemented to support certain AIS Rout. - L888 route, polar routes and Chengdu-Lhasa route. - Trial on HF data link conducted for use in western China.	RNAV (GNSS) implemented in certain airports. - Beijing, Guangzhou, Tianjin and Lhasa airports.	Implemented in certain airspace. - L888, Y1 and Y2 routes.	ADS-B trial has been conducted in 2006. 5 UAT ADS-B sites are operational and used for flight training of CAFUC. Another ADS-B of 1090ES trial will be commenced in 2007.	FANS 1/A ADS-C implemented to support certain routes. - L888 route polar routes and Chengdu-Lhasa route.	

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
HONG KONG, CHINA	-ATN and AMHS technical trial with Japan conducted in 2003 -64 Kbps ATN Link with Bangkok put into operational use in June 2004. -ATN/AMHS technical trials with China (Beijing) using VPN over Internet connection conducted in September, 2006 -Further ATN/AMHS technical trials with Thailand and China planned for 2007 -ATN/AMHS trials with Philippines planned for 2007 -ATN/AMHS technical trials with China (Macao) pplanned ((((((Macao (((M(Macaq	Trial on the AFTN based AIDC with Guangzhou and Sanya, China commenced. Operational trial with Sanya commenced in Aug. 2006 and put into operational use in Feb. 2007.	FANS 1/A based CPDLC conducted. D-ATIS D-VOLMET and PDC implemented. VDL Mode-2 technical trial completed in Dec. 2002 and planning on further trials is in progress.	RNAV (GNSS) departure procedures implemented in July 2005.	Implemented in certain airspace.	ADS-B trial using "ASMGCS" trial system commenced in 2004/2005. A separate dedicated ADS-B trial evaluation system was installed in early April 2007	FANS 1/A trials for ADS-C conducted.	

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
	China (Macao) planned for 2008.							
MACAO, CHINA	ATN BIS router and AMHS planned for 2008. Trial with China and Hong Kong, China in planning stage.					"A-SMGCS" being planned with ADS-B as option for consideration.		ATZ within Hong Kong and Guangzhou FIRs. In ATZ full VHF coverage exist. Radar coverage for monitoring purposes.
COOK ISLANDS								
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA								

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
FIJI	AMHS in-house trials completed in 2006. AMHS trials completed in 2007. ATN BIS Router and AMHS plans to be implemented in 2008.	AFTN based AIDC with Brisbane and Auckland operational in 2005. AFTN based AIDC implement with Oakland	FANS-1 implemented	NPA procedures for (S) completed in Dec. 2002.	Implemented as (S).	ADS-B implementation in 2008/2009. Estimate 10 Ground Stations	ADS-C implemented in oceanic airspace using EUROCAT 2000 X.	
FRANCE (French Polynesia Tahiti)		Implementation of limited message sets with adjacent centres under discussion.	FANS-1. Implemented since 1996.				FANS 1/A ADS-C implemented since March 1999.	
INDIA	ATN BBIS router and AMHS planned for implementation at Mumbai in March 2008.	AFTN Based AIDC 1. between Mumbai and Karachi 2007 2. between Kolkata and Dhaka 2008	FANS-1 implemented at Kolkata, Chennai, Mumbai and Delhi.		SBAS - Technical developments in 2007. - Implementation planed for 2009.	Trial planned for 2006. ASMGCS Implemented at IGI Airport New Delhi.	FANS 1/A ADS-C implemented at Kolkata, Chennai, Delhi and Mumbai.	

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
INDONESIA	ATN BIS Router and AMHS planned for trial in 2008.	AFTN based AIDC planned for implementation between Brisbane and Jakarta in 2010. Brisbane and Makassar in 2008.	FANS-1/A. CPDLC in Jakarta, Ujung Pandang FIRs trial planned for 2007.	Procedure to be completed in 2006 for NPA.		2 ADS-B ground stations to be installed in 2007. Upgrading ATC automation at Makasar for ADS-B application capabilities in 2007.	FANS 1/A ADS-C trial planned at Jakarta and Ujung Pandang ACC in 2007.	
JAPAN	ATN BBIS already implemented. AMHS implemented between Japan and USA in 2005 and between Japan and Hong Kong, China planned for 2009-2010.	AIDC based. AFTN procedure implemented with Oakland and Anchorage. Planned between Incheon ACC and Fukuoka ATMC 2008.	FANS1/A system Implemented in Fukuoka FIR	NPA implemented at 4 aerodromes.	SBAS Operational In 2007	Amendment work to be radio law regulations for using ADS-B out (1090 MHz ES) is under way.	FANS 1/A. ADS-C implemented in Fukuoka FIR	
KIRIBATI								

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
LAO PDR	ATN BIS Router and AMHS planned for implementation with Bangkok in 2006.	AIDC with Bangkok planned for 2008	FANS-1/A Planned for Bay of Bengal and South China Sea areas. Equipment is under test operation.		Implemented.		FANS-1/A. ADS-C planned for Bay of Bengal and South China Sea areas. Equipment under test operation.	
MALAYSIA	ATN BIS Router expected to be completed 2007. AMHS planned in 2008.	AFTN AIDC planned with Bangkok ACC in 2010.	Planned for Bay of Bengal and South China Sea areas in 2006.	NPA at KLIA implemented.		Implementation of ADS-B proposed in 2008-2010.	FANS 1/A ADS-C planned for Bay of Bengal and South China Sea areas in 2006.	
MALDIVES	ATN BIS Router/AMHS planned for implementation in the last quarter of 2007.	Planned for 2008.	FANS1/A installed Trials planned in last quarter of 2007		Trials planned for 2005-2008. Implementation in late 2008.	Trials planned for 2007-2008. Implementation in late 2008.		
MARSHALL ISLANDS				NPA implemented at Majuro Atoll.				
MICRONESIA FEDERATED STATES OF								
Chuuk				Implemented				

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
Kosrae				Implemented				
Pohnpei				Implemented				
Yap				Implemented				
MONGOLIA	ATN BIS Router and AMHS planned for 2005 and 2006. Trial with Bangkok conducted		Function available. Regular trials are conducted.	GPS procedures are being developed and implemented at 10 airports.	Implemented.	ADS-B trial in progress implementation planned for 2006.	FANS 1/A ADS-C implemented since August 1998.	
MYANMAR	Trial for ATN BIS Router with Thailand planned for 2006. Test with China planned for 2006.		Implemented since August 1998				Implemented since August 1998	
NAURU								
NEPAL	BIS Router and AMHS planned for 2007-2008.			Development of arrival procedure and NPA completed. Departure procedure is being developed.	Implemented.	ADS-B feasibility study planned for 2007		
NEW CALEDONIA						Tontouta ACC 2009 Tontouta APP 2009		

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
NEW ZEALAND	BIS Router and AMHS implementation planned for 2008.	AFTN based AIDC implemented between New Zealand, Australia, Fiji, Tahiti, Chile and USA.	FANS-1/A. Implemented	Implemented.	will be implemented as required.	Domestic trial was conducted in 2005. Use will be re-evaluated in 2008. Trial of Area MLAT conducted in 2006. ADS-B planned as an element of MLAT at specific sites for domestic use.	FANS 1/A Implemented.	
PAKISTAN	Implementation of ATN considered for Phase II (2005-2010).	Implemented between Karachi and Lahore ACCs	Implementation planned from 2005-2010.	Arrival and departure NPA procedure are being developed.	Planned for 2005-2010.	Feasibility study for using ADS-B is in hand. One station planned for 2009 to establish confidence.	Planned for 2005-2010	Existing Radar system being upgraded.
PAPUA NEW GUINEA				Implemented at certain aerodromes.	Implemented.			

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
PHILIPPINES	ATN G/G BIS Router/AMHS implemented in 2006 AMHS trials with Singapore and Hong Kong planned in April 2007.	Planned for 2011.	CPDLC Planned for 2011.			Included in CNS/ATM Project and scheduled for implementation in 2011.	FANS 1/A ADS-C planned for 2011.	
REPUBLIC OF KOREA	ATN BIS Router/AMHS planned for 2005-2010.	AFTN based AIDC planned for 2008 between Incheon ACC and Fukuoka ATMC	PDC & D-ATIS implemented 2003.	NPA planned for 2008 at Incheon International Airport		ADS-B trials planned for 2008.	Trial for FANS 1/A ADS-C implemented since 2003.	
SINGAPORE	ATN BBIS Router trial with Hong Kong conducted between April and June 2003. Planned for ATN and AMHS implementation in 2006.	ATN based AIDC to be implemented in 2010	Implemented since 1997. Integrated in the ATC system in 1999.	NPA procedure developed. RNAV (SID/STAR) in 2005	Implemented.	Trial commenced in 2006. Operational in 2010. 2007 for ASMGCS	FANS 1/A ADS-C implemented since 1997. Integrated with ATC system in 1999.	

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
SRI LANKA	ATN BIS Router Planned for 2009. AMHS planned along with BIS in 2009.		PDLC in trial operation since November 2000.			ADS-B Trials planned for 2010 and implementation in 2011.	FANS 1 /A ADS-C trial since November 2000.	GPS based domestic route structure being developed.
THAILAND	BBIS/BIS Routers already implemented. Target date for AMHS in 2008.	AFTN based AIDC planned for 2010.	FANS-1/A Implemented .		Implemented.	Multilateration implemented in 2006 at Suvarnbhumi Intl. Airport. 22 ADS-B ground Stations will be implemented in 2008	FANS 1/A ADS-C Implemented.	
TONGA	AMHS planned for 2008.			NPA planned for 2007.		Trial planned for 2010		CPDLC and ADS-C is not considered for lower airspace

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
UNITED STATES					About 75 UAT ground stations installed. All ASDE-X locations have 1090 ES capability around 400 ground stations purchased (200 installed and operational) Note: 1090ES is NOT used for separation services only feeding ASDE-X fusion Tracker.			
Anchorage			FANS1/A based CPDLC implemented.	Implemented.	5 UAT ground stations are in operational use in ALASKA for ADS-B surveillance service. Separate ADS-B from Radar 5 NM only.	ADS-B trials continuing.	FANS/1-ADS-C 2006.	
Fairbanks				Implemented.		Trials continuing		

CNS/ATM Implementation Planning Matrix								
State/ Organization	**ATN G/G Boundary Intermediate System (BIS) Router/AMHS**	**AIDC**	**CPDLC**	**GNSS**		**ADS-B**	**ADS-C**	**Remarks**
				RNAV (GNSS)	**En-route**			
Oakland		AFTN based AIDC implemented. ATN AIDC planned for 2007.	FANS-1/A based CPDLC implemented.	Implemented.	Implemented.		FANS-1/A ADS-C implemented.	
Salt Lake City (Network Centre)	AMHS implemented between Japan and USA scheduled in 2005. USA/Fiji AMHS testing to be determined.				50 UAT ground stations being used in the continental U.S. for FIS-B TIS-B and ADS-B.			
VANUATU								
VIET NAM	BIS Routers planned for 2009.	AFTN based AIDC planned in 2009 Trial for ATN based AIDC planned in 2010.	CPDLC operational trial conducted in early 2007.	RNAV	For en-route TBD.	TBD	FANS 1/A ADS-C operational trial conducted for oceanic area of Ho Chi Minh FIR since March 2002.	

ASIA/PAC FASID **4-1E-1**

TABLE CNS -1E

ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

EXPLANATION OF THE TABLE

Column

1 State/Administration – the name of the State/Administration;

2 Location of AIDC end system – the location of the AIDC end system under the supervision of State/Administration identified in column 1;

3 AIDC Pair – the correspondent AIDC end system;

Location – location of the correspondent AIDC end system

State/Administration – the name of the State/Administration responsible for management of the correspondent AIDC end system

4 AIDC standard used – the AIDC standard adopted for the AIDC connection between the corresponding AIDC pair, AFTN, AFTN/AMHS or ATN;

5 Target Date of Implementation – date of implementation of the AIDC end system;

6 Remarks – any additional information describing the AIDC end system or the AIDC service between the corresponding AIDC pair.

TABLE CNS-1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
AUSTRALIA	Brisbane ACC	Oakland ARTCC	USA	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008	
		Auckland ACC	New Zealand	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008-2009	
		Melbourne	Australia	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2007	
		Makassar ACC	Indonesia	AFTN	2010	ICD V.1.0
				AFTN/AMHS	TBD	
		Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008	
	Melbourne ACC	Brisbane ACC	Australia	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2007	
		Jakarta ACC	Indonesia	AFTN	2010	ICD V.1.0
				AFTN/AMHS	TBD	
		Mauritius ACC	Mauritius	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS		
BANGLADESH	Dhaka ACC	Kolkata ACC	India	AFTN	2008	
		Yangon ACC	Myanmar	AFTN	2008	Subject to concurrence with Myanmar
BHUTAN						
BRUNEI DARUSSALAM			Not Required			
CAMBODIA	Phnom Penh ACC	Bangkok ACC	Thailand	AFTN	2010	
CHINA	Beijing ACC	Incheon ACC	Republic of Korea	AFTN	2008	
	Sanya ACC	Hong Kong ACC	Hong Kong, China	AFTN	2007	
		Ho Chi Minh ACC	Vietnam	AFTN	2007	
	Guangzhou ACC	Hong Kong ACC	Hong Kong, China	AFTN	2008	
	Taibei ACC	Hong Kong ACC	China	TBD	2012	

TABLE CNS-1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
HONG KONG CHINA	**Hong Kong ACC**	Guangzhou ACC	China	AFTN	2008	
		Sanya ACC	China	AFTN	2007	
		Manila ACC	Philippines	AMHS	2008	
		Taibei ACC	China	TBD	2012	
MACAU CHINA						
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA						
FIJI	**Nadi ACC**	Auckland ACC	New Zealand	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008	
		Brisbane ACC	Australia	AFTN	Implemented	ICD V. 1.0
				AFTN/AMHS	2008	
		Oakland ARTCC	USA	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008	
FRANCE						
FRENCH POLYNESIA	**Papeete ACC**	Auckland ACC	New Zealand	AFTN	Implemented	ICD V. 2.0
NEW CALEDONIA						
INDIA	**Kolkata ACC**	Dhaka ACC	Bangladesh	AFTN	2008	
	Mumbai ACC	Karachi ACC	Pakistan	AFTN	2007	Subject to co-ordination between Administrations
				AFTN/AMHS	2008	
INDONESIA	**Jakarta ACC**	Melbourne	Australia	AFTN	2010	
				AFTN/AMHS	TBD	
	Makassar ACC	Brisbane ACC	Australia	AFTN	2008	ICD. V.1.0
				AFTN/AMHS	TBD	
JAPAN	**Fukuoka ATMC**	Anchorage ACC	USA	AFTN	Implemented	ICD V.1.0
		Incheon ACC	Republic of Korea	AFTN	2008	
		Oakland ARTCC	USA	AFTN	Implemented	

TABLE CNS-1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
KIRIBATI						
LAO PEOPLE'S DEMOCRATIC REPUBLIC	**Vientiane ACC**	Bangkok ACC	Thailand	AFTN	2010	
MALAYSIA	**Kuala Lumpur ACC**	Bangkok ACC	Thailand	AFTN	2010	TBD
MALDIVES	**Male ACC**	Colombo ACC	Sri Lanka	AFTN	2008	
MARSHALL ISLANDS						
MICRONESIA (FEDERATED STATE OF)						
MONGOLIA						
MYANMAR	**Yangon ACC**	Bangkok ACC	Thailand	AFTN	2010	ICD V.1.0
		Dhaka ACC	Bangladesh	AFTN	2008	
NAURU	**Brisbane ACC**	Oakland ARTCC	USA	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	TBD	
		Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008	
NEPAL						

TABLE CNS-1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
NEW ZEALAND	Auckland ACC	Brisbane ACC	Australia	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008/2009	
		Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008/2009	
		Oaekland ARTCC	USA	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008/2009	
		Papeete ACC	French Polynesia	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2008/2009	
PAKISTAN	Karachi	Kuwait	Kuwait	AFTN	2008	Subject to concurrence of Kuwait
				AFTN/AMHS	TBD	
		Mumbai	India	AFTN	2007	
				AFTN/AMHS	2008	
PALAU						
PAPUA NEW GUINEA						
PHILIPPINES	Manila ACC	Hong Kong ACC	Hong Kong, China	AMHS	2008	
		Singapore ACC	Singapore	AMHS	2011	
		Taibei	Taibei, China	AMHS	2011	
		Makassar A CC	Indonesia	TBD	2011	
		Ho Chi Minh ACC	Viet Nam	TBD	2011	
		Fukuoka ATMC	Japan	AMHS	2011	
		Oakland ARTCC	USA	TBD	2011	
REPUBLIC OF KOREA	Incheon ACC	Fukoka ATMC	Japan	AFTN	2008	
		Beijing	China	AFTN	2008	

TABLE CNS-1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
SAMOA						
SINGAPORE						ATN AIDC 2009/2010
SOLOM ISLANDS						
SRI LANKA	**Colombo ACC**	Male ACC	Maldives	AFTN	2008	
TIMOR LASTE						
THAILAND	**Bangkok ACC**	Hochiminh ACC	Viet Nam	AFTN	2010	
		Kuala Lumpur ACC	Malaysia	AFTN	2010	
		Phnom Penh ACC	Cambodia	AFTN	2010	
		Vientiane ACC	Lao PDR	AFTN	2010	
		Yangon ACC	Myanmar	AFTN	2010	
TONGA						
UNITED STATES	**Oakland ARTCC**	Auckland ACC	New Zealand	AFTN	Implemented	ICD V.2.0
		Fukuoka ATMC	Japan	AFTN	Implemented	ICD V.1.0
		Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0
		Brisbane ACC	Australia	AFTN	Implemented	ICD V.1.0
	Anchorage ARTCC	Fukuoka ATMC	Japan	AFTN	Implemented	ICD V.1.0
		Sanya ACC	China	AFTN	2007	
				AFTN/AMHS	2008-2009	
VIET NAM	**Ho Chi Minh ACC**	Phnom Penh ACC	Cambodia	AFTN/AMHS	2008	Subject to Concurrence from Cambodia
		Vientiane ACC	Lao PDR	AFTN/AMHS	2008	Subject to Concurrence from Lao PDR
		Singapore ACC	Singapore	AFTN/AMHS	2008-2009	Subject to concurrence from Singapore
		Manila	Philippines	TBD	2011	Subject to concurrence from Philippines
		Bangkok ACC	Thailand	AFTN	2010	

LIST OF ACTIONS TO ANALYZE COMMON ADDRESS PREFIX PROPOSAL

(Developed by an Ad Hoc Group established by the ATNICG/2. The progress of the task needs to be reviewed by the ATNICG WG/2. Interregional coordination is required on this issue. USA was requested to coordinate with experts in other regions on this matter.)

1. Coordinate with adjacent regions on planned connectivity (i.e. OSI or IP network)

2. Review Table CNS/1B in the context of the proposed change

3. Analyze the proposed change in relation to:

    a. Latency
    b. Scaleability

4. Develop Management Policy that includes a process to monitor key Routing Parameters such as Bandwidth Utilization, Change in Routing Table entries. The process of reporting to the AMC should be developed.

5. Review MTA-to-MTA Routing policy in the context of the proposed change.

6. Analyze change from perspective of future Internet Protocol usage

7. Develop guidance on routing policy for non-backbone routers including guidance for end routing domains and guidance for transit routing domains.

8. Develop Management Policy for periodically review actual routing topology. This may include examining actual routing table entries against planned topology. This may be reported to the AMC.

9. Develop Management Policy for notification to the AMC of planned outages affecting routing.

– – – – – – – – –

Amendment to

Asia/Pacific Regional

INTERFACE CONTROL DOCUMENT (ICD)

FOR

ATS Message Handling System (AMHS)

Version ~~1.0~~2.0

(intentionally blank)

DOCUMENT CONTROL LOG

Version	Revised contents	Date
1.0	Version 1.0 as endorsed by the APANPIRG/13	13 September 2002
2.0		

TABLE OF CONTENTS

1. Guidance for AMHS specification

1.1 Introduction
1.2 AMHS Functions
1.3 Network Configuration
1.4 Protocol Specification Overview

2. AMHS Specifications

2.1 Guidance for Optional Parameters
2.2 AMHS Specifications
2.3 Upper Layer Specifications
2.4 Lower Layer Specifications

Appendix: PICS of AMHS

<References>

1) ICAO Doc 9705/AN-956, “MANUAL OF TECHNICAL PROVISIONS FOR THE AERONAUTICAL TELECOMMUNICATION NETWORK (ATN)”, SECOND EDITION (Effective 10 December 1999)
   a) Sub-Volume I : 1.1 “DEFINITIONS AND REFERENCES”
   b) Sub-Volume III : 3.1 “ATS Message Handling Services (ATSMHS)
   c) Sub-Volume V : “Internet Communication Service”

2) ICAO Doc 9739/AN-961 Comprehensive ATN Manual (Edition 1)

3) ICAO Annex 10, Vol. II, Fifth edition (July 1995)

NOTE 1: This ICD does not include the additional features such as CIDIN/AMHS Gateway, Security and Directory Service which are added in ICAO Doc 9705/AN-965, THIRD EDITION. This ICD may be enhanced to include such additional features in the future.

NOTE 2: This ICD includes supporting CAAS

1. Guidance for AMHS specification

1.1 Introduction

1.1.1 This document is the Interface Control Document (ICD) based on which the AMHS is to be implemented in the Asia/Pacific Region. It is essential that the implementation of the AMHS be fully compliant with ICAO ATN SARPs (Doc9705) as well as this ICD, in order to preserve interoperability between States and ensure that future ATN applications are accommodated. To assist the reader, the following clauses serve as an overview of the AMHS and its underlying network protocols.

1.2 AMHS Functions

1.2.1 The AMHS defines two End Systems, these being an AFTN/AMHS Gateway and an ATS Message Server (with ATS Message User Agent). It is expected that early implementations of AMHS will require the use of an AFTN/AMHS Gateway as during the transitional process to full AMHS AFTN may need to operate concurrently with AMHS either within or between outside States. However, it is also possible to replace AFTN with ATS Message Server (with User Agent) all at once, in this situation there will be no need for AFTN/AMHS Gateways as AFTN will not be required to coexist with AMHS.

NOTE: ATN Pass-Through Service (AFTN/ATN Type A Gateway) should not be implemented since it cannot be connected with AFTN/AMHS Gateway nor ATS Message Server. The description concerning the ATN Pass-Through Service has been deleted in the Third Edition of ICAO ATN SARPs. In addition, CIDIN/AMHS Gateway has been added as a new End System of AMHS in the Third Edition SARPs.

1.2.2 Even in the case that all the AFTN connections within States (i.e. domestic communication) are replaced with X.400 (MHS and NOT AMHS) connections, the connections outside State (i.e. international communication using ATN Routers) are to be complied with ICAO ATN SARPs and this ICD. When the domestic communication is implemented prior to the international communication, the domestic MHS Server may be so modified as to comply with ATN.

1.3 Network Configuration

1.3.1 The network configuration will grow according to the level of implementation of AMHS. The followings are the typical phases of AMHS implementation. The network configuration of each phase is shown in Figure 1.

1) Phase-1
AFTN connections are currently used for both all the domestic communication within State and all the international communication with other States.

2) Phase-2
AFTN/AMHS Gateways and ATN Routers are implemented for the international communication between at least two States.

3) Phase-3
Domestic AFTN connections are replaced with AMHS connections within State. AFTN/AMHS Gateway is enhanced to ATS Message Server. However, AFTN/AMHS Gateway System/Function remains for the AFTN connections (like State C in Figure). There may be AMHS-AMHS direct international communication (via ATN Routers) with the other States.

NOTE: It is a local matter whether to implement ATS Message Server and AFTN/AMHS Gateway in separated computer systems or in one computer system.

4) Phase-4
All the States in the Region implement either ATS Message Server or AFTN/AMHS Gateway and all the international communications are done by AMHS. There may be AMHS-AMHS direct international communication (via ATN Routers) with the other States.

5) Phase-5
AMHS connections are fully applied to both the domestic communication within States and the international communication with all the neighbor States.

6) Phase-6
Full ATN connection is applied within the Region. All the data of ATN applications including AMHS are exchanged through ATN Routers.

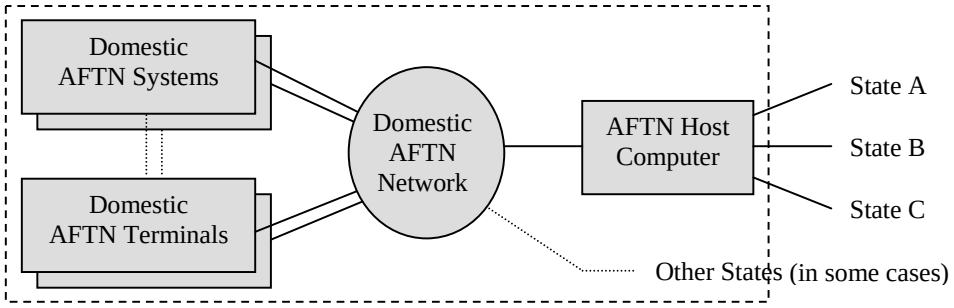
1.3.2 The systems in Figure 1 are as follows;

AMHS Gateway : AFTN/AMHS Gateway

AMHS Server : ATS Message Server (enhanced from AFTN/AMHS Gateway)

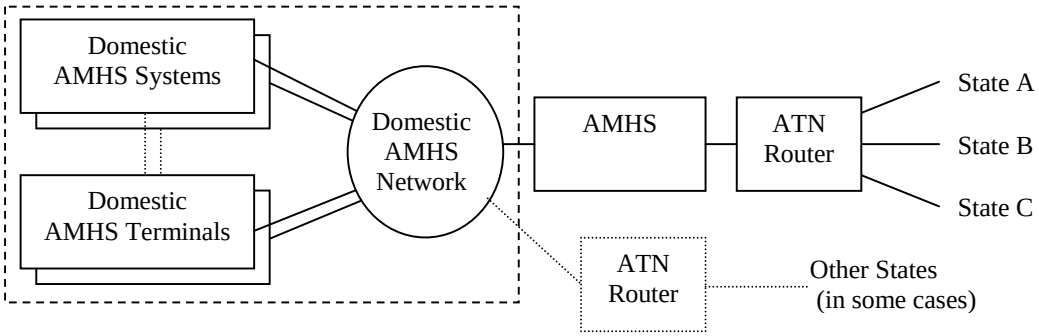
End Systems of ATN Applications
: End Systems of ATN applications including Air/Ground applications such as CM (Context Management), ADS (Automatic Dependent Surveillance), CPDLC (Controller and Pilot Data Link Communication) or FIS (Flight Information Service), whose ground to ground data is forwarded through the same ground network using ATN routers. The system may consist of computer(s) and/or equipment for ATN application for communication, ATM application, Human Machine Interface and maintenance.

AFTN System : AFTN host computer, domestic AFTN network and distributed AFTN systems/terminals (as shown below for an example)

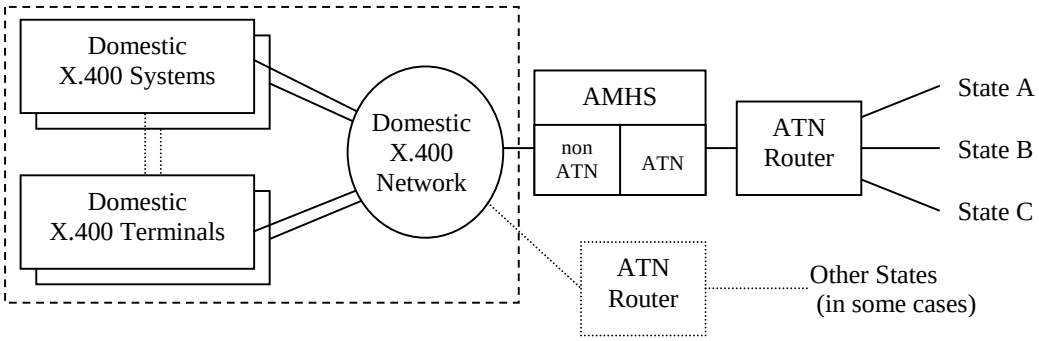


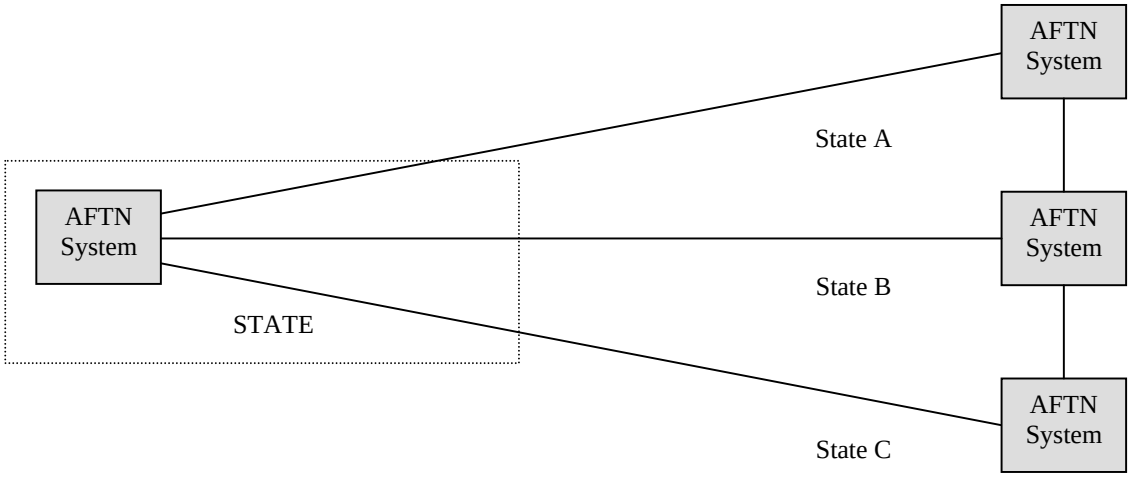
AMHS System : domestic AMHS (or X.400 MHS) network, distributed AMHS (or X.400 MHS) systems/terminals (User Agents) and AMHS (or X.400 MHS) local servers if necessary (as shown below for an example)

AMHS domestic connections

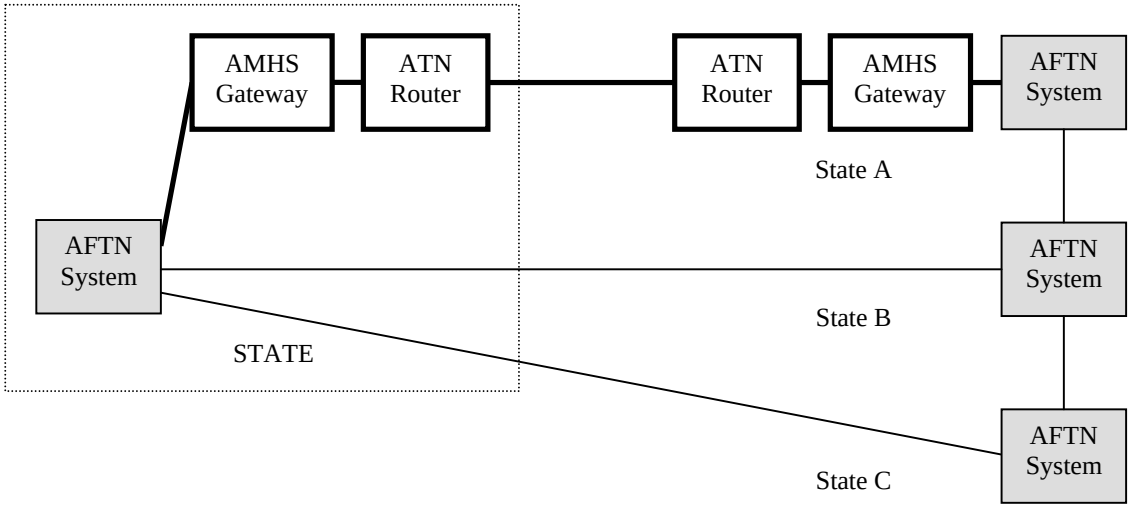


X.400 MHS domestic connections



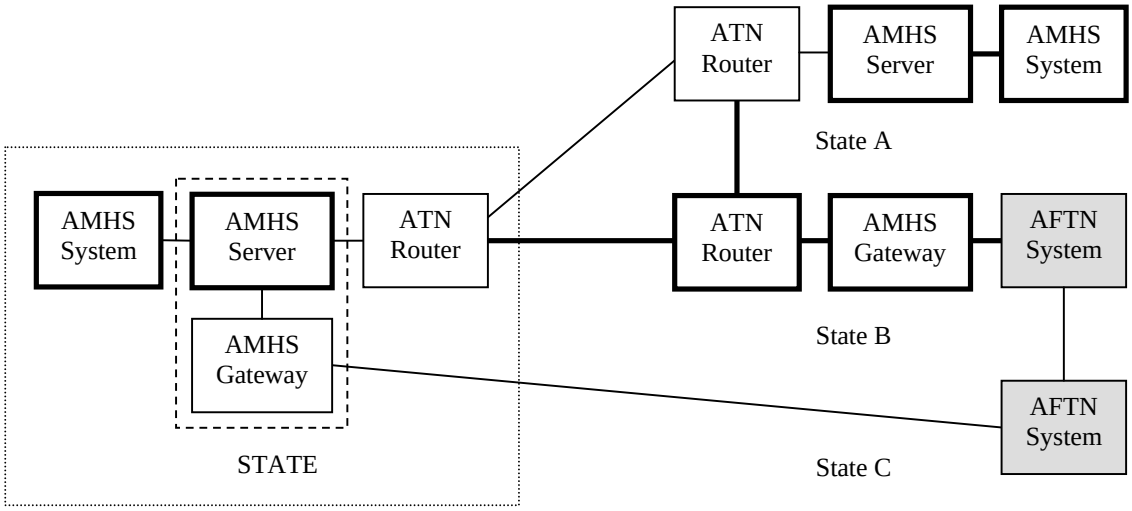


(1) Phase-1
Current AFTN connections

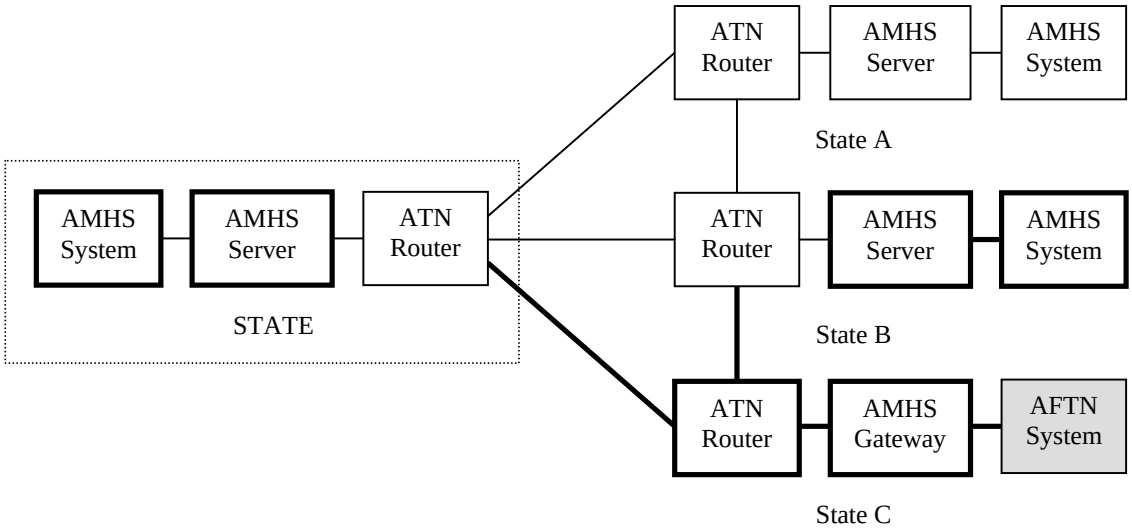


(2) Phase-2
Implementation of AFTN/AMHS Gateways and ATN Routers

Figure 1. AMHS Network Configuration (to be continued)

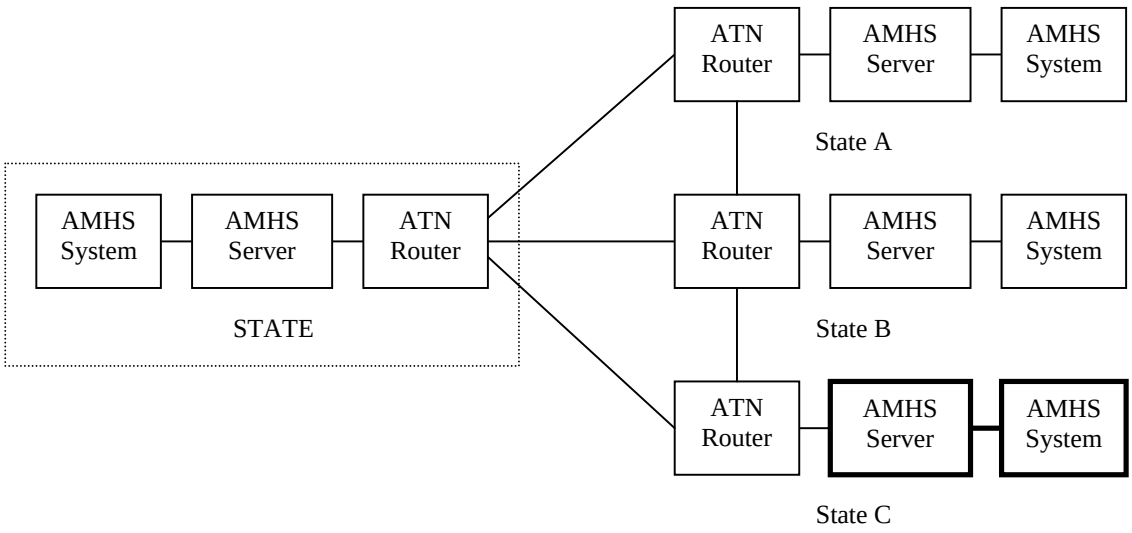


(3) Phase-3
Implementation of ATS Message Server and AMHS connections within State

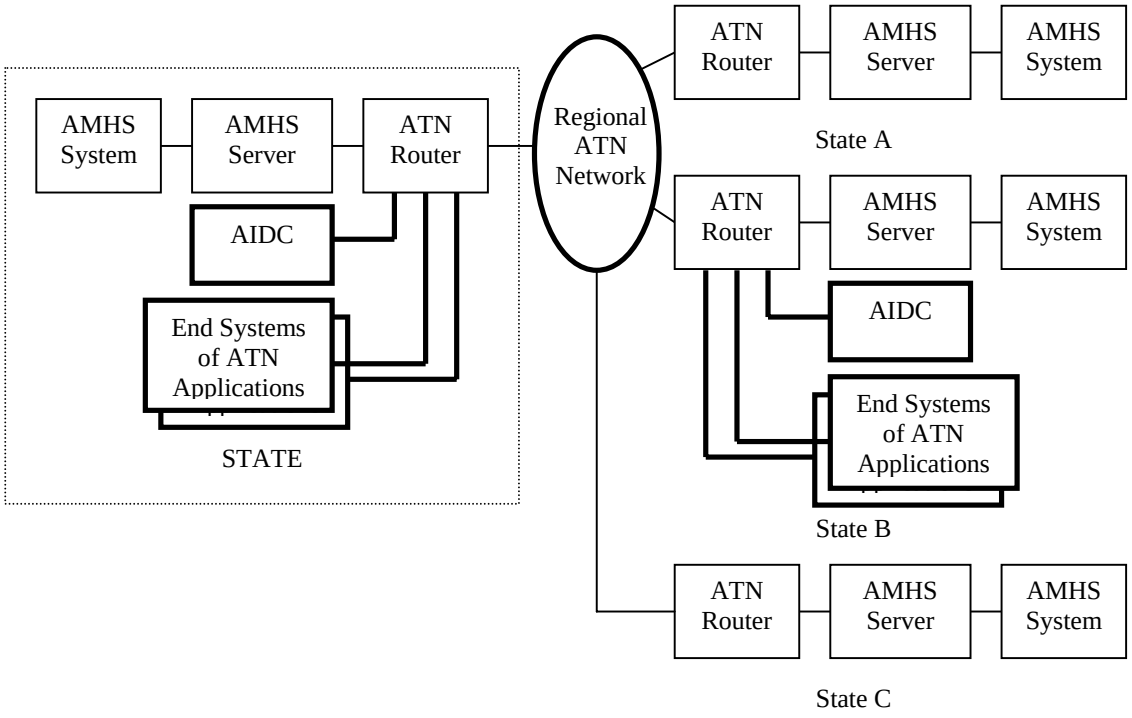


(4) Phase-4
Full AMHS international connections

Figure 1. AMHS Network Configuration (to be continued)



(5) Phase-5
Full AMHS connections



(6) Phase-6
Full ATN connections

Figure 1. AMHS Network Configuration

1.4 Protocol Specification Overview

1.4.1 Protocol Stack of AMHS and ATN Router

1.4.1.1 The following figure shows the OSI protocol stack of ES and IS in the ATN. AMHS is ES and ATN Router is IS.

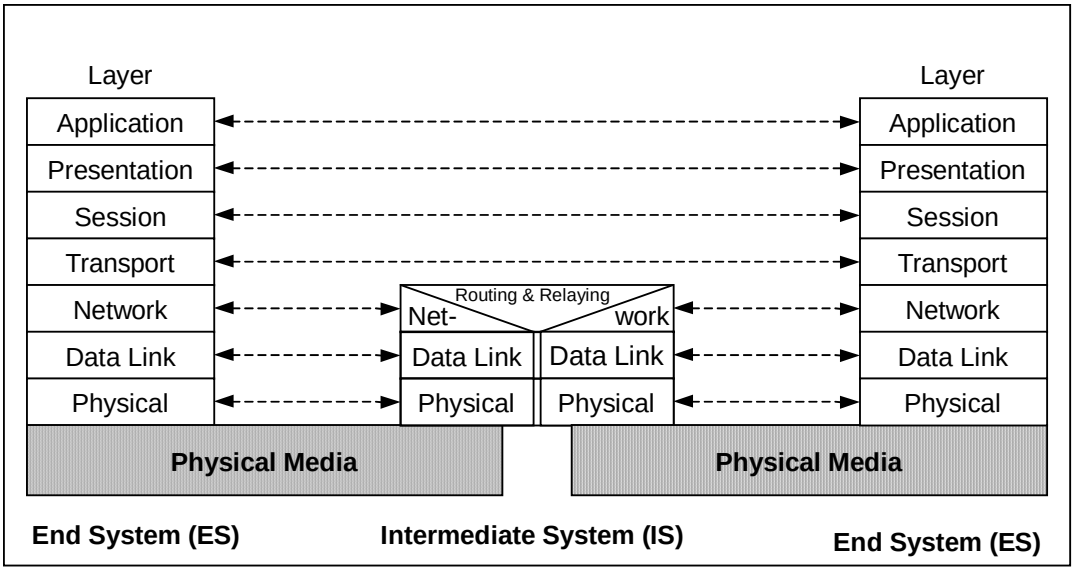


Figure 2. OSI Protocol Stack of ES and IS

1.4.2 AMHS Protocol Specification

1.4.2.1 The followings are the standards and/or ICAO Doc 9705/AN-956 descriptions of protocols at each OSI protocol layer, with which AMHS should comply.

(1) Application Layer

Application Layer is composed of MHS, RTSE, and ACSE.

MHS should comply with ITU-T X.400 (1988) and the additional requirements specified in 3.1 “ATS MESSAGE HANDLING SERVICE” of ICAO Doc 9705/AN-956. MHS supports all the mandatory elements of AMH11 and AMH21, and also supports the DL functional group.

RTSE should comply with ISO 9066-2 and support the mandatory services listed below among the services specified in ISO/IEC ISP 10611-2.

RT-OPEN
RT-CLOSE
RT-TRANSFER
RT-P-ABORT
RT-U-ABORT

ACSE should comply with ISO 8650 and support the mandatory functions of normal mode specified in ISO/IEC 10611-2. Moreover, the application-context name, which is used as a parameter of A-ASSOCIATE, should comply with ISO/IEC 10021-6.

(2) Presentation Layer

Presentation Layer should comply with ISO 8823 and support mandatory functions of normal mode specified in ISO/IEC ISP 10611-2.

(3) Session Layer

Session Layer should comply with ISO 8327 and support functional units listed below which are specified in ICAO Comprehensive ATN Manual and ISO/IEC ISP 10611-2.

Kernel
half duplex
exceptions
minor synchronize
activity management

(4) Transport Layer

COTP (Connection Oriented Transport Protocol) specified in ICAO Doc 9705/AN-956 should be used. COTP should comply with ISO/IEC8073 Class 4 and 5.5 “TRANSPORT SERVICE AND PROTOCOL SPECIFICATION” of ICAO Doc 9705/AN-956. The following functions should be supported as specified mandatory by ICAO Doc 9705/AN-956.

Both Initiating CR TPDU and Responding to CR TPDU	
Function of Non-use of checksum	
CR/CC/DR/DC/DT/ED/AK/EA/ER TPDUs	
Optional Parameters of CR/CC TPDUs	
	TSAP-ID (Transport-Selector designation)
	Additional option selection parameter
	Priority
	Acknowledgment time Negotiation
	Inactivity timer Negotiation
Optional Parameters of AK TPDU	
	Flow control confirmation
	Subsequence number

(5) Network Layer

The connection between AMHS and ATN Router ~~may be~~ is a local matter. However, CLNP (Connectionless Network Protocol) should be used ~~for~~ as the ~~communication~~ network ~~of subnetwork~~ protocol below the ~~with~~ Transport Layer.

CLNP should comply with ISO/IEC 8473 and 5.6 “INTERNETWORK SERVICE AND PROTOCOL SPECIFICATION” of ICAO Doc 9705/AN-956. The following functions should be supported as specified mandatory by ICAO Doc 9705/AN-956.

Security Parameter
Partial Route Recording
Priority
QoS Maintenance Information
Congestion Notification

CLNP uses an SNDCF (Subnetwork Dependent Convergence Function) over the ~~underlying~~ subnetwork. (Typically an ISO/IEC 8802 LAN is used for subnetwork between the AMHS and ATN router.) The SNDCF should comply with 5.7 "SPECIFICATION OF SUBNETWORK DEPENDENT CONVERGENCE FUNCTIONS" of ICAO Doc 9705/AN-956, and the appropriate standard corresponding to the subnetwork below:

- ISO/IEC 8802 Local Area Network : the SNDCF should comply with ISO/IEC 8473-2.
- ISO/IEC 8208: the SNDCF should comply with ISO/IEC 8473-3~~ and 5.7 "SPECIFICATION OF SUBNETWORK DEPENDENT CONVERGENCE FUNCTIONS" of ICAO Doc 9705/AN-956~~.

Only ES-IS in compliance with ISO/IEC9543 is used for addressing. ~~Routing protocol IDRP will not be supported.~~

(6) Data Link Layer

The connection between AMHS and ATN Router ~~may be~~ is a local matter.

(7) Physical Layer

The connection between AMHS and ATN Router ~~may be~~ is a local matter.

2. AMHS Specification

2.1 Guidance for Optional Parameters

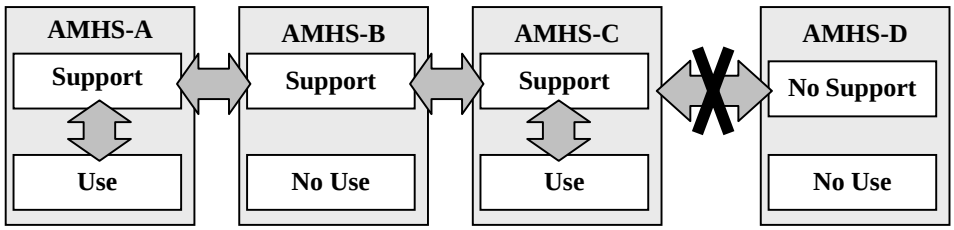
2.1.1 In the ICAO ATN SARPs (Doc 9705) as well as the International Standards, there are two kinds of parameters specified as “Mandatory” and “Optional”.

“Mandatory” parameters are the requirements that all the AMHS must handle the parameters.
“Optional” parameters are specified as local matters and the handling must be decided locally; within State or Region.

2.1.2 In addition, each handling of parameter is specified by two profiles: “AMHS Support” and “AMHS Use”.

“AMHS Support” means that the AMHS can receive or transfer the parameter.
“AMHS Use” means that AMHS uses the functionality specified by the parameter.

Conversely, “No Support” means that the AMHS cannot receive nor transfer the parameter, and “No Use” means that AMHS does not use the functionality.



AMHS-B does not use the optional parameter, however it can transfer the parameter.
AMHS-D does not support the optional parameter, therefore it cannot receive the parameter.
There is no combination of “No Support” with “Use”.

When AMHS-B receives the parameter, no action will be performed.
When AMHS-D receives the parameter, there may be some error, which will depend on the system.

2.1.3 In order to keep the interoperability within the State and/or Region, it is necessary to unify the handling of the optional parameters by specifying the “AMHS Support” and “AMHS Use” uniformly.

2.1.4 As for the Inter-Regional AMHS connection, it is also preferable to unify the specification between the regions. However, in case there will be difference, handling of such difference will be done at either of the following AMHSs:

1) AMHS in the region who wants to communicate directly with the AMHS in the other region.
(This is the case when direct routing by BISs will be applied, where direct AMHS connection can be made.)

2) AMHS in the State who has Inter-Regional Trunk Connection by Backbone BIS.
(This is the case when AMHS routing will be applied, where all the connection of the AMHS in the region with the other region will be made, all the time, via the AMHS in the said State.)

NOTE : The detail of the handling for the difference deeply depends on which parameter will be concerned and how. Therefore, it is recommended to discuss the issue in the region when it becomes revealed. It is also recommended to watch the status in the other regions.

2.2 AMHS Specifications

2.2.1 Set up condition of each parameter for both AFTN/AMHS Gateway and ATS Message Server is specified in the appendix in the form of PICS. (Appendix: PICS of AMHS)

2.2.2 When only ATS Message Server without AFTN/AMHS Gateway is implemented, some part (the column “AMHS Action”) in the PICS can be ignored.

2.3 Upper Layer Specifications

2.3.1 Protocol Specification

The meaning of the each column in the tables is as follows:

(1) PICS Proforma Reference

The first letter of the column identifies the specific PICS proforma.
- A : ACSE – ISO/IEC 8650-2
- P : Presentation – ISO/IEC 8823-2
- S : Session – ISO/IEC 8327-2

The characters from the second character to the solidus (/) form a reference to the specific sub clause in annex A of that PICS proforma which contains the table in question.

The number after the solidus references the row number in the table.

(2) Name of Item

(3) Normative reference

It is the referenced clause number in the ISO/IEC ISP 11188-1(1995).

(4) Status

Support Level is specified below:
- m : mandatory support
- o : optional support
- o.n : optional with at least one of the marked items with the same number “n” being selected
- c : conditional support
- i : out of scope
- – : not applicable

Where the status entry contains two classifications separated by a comma, these reference the sending and receiving capabilities respectively.

(5) Profile

The profile column reflects the requirement of this part of ISO/IEC ISP 11188. Each entry in this column is chosen from the following list:
- m : mandatory support
- C : conditional support
- i : out of scope

Where the profile entry contains two classifications separated by a comma, these reference the sending and receiving capabilities respectively.

The value of “Cxx” is “m” or “i” according to the specified condition described below the each table.

NOTE: The definition of the value of “Cxx” is made by the following procedures:

a) Confirm the item of reference number.
b) If AMHS supports referenced item, the item is "m" (mandatory).
c) If AMHS does not support referenced item, the item is "i" (out of scope).

<Example> The following is an example in the case of "support operation of Session version 2" for ACSE in the next clause 2.3.1.1.

1) Condition
C11: if A.A.7/1 (1st row in the table of A.7 of ISO/IEC 8650-2) then m else I

2) Procedures
a) The 1st row in the table of A.7 of ISO/IEC 8650-2 is the "Normal mode".
b) If AMHS supports "Normal mode", "support operation of Session version 2" is" m" (mandatory).
c) If AMHS does not support "Normal mode", "support operation of Session version 2" is "i" (out of scope).

(6) AMHS Use

The column "AMHS use" states whether each item is "used (yes)" or "not used (no)".

2.3.1.1 ACSE

2.3.1.1.1 ACSE should comply with ISO 8650 and support the level specified in ISO/IEC ISP 11188-1(1995).

PICS Proforma Reference	Name of Item	Normative reference	Status	Profile	AMHS Use
A.A.7/4 (4th row in the table of A.7 of ISO/IEC 8650-2)	support operation of Session version 2	9.2.1	o	C11	Yes

C11 : if A.A.7/1 (1st row in the table of A.7 of ISO/IEC 8650-2) then m else i

NOTE: The relation between the Initiator/responder roles of ACSE, presentation and session in specified in 2.2.2 and 2.2.3.

2.3.1.2 Presentation PRL

2.3.1.2.1 Presentation PRL should comply with ISO 8823 and should support the level specified in ISO/IEC ISP 11188-1(1995) and AMHS Requirements.

Table 1 ISO/IEC ISP 11188-1

PICS Proforma Reference	Name of Item	Normative reference	Status	Profile	AMHS Use
P.A.6.1/1 (1st row in the table of A.6.1 of ISO/IEC 8823-2)	X.410(1984)	2.2.2	o.01	C21	No
P.A.6.1/2 (2nd row in the table of A.6.1 of ISO/IEC 8823-2)	Normal	2.2.2	o.01	C22	Yes
P.A.7.1.1.1/1 (1st row in the table of A.7.1.1.1 of ISO/IEC 8823-2)	Initiator(Presentation connection)		o.03	C23	Yes
P.A.7.1.1.1/2 (2nd row in the table of A.7.1.1.1 of ISO/IEC 8823-2)	Responder(Presentation connection)		o.03	C24	Yes
P.A.7.1.1.3/1 (1st row in the table of A.7.1.1.3 of ISO/IEC 8823-2)	Requestor(orderly release)		o.05	C25	Yes
P.A.7.1.1.3/2 (2nd row in the table of A.7.1.1.3 of ISO/IEC 8823-2)	Acceptor (orderly release)		o.05	C26	Yes

C21 : if A.A.7/2 (2nd row in the table of A.7 of ISO/IEC 8650-2) then m else i
C22 : if A.A.7/1 (1st row in the table of A.7 of ISO/IEC 8650-2) then m else i
C23 : if A.A.6.1/1 (1st row in the table of A.6.1 of ISO/IEC 8650-2) then m else i
C24 : if A.A.6.1/2 (2nd row in the table of A.6.1 of ISO/IEC 8650-2) then m else i
C25 : if A.A.6.2/1 (1st row in the table of A.6.2 of ISO/IEC 8650-2) then m else i
C26 : if A.A.6.2/2 (2nd row in the table of A.6.2 of ISO/IEC 8650-2) then m else i

Table 2 AMHS Requirements

Name of Item	ISO/IEC 8823-1 Reference	ISO Support	AMHS Use
user-data of CP PPDU	8.2	Either Simply-Encoded-Data or Fully-Encoded-Data	Fully-Encoded-Data
user-data of CPA PPDU	8.2	Either Simply-Encoded-Data or Fully-Encoded-Data	Fully-Encoded-Data
user-data of CPR PPDU	8.2	Either Simply-Encoded-Data or Fully-Encoded-Data	Fully-Encoded-Data
presentation-data-values of PDV-list	8.4.2	Either single-ASN1-type, octet-aligned, or arbitrary	single-ASN1-type

2.3.1.3 Session PRL

2.3.1.3.1 Session PRL should comply with ISO 8327 and support the level specified in ISO/IEC ISP 11188-1 (1995).

PICS Proforma Reference	Name of Item	Normative reference	Status	Profile	AMHS Use
S.A.6.2/2 (2nd row in the table of A.6.2 of ISO/IEC 8327-2)	Reuse of transport connection		o	i	Yes
S.A.6.2/4 (4th row in the table of A.6.2 of ISO/IEC 8327-2)	Extended Concatenation (sending)		o	i	Yes
S.A.6.2/5 (5th row in the table of A.6.2 of ISO/IEC 8327-2)	Extended Concatenation (receiving)		o	i	Yes
S.A.7.1.1.1/1 (1st row in the table of A.7.1.1.1 of ISO/IEC 8327-2)	initiator (session connection)		o.3	C41	Yes
S.A.7.1.1.1/2 (2nd row in the table of A.7.1.1.1 of ISO/IEC 8327-2)	Responder (session connection)		o.3	C42	Yes
S.A.7.1.1.2/1 (1st row in the table of A.7.1.1.2 of ISO/IEC 8327-2)	Requestor (orderly release)		o.4	C43	Yes
S.A.7.1.1.2/2 (2nd row in the table of A.7.1.1.2 of ISO/IEC 8327-2)	Acceptor (orderly release)		o.4	C44	Yes
S.A.7.1.1.3/1 (1st row in the table of A.7.1.1.3 of ISO/IEC 8327-2)	Requestor (normal data transfer)		o.5	C45	Yes
S.A.7.1.1.3/2 (2nd row in the table of A.7.1.1.3 of ISO/IEC 8327-2)	Acceptor (normal data transfer)		o.5	C46	Yes
S.A.7.1.2/2 (2nd row in the table of A.7.1.2 of ISO/IEC 8327-2)	Overflow Accept (OA)	9.2.2	c5,c6	i,i	No, No
S.A.7.1.2/3 (3rd row in the table of A.7.1.2 of ISO/IEC 8327-2)	Connection Data Overflow (CDO)	9.2.2	c5,c6	i,i	No, No

PICS Proforma Reference	Name of Item	Normative reference	Status	Profile	AMHS Use
S.A.7.5.1/1 (1st row in the table of A.7.5.1 of ISO/IEC 8327-2)	Requestor (expedited data)		o.6	C47	No
S.A.7.5.1/2 (2nd row in the table of A.7.5.1 of ISO/IEC 8327-2)	Acceptor (expedited data)		o.6	C48	No
S.A.7.6.1/1 (1st row in the table of A.7.6.1 of ISO/IEC 8327-2)	Requestor (typed data)		o.7	C49	No
S.A.7.6.1/2 (2nd row in the table of A.7.6.1 of ISO/IEC 8327-2)	Acceptor(typed data)		o.7	C50	No
S.A.7.7.1/1 (1st row in the table of A.7.7.1 of ISO/IEC 8327-2)	Requestor (capability data)		o.8	C51	No
S.A.7.7.1/2 (2nd row in the table of A.7.7.1 of ISO/IEC 8327-2)	Acceptor (capability data)		o.8	C52	No
S.A.7.8.1/1 (1st row in the table of A.7.8.1 of ISO/IEC 8327-2)	Requestor (minor synchronize)		o.9	C53	Yes
S.A.7.8.1/2 (2nd row in the table of A.7.8.1 of ISO/IEC 8327-2)	Acceptor (minor synchronize)		o.9	C54	Yes
S.A.7.11.1/1 (1st row in the table of A.7.11.1 of ISO/IEC 8327-2)	Requestor (major synchronize)		o.10	C55	No
S.A.7.11.1/2 (2nd row in the table of A.7.11.1 of ISO/IEC 8327-2)	Acceptor (major synchronize)		o.10	C56	No
S.A.7.14.1.1/1 (1st row in the table of A.7.14.1.1 of ISO/IEC 8327-2)	Requestor (activity start)		o.12	C57	Yes
S.A.7.14.1.1/2 (2nd row in the table of A.7.14.1.1 of ISO/IEC 8327-2)	Acceptor (activity start)		o.12	C58	Yes
S.A.7.14.1.2/1	Requestor (activity resume)		o.13	C59	Yes

PICS Proforma Reference	Name of Item	Normative reference	Status	Profile	AMHS Use
(1st row in the table of A.7.14.1.2 of ISO/IEC 8327-2)					
S.A.7.14.1.2/2 (2nd row in the table of A.7.14.1.2 of ISO/IEC 8327-2)	Acceptor (activity resume)		o.13	C60	Yes
S.A.7.14.1.3/1 (1st row in the table of A.7.14.1.3 of ISO/IEC 8327-2)	Requestor (activity interrupt)		o.14	C61	Yes
S.A.7.14.1.3/2 (2nd row in the table of A.7.14.1.3 of ISO/IEC 8327-2)	Acceptor (activity interrupt)		o.14	C62	Yes
S.A.7.14.1.4/1 (1st row in the table of A.7.14.1.4 of ISO/IEC 8327-2)	Requestor (activity discard)		o.15	C63	Yes
S.A.7.14.1.4/2 (2nd row in the table of A.7.14.1.4 of ISO/IEC 8327-2)	Acceptor (activity discard)		o.15	C64	Yes
S.A.7.14.1.5/1 (1st row in the table of A.7.14.1.5 of ISO/IEC 8327-2)	Requestor (activity end)		o.16	C65	Yes
S.A.7.14.1.5/2 (2nd row in the table of A.7.14.1.5 of ISO/IEC 8327-2)	Acceptor (activity end)		o.16	C66	Yes
S.A.7.14.1.6/1 (1st row in the table of A.7.14.1.6 of ISO/IEC 8327-2)	Requestor (give tokens confirm)		o	C67	Yes
S.A.7.14.1.6/2 (2nd row in the table of A.7.14.1.6 of ISO/IEC 8327-2)	Acceptor (give tokens confirm)		o	C68	Yes
S.A.8.1.3/4 (4th row in the table of A.8.1.3 of ISO/IEC 8327-2)	Data Overflow Item (CN)	9.2.2	c6,c5	i, i	No, No

1) Status

c5 : Condition is to support “Responder (session connection)”.
c6 : Condition is to support “Requestor (orderly release)”.

2) Profile

C41 : if A.A.6.1/1 (1st row in the table of A.6.1 of ISO/IEC 8650-2) then m else i
C42 : if A.A.6.1/2 (2nd row in the table of A.6.1 of ISO/IEC 8650-2) then m else i
C43 : if A.A.6.2/1 (1st row in the table of A.6.2 of ISO/IEC 8650-2) then m else i
C44 : if A.A.6.2/2 (2nd row in the table of A.6.2 of ISO/IEC 8650-2) then m else i
C45 : if P.A.7.1.1.2/1 (1st row in the table of A.7.1.1.2 of ISO/IEC 8823-2) then m else i
C46 : if P.A.7.1.1.2/2 (2nd row in the table of A.7.1.1.2 of ISO/IEC 8823-2) then m else i
C47 : if P.A.7.4.4/1 (1st row in the table of A.7.4.4 of ISO/IEC 8823-2) then m else i
C48 : if P.A.7.4.4/2 (2nd row in the table of A.7.4.4 of ISO/IEC 8823-2) then m else i
C49 : if P.A.7.4.5/1 (1st row in the table of A.7.4.5 of ISO/IEC 8823-2) then m else i
C50 : if P.A.7.4.5/2 (2nd row in the table of A.7.4.5 of ISO/IEC 8823-2) then m else i
C51 : if P.A.7.4.6/1 (1st row in the table of A.7.4.6 of ISO/IEC 8823-2) then m else i
C52 : if P.A.7.4.6/2 (2nd row in the table of A.7.4.6 of ISO/IEC 8823-2) then m else i
C53 : if P.A.7.4.7/1 (1st row in the table of A.7.4.7 of ISO/IEC 8823-2) then m else i
C54 : if P.A.7.4.7/2 (2nd row in the table of A.7.4.7 of ISO/IEC 8823-2) then m else i
C55 : if P.A.7.4.10/1 (1st row in the table of A.7.4.10 of ISO/IEC 8823-2) then m else i
C56 : if P.A.7.4.10/2 (2nd row in the table of A.7.4.10 of ISO/IEC 8823-2) then m else i
C57 : if P.A.7.4.13.1/1 (1st row in the table of A.7.4.13.1 of ISO/IEC 8823-2) then m else i
C58 : if P.A.7.4.13.1/2 (2nd row in the table of A.7.4.13.1 of ISO/IEC 8823-2) then m else i
C59 : if P.A.7.4.13.2/1 (1st row in the table of A.7.4.13.2 of ISO/IEC 8823-2) then m else i
C60 : if P.A.7.4.13.2/2 (2nd row in the table of A.7.4.13.2 of ISO/IEC 8823-2) then m else i
C61 : if P.A.7.4.13.3/1 (1st row in the table of A.7.4.13.3 of ISO/IEC 8823-2) then m else i
C62 : if P.A.7.4.13.3.2 (2nd row in the table of A.7.4.13.3 of ISO/IEC 8823-2) then m else i
C63 : if P.A.7.4.13.4/1 (1st row in the table of A.7.4.13.4 of ISO/IEC 8823-2) then m else i
C64 : if P.A.7.4.13.4/2 (2nd row in the table of A.7.4.13.4 of ISO/IEC 8823-2) then m else i
C65 : if P.A.7.4.13.5/1 (1st row in the table of A.7.4.13.5 of ISO/IEC 8823-2) then m else i
C66 : if P.A.7.4.13.5/2 (2nd row in the table of A.7.4.13.5 of ISO/IEC 8823-2) then m else i
C67 : if P.A.7.4.13.6/1 (1st row in the table of A.7.4.13.6 of ISO/IEC 8823-2) then m else i
C68 : if P.A.7.4.13.6/2 (2nd row in the table of A.7.4.13.6 of ISO/IEC 8823-2) then m else i

2.4 Lower Layer Specifications

2.4.1 Protocol Implementation Conformance Statements of COTP

2.4.1.1 In protocol layer 4, ICS SARPs recommend COTP. The functions of COTP are specified below.

(1) "ATN Support" indicates that the item is Mandatory ("M"), Option ("O") or Mandatory implemented and Optionally used ("MO").
(2) "AMHS Support" indicates whether the item is Supported ("yes") or NOT Supported ("no").
(3) "AMHS Use" indicates whether the item is Used ("yes") or NOT Used ("no") in transfer.

Table 1 Support Class

Class	ATN Support	AMHS Support	AMHS Use
Class 0	O	no	no
Class 1	O	no	no
Class 2	O	no	no
Class 3	O	no	no
Class 4 operation over CONS	O	no	no
Class 4 operation over CLNS	M	yes	yes

Table 2 ATN Requirements

Feature	ATN Support	AMHS Support	AMHS Use
Congestion Avoidance	M	yes	yes
Transport to Network Priority	M	yes	yes
ATN Security Label	M	yes	yes
Configurable Transport Timers	M	yes	yes
Enhanced encoding of Acknowledgment Time Parameter	M	yes	yes

NOTE: Implementation of the transport protocol shall support configurable values for all timers and protocol parameters, rather than having fixed values, in order to allow modification as operational experience is gained. The actual values of transport timers are to be determined through bilateral agreement on the AMHS systems connected each other. (See the Clause 2.4.2).

Table 3 Initiator/Responder Capability

Class	ATN Support	AMHS Support	AMHS Use
Initiating CR TPDU	M	yes	yes
Responding to CR TPDU	M	yes	yes

Table 4 Mandatory Functions

Function	ATN Support	AMHS Support	AMHS Use
TPDU transfer	M	yes	yes
Segmenting	M	yes	yes
Reassembling	M	yes	yes
Separation	M	yes	yes
Connection establishment	M	yes	yes
Connection refusal	M	yes	yes
Data TPDU numbering (normal)	M	yes	yes
Retention and acknowledgement of TPDUs (AK)	M	yes	yes
Explicit flow control	M	yes	yes
Checksum	M	yes	yes
Frozen references	M	yes	yes
Retransmission on time-out	M	yes	yes
Resequencing	M	yes	yes
Inactivity control	M	yes	yes

Table 5 Optional Functions

Feature	ATN Support	AMHS Support	AMHS Use
Data TPDU numbering (extended)	O	yes	yes
Non-use of checksum	M	yes	yes
Concatenation	O	no	no
Retention and acknowledgement of TPDUs Use of selective acknowledgement	O	no	no
Retention and acknowledgement of TPDUs Use of request acknowledgement	O	no	no

Table 6 Supported TPDUs

TPDUs		ATN Support	AMHS Support	AMHS Use
CR	supported on transmission	M	yes	yes
CR	supported on receipt	M	yes	yes
CC	supported on transmission	M	yes	yes
CC	supported on receipt	M	yes	yes
DR	supported on transmission	M	yes	yes
DR	supported on receipt	M	yes	yes
DC	supported on transmission	M	yes	yes
DC	supported on receipt	M	yes	yes
DT	supported on transmission	M	yes	yes
DT	supported on receipt	M	yes	yes
ED	supported on transmission	MO	no	no
ED	supported on receipt	MO	no	no
AK	supported on transmission	M	yes	yes
AK	supported on receipt	M	yes	yes
EA	supported on transmission	MO	no	no
EA	supported on receipt	MO	no	no
ER	supported on receipt	M	yes	yes

Table 7 Parameter Values for CR TPDU

Feature	ATN Support	AMHS Support	AMHS Use
Bits 8 and 7 in the additional options selection parameter of a CR TPDU set to zero	M	yes	yes

Table 8 Optional Parameter for a CR TPDU

Supported parameters	ATN Support	AMHS Support	AMHS Use
Called Transport-Selector	M	yes	yes
Calling Transport-Selector	M	yes	yes
TPDU size	O	no	no
Version Number	O	no	no
Protection parameters	O	no	no
Additional option selection	M	yes	yes
Throughput	O	no	no
Residual error rate	O	no	no
Priority	M	yes	yes
Transit delay	O	no	no
Acknowledgement time	M	yes	yes
Preferred maximum TPDU size	O	no	no
Inactivity timer	M	yes	yes

Table 9 Optional Parameter for a CC TPDU

Supported parameters	ATN Support	AMHS Support	AMHS Use
Called Transport-Selector	M	yes	yes
Calling Transport-Selector	M	yes	yes
TPDU size	O	no	no
Protection parameters	O	no	no
Additional option selection	M	yes	yes
Throughput	O	no	no
Residual error rate	O	no	no
Priority	M	yes	yes
Transit delay	O	no	no
Acknowledgement time	M	yes	yes
Preferred maximum TPDU size	O	no	no
Inactivity timer	M	yes	yes

Table 10 Optional Parameter for a DR TPDU

Supported parameter	ATN Support	AMHS Support	AMHS Use
Additional information	O	no	no

Table 11 Optional Parameter for a DT TPDU

Supported parameter	ATN Support	AMHS Support	AMHS Use
Request of acknowledgement	M	yes	no

Table 12 Optional Parameter for an AK TPDU

Supported parameter	ATN Support	AMHS Support	AMHS Use
Flow control confirmation	M	yes	yes

Table 13 Subsequence Number Parameter in the AK TPDU

Supported parameter	ATN Support	AMHS Support	AMHS Use
Subsequence number	M	yes	yes

Table 14 Selective Acknowledgement Parameter in the AK TPDU

Supported parameter	ATN Support	AMHS Support	AMHS Use
Selective acknowledgement parameters	O	no	no

Table 15 Optional Parameter for an ER TPDU

Supported parameter	ATN Support	AMHS Support	AMHS Use
Invalid TPDU	O	no	no

Table 16 User Data in Issued TPDUs

User Data	ATN Support	AMHS Support	AMHS Use
User data of up to 32 octets in a CR with preferred class 4 ?	M	yes	yes
User data of up to 32 octets in a CC ?	M	yes	yes
User data of up to 64 octets in a DR ?	M	yes	yes

Table 17 User Data in Received TPDUs

User Data	ATN Support	AMHS Support	AMHS Use
32 octets of user data in a CC TPDU ?	M	yes	yes
64 octets of user data in a DR TPDU ?	M	yes	yes
32 octets of user data in a CR TPDU ?	M	yes	yes

Table 18 Class Negotiation - Initiator

Feature	ATN Support	AMHS Support	AMHS Use
The preferred class in the CR TPDU may contain any of the classes supported by the implementation	Class 4	Class 4	Class 4

Table 19 The table below specifies valid alternative classes

Preferred class	ATN Support	AMHS Support	AMHS Use
Class 4 over CLNS	None	None	None

Table 20 Class negotiation - responder side

Preferred class	ATN Support	AMHS Support	AMHS Use
What classes can you respond with if CR proposes only class 4?	Class 4	Class 4	Class 4
What classes can you respond with if CR proposes class 4 as preferred class and the alternative class parameter is present?	Class 4	Class 4	Class 4

Table 21 TPDU Size Negotiation

TPDU Size	ATN Support	AMHS Support	AMHS Use
If maximum TPDU size is proposed in a CR TPDU then the initiator shall support all TPDU sizes from 128 octets to the maximum proposed	M	yes	yes
If the preferred maximum TPDU size parameter is used in a CR TPDU then the initiator shall support all TPDU sizes, except 0, that are multiples of 128 octets up to the preferred maximum proposed	M	yes	yes
What is the largest value of the preferred maximum TPDU size parameter in a CR TPDU?	any multiple of 128 octets	any multiple of 128 octets	any multiple of 128 octets
What is the largest value of the preferred maximum TPDU size parameter in a CC TPDU?	any multiple of 128 octets	any multiple of 128 octets	any multiple of 128 octets
What is the largest value of the maximum TPDU size parameter in a CR TPDU with preferred class 4?	One of 128, 256, 512, 1024, 2048	One of 128, 256, 512, 1024, 2048	One of 128, 256, 512, 1024, 2048
What is the largest value of the maximum TPDU size parameter which may be sent in the CC TPDU when class 4 is selected?	128, 256, 512, 1024, 2048	128, 256, 512, 1024, 2048	128, 256, 512, 1024, 2048

Table 22 Use of Extended Format

Extended format	ATN Support	AMHS Support	AMHS Use
What formats can you propose in the CR TPDU in class 4?	normal, extended	extended	extended
What formats can you select in CC when extended has been proposed in CR in class 4?	normal, extended	extended	extended

NOTE: Extended format is needed to be selected for the use of the Data TPDU numbering (extended) (see the Table 5 in this Clause). The Data TPDU numbering (extended) is able to increase the throughput of messages between AMHS systems by increasing the number of the data which can be sent without waiting for the acknowledgement from the other AMHS system.

Table 23 Expedited data Transport service

Expedited data	ATN Support	AMHS Support	AMHS Use
Is the expedited data indication supported in CR and CC TPDU?	MO	yes	yes

Table 24 Non-use of Checksum

Non-use of checksum	ATN Support	AMHS Support	AMHS Use
What proposals can you make in the CR?	non-use, use	use	non-use
What proposals can you make in CC when non-use of checksum has been proposed in CR?	non-use, use	use	non-use

Table 25 Use of selective acknowledgement

Selective Acknowledgement	ATN Support	AMHS Support	AMHS Use
Is use of selective acknowledgement proposed in CR TPDUs ?	O	no	no
Is use of selective acknowledgement selected in a CC when it has been proposed in a CR ?	O	no	no

Table 26 Use of Request Acknowledgement

Request of Acknowledgement	ATN Support	AMHS Support	AMHS Use
Is use of request of acknowledgement proposed in CR TPDUs ?	O	no	no
Is use of request of acknowledgement selected in a CC when it has been proposed in a CR ?	O	no	no

Table 27 Action on Detection of a Protocol Error

Item	ATN Support	AMHS Support	AMHS Use
Class 4 over CLNS	ER, DR, Discard	ER, DR, Discard	ER, DR, Discard

Table 28 Actions on receipt of an invalid or undefined parameter in a CR TPDU

Event	ATN Support	AMHS Support	AMHS Use
A parameter not defined in ISO/IEC 8073 shall be ignored	M	yes	yes
An invalid value in the alternative protocol class parameter shall be treated as a protocol error	M	yes	yes
An invalid value in the class and option parameter shall be treated as a protocol error	M	yes	yes
On receipt of the additional option selection parameter bits 8 to 7, and bits 6 to 1 if not meaningful for the proposed class, shall be ignored	M	yes	yes
On receipt of the class option parameter bits 4 to 1 if not meaningful for the proposed class shall be ignored	M	yes	yes
What action is supported on receipt of a parameter defined in ISO 8073 (other than those covered above) and having an invalid value ?	Ignore, Protocol Error	Ignore, Protocol Error	Ignore, Protocol Error

Table 29 Actions on receipt of an invalid or undefined parameter in a TPDU other than a CR

Event	ATN Support	AMHS Support	AMHS Use
A parameter not defined in ISO/IEC 8073 shall be treated as a protocol error	M	yes	yes
A parameter which has an invalid value as defined in ISO/IEC 8073 shall be treated as a protocol error	M	yes	yes
A TPDU received with a checksum which does not satisfy the defined formula shall be discarded	M	yes	yes

Table 30 Class 4 Timers and Protocol Parameters

Parameters	ATN Support	AMHS Support	AMHS Use
T1 (Local Retransmission)	M	yes	yes
N (Maximum Transmission)	M	yes	yes
I_L (Local Inactivity Time)	M	yes	yes
W (Window Update)	M	yes	yes
L (Frozen Reference Time)	M	yes	yes
R (Persistence)	O	no	no
M_{LR} (NSDU Lifetime)	O	no	no
M_{RL} (NSDU Lifetime)	O	no	no
E_{LR} (Maximum Transit Delay)	O	no	no
E_{RL} (Maximum Transit Delay)	O	no	no
A_L (Acknowledgement Time)	M	yes	yes
A_R (Acknowledgement Time)	M	yes	yes
I_R (Remote Inactivity Time)	M	yes	yes
Does IUT support optional timer TS2 when operating in class 4?	O	no	no

2.4.2 Parameter values

2.4.2.1 The range of values set in the protocol layer 3 and 4 of AMHS are specified below. The actual values are to be determined through bilateral agreement on the AMHS systems connected each other.

2.4.2.2 The following table shows only the parameters, which may influence interoperability. Other parameters are also to be determined through the bilateral agreement.

Parameters set or set to the frame are shown in the following table.

Name	Lower	Upper
Local Retransmission Time(T1){COTP}[SEC]	12	300
Window Time(W){COTP}[SEC]	160	6000
Maximum Number of Transmissions(N){COTP}	1	10
Maximum size of TPDU{COTP}[OCTETS]	1024	1024
Lifetime{CLNS}[IN UNITS OF 500MSEC]	10	30
Reassembly Time{CLNS}[IN UNITS OF 500MSEC]	10	30

(intentionally blank)

Appendix: PICS of AMHS

This appendix specifies the PICS of AMHS for both AFTN/AMHS Gateway and ATS Message Server. When only ATS Message Server without AFTN/AMHS Gateway is implemented, the column “AMHS Action” in the tables can be ignored.

Followings are the contents included in this appendix.

CONTENTS

INTRODUCTION

1. Message Transfer Envelope for IPM

Table 1.1 Message Transfer Envelope (IPM)
Table 1.2 Common Data Types
Table 1.3 Extension Data Types

2. IPM

Table 2.1 IPM
Table 2.2 IPM Support of the Basic ATS Message Service

3. Message Transfer Envelope for IPN

Table 3.1 Message Transfer Envelope (IPN)
Table 3.2 Common Data Types
Table 3.3 Extension Data Types

4. IPN

Table 4.1 IPN
Table 4.2 OR Descriptor

5. Report Transfer Envelope

Table 5.1 Report Transfer Envelope
Table 5.2 Common Data Types

6. Probe Transfer Envelope

Table 6.1 Probe Transfer Envelope
Table 6.2 Common Data Types

INTRODUCTION

Description of each column in the table header is as follows;

"support" indicates the specification in the ISP and in the SARPs (ICAO ATN SARPs) respectively. The contents in the table are extracted from the ISP and the SARPs.

"AMHS-Action" indicates the specified action at Origination and at Reception in the SARPs. Please refer to the "Action" column in the SARPs. The contents in the table are extracted from the SARPs.

"AMHS-support" indicates the status of AMHS to be implemented.

"Detailed Action" indicates the detailed action specified in the SARPs, when it is described in the SARPs. The contents in the table are extracted from the SARPs.

"Origination" and "Reception" are also the terms described in the SARPs. They are abbreviated as “O” and “R” respectively in the column of “AMHS-Action” and “AMHS-support” in the table headings.

Definition of each support level and actions is specified in the table below :

support level and actions	Origination	Reception
M	The value is always set.	It is mandatory to set the value.
O	The value is set on conditions.	When the value is set, service is provided.
M-	-	Only the minimal support of this element. 1) allowed to set the value but no service provided 2) value is transparent when relayed
X	The value is not set.	When the value exists, it is considered to be an error.
T	Translated.	Translated.
G	Generated.	-
G1	Optionally generated.	-
G2	Conditionally generated.	-
D	-	Discarded.

1. Message Transfer Envelope for IPM

Table 1.1 Message Transfer Envelope
(Based on : ATSMHS SARPs Table 3.1.2-6 for O, Table 3.1.2-12 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	MessageTransferEnvelope	M	M	T	T	M	M	-			
1.1	per message fields										
1.1.1	message-identifier	M	M	G	D	M	M	-			See Table 2/1
1.1.2	originator-name	M	M	T	T	M	M	-			
1.1.3	original-encoded-information-types	O	M	G	D	M	M	-			
1.1.4	content-type	M	M	G	D	M	M	-	BuiltInContentType is set the abstract value "interpersonal-messaging-1984(2) or 1988(22)"	If the value of BuiltInContentType is neither interpersonal-messaging-1984(2) nor interpersonal-messaging-1988(22), then generate NDR[NDRC=1,NDDC=15].	
1.1.5	content-identifier	O	M-	G	D	M	M-	<=16			"G"
1.1.6	Priority	M	M	T	D	M	M	-			
1.1.7	per-message-indicators	M	M	G	D	M	M	-			See Table 1.2/4
1.1.8	deferred-delivery-time	O	M-	G	D	M	M-	-			
1.1.9	per-domain-bilateral-information	O	M-	X	D	X	M-	-			
1.1.10	trace-information	M	M	G	D	M	M	-			
1.1.11	Extensions	M	M	G	D	M	O	-			In X.400, if the value doesn't exist, it is considered to be not selected.

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
	Type	M	M	G	D	M	M	-			Only supports "standard-extension".
	Criticality	M	M	G	D	M	M	-			In X.400, if the value doesn't exist, it is considered to be not selected.
	Value	M	M	M	D	M	M	-	Set the value of "internal-trace-information "		
1.1.11.1	recipient-reassignment-prohibited	O	M-	X	D	X	M-	-			
1.1.11.2	dl-extension-prohibited	O	M-	X	D	X	M-	-			
1.1.11.3	conversion-with-loss-prohibited	O	M-	X	D	X	M-	-			
1.1.11.4	latest-delivery-time	O	M-	X	D	X	O	-		If this exists, and the current time exceeds the value, then generate NDR[NDRC=1,NDDC=5].	
1.1.11.5	originator-return-address	O	M-	X	D	X	M-	-			
1.1.11.6	originator-certificate	O	M-	X	X	X	M-/X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=18].	
1.1.11.7	content-confidentiality-algorithm-identifier	O	M-	X	X	X	M-/X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=18].	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.1.11.8	message-origin-authentication-check	O	M-	X	X	X	M-/X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=18].	
1.1.11.9	Message-security-label	O	M-	X	X	X	M-/X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=18].	
1.1.11.10	content-correlator	O	M-	X	D	X	M-	<= 512			
1.1.11.11	dl-expansion-history	O	M-	X	D	X	O	-			
1.1.11.12	internal-trace-information	O	M-	G	D	M	M-	-			See Table 3/5
1.2	per-recipient-fields	M	M	T	T	M	M	-		Support maximum of 21 parameters. (This number may be changed when negotiated.)	
1.2.1	recipient-name	M	M	T	T	M	M	-	Set the values of the recipient's MF ~~or XF~~ (XF or CAAS) address.		
1.2.2	originally-specified-recipient-number	M	M	G	D	M	M	-	Set the value which comply with 12.2.1.1.1.5 of ISO/IEC 10021-4. (set continuous number from 1 to the first recipient)		

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.2.3	per-recipient-indicators	M	M	G	D	M	M	-	Set following value : responsibility=responsible(1) originating-MTA-reportrequest=non-delivery-report(01) originator-report-request=non-delivery-report(01)	For the parameter "per-recipients-fields", only "responsibility=responsible (1)" is relayed or delivered. Reportrequest=delivery-request(10) is ignored.	BITSTRING
1.2.4	explicit-conversion	O	M-	X	D	X	M-	-			
1.2.5	Extensions	M	M-	X	D	X	M	-			In X.400, if the value doesn't exist, it is considered to be not selected.
	Type	M	M	-	D	X	M	-			Only supports "standard-extension".
	Criticality	M	M	-	D	X	M	-		If the value does not exist, all bits are considered to be OFF.	BITSTRING for-submission(0) for-deliver(1) for-transfer(2)
	Value	M	M	-	D	X	M	-			
1.2.5.1	originator-requested-alternate-recipient	O	M-	-	D	X	M-	-			
1.2.5.2	requested-delivery-method	O	M-	-	D	X	M-	-			
1.2.5.3	physical-forwarding-prohibited	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.2.5.4	physical-forwarding-address-request	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.5	physical-delivery-modes	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.6	registed-mail-type	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.7	recipient-number-for-advice	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.8	physical-redirection-attributes	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.2.5.9	physical-delivery-report-request	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.10	message-token	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.11	content-integrity-check	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.12	proof-of-delivery-request	O	M-	-	X	X	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.13	redirection-history	O	M-	-	D	X	M-	-			
2	Content	M	M	T	T	M	M	-	Set the generated IPM.		

Table 1.2 Common Data Types
(Based on : ATSMHS SARPs Table 3.1.2-6 for O, Table 3.1.2-12 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	MTS-Identifier										
1.1	global-domain-identifier	M	M	G	D	M	M	-			
1.2	local-identifier	M	M	G	D	M	M	<=32	Set the characters which identifies message in ia-5 characters.		
2	GlobalDomainIdentifier										
2.1	country-name	M	M	G	D	M	M	2 or 3	Set the country name of AMHS management domain.		
2.2	administration-domain-name	M	M	G	D	M	M	<=16	Set the AMHS management domain name.		
2.3	private-domain-identifier	O	M-	X	D	X	M-	<=16			The value of this parameter may be used in the future.
3	EncodedInformationTypes										
3.1	built-in-encoded-information-types	M	M	G	D	M	M	-	Set the value of "ia5-text(2)=1"		BITSTRING
3.2	non-basic parameters	O	M-	X	D	X	M-	-			
3.3	extended-encoded-information-types	O	M	X	D	X	O	-			
4.	PerMessageIndicators	M	M	G	D	M	M	-			BITSTRING In X.400, if the value doesn't exist, all bits are considered to be OFF.
4.1	disclosure-of-other-recipients(0)	M	M	G	D	M	M	-	Set the abstract value "disclosure-of-other-recipients-prohibited(0)"		

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
4.2	implicit-conversion-prohibited(1)	M	M	G	D	M	M	-	Set the abstract value "implicit-conversion-prohibited(1)"		
4.3	alternate-recipient-allowed(2)	M	M	G	D	M	M	-	Set the abstract value "alternate-recipient-allowed(1)"		
4.4	content-return-request(3)	M	M	G	D	M	M	-	Set the abstract value "content-return-not-requested(0)"	Ignored and considered "content-return-not-requested(0)". However, if error occurs in the ATN component of AMHS and "content-return-request(1)" is set, it is impossible to restrain this service.	
5	PerDomainBilateralInformation	O	M-	X	D	X	M-	-			
6	TraceInformation										
6.1	TraceInformationElement	M	M	G	D	M	M	-			
6.1.1	global-domain-identifier	M	C1	X	D	X	M	-		If the last trace information of this parameter differs from the input MTA, then generate NDR.	
6.1.2	domain-supplied-information	M	M	G	D	M	M	-			
6.1.2.1	arrival-time	M	C2	G	D	M	M	-	Set the value of the time which AFTN/AMHS Gateway received the message.		
6.1.2.2	routing-action	M	M-	G	D	M	M	-	Set the abstract value of "relayed(0)".		
6.1.2.3	attempted-domain	O	M-	X	D	X	M-	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
6.1.2.4	additional actions	O	M-	X	D	X	M-	-			
6.1.2.4.1	deferred-time	O	M-	X	D	X	M-	-			
6.1.2.4.2	converted-encode-information-types	O	M-	X	D	X	O	-			
6.1.2.4.3	other-actions	O	M-	X	D	X	M-	-			

Table 1.3 Extension Data Types
(Based on : ATSMHS SARPs Table 3.1.2-6 for O, Table 3.1.2-12 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
5	internal-trace-information	O	M-	G	D	M	M-	-			
5.1	global-domain-identifier	M	M	G	D	M	M	<=16	Set the value which identifies AMHS Management Domain.		
5.2	mta-name	M	M	G	D	M	M	<=32	Set the value of mta-name of AMHS.		
5.3	domain-supplied-information	M	M	G	D	M	M	-			
5.3.1	arrival-time	M	M	G	D	M	M	-	Set the value of the time which AFTN/AMHS Gateway received the message		
5.3.2	routing-action	M	M	G	D	M	M	-	Set the abstract value "relayed(0)"		
5.3.3	attempt-domain	O	C1	X	D	X	M-	-			
5.3.4	additional actions	O	C2	X	D	X	M-	-			
5.3.4.1	deferred-time	O	M-	X	D	X	M-	-			
5.3.4.2	converted-encoded-information-types	O	M-	X	D	X	O	-			
5.3.4.3	other-actions	O	M-	X	D	X	M-	-			

2. IPM

Table 2.1 IPM
(Based on : ATSMHS SARPs Table 3.1.2-5 for O, Table 3.1.2-11 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	Interpersonal message(IPM)	M	M	T	T	M	M	-			
1.1	heading	M	M	T	T	M	M	-			
1.1.1	this-IPM	M	M	T	D	M	M	-			
1.1.1.1	user	O	M	T	D	M	M-	-	Set the same value as the originator.		
1.1.1.2	user-relative-identifier	M	M	G	D	M	M	<=64			Set the value which identifies this IPM in less than 64 octets.
1.1.2	originator	O	M	T	D	M	M-		Set the originator XF or CAAS address converted from AF address of AFTN message.		
1.1.3	authorizing-users	O	O	X	D	X	M-	-			
1.1.4	primary-recipients	O	M	T	D	M	O	-		At least one of the primary-recipients, copy-recipients, or blind-copy-recipients is mandatory.	
1.1.4.1	RecipientSpecifier	M	M	T	D	M	M	-			If the value of this parameter is as same as P1, then maximum number is 21.
1.1.4.2	recipient	M	M	T	D	M	M	-	Set the recipient XF or CAAS address converted from AF address of AFTN message.		

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.1.4.3	notification-requests	O	M	T	D	M	M	-	Set the bit of rn and nrn ON if and only if the value of ATS-priority-indicator is SS. (In other cases, both bits are not ON.)	If ATS-priority-indicator is SS, and value of notification of the element "primary-recipient", "copy-recipient", "blind-copy-recipient is different from "rn", and the value of per-recipient-fields is "responsible", then it is logged as an error.	According to X.400, if this parameter does not exist, all bits are considered OFF.
1.1.4.3.1	rn(0)	O	O	T	D	M	O	-			
1.1.4.3.2	nrn(1)	O	M	T	D	M	M-	-		Ignored.	
1.1.4.3.3	ipm-return(2)	O	O	X	D	X	M-	-	Always set OFF.	Ignored.	
1.1.5	copy-recipients	O	M	X	D	X	O	-	Not set.	Processed as same as primary-recipients.	
1.1.6	blind-copy-recipients	O	M	X	D	X	O	-	Not set.	Processed as same as primary-recipients.	
1.1.7	replied-to-IPM	O	M	X	D	X	M-	-			
1.1.8	obsoleted-IPMs	O	M	X	D	X	M-	-			
1.1.9	related-IPMs	O	M	X	D	X	M-	-			
1.1.10	subject	O	M	G2	D	O	M-	<=128			
1.1.11	expiry-time	O	M	X	D	X	M-	-			
1.1.12	reply-time	O	M	X	D	X	M-	-			
1.1.13	reply-recipients	O	O	X	D	X	M-	-			
1.1.14	importance	O	O	X	D	X	M-	-			
1.1.15	sensitivity	O	O	X	D	X	M-	-			
1.1.16	auto-forwarded	O	O	X	D	X	M-	-			
1.1.17	extensions	O	O	X	D	X	M-	-			
1.1.17.1	incomplete-copy	O	O	X	D	X	M-	-			
1.1.17.2	langages	O	O	X	D	X	M-	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.1.17.3	auto-submitted	O	O	X	D	X	M-	-			
1.2	IPM BODY	M	M	M	M	M	M	-		One of the ia5-text, ia5-text-body-part, or general-text-body-part has to be set.	
1.2.1	ia5-text	O	M	T	T	M	O	-			
1.2.1.1	parameters	M	M	G	D	M	M	-			
1.2.1.1.1	repertoire	M	M	G	D	M	M	-	Set the value IA5(5).		
1.2..1.2	data	M	M	T	T	M	M	-			
1.2.2	voice	I	X	X	X	X	X	-			
1.2.3	g3-facsimile	O	X	X	X	X	X	-			
1.2.4	g4-class-1	O	X	X	X	X	X	-			
1.2.5	teletex	O	X	X	X	X	X	-			
1.2.6	videotex	O	X	X	X	X	X	-			
1.2.7	encrypted	I	X	X	X	X	X	-			
1.2.8	message	O	X	X	X	X	X	-			
1.2.9	mixed-mode	O	X	X	X	X	X	-			
1.2.10	bilaterally-defined	O	X	X	X	X	X	-			
1.2.11	nationally-defined	O	X	X	X	X	X	-			
1.2.12	externally-defined	O	X	X	X	X	X	-			
1.3	Extended Body Part										
1.3.1	ia5-text-body-part	O	X	X	T	X	O	-			
1.3.2	g3-facsimile-body-part	O	X	X	X	X	X	-			
1.3.3	g4-class1-body-part	O	X	X	X	X	X	-			
1.3.4	teletex-body-part	O	X	X	X	X	X	-			
1.3.5	videotex-body-part	O	X	X	X	X	X	-			
1.3.6	encrypt-body-part	I	X	X	X	X	X	-			
1.3.7	message-body-part	O	X	X	X	X	X	-			
1.3.8	mixed-mode-body-part	O	X	X	X	X	X	-			
1.3.9	bilaterally-defined-body-part	O	X	X	X	X	X	-			
1.3.10	nationally-defined-body-part	O	X	X	X	X	X	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.3.11	general-text-body-part	O	X	X	T	X	O	-			
1.3.12	file-transfer-body-part	O	X	X	X	X	X	-			
1.3.13	voice-body-part	I	X	X	X	X	X	-			
1.3.14	oda-body-part	O	X	X	X	X	X	-			

Table 2.2 IPM Support of the Basic ATS Message Service
(Based on : ATSMHS SARPs Table 3.1.2-5 for O, Table 3.1.2-11 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	ATS-Message-Header	-	M	T	T	M	M	-			
1.1	start- of heading	-	M	G	-	M	M	-	Set (SOH)		
1.2	ATS-Message-Priority	-	M	T	T	M	M	-			
1.2.1	priority-prompt	-	M	G	-	M	M	-	Set the value "PRI:(single space)".		
1.2.2	priority-indicator	-	M	T	T	M	M	-			
1.2.3	priority-separater	-	M	G	-	M	M	-	Set (CR)(LF)		
1.3	ATS-Message-Filing-Time	-	M	T	T	M	M	-			
1.3.1	filing-time-prompt	-	M	G	-	M	M	-	Set the value "FT:(single space)".		
1.3.2	filing-time	-	M	T	T	M	M	-			
1.3.3	filing-time-separater	-	M	G	-	M	M	-	Set (CR)(LF)		
1.4	ATS-Message-Optional-Heading-Info	-	O	T1	T1	O	M	-			
1.4.1	OHI-prompt	-	M	G	-	M	M	-	Set the value "OHI:(single space)".		
1.4.2	optional-heading-information	-	M	T	T	M	M	-			
1.4.3	OHI-separater	-	M	G	-	M	M	-	Set (CR)(LF)		
1.5	end-of-heading-blank-line	-	M	G	-	M	M	-	Set (LF)		
1.6	start-of-text	-	M	G	-	M	M	-	Set (STX)		
2	ATS-Message-Text	-	M	T	T	M	M	-			

3. Message Transfer Envelope for IPN

Table 3.1 Message Transfer Envelope (IPN)
(Based on: ATSMHS SARPs Table 3.1.2-6 and Table 3.1.2-9 for O, Table 3.1.2-12 and Table 3.1.2-15 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	MessageTransferEnvelope	M	M	T	T	M	M	-			
1.1	per message fields	M	M					-			
1.1.1	message-identifier	M	M	G	D	M	M-	-			
1.1.2	originator-name	M	M	T	T	M	M	-	Set the originator XF or CAAS address converted from AF address of AFTN acknowledgement message.		
1.1.3	original-encoded-information-types	O	M-	G	D	X	M-	-			
1.1.4	content-type	M	M	G	D	M	M	-	BuiltInContentType is set the abstract value "interpersonal-messaging-1984(2) or 1988(22)"	If the value of BuiltInContentType is neither interpersonal-messaging-1984(2) nor interpersonal-messaging-1988(22), then generate NDR[NDRC=1,NDDC=15].	
1.1.5	content-identifier	O	M-	G	D	X	M-	<=16			
1.1.6	priority	M	M	G	D	M	M	-	Set "urgent".		
1.1.7	per-message-indicators	M	M	G	D	M	M	-			See Table 3.2/4
1.1.8	deferred-delivery-time	O	M-	X	D	M	M-	-			
1.1.9	per-domain-bilateral-information	O	M-	X	D	X	M-	-			
1.1.10	trace-information	M	M	G	D	M	M	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.1.11	extensions	M	M	G	D	M	M-	-			In X.400, if the value doesn't exist, it is considered to be not selected.
	type	M	M	G	D	M	M	-	Set the abstract value "internal-trace-information (38)".		Only supports "standard-extension".
	criticality	M	M	G	D	M	M	-			In X.400, if the value doesn't exist, it is considered to be not selected.
	value	M	M	M	D	M	M	-	Set the value of "internal-trace-information "		
1.1.11.1	recipient-reassignment-prohibited	O	M-	X	D	X	M-	-			
1.1.11.2	dl-extension-prohibited	O	M-	X	D	X	M-	-			
1.1.11.3	conversion-with-loss-prohibited	O	M-	X	D	X	M-	-			
1.1.11.4	latest-delivery-time	O	M-	X	D	X	M-	-		If this exists, and the current time exceeds the value, then generate NDR[NDRC=1,NDDC=5].	
1.1.11.5	originator-return-address	O	M-	X	D	X	M-	-			
1.1.11.6	originator-certificate	O	M-	X	X	X	X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=18].	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.1.11.7	content-confidentiality-algorithm-identifier	O	M-	X	X	X	X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=19].	
1.1.11.8	message-origin-authentication-check	O	M-	X	X	X	X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=20].	
1.1.11.9	message-security-label	O	M-	X	X	X	X	-		If the value is "CRITICAL FOR DELIVERY" then generate NDR[NDRC=1,NDDC=21].	
1.1.11.10	content-correlator	O	M-	X	D	X	M-	<= 512			
1.1.11.11	dl-expansion-history	O	M-	X	D	X	O	-			
1.1.11.12	internal-trace-information	O	M-	G	D	M	M-	-			
1.2	per-recipient-fields	M	M	T	D	M	M	-			Number of recipient is always one.
1.2.1	recipient-name	M	M	T	D	M	M	-	Set the MF (XF or CAAS) address of the originator of the subject IPM.		
1.2.2	originally-specified-recipient-number	M	M	G	D	M	M	-	Set "1".		

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.2.3	per-recipient-indicators	M	M	G	D	M	M	-	Set the following values : responsibility=responsible(1) originating-MTA-report-request=non-delivery-report(01) originator-report-request=non-delivery-report(00)		BITSTRING
1.2.4	explicit-conversion	O	M-	X	D	X	M-	-			
1.2.5	extensions	M	M-	X	D	X	M-	-			In X.400, if the value doesn't exist, it is considered to be not selected.
	type	M	M	-	D	-	M	-			Only supports "standard-extension".
	criticality	M	M	-	D	-	M	-			
	value	M	M	-	D	-	M	-			
1.2.5.1	originator-requested-alternate-recipient	O	M-	-	D	-	M-	-			
1.2.5.2	requested-delivery-method	O	M-	-	D	-	M-	-			
1.2.5.3	physical-forwarding-prohibited	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.4	physical-forwarding-address-request	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.2.5.5	physical-delivery-modes	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.6	registed-mail-type	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.7	recipient-number-for-advice	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.8	physical-redirection-attributes	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	
1.2.5.9	physical-delivery-report-request	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=3,NDDC=18].	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.2.5.10	message-token	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=1,NDDC=18].	
1.2.5.11	content-integrity-check	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=1,NDDC=18].	
1.2.5.12	proof-of-delivery-request	O	M-	-	X	-	M-/X	-		If the criticality is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=1,NDDC=18].	
1.2.5.13	redirection-history	O	M-	-	D	-	M-	-			
2	content	M	M	T	T	M	M	-	Set the generated IPN.		

Table 3.2 Common Data Type
(Based on : ATSMHS SARPs Table 3.1.2-6 and Table 3.1.2-9 for O, Table 3.1.2-12 and Table 3.1.2-15 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	MTS-Identifier										
1.1	global-domain-identifier	M	M	G	D	M	M	<=16			
1.2	local-identifier	M	M	G	D	M	M	<=32	Set the characters which identifies message in ia-5 characters.		
2	GlobalDomainIdentifier										
2.1	country-name	M	M	G	D	M	M	2 or 3	Set the country name of AMHS management domain.		
2.2	administration-domain-name	M	M	G	D	M	M	<=16	Set the AMHS management domain name.		
2.3	private-domain-identifier	O	M-	X	D	X	M-	-			
3	EncodedInformationTypes										
3.1	built-in-encoded-information-types	M	M	G	D	X	M	-			BITSTRING
3.2	non-basic parameters	O	M-	X	D	X	M-	-			
3.3	extended-encoded-information-types	O	M	X	D	X	O	-			
4.	PerMessageIndicators	M	M	G	D	G	D	-			BITSTRING In X.400, if the value doesn't exist, all bits are considered to be OFF.
4.1	disclosure-of-other-recipients(0)	M	M	G	D	G	D	-	Set the abstract value "disclosure-of-other-recipients-prohibited(0)"		
4.2	implicit-conversion-prohibited(1)	M	M	G	D	G	D	-	Set the abstract value "implicit-conversion-prohibited(1)"		

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
4.3	alternate-recipient-allowed(2)	M	M	G	D	G	D	-	Set the abstract value "alternate-recipient-allowed(1)"		
4.4	content-return-request(3)	M	M	G	D	G	D	-	Set the abstract value "content-return-not-requested(0)"	Ignored and considered "content-return-not-requested(0)". However, if error occurs in the ATN component of AMHS and "content-return-request(1)" is set, it is impossible to restrain this service.	
5	PerDomainBilateralInformation	O	M-	X	D	X	D	-			
6	TraceInformation										
6.1	TraceInformationElement	M	M	G	D	M	M	-			
6.1.1	global-domain-identifier	M	C1	X	D	M	M	-		If the last trace information of this parameter differs from the input MTA, then generate NDR.	
6.1.2	domain-supplied-information	M	M	G	D	M	M	-			
6.1.2.1	arrival-time	M	C2	G	D	M	M	-	Set the value of the time which AFTN/AMHS Gateway received the message		
6.1.2.2	routing-action	M	M-	G	D	M	M	-	Set the abstract value of "relayed(0)".		
6.1.2.3	attempt-domain	O	M-	X	D	X	M-	-			
6.1.2.4	additional actions	O	M-	X	D	X	M-	-			
6.1.2.4.1	deferred-time	O	M-	X	D	X	M-	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
6.1.2.4.2	converted-encode-information-types	O	M-	X	D	X	M-	-			
6.1.2.4.3	other-actions	O	M-	X	D	X	M-	-			

Table 3.3 Extension Data Types
(Based on: ATSMHS SARPs Table 3.1.2-6 for O, Table 3.1.2-12 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
5	internal-trace-information	O	M-	G	D	M	M-	-			
5.1	global-domain-identifier	M	M	G	D	M	M	16	Set the value which identifies AMHS Management Domain.		
5.2	mta-name	M	M	G	D	M	M	32	Set the value of mta-name of AMHS.		
5.3	domain-supplied-information	M	M	G	D	M	M	-			
5.3.1	arrival-time	M	M	G	D	M	M	-	Set the value of the time which AFTN/AMHS Gateway received the message		
5.3.2	routing-action	M	M	G	D	M	M	-	Set the abstract value "relayed(0)"		
5.3.3	attempt-domain	O	C1	X	D	X	M-	-			
5.3.4	additional actions	O	C2	X	D	X	M-	-			
5.3.4.1	deferred-time	O	M-	X	D	X	M-	-			
5.3.4.2	converted-encoded-information-types	O	M-	X	D	X	O	-			
5.3.4.3	other-actions	O	M-	X	D	X	M-	-			

3. IPN

Table 4.1 IPN
(Based on: ATSMHS SARPs Table 3.1.2-8 for O, Table 3.1.2-14 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	Interpersonal Notification(IPN)	M	M	-	-	M	M	-			
1.1	Common-fields	M	M	-	-	M	M	-			
1.1.1	subject-ipm	M	M	G	D	M	M	-	Set the value of this-IPM of the subject IPM.		
1.1.2	ipn-originator	O	M	T	D	M	O	-	Set the originator XF and CAAS address converted from AF address of AFTN message.		
1.1.3	ipm-preferred-recipient	O	M	G2	D	O	O	-	This parameter exists when the recipient indicated by subject IPM and the real recipient differs, and set the recipient which was on the subject IPM.		
1.1.4	conversion-eits	O	M	G2	D	O	O	-	If the originally-encoded-information-types of the subject IPM and encoded-information types at the reception differ, set the encoded-information-types at the reception.		
1.1.5	notification-extensions	O	M	X	D	X	M	-			
1.2	non-receipt-fields	M	M	X	D	X	O	-		Either non-receipt-field or receipt-field is mandatory.	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.3	receipt-fields	M	M	T	T	M	M	-			
1.3.1	receipt-time	M	M	T	T	M	M	-	Convert the time to UTC-TIME format and set the value.	Convert to AFTN format.	UTC-TIME format is YYMMDDhhmm[ss]Z or YYMMDDhhmm[ss]+(or -) hhmm
1.3.2	acknowledgment-mode	O	O	G	D	M	M-	-	Set the abstract value "manual(0)"		The default value of this element is "manual", so it is not necessary to set the value.
1.3.3	suppl-receipt-info	O	O	X	D	X	M-	-			
1.3.4	rn-extension	O	I	X		X	M-	-			
1.3.5	other-notification-type-fields	O	I	X		X	M-	-			

Table 4.2 OR Descripor
(Based on: ATSMHS SARPs Table 3.1.2-8 for O, Table 3.1.2-14 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	ORDescriptor										
1.1	formal-name	M	M	T	-	M	M	-			
1.2	free-form-name	O	O	X	-	X	M-	<=64			
1.3	telephone-number	O	O	X	-	X	M-	-			

5. ReportTransfer Envelope

Table 5.1 Report Transfer Envelope
(Based on: ATSMHS SARPs Table 3.1.2-17 for O, Table 3.1.2-18 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	ReportTransferEnvelope	M	M	G	D	M	M	-			
1.1	report-identifier	M	M	G	D	M	M	-			
1.2	report-destination-name	M	M	G	T	M	M	-	If the subject message has the element "dl-expansion-history", and OR name of last element of dl-expansion-history does not exist, set the originator-name of the subject message.		
1.3	trace-information	M	M	G	D	M	M	-			
1.4	extensions	M	M	G	D	M	M	-			In X.400, if the value doesn't exist, it is considered to be not selected.
1.4.1	type	M	M	G	D	M	M	-			Only supports "standard-extension".
1.4.2	criticality	M	M	G	D	M	M	-			In X.400, if the value doesn't exist, it is considered to be not selected.
1.4.3	value	M	M	M	D	M	M	-	Set the value of "internal-trace-information".		
1.4.4	message-security-label	O	M-	X	D	X	D	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1.4.5	originator-and-DL-expansion-history	O	M-	G2	D	O	D	-	Only when the element "DL-expansion-history" exists in the subject message, set the value.		
1.4.6	reporting-DL-name	O	M-	X	D	X	M-	-			
1.4.7	reporting-MTA-certificate	O	M-	X	D	X	M-	-			
1.4.8	report-origin-authentication-check	O	M-	X	D	X	M-	-			
1.4.9	internal-trace-information	O	M-	G	D	M	M-	-			
1.4.9.1	global-domain-identifier	M	M	G	D	M	M	<=16	Set the value which identifies the AMHS management domain.		
1.4.9.2	domain-supplied-information	M	M	G	D	M	M	-			
1.4.9.3	arrival-time	M	M	G	D	M	M	-	Set the value of the time which AFTN/AMHS Gateway received the message		
1.4.9.4	routing-action	M	M	G	D	M	M	-	Set the abstract value "relayed(0)".		
1.4.9.5	attempt-domain	O	C1	X	D	X	M	-			
1.4.9.6	additional actions	O	C2	X	D	X	M	-			
1.4.9.7	deferred-time	O	M-	X	D	X	M	-			
1.4.9.8	converted-encoded-information-types	O	M-	X	D	X	M	-			
1.4.9.9	other-actions	O	M-	X	D	X	M	-			
2	ReportTransferContent	M	M			M	M	-			
2.1	per report fields							-			
2.1.1	subject-identifier	M	M	G	D	M	M	-	Set the value of the "message-identifier" of the subject message."	It is expected that the value of message-identifier of the subject message is set.	

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
2.1.2	subject-intermediate-trace-information	O	M	G2	D	O	M-	-	If the originating-MTA-report-request of the per-recipient-indicator of the recipient of the subject message per-recipient-indicator takes the value "audited-report", set the value of trace-information of the subject message.		
2.1.3	original-encoded-information-types	O	M	X	D	X	M-	-			
2.1.4	content-type	O	M	X	D	X	M-	-			
2.1.5	content-identifier	O	M	X	D	X	M-	-			
2.1.6	returned-content	O	M-	X	D	X	M-	-			
2.1.7	additional-information	O	M-	X	D	X	M-	-			
2.1.8	extensions	M	M	G2	D	O	M-	-			
2.1.8.1	content-correlator	O	M	G2	D	O	M-	-	If the element "content-correlator" exists in the subject message, the value of the element is set.		
2.2	per-recipient-fields	M	M	T	T	M	M	-			
2.2.1	actual-recipient-name	M	M	T	T	M	M	-	Set the recipient-name of the corresponding per-recipient field of the subject message.		

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
2.2.2	originally-specified-recipient-number	M	M	G	D	M	M	-	Set the value of originally-specified recipient number of the corresponding per-recipient field of the subject message.		
2.2.3	per-recipient-indicators	M	M	G	D	M	M	-	Set the value of the corresponding per-recipient-indicator of the per-recipient-fields of the subject message.		BITSTRING
2.2.4	last-trace-information	M	M	G	D	M	M	-			
2.2.4.1	arrival-time	M	M	G	D	M	M	-	Set the value of the time which AFTN/AMHS Gateway received the message		
2.2.4.2	converted-encoded-information-types	O	M	G2	D	O	M-	-	If the original-EIT and the final EIT are different, set the value of the final EIT. In other cases, nothing is set.		
2.2.4.3	report-type	M	M	G	D	M	M	-			
2.2.4.3.1	delivery	M	M	G2	D	O	X	-	Set this value when the probe is successfully passed to AFTN Component.		
2.2.4.3.2	message-delivery-time	M	M	G	D	M	X	-	If the report is a delivery report, set the time at which the subject message has been successfully passed to AFTN Component.		

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
2.2.4.3.3	type-of-MTS-user	M	M	G	D	M	X	-	Set the abstract value "other(6)".		If this parameter is omitted, then set the value "public(0)".
2.2.4.3.2	non-delivery	M	M	G	D	M	M	-			
2.2.4.3.2.1	non-delivery-reason-code	M	M	G	D	M	M	-	Set the defined NDRC.	If NDRC=1 and NDDC=0, then generate unknown addressee AFTN service message.	
2.2.4.3.2.2	non-delivery-diagnostic-code	O	M	G	D	M	M	-	Set the defined NDDC.		
2.2.5	originally-intended-recipient-name	O	M-	G2	D	O	O	-	If there exists redirection-history element, set the first O/R name of the subject message.		
2.2.6	supplementary-information	O	M-	G2	D	O	O	<=256	a) If delivery report (probe), set the value "This report only indicates successful (potential) conversion to AFTN, not delivery to a recipient" b) If non-delivery report set the value defined in each error (if not defined, set nothing)		
2.2.7	extensions	M	M-	G2	D	O	O	-			In X.400, if the value doesn't exist, it is considered to be not selected.
2.2.7.1	type	M	M	G2	D	M	M	-			Only supports "standard-extension".
	criticality	M	M	G2	D	M	M	-			
	value	M	M	G2	D	M	M	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
2.2.7.1.1	redirection-history	O	M-	G2	D	O	M-	-	If there exists the "redirection-history", set that value.		
2.2.7.1.2	physical-forwarding-address	O	M-	X	X	X	X	-			
2.2.7.1.3	recipient-certificate	O	M-	X	X	X	X	-			
2.2.7.1.4	proof-of-delivery	O	M-	X	X	X	X	-			

Table 5.2 Common Data Types
(Based on: ATSMHS SARPs Table 3.1.2-17 for O, Table 3.1.2-18 for R)

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
1	MTS-Identifier										
1.1	global-domain-identifier	M	M	G	D	M	M	<=16			
1.2	local-identifier	M	M	G	D	M	M	<=32	Set the value which identifies the report in ia-5 characters.		
2	GlobalDomainIdentifier										
2.1	country-name	M	M	G	D	M	M	2 or 3	Set the country name of the AMHS management domain.		
2.2	administration-domain-name	M	M	G	D	M	M	<=16	Set the name of the AMHS management domain.		
2.3	private-domain-identifier	O	M-	X	D	X	M-	<=16			
6	TraceInformation										
6.1	TraceInformationElement	M	M	G	D	M	M	-			
6.1.1	global-domain-identifier	M	C1	X	D	M	M	-		If the last trace information of the global-domain-identifier differs from input MTA, generate NDR.	
6.1.2	domain-supplied-information	M	M	G	D	M	M	-			
6.1.2.1	arrival-time	M	C2	G	D	M	M	-	Set the value of the time which AFTN/AMHS Gateway received the message.		
6.1.2.2	routing-action	M	M-	G	D	M	M	-	Set the abstract value "relayed(0)".		
6.1.2.3	attempt-domain	O	M-	X	D	X	M-	-			

NO.	element	support		AMHS-Action		AMHS-support		size	Detailed Action		Note
		ISP	SARPs	O	R	O	R		Origination	Reception	
6.1.2.4	additional actions	O	M-	X	D	X	M-	-			
6.1.2.4.1	deferred-time	O	M-	X	D	X	M-	-			
6.1.2.4.2	converted-encode-information-types	O	M-	X	D	X	M-	-			
6.1.2.4.3	other-actions	O	M-	X	D	X	M-	-			

6. Probe Transfer Envelope

Table 6.1 Probe Transfer Envelope

NO.	element	support ISP	AMHS support	size	Detailed Action Reception	Note
1	probeTransferEnvelope	M	M	-		
1.1	per message fields	M	M	-		
1.1.1	probe-identifier	M	M	-		
1.1.2	originator-name	M	M	-		
1.1.3	original-encoded-information-types	O	M	-		
1.1.4	content-type	M	M	-	If the value of BuiltInContentType is neither interpersonal-messaging-1984(2) nor interpersonal-messaging-1988(22), then generate NDR[NDRC=1,NDDC=15].	
1.1.5	content-identifier	O	M-	<=16		It was agreed to be "X" in the TMC.
1.1.6	content-length	O	M-	-		
1.1.7	per-message-indicators	M	M	-		BITSTRING In X.400, if the value doesn't exist, all bits are considered to be OFF.
1.1.7.1	disclosure-of-other-recipients(0)	M	M	-		
1.1.7.2	implicit-conversion-prohibited(1)	M	M	-		
1.1.7.3	alternate-recipient-allowed(2)	M	M	-		
1.1.7.4	content-return-request(3)	M	M	-		
1.1.8	per-domain-bilateral-information	O	M-	-		It was agreed to be "X" in the TMC."
1.1.9	trace-information	M	M	-		
1.1.10	extensions	M	M	-		In X.400, if the value doesn't exist, it is considered to be not selected.

NO.	element	support ISP	AMHS support	size	Detailed Action Reception	Note
	type	M	M	-		Only supports "standard-extension".
	criticality	M	M	-		In X.400, if the value doesn't exist, it is considered to be not selected.
	value	M	M	-		
1.1.10.1	recipient-reassignment-prohibited	O	M-	-		
1.1.10.2	dl-extension-prohibited	O	M-	-		
1.1.10.3	conversion-with-loss-prohibited	O	M-	-		
1.1.10.4	originator-certificate	O	M-/X	-	If the value is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=1,NDDC=18].	
1.1.10.5	message-security-label	O	M-/X	-	If the value is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=1,NDDC=21].	
1.1.10.6	content-correlator	O	M-	<=512		
1.1.10.7	probe-origin-authentication-check	O	M-	-		
1.1.10.8	internal-trace-information	O	M-	-		
1.1.10.8.1	global-domain-identifier	M	M	-		
1.1.10.8.2	mta-name	M	M	<=32	Set the value which identifies AMHS.	
1.1.10.8.3	mta-supplied-information	M	M	-		
1.1.10.8.3.1	arrival-time	M	M	-		
1.1.10.8.3.2	routing-action	M	M	-		
1.1.10.8.3.3	attempt-domain	O	M-	-		

NO.	element	support ISP	AMHS support	size	Detailed Action Reception	Note
1.1.10.8.4	additional actions	O	M-	-		
1.1.10.8.4.1	deferred-time	O	M-	-		
1.1.10.8.4.2	converted-encoded-information-types	O	M-	-		
1.1.10.8.4.3	other-actions	O	M-	-		
1.2	per-recipient-fields	M	M	-		
1.2.1	recipient-name	M	M	-		
1.2.2	originally-specified-recipient-number	M	M	-		
1.2.3	per-recipient-indicators	M	M	-		BITSTRING
1.2.4	explicit-conversion	O	M-	-		
1.2.5	extensions	M	M-	-		In X.400, if the value doesn't exist, it is considered to be not selected.
	type	M	M	-		Only supports "standard-extension".
	criticality	M	M	-		
	value	M	M	-		
1.2.5.1	originator-requested-alternate-recipient	O	M-	-		
1.2.5.2	requested-delivery-method	O	M-	-		
1.2.5.3	physical-redirection-attributes	O	M-/X	-	If the value is "CRITICAL FOR DELIVERY", then generate NDR[NDRC=1,NDDC=18].	
1.2.5.4	redirection-history	O	O	-		

Table 6.2 Common Data Type

NO.	element	support ISP	AMHS support	size	Action Reception	Note
1.	MTS-Identifier					
1.1	global-domain-identifier	M	M	<=16		
1.2	local-identifier	M	M	<=32		
2	GlobalDomainIdentifier					
2.1	country-name	M	M	2 or 3		
2.2	administration-domain-name	M	M	<=16		
2.3	private-domain-identifier	O	M-	<=16		The value of this parameter may be used in the future.
3	EncodedInformationTypes					
3.1	built-in-encoded-information-types	M	M	-		BITSTRING
3.2	non-basic parameters	O	M-	-		
3.3	extended-encoded-information-types	O	O	-		
6	TraceInformation					
6.1	TraceInformationElement	M	M	-		
6.1.1	global-domain-identifier	M	M	-	If the last trace information of this parameter differs from the input MTA, then generate NDR.	
6.1.2	domain-supplied-information	M	M	-		
6.1.2.1	arrival-time	M	M	-		
6.1.2.2	routing-action	M	M	-		
6.1.2.3	attempt-domain	O	M-	-		
6.1.2.4	additional actions	O	M-	-		
6.1.2.4.1	deferred-time	O	M-	-		

NO.	element	support ISP	AMHS support	size	Action Reception	Note
6.1.2.4.2	converted-encode-information-types	O	M-	-		
6.1.2.4.3	other-actions	O	M-	-		

No.	PERFORMANCE OBJECTIVE	ICAO Srategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members	ATNICG/2 Update
1	ATN Implementation Coordination	D. Efficiency	GPI-17, GPI-19, GPI-22	(1) Review of implementation problems and develop co-ordinated solutions	Expedite implementation activities, ensure system campatibility through out the region	Co-ordination Report	Ongoing/Semi-anually until (2010)	Ken Morris (Australia)	All members	Updated the FASID CNS 1D. Coordinate the intra regional interface. Planning and Implemenation Status are updated at ICAO APAC website.
2	ATN Operational Procedures	D. Efficiency	GPI-17, GPI-19, GPI-22	(1) Development of Interim Database for Directory Services	Make available real time and quality assurance addresses for ATN message delivery	(1) Interim Database	(1) (2007)	Robert Hallman (USA)	Thailand, Hong Kong China, Japan	The database was demonstrated. Aerothai will maintain the database on behalf of the regional ICAO. Aerothai is designated as focal point for accessing AMC at short term.
				(2) Develop the operational database management procedures		(2) Operational Procedures	(2) (2007)			Intiated by Aerothai
3	ATN Certification & Validation Process	D. Efficiency	GPI-17, GPI-19, GPI-22	(1) Develop conformance procedures and checklist for AMHS and ATN routers	Expedite implementation activities, ensure global system compatibility	(1) Checklist	(1) (2007)	Victor, Lee (Singapore)	China, Hong Kong China, Indonesia,ROK, USA,	Update distributed to member States for comment Deadline by CNS/MET in July by Victor
				(2) Develop validation process document		(2) Conformance Document	(2) 2007			same as above

No.	PERFORMANCE OBJECTIVE	ICAO Srategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members	ATNICG/2 Update
4	ATN Documentation	D. Efficiency	GPI-17, GPI-19, GPI-22	(1) Study DIR objects/attributes proposed in ACP and follow development within other groups	Expedite implementation activities, ensure global system compatibility	(1) Directory Report	(1) Annually until (2010)	Chonlawit B.	Thailand	Develop the database and review proposal from Eurocontrol. Will present the procedure for coordination. Further consequential changes needs to be made and additional annex needs to be added.
				(2) Development AIDC documentation (including ICD) and follow development within other groups		(2) AIDC ICD	(2) 2007 (ACP-dependent)	(Thailand)	Thailand	Status reported to ATNICG/2 indicating the operation of AFTN based AIDC; Postpone development of ATN based AIDC ICD as experience gained by the implementors.

No.	PERFORMANCE OBJECTIVE	ICAO Srategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members	ATNICG/2 Update
				(3) Update of AMHS ICD to comply with SARPs 3rd Edtion		(3) Updated AMHS ICD	(3) (2007)		Japan	Provided to ATNICG/2 for endorsement
5	ATN Performance	D. Efficiency	GPI-17, GPI-19, GPI-22	(1) Develop/establish/adapt/monitor/identify/analyse performance indicators	Assure QOS, service continuity, timely delivery of services	(1) AMHS performance report	(1) Annually until (2010)	Japan	Republic of Korea, India	Challenging. Proposed to further study how to measure the performance
6	ATN Service Enhancements	D. Efficiency	GPI-17, GPI-19, GPI-22	(1) Review the impact of the implementation of Directory Services in the Region	Enhancing the service	(1) Report on directory	(1) Annually until (2010)	Fiji	USA, Thailand, New Zealand, Japan, Australia	Review the database developed by Aerothai for the Regional ICAO office.
				(2) Development of profiles for the directory access and exchange protocols (Ref. Decision 7/9)	Enhancing the operation	(2) Report on profiles	(2) (2008)	Fiji		
				(3) Study the use of IP	Lowering the operating cost	(3) Report on the use of IP	(3) (2008)	Singapore	China	Will develop a Working Paper to ATNICG/3
				(4) Study for transition to BUFR code	Enhancing the service	(4) Report on the impact of BUFR code to ATN	(4) (2007)	Japan	New Zeland, USA,	Analysis was presented by Hong Kong, China. No progress subject to discussion at CNS/MET/11
				(5) Study for transition of AFTN-based AIDC to ATN environment	Improving the service and lowering the operating cost	(5) Report on the impact of transition of AFTN-AIDC to ATN-AIDC	(5) (2008)	Thailand	India,Indonesia, New Zealand, USA,	A report will be presented by Aerothai to indicate the operation of AFTN based AIDC version 2.0

No.	PERFORMANCE OBJECTIVE	ICAO Srategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members	ATNICG/2 Update
7	Security	B. Security	GPI-17, GPI-19, GPI-22	(1) Develop Information Security policy	Safe and Secure Inter and Intra Regional Communication and service infrastructure	(1) Policy Document	(1) Annually until (2010)	Vidyut Patel (USA)	Australia, Hong Kong China	USA made a presentation at ATNICG/2. High level guidance document needs to be presented to WG/2
				(2) Develop Information Security Guidance		(2) Guidance Document	(2) (2008)			
				(3) Develop Information Security Solution for Initial and Enhanced Services		(3) Security, Technical, Management and Operational Control	(3) (2008)			
				(4) Co-ordinate and monitor ACP working group and other regions		(4) Report	(4) Semi-Annually until (2010)		Thailand	
8	ATN Service Enhancements	D. Efficiency	GPI-17, GPI-19, GPI-22	Analyze Common Address Prefix Proposal	Improving the service and routing efficiency	Report on common prefix based analysis conduced	End of 2007	Mark Brown [Japan]	Australia, Fiji, HongKong China, New Zealand and USA	Action Items developed at ATNICG/2 for follow-up at WG/2 meeting

No.	PERFORMANCE OBJECTIVE	ICAO Srategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members	ATNICG/2 Update

The ATN PERFORMANCE OBJECTIVE

The APAC ATN ground-to-ground infrastructure will be fully operational 53 percent at 23 locations by December 2007.

(GPI-22) COMMUNICATION NETWORK INFRASTRUCTURE

Related ATM objectives: AMSS; HF data; VHF data; SSR Mode S; ATN

Scope: To evolve the aeronautical mobile and fixed communication infrastructure, supporting both voice and data communications, accommodating new functions as well as providing the adequate capacity and quality of service to support ATM requirements.

(GPI-19) METEOROLOGICAL SYSTEMS

Objective: To improve the availability of meteorological information in support of a seamless global ATM system.

(GPI-17) IMPLEMENTATION OF DATA LINK APPLICATIONS

Scope: Increase the use of data link applications

Related ATM objectives: Application of data link; Functional integration of ground systems; with airborne systems; ATS inter-facility data communication (AIDC)

Attachment 1

The Second Meeting of Aeronautical Telecommunication Network (ATN)
Implementation Co-ordination Group of APANPIRG
Hong Kong China, 28 May – 1 June 2007

LIST OF PARTICIPANTS

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
AUSTRALIA (1)			
Mr. Ken Morris	Manager, Briefing Systems and Database Airservices Australia P.O. Box 747, Eagle Farm Brisbane, Queensland 4009 **AUSTRALIA**	Tel: +61 (7) 3866-3441 Fax: +61 (7) 3866-3280	ken.morris@airservicesaustralia.com
BANGLADESH (2)			
Mr. Abdur Rahman	Director (Communication) Civil Aviation Authority of Bangladesh Headquarters Office Kurmitola Dhaka 1229 **BANGLADESH**	Tel: +880-8911011 Fax:	aerolink@dotbd.net
Mr. Mohammad Zahidul Hossain	Senior Aerodrome Officer Civil Aviation Authority of Bangladesh Headquarters Office Kurmitola Dhaka 1229 **BANGLADESH**	Tel: Fax:	nofcaab@accesstel.net
BRUNEI DARUSSALAM (2)			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Hedus Abdullah	Aeronautical Telecommunications Engineer Department of Civil Aviation Ministry of Communications Brunei International Airport **BRUNEI DARUSSALAM**	Tel: +673 233-0518 Fax: +673 233-3666	hedus_abdullah@civil-aviation@gov.bn
Mr. Ali Hasan Hj Mohd Noor	Aeronautical Telecommunications Engineer Department of Civil Aviation Ministry of Communications Brunei International Airport **BRUNEI DARUSSALAM**	Tel: +673 233-0518 Fax: +673 233-3666	alihassan_mdnoor@civil-aviation.gov.bn
CHINA (3)			
Ms. Guo Jing	Engineer Air Traffic Management Bureau CAAC China No. 12, Dongsanhuan Middle Road Chaoyang District Beijing 100022 **PEOPLE'S REPUBIC OF CHINA**	Tel: +86 (10) 8778-6967 Fax: +86 (10) 8778-6910	guojing@atmb.net.cn
Mr. Xin Quan	Engineer Aero-Info Technologies Co., Ltd. CAAC China 802 Tower B, Technology Fortune Center No. 8 Xueqing Road Haidian District Beijing 100085 **PEOPLE'S REPUBIC OF CHINA**	Tel: +86 (10) 8273-1161 Fax: +86 (10) 8273-1181	xq@ait.cn

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Hou Jun	Engineer Aerotelenet Co., Ltd. CAAC China 12th Floor B Tower Technology Fortune Center No. 8 Xueqing Road Haidian District, Beijing 100085 **PEOPLE'S REPUBIC OF CHINA**	Tel: +86 (10) 5872-9766 Fax: +86 (10) 5872-9977	houjun@atnc.com.cn
Hong Kong, China (9)			
Mr. Woon-yin Leung	Assistant Director-General Civil Aviation Department 10/F, Commercial Building Airport Freight Forwarding Centre 2 Chun Wan Road Hong Kong International Airport **HONG KONG CHINA**	Tel: +852 2591-5000 Fax: +852 2845-7160	wyleung@cad.gov.hk
Mr. Peter Hoi-wan Yeung	Acting Chief Electronics Engineer Civil Aviation Department 10/F, Commercial Building Airport Freight Forwarding Centre 2 Chun Wan Road Hong Kong International Airport **HONG KONG CHINA**	Tel: +852 2591-5004 Fax: +852 2845-7160	phwyeung@cad.gov.hk
Mr. Pak-cheung Chan	Senior Electronics Engineer Civil Aviation Department 10/F, Commercial Building Airport Freight Forwarding Centre 2 Chun Wan Road Hong Kong International Airport **HONG KONG CHINA**	Tel: +852 2591-5002 Fax: +852 2845-7160	pcchan@cad.gov.hk

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Kin-fai Chiu	Senior Electronics Engineer Civil Aviation Department 10/F, Commercial Building Airport Freight Forwarding Centre 2 Chun Wan Road Hong Kong International Airport **HONG KONG CHINA**	Tel: +852 2591-5008 Fax: +852 2845-7160	jkfchiu@cad.gov.hk
Mr. Suet-fung Koo	Electronics Engineer Civil Aviation Department 10/F, Commercial Building Airport Freight Forwarding Centre 2 Chun Wan Road Hong Kong International Airport **HONG KONG CHINA**	Tel: +852 2591-5010 Fax: +852 2845-7160	nsfkoo@cad.gov.hk
Mr. Wai-choi Wong	Electronics Engineer Civil Aviation Department 10/F, Commercial Building Airport Freight Forwarding Centre 2 Chun Wan Road Hong Kong International Airport **HONG KONG CHINA**	Tel: +852 2591-5246 Fax: +852 2845-7160	rwcwong@cad.gov.hk
Mr. Richard Chi-kwong Wu	Acting Senior Operations Officer Civil Aviation Department 4th floor Air Traffic Control Complex Hong Kong International Airport, Lantau **HONG KONG CHINA**	Tel: +852 2910-6449 Fax: +852 2910-0186	rckwu@cad.gov.hk

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Steven Wai-ming Chan	Senior Aeronautical Communications Supervisor Civil Aviation Department 2nd Floor Air Traffic Control Complex Hong Kong International Airport, Lantau **HONG KONG CHINA**	Tel: +852 2910-6211 Fax: +852 2910-1160	wmchan@cad.gov.hk
Mr. William Pui-kay Ching	Senior Aeronautical Communications Supervisor Civil Aviation Department 2nd Floor Air Traffic Control Complex Hong Kong International Airport, Lantau **HONG KONG CHINA**	Tel: +852 2910-6202 Fax: +852 2910-1160	pkching@cad.gov.hk
Macau, China (4)			
Mr. Chan Iat Seng, Sammy	Head of IT ADA Administration of Airports, Ltd. Macau International Airport Taipa **MACAU CHINA**	Tel : +853 898-2399 Fax : +853 898-2374	sammychan@ada.com.mo
Ms. Cheong Ho I, Hilda	AIC Supervisor ADA Administration of Airports, Ltd. Macau International Airport Taipa **MACAU CHINA**	Tel : +853 2898-2201 Fax : +853 2886-1145	aicsupervisor@ada.com.mo
Mr. Lo Veng Tong, Freeman	Technical Officer Telecommunications and Radio Navigations Civil Aviation Authority Alameda Dr. Carlos D'assumpção, 336-342 Contro Comorcial Chong Fong 18˚ andar **MACAU CHINA**	Tel : +853 2886-1111/ext 2203 Fax : +853 2886-1145	aicsupervisor@ada.com.mo

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Sun Shabo	Consultant Civil Aviation Authority Alameda Dr. Carlos D'assumpção, 336-342 Contro Comorcial Chong Fong 18˚ andar **MACAU CHINA**	Tel : +853 7964131 Fax : +853 2833-8089	airportinfrastructure@aacm.gov.mo
FIJI ISLANDS (2)			
Mr. David G Gibson	Team Leader IFIS Airports Fiji Limited Private Mail Bag Nadi Airport **FIJI ISLANDS**	Tel: +679 672-3102 Fax: +679 623-1123	davidg@afi.com.fj
Mr. Kelepi Dainaki	Team Leader CNS/ATM Support Airports Fiji Limited Private Mail Bag Nadi Airport **FIJI ISLANDS**	Tel: +679 673-1623 (6725777) Fax: +679 673-1123	kelepid@afl.com.fj
GERMANY (1)			
Mr. Uwe Kunz	Operations Manager Deutsche Flugsicherung - DFS DFS Deutsche Flugsicherung CNS/CZ Flughafen– GEB 176/001 Frankfurt 60548 **GERMANY**	Tel: +49 69 6907-3669 Fax: +49 69 693-625	uwe.kunz@dfs.de
INDIA (3)			

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Praful Kumar Kapoor	General Manager (COM) Airports Authority of India Rajiv Gandhi Bhawan Safdarjung Airport New Delhi 110003 **INDIA**	Tel: +91 (11) 2462-0287 Fax: +91 (11) 2462-0287	pkkapoor@aai.aero
Mr. Anil Kumar Dutta	Joint General Manager (ATM) Airports Authority of India Rajiv Gandhi Bhawan Safdarjung Airport New Delhi 110003 **INDIA**	Tel: +91 (11) 2462-9015 Fax: +91 (11) 2461-1078	akdutta@aai.aero
Mr. Ajay Kumar Kapur	Assistant General Manager (COM) Airports Authority of India Rajiv Gandhi Bhawan Safdarjung Airport New Delhi 110003 **INDIA**	Tel: +91 (11) 2463-2950/ext 2589 Fax: +91 (11) 2462-0287	akkapur@aai.aero
INDONESIA (5)			
Mr. Ahmad Nurdin Aulia	Head of Aeronautical Fix Service Facilities Directorate of Electronic & Electric Facility Directorate General of Civil Aviation Karya Building 23rd Floor Jl. Medan Merdeka Barat No. 8 Jakarta **INDONEISA**	Tel: +62 (21) 350-5006 ext 5152 Fax: +62 (21) 348-2663	aulia@telkom.net

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Sigit Djumatno	Flight Communication & Surveillance Staff Directorate of Aviation Safety Directorate General of Civil Aviation Karya Building 23rd Floor Jl. Medan Merdeka Barat No. 8 Jakarta **INDONEISA**	Tel: +63 (21) 350-7569 Fax: +63 (21) 350-7569	sigitdj@telkom.net
Mr. Mudjiono	PT (Persero) Sub-Directorate LLP Kota Baru Baru. Bandar Kemayoran Blok B-12 KAV No. 2 Jakarta **INDOESIA**	Tel: +62 (21) 654-1961 Fax: +62 (21) 654-1961	-
Mr. Manshuri	MAATS Staff (Makassar Advanced Air Traffic System) PT. (Persero) Angkasa Pura I Makassar International airport 90552 **INDONESIA**	Tel: +62 (411) 550-123 Fax: +62 (411) 550-183	manshuri_mks@yahoo.com
Mr Marzuki Battong	Senior staff of electronics PT. (Persero) Angkasa Pura II Makassar International airport 90552 Jakarta Building 600 **INDONESIA**	Tel: +62 (21) 550-5086 Fax: +62 (21) 550-5013	marzuki.batong@angkasapura2.co.id 4Qie2002@yahoo.com
JAPAN (5)			

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Narihiro Nishida	Special Assistant to the Director Civil Aviation Bureau Operations and Flight Inspection Division Air Traffic Service Department Ministry of Land, Infrastructure and Transport 2-1-3 Kasumigaseki Chiyoda-ku, Tokyo 100-8918 **JAPAN**	Tel: +81 (3) 5253-8751 Fax: +81 (3) 5253-1664	nishida-n2xy@mlit.go.jp
Mr. Shinsuke Yamamoto	Assistant Manager Mitsubishi Electric Corporation 325 Kamimachiya Kamakura, Kanagawa 247-8520 **JAPAN**	Tel: +81 467 41-3530 Fax: +81 467 41-3570	Yamamoto.Shinsuke@eb.MitsubishiElectric.co.jp
Mr. Mark A. Brown	Systems Engineer Oki Electric Industry Co., Ltd. 4-10-16 Shibaura Minato-ku, Tokyo 108-8551 **JAPAN**	Tel: +81 (3) 3454-2111 Fax: +81 (3) 3798-7623	mark667@oki.com
Mr. Takeshi Ogura	Manager (ATC Support Department) NEC Soft, Ltd. Govt. Solutions Divisions 2-4-2 Toyo Koto-Ku Tokyo 135-0016 **JAPAN**	Tel: +81 (3) 5632-5130 Fax: +81 (3) 5632-5178	ogura@mxf.nes.nec.co.jp
Mr. Tetsuo Mizoguchi	Professor Department of Computer Science Hosei University 3-7-2 Kajino-cho Koganei, Tokyo 184-8584 **JAPAN**	Tel: +81 (42) 387-4358 Fax: +81 (42) 387-6028	mizo@hosei.ac.jp
MALDIVES (2)			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Abdullah Waheed	Senior Engineer Maldives Airports Company Co., Ltd. Male'International Airport Hulhule' 22000 **MALDIVES**	Tel: +960 333-7396 Fax: +960 331-7033	abdulla@maclnet.net
Mr. Ahmed Amir	Senior Engineer Maldives Airports Company Co., Ltd. Male'International Airport Hulhule' 22000 **MALDIVES**	Tel: +960 333-7393 Fax: +960 331-7033	amirah@maclnet.net
NEPAL (2)			
Mr. Surya Bahadur Thapa	Manager Civil Aviation Authority Nepal Head Office Babarmahal Kathmandu **NEPAL**	Tel: +977 (1) 425-7667 Fax: +977 (1) 447-1411	sbthapa2@hotmail.com
Mr. Gyanman Bajracharya	Senior Officer Tribhuwan International Airport Gauchar Kathmandu **NEPAL**	Tel: +977 (4) 471-411 Fax: +977 (4) 471-411	gyanmanb@yahoo.com
NEW ZEALAND (2)			
Mr. Ian Dore	Software Team Leader (AFTN/AIS) Airways Development Centre Airways Corporation of New Zealand Limited P.O. Box 14 - 131 Sir William Pickering Drive, Russley, Christchurch 8053 **NEW ZEALAND**	Tel: +64 (3) 358-1697 Fax: +64 (3) 358-1566	ian.dore@airways.co.nz

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Jean Bleriot *(as observer nominated by New Zealand)*	Bid Manager Thales Transportation Systems 97, Avenue Pierre Brossolelte Montrouge 92120 **FRANCE**	Tel: +33 63 223-0420 Fax: +33 14 148-0565	jean.bleriot@thalesgroup.com
PHILIPPINES (2)			
Mr. Cecilio M. Ortiz	Chief, Air Navigation Systems Specialist Air Transportation Office Department of Transportation and Communications 4th Floor, ATO Building, MIA Road, Pasay City 1301 Metro Manila **PHILIPPINES**	Tel: +63 (2) 879 9166 Fax: +63 (2) 879 9250	ortizcecilio@hotmail.com
Mr. William I. Astrologo	Chief, Airways Communication Division Air Transportation Office Department of Transportation and Communications 4th Floor, ATO Building, MIA Road, Pasay City 1301 Metro Manila **PHILIPPINES**	Tel: +63 (2) 879 9282 Fax: +63 (2) 879 9158	chief_acd@ato.gov.ph w_astrologo@yahoo.com
REPUBLIC OF KOREA (5)			
Mr. Ryu Calvin	Assistant Director Korea Civil Aviation Safety Authority Air Navigation Policy Division 274 Gwahae-dong, Gangseo-gu Seoul 157-711 **REPUBLIC OF KOREA**	Tel: +82 (2) 2669-6412 Fax: +82 (2) 6342-7299	yjm71@moct.go.kr

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Munju Jeong	AFTN/ATN System Manager Korea Airports Corporation Air Navigation Team – Korea Airports Corporation 274 Gwahae-dong, Gangseo-gu Seoul 157-711 **REPUBLIC OF KOREA**	Tel: +82 (2) 2660-2932 Fax: +82 (2) 2665-6570	jmjkac@airport.co.kr
Mr. Si-Taek Jeong	ATN Systems Engineer Korea Airports Corporation NAVAIDS Team – Korea Airports Corporation 274 Gwahae-dong, Gangseo-gu Seoul 157-711 **REPUBLIC OF KOREA**	Tel: +82 (2) 2660-2868 Fax: +82 (2) 2660-2320	psytech@airport.co.kr
Mr. Hae-Uk Chung	General Director Top Engineering Co., Ltd. 51-15, Jeong Ja-dong, Jangahn-gu Gyong Gi-do Suwon 440-833 **REPUBLIC OF KOREA**	Tel: +82 (31) 258-9450 Ext. 301 Fax: +82 (31) 246-5201	huchung@toptel.co.kr
Mr. Jun-Ho Park	Manager/ R & D Center Top Engineering Co., Ltd. 51-15, Jeong Ja-dong, Jang Ahn-gu Gyong Gi-do Suwon 440-833 **REPUBLIC OF KOREA**	Tel: +82 (31) 258-9450 Ext. 353 Fax: +82 (31) 246-5201	ghoost@toptel.co.kr
SINGPORE (2)			
Mr. Victor Lee Hoong Kwan	Engineer (Communication) Civil Aviation Authority of Singapore Singapore Changi Airport Air Traffic Services Division P.O. Box 1, Singapore 918141 **SINGAPORE**	Tel: +65 6541-2409 Fax: +65 6542-2447	Victor_Lee@caas.gov.sg

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Kua Kiat Huat	Engineer, AFTN/AMHS Com Centre NCS Communication Engineering Pte. Ltd. c/o Singapore Air Traffic Control Centre 60 Biggin Hill Road Singapore 509950 **SINGAPORE**	Tel: +65 9781-2943 Fax: +65 6542-3195	kkht@ncs.com.sg
SRI LANKA (2)			
Mr. W.A.M.N.K. Abeyasinghe	Senior Electronics Engineer Airport & Aviation Services (Sri Lanka) Ltd. Communication Engineering Section Colombo Airport Ratmalana 10370 **SRI LANKA**	Tel: +94 (1)262-3030-7 Ext. 460 Fax: +94 (11) 263-5536	abeysinghe@airport.lk
Mr. Anura C. Withana	Senior Aeronautical Communications Officer Airports Aviation Services (Sri Lanka) Ltd. Main Communication Centre Ratmalana Western 10370 **SRI LANKA**	Tel: +94 (11) 262-3030-404 Fax: +94 (11) 263-4763	anurawithana@yahoo.com
THAILAND (3)			
Mr. Nuttawat Supanundha	Director, Air Traffic Services Engineering Research and Development Department Aeronautical Radio of Thailand Ltd. 102 Soi Ngamduplee, Tungmahamek Bangkok **THAILAND**	Tel: +66 (2) 285 9246 Fax: +66 (2) 287 8620	nuttawat@aerothai.co.th
Mr. Chonlawit Banphawatthanarak	Executive Officer Systems Engineering Aeronautical Radio of Thailand Ltd. 102 Soi Ngamduplee, Tungmahamek Bangkok **THAILAND**	Tel: +66 (2) 285 9578 Fax: +66 (2) 287 8620	chonlawit.ba@aerothai.co.th

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mrs. Jittima Asawachaiporn	General Administrative Manager Aeronautical Radio of Thailand Ltd. 102 Soi Ngamduplee, Tungmahamek Bangkok **THAILAND**	Tel: +66 (2) 285-9082 Fax: +66 (2) 287-3131	jittima.as@aerothai.co.th
USA (4)			
Mr. Thomas J. McParland	Technical Advisor to FAA BCI 304 Harper drive Suite 203 Moorestown, New Jersey, 08057 **USA**	Tel: +1 (609) 425-4410 Fax: +1 (850) 778-1982	tmcparland@bcisse.com
Mr. Vidyut Patel	Security Engineering Group Manager FAA/Air Traffic Organization Operational Planning (ATO-P) William J. Hughes FAA Technical Center Mail stop: AJ8-1740 Atlantic City International Airport Atlantic City, NJ 08405 **USA**	Tel: +1 (609) 485-5046 Fax: +1 (609) 485-5360	vidyut.patel@faa.gov
Mr. Hoang Tran	ATN/AMHS Programme Manager Federal Aviation Administration 800 Independence Avenue, SW Mail Stop AJW-531 Washington, D.C. 20591 **USA**	Tel: +1 (202) 493-5995 Fax: +1 (202) 493-5945	hoang.tran@faa.gov

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Robert H. Hallman	Manager NNCC Federal Aviation Administration 2150 West 700 North Building No. 2 Salt Lake City, Utah 84116 **USA**	Tel: +1 (801) 320-2165 Fax: +1 (801) 320-2117	Robert.Hallman@faa.gov
Mr. Daniel Hanlon	Senior Representative Asia Pacific Region Federal Aviation Administration American Embassy 27 Napier Road, Singapore 258508 **SINGAPORE**	Tel: + (65) 6543-1466 Fax: + (65) 8163-9294	Dan_hanlon@faa.gov
SERVICE PROVIDER			
ARINC (1)			
Mr. Sarawut Assawachaichit	ARINC P.O. Box 1016 Suan Phlu Post Office Bangkok 10121 **THAILAND**	Tel: 662-285-9483 Fax: 662-285-9437	sassawac@arinc.com
SITA (1)			
Mr. David Fung	Regional Manager SITA Room 1201, 12/F Centre Point 181-185 Gloucester Road Wanchai **HONG KONG, CHINA**	Tel: +852 9400-7979 Fax: +852 2831-4588	david.fung@sita.aero
INDUSTRY GROUP			
AVITECH AG (2)			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Joe Holewa	Regional Representative, Asia Avitech AG Bahnhofplatz 1 Friedrichshafen 88045 **GERMANY**	Tel: +49 7541 282-447 Fax: +49 7541 282 199	-
Mr. Norman G Nunn	Sales & Marketing Director Avitech AG Bahnhofplatz 1 Friedrichshafen 88045 **GERMANY**	Tel: +49 7541 282-447 Fax: +49 7541 282 199	norman.nunn@avitech-ag.com
Cathay Pacific Airways (1)			
Mr. Morgan Ng Mow Kun	Flight Planning & Navigation Services Manager Cathay Pacific Airways Ltd. 3/F., South Tower, Cathay Pacific City 8 Scenic Road Hong Kong International Airport, Lantau **HONG KONG, CHINA**	Tel: +852 2747-8543 Fax: +852 2141-8543	morgan_ng@cathaypacific.com
Comsoft GmbH (2)			
Mr. Manfred Schmid	Managing Director Comsoft GmbH Wachhausstr.5a, 76227 Karlsruhe **GERMANY**	Tel: +49 721 949-7104 Fax: +49 721 949-7119	manfred.schmid@comsoft.de
Mr. Hans-Joerg Merkle	Senior AMHS Expert Comsoft GmbH Wachhausstr. 5a 76227 Karlsruhe **GERMANY**	Tel: +49 (721) 949-7245 Fax: +49 (721) 949-7129	hans-joerg.merkle@comsoft.de

Attachment 1

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Thales (1)			
Mr. Bleriot Jean	Business Development Manager Thales 97, Avenue Pierre, Brossolethe 92120 Montrouge **FRANCE**	Tel: +33 (6) 230-420 Fax: -	Jean.bleriot@thalesgroup.com
GWDI (1)			
Mr. Jespeiz Duprez	Director of Business Development GWDI 201-B, Calle Del Oaks Monterey Calefornia 95060 **USA**	Tel: +1 (831) 392-0430 Fax: +1 (831) 392-0429	jduprez@gwdi.com
ONS Inc. (1)			
Mr. James Moulton	Open Network Solutions, Inc. 22636 Glenn DR Suite 305, Stering VA 20164 **USA**	Tel: +1 (703) 481-9590 Fax: +1 (703) 481-9509	moulton@ons.com
Orient Thai Airline (1)			
Mr. Yos Susiyono Windran	Capt. B747/Deputy Director Flight Operations Orient Thai Airlines 18 Ratchadapisek Road Klongtoey Bangkok 10250 **THAILAND**	Tel: +66 (2) 134-2233 Fax: +66 (2) 134-2236	yos_susiyono@orient-thai.com yoswindran@hotmail.com
ICAO (2)			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESSS	TELEPHONE & FAX	E-MAIL
Mr. Li Peng	Regional Officer CNS International Civil Aviation Organization 252/1, Vibhavadee Rangsit Road Chatuchak, Ladyao Bangkok 10900 **THAILAND**	Tel: +62 (2) 537-8189 Ext. 158 Fax: +62 (2) 537-8199	pli@bangkok.icao.int
Mr. Sujan K. Saraswati	Regional Officer CNS International Civil Aviation Organization 252/1, Vibhavadee Rangsit Road Chatuchak, Ladyao Bangkok 10900 **THAILAND**	Tel: +62 (2) 537-8189 Ext. 155 Fax: +62 (2) 537-8199	ssaraswati@bangkok.icoa.int

Attachment 2

International Civil Aviation Organization

THE SECOND MEETING OF AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) IMPLMETATATION CO-ORDINATION GROUP OF APANPIRG

Hong Kong China, 28 May – 1 June 2007

LIST OF WORKING PAPERS

WP No.	Agenda Item	Subject	Presented by
1	-	Provisional Agenda	Secretariat
2	2	Outcome of APANPIRG/17 and CNS/MET SG/10 on ATN Implementation	Secretariat
3	3	Global Air Navigation Plan (Doc 9750)	Secretariat
4	5	ATNICG Working Group Meeting	Secretariat
5	6	Update to Aeronautical Telecommunication Network Implementation status in Asia and Pacific Regions	Secretariat
6	8	Review Asia/Pac AIDC Implementation plan - Table CNS-1D	Secretariat
7	6	The Federal Aviation Administration ATN/AMHS Plan	USA
8	6	Proposal for a Common Address Prefix for Asia, Pacific and North America ICAO Regions	USA
9	9	Draft Changes to the ASIA/PACIFIC NSAP Addressing Plan	USA
10	9	Draft Changes to the ASIA/PACIFIC IDRP Routing Directory	USA
11	9	Identification of the Tasks and Related Regional Implementation Document that needs to be updated to reflect AMHS Implementation in other ICAO Regions	Chairman of APANPIRG ATNICG
12	4	Status Report of ATS Inter-Facility Data Communication (AIDC Application	Thailand
13	6	Implementation Issue Register	Australia
14	9	Asia/Pacific ATN/AMHS Security	USA
15	9	Revised Interface Control Document (ICD) for ATS Message Handling System (AMHS)	Japan
16	9	Observation on IDRP Routing Policy	Japan

Attachment 2

WP No.	Agenda Item	Subject	Presented by
17	5	ATS Messaging co-ordination meeting and AMCC in the ASIA/PAC Region	Secretariat
18	4	The First Meeting of Aeronautical Communication Panel	Secretariat
19	6	Importance of Specifying Design Capacity and Loading/Stress Testing of AMHS Systems	Hong Kong, China
20	5	ATN Conformance Document and Checklist	China, Hong Kong-China, Indonesia, Singapore, Republic of Korea United States
21	7	Report of the Ad Hoc Meeting for the AMHS Address Management in the Asia/Pacific Region	Thailand
22	9	List of Actions to Analyze Common Address Prefix Proposal	Rapporteur of Ad Hoc Working Group
23	5	Report of Ad Hoc Meeting for the ATN Conformance Document	China, Hong Kong, Indonesia, Singapore, South Korea and United States

LIST OF INFORMATION PAPERS

IP No.	Agenda Item	Subject	Presented by
1		Meeting Bulletin	Secretariat
2	3	Review the Caribbean and South America Aeronautical Message Handling System (AMHS) Internet Protocol (IP) Evolution	USA
3	3	Review the Caribbean and South America Aeronautical Message handling system (AMHS) Implementation Plan	USA
4	11	New Website of ICAO ASIA/PACIFIC Regional Office and ACP Website	Secretariat
5	2	Development of Updated Version of ICD for AIDC	Secretariat
6	6	ATN AMHS Implementation Report	Australia
7	9	Report of the Tenth Meeting of the Aeronautical Fixed Services Group (AFSG/10) of the European Air Navigation Planning	Secretariat

Attachment 2

Group (EANPG)

IP No.	Agenda Item	Subject	Presented by
8	8	Review Status of Implementation of ATN Router Plan – Table CNS-1B and AMHS Plan – Table CNS-1C	Secretariat
9	6	Description of FAA - AMHSS Protocol Implementation Architecture and Basic Operation	USA
10	6	ATN Implementation Status of Sri Lanka	Sri Lanka
11	6	Integration of AFTN Station in Japan	Japan
12	6	Implementation Status Report	Japan
13	6	Results of the AFSG/10 Meeting in April 2007	AFSG and EANPG
14	6	AMHS Testing Practices in the EUR Region	AFSG and EANPG
15	6	Use of Internet for ATN/AMHS Functional and Interoperability Testing	Hong Kong, China
16	6	ATN/AMHS Implementation Activity in China	China
17	6	Singapore ATN and AMHS Implementation Progress	Singapore
18	6	Description of FAA AMHS Redundancy	USA
19	6	Aeronautical Telecommunication Network (ATN) Implementation Plan of the Republic of Korea	Republic of Korea
20	6	Implementation Status Report	Indonesia
21	6	Fiji Implementation Status Report	Fiji Islands
22	6	Thailand AMHS Implementation Status Report	Thailand
23	6	Implementation Status Report of ATN/AMHS in India	India
24	6	Bangladesh Implementation Plan (ATN/AMHS)	Bangladesh
25	6	Hong Kong China Implementation Status Report	Hong Kong - China