



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE**

**THE REPORT OF
THE FIRST MEETING OF AERONAUTICAL
TELECOMMUNICATION NETWORK (ATN)
IMPLEMENTATION CO-ORDINATION
GROUP OF APANPIRG (ATNICG/1)**

Seoul, Republic of Korea
22-26 May 2006

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1. Opening of the Meeting

1.1 The First Meeting of the Aeronautical Telecommunication Network (ATN) Implementation Co-ordination Group (ATNICG/1) of APANPIRG was held in Seoul, Republic of Korea from 22 to 26 May 2006. The Meeting was hosted by the Korean Civil Aviation Safety Authority (KCASA), the Ministry of Construction and Transportation, Republic of Korea and the Korea Airports Corporation (KAC).

1.2 The Meeting was opened by Mr. Kim Yong Duk, Honorable Vice-Minister of Construction and Transportation. He extended a warm welcome to Seoul to all of the participants. He stated that global aviation has experienced a significant growth in demand for both passengers and cargo. In order to cope with the growth of aeronautical messages generated by the growth of air traffic, Korea plans to implement ATN in line with the transition plan developed by ICAO and in cooperation with neighboring States. In order to successfully implement projects, Korea is conducting R & D for the development of a data link communication system. He added that in view of such developments, it was meaningful to host the First Meeting of the ATNICG in Korea. He further stated that the Meeting will address various issues and develop plans and measures to establish future networks in the ASIA/PAC region in accordance with the roadmap set by ICAO.

1.3 On behalf of Mr. L.B. Shah, Regional Director, ICAO Asia and Pacific Office, Mr. K.P. Rimal, Regional Officer, CNS of the ICAO Regional Office expressed gratitude and appreciation to the Ministry of Construction and Transportation of the Republic of Korea. He thanked the Korean Civil Aviation Safety Authority (KCASA) and the Korea Airports Corporation (KAC) for hosting this important Meeting in Seoul and for the excellent arrangements made for the Meeting. He highlighted the tasks that were main objective of the First Meeting of the ATNICG.

1.4 Mr. Lee Geun-Pyo, Chairman and President of the Korea Airports Corporation extended a warm welcome to the participants and emphasized the need for the timely implementation of ATN. He expressed his pleasure in jointly hosting the First Meeting of ATNICG.

2. Attendance

2.1 The Meeting was attended by 70 participants from 19 States: Australia, Bhutan, Brunei Darussalam, China, Hong Kong-China, Macau-China, Fiji, Germany, India, Indonesia, Japan, Kuwait, Malaysia, Nepal, New Zealand, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, and USA. Representatives from SITA and six industries also attended the Meeting. A list of participants is contained in **Attachment 1**.

3. Officers and Secretariat

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

3.2 Mr. K.P. Rimal and Mr. Li Peng Regional Officers, CNS of the ICAO Asia and Pacific Office acted as the Secretaries of the Meeting.

4. Organization, Working Arrangements and Language

4.1 The ATNICG met as a single body, except on 23 and 24 May 2006 when additional ad-hoc Working Group meetings were held to develop the work programme of the Group in a new format. The ad-hoc Working Group meetings were chaired by Mr. Hoang Tran. The working language for the meeting was English inclusive of all documentation and this Report. Lists of Working Papers and Information Papers are contained in **Attachment 2**.

Agenda Item 1: Election of the Chairman of the Group

1.1 Mr. Hyeong-Taek Park from Republic of Korea proposed Mr. Hoang Tran, ATN/AMHS Programme Manager, ATC Communications/Telecommunication Service Group of the Federal Aviation Administration, USA to be the Chairman of the Group. He said that Mr. Tran's nomination was made in view of his contributions and experience in ATN planning and implementation in the ASIA/PAC region over a long period of time. The proposal was supported by a member from Japan. Since there were no other nominations, Mr. Hoang Tran was unanimously elected Chairman of the Group.

1.2 Mr. Hoang Tran thanked the Republic of Korea and Japan for their nomination and support. He also thanked all the participants at the meeting for their support and sought cooperation from all to progress the work of the Group.

Agenda Item 2: Adoption of provisional agenda

2.1 The provisional Agenda was adopted by the meeting without any change as follows:

- Agenda Item 1: Election of the Chairman of the Group.
- Agenda Item 2: Adoption of provisional agenda.
- Agenda Item 3: Review of Terms of Reference and Subject/Tasks List.
- Agenda Item 4: Review the results of the relevant Decisions of the Seventh Meeting of the ATN Transition Task Force provided in Attachment 1–2 and develop a programme to address the outstanding issues.
- Agenda Item 5: Review the latest developments in the Aeronautical Communication Panel (ACP).
- Agenda Item 6: Discuss related elements of the revised Global Air Navigation Plan and the emerging requirements for ground-to-ground communications.
- Agenda Item 7: Discuss regional planning for the transition to BUFR coded OPMET information.
- Agenda Item 8: Identification of urgent ATN related regional guidance material to be developed.
- Agenda Item 9: Review States' ATN Implementation/Operational activities and issues.
- Agenda Item 10: Develop a future work programme.
- Agenda Item 11: Any other business.

Agenda Item 3: Review of Terms of Reference and Subject/Tasks List

3.1 The meeting noted that APANPIRG/16 in its Decision 16/31 recognized the need for extensive coordination among States to ensure the satisfactory transition from AFTN to ATN without causing any disruption to services and decided to establish ATN Implementation Coordination Group. In addition, it was agreed to assign the residual tasks of the ATN Transition Task Force to the ATNICG.

3.2 The meeting noted the Terms of Reference (TOR) of the Group provided by APANPIRG and the assigned Tasks, including the residual Tasks identified for further action in Decisions of the last ATN Transition Task Force Meeting held in 2005. The meeting reviewed the TOR and proposed a slight modification in order to include the performance requirements.

3.3 The meeting noted that the Group was composed of the members of the ATN Transition Task Force and the Republic of Korea. Membership has also been kept open to any other States and organizations willing to contribute to its work. The TOR of the Group and the Tasks List are provided in **Appendix A1**.

3.4 The meeting noted that it was required to review the entire work programme of the Group with a view to enhance safety and efficiency in accordance with the ICAO Strategic Objective and to move from the existing system based air navigation infrastructure to a performance based air navigation infrastructure. In support of the evolution from a system-based to a performance-based approach to planning and implementation of the air navigation infrastructure, States and International Organizations in the ASIA/PAC region are required to develop and implement their work programmes in support of the performance objective. In consideration of this, the Group carried out a thorough review of its Tasks List and then determined strategies, identified performance objectives, determined deliverables and established time frames for implementation in order to achieve the objectives. The new Table developed in line with the above considerations is provided in **Appendix A2**.

3.5 In view of the above, the meeting formulated the draft Decision as follows:

**Draft Decision 1/1 - Revision to the Terms of Reference and the
Subject/Tasks List of ATNICG**

That, the revised Terms of Reference and the Subject /Tasks List of the ATNICG provided in **Appendices A1** and **A2** be adopted.

Agenda Item 4: Review the results of the relevant Decisions of the Seventh Meeting of the ATN Transition Task Force provided in Attachment 1–2 and develop a programme to address the outstanding issues

4.1 The meeting noted that the Seventh Meeting of ATN Transition Task Force (ATNTTF/7) had identified the need to address some residual Tasks and had developed several Decisions and one Action Item. The meeting carried out a review of the outstanding items and the result of the review is provided in the following paragraphs.

Reference Document for the AMHS Description

4.2 As required by Decision 7/5, the Secretariat had already published the Reference Document for AMHS Description on the ICAO website. In addition, the Documentation Tree had been amended to reflect the availability of the Document. Action on this item was considered completed.

ACP WG N4 on ATN Directory

4.3 It was noted that ACP WG N envisages that Directory functions will be included as part of some standardized AMHS Implementation Profiles. However, since not all of the Directory functions that could be implemented based on sub-volume VII are required to support AMHS, it has started work on identifying those elements related to the ATN DIR schema (object classes and attribute types) that could contribute to AMHS implementation profiles.

4.4 While considering this issue, the meeting agreed that the object classes and attributes proposed in ACP WG N4 should be reviewed and compared with those in the Technical Document, and that further action should be taken as appropriate. The meeting, therefore, had assigned this task in its Decision 7/6 to the Working Group of the Task Force to continue to monitor the activities carried out by ACP WG N4 and to report results to the Task Force at its next meeting. This work is yet to be completed. The meeting agreed to retain this work in its work programme.

Results of an ATN Directory Survey by Eurocontrol

4.5 In its Decision 7/7 the ATNTTF/7 had recognized a need to review the impact on the implementation of a Directory Service in the Region and study the impact of delaying implementation until the review of the ATN-specific schema element has been carried out by WG N. This issue is being addressed in the revised work programme.

ASIA/PAC Technical Document on the use of Directory Services

4.6 In accordance with the Draft Conclusion 7/8 the Technical Document on the use of ATN Directory Service was adopted and posted on the ICAO website. Action on this has been completed.

4.7 The work identified in Decision 7/9 regarding development of a profile for Directory access and exchange protocol has not been completed and thus is included in the work programme of the Group.

Development of the ATN AIDC ICD

4.8 It was recognized that development of the Interface Control Document for ATN-based AIDC was expected to progress as required by Decision 7/13, upon completion of the work by OPLINKP and ACP.

4.9 Deployment of an ICD for ATN-based AIDC in the region needs to be completed by 2007. States have plans to implement ATN-based AIDC starting in 2007. Since OPLINKP has completed its task regarding the AIDC message set, ACP action would now be required to update the AIDC message set defined in Doc 9705. It was agreed that the Secretariat would coordinate with the Panel Secretariat and seek advice to enable ATNICG to finalize its ICD for ATN-based AIDC without delay. However, in the mean time, Thailand was requested to proceed with the development of an ICD for ATN-based AIDC, based on the results of the OPLINKP task, for presentation at the Second meeting of ATNICG. Thailand was also requested to coordinate with the ACP Working Group N3 during its forthcoming meeting in June 2006 to ascertain the extent of the changes required to Doc 9705 and the time frame established to accomplish this task by ACP. This action will enable Thailand to take appropriate action accordingly in order to ensure timely completion of the ICD.

Regional planning for the transition to BUFR-coded OPMET information

4.10 Decision 7/15 of ATNTTF/7 called for a study of the capability of AMHS to handle BUFR code. The results of the study were presented to the OPMET/M Task Force and the action on this item has been completed.

AMHS Performance Document

4.11 In its Decision 7/18, the ATNTTF Working Group was given the task of reviewing the AMHS performance-related information already contained in the documents adopted by APANPIRG. This task included ascertaining the need either to consolidate the information in one single document or to develop a completely new document on performance. This work has yet to be addressed. It is, therefore, included in the work programme of the Group.

Working Group of the ATN Transition Task Force

4.12 In its Decision 7/21, the ATNTTF/7 meeting had agreed that the Working Group would continue to deal with the tasks assigned to it by the ATNTTF/7 meeting until the first meeting of the ATN Implementation Coordination Group. The Working Group met once but was not able to address all of the tasks. The first meeting of the ATNICG automatically resulted in the Working Group being dissolved. Therefore all of the residual work identified above was absorbed by the ATNICG and included in its work programme.

Agenda Item 5: Review the latest developments in the Aeronautical Communication Panel (ACP)

5.1 Under this agenda item, the expert from the USA who has participated in the meetings of the ACP Working Group N and its Sub-groups provided the following update to the meeting:

5.1.1 Sub-Working Group N1 (SG N1), Internet Communications Service, is developing SARPS for Ground-Ground ATN communications using the Internet Protocol Suite (IPS). Updates to Chapter 3 of Annex 10 and a new Technical Manual for IPS are under development. It is expected that the Annex 10 changes will be completed by the upcoming WG N Meeting in Brussels. The detailed technical provisions are still in a draft form and are expected to be completed in 2007. SG N1 is also conducting a study of Air-Ground Mobility using IPS. Candidate approaches include: using IETF methods (Mobile IP and NEMO), adapting routing protocols, transport level mobility, mobility using Instant Messaging (IM), and Application Mobility. It is not intended that a specific approach be selected at this time, but rather that the study determines the feasibility of mobility using IPS techniques.

5.1.2 SG N2, Air-Ground Applications, is developing technical provisions for Protected Mode (PM) versions of Flight Information Services (FIS) and Automatic Dependent Surveillance (ADS) applications.

5.1.3 SG N3, Ground-Ground Applications, is continuing work on AMHS. For AMHS, work is underway to identify sub-profiles of the Extended Services. Work is also continuing on the use of Directory Services. SG N3 also has on its work program an action item to update the ICD for ATN-based AIDC, based on the new message formats provided by the OPLINK Panel.

5.1.4 SG N4, Security Services, examined the use of an Application sub-layer (called the Security Shim) for use with Protected Mode Applications. It was decided that the current Upper Layer Communications Service (ULCS) security provisions, as specified in Edition 3 of the SARPs, could be used in the short term. It was recommended that an approach that accommodates current applications and future IPS applications should be developed once the Air-Ground Mobility Solution is identified. SG N4 is analyzing the SG N1 candidate approaches to mobility from a security perspective. SG N4 is also developing draft security requirements for Ground-Ground IPS.

5.2 The Secretariat presented a working paper outlining the key activities of ACP as mentioned above with regard to the agreement by SG N1 to conduct a feasibility study on using IPS in air/ground data links, and progress in the development of SARPs for ATN/IPS which will enable the introduction of IPS in the ATN in a manner which is compatible with ATN/OSI. The development of guidance material, including detailed technical specifications, is expected to be completed in November 2008. In developing the relevant SARPs, the ACP SG N1 has made use of the Internet Society's generic standards that have been developed by the Internet Engineering Task Force (IETF) through its publicly available "Request For Comments" (RFCs). Some specific RFCs will be referenced in the draft SARPs.

5.3 It was noted that in order to protect investments which have already been made by States in implementing the ATN, the introduction of IPS (based on IP version 6) should be introduced in such a manner that already implemented or planned ATN systems can continue to operate. This will be achieved through implementing gateways or dual-stack systems at the borders between areas supporting ATN/OSI and ATN/IPS. Current IPS implementations (using IP version 4) are expected to be replaced in due course by IPS (using IP version 6).

5.4 Following up on the development of protected mode CPDLC, ACP SG N2 continued to develop protected mode (PM) versions of FIS and ADS-C messages. It is expected that the PM version for FIS messages will be agreed upon by the WG N at its meeting in July 2006. The issue of

PM-ADS-C messaging is more complex and requires WG N to first agree on a single approach for PM-ADS-C messages.

Development in ground-ground applications

5.5 It was noted that the OPLINK Panel at its meeting held in September 2005, developed a revised set of AIDC message sets. The ACP expected that these message sets will may not be required before 2009 or 2010.

5.6 ACP SG N3 also reviewed the completion of the AMHS register. It is expected to see this completed at the next WG N meeting.

5.7 The meeting was informed that the ACP WG N Sub-Groups will meet in Brussels during the week of June 26, 2006 and WG N will meet during the week of 3 July 2006.

Agenda Item 6: Discuss related elements of the revised Global Air Navigation Plan and the emerging requirements for ground-to-ground communications**Global Air Navigation Plan**

6.1 The meeting was informed that the Global Plan was issued in 1998 and followed by a first amendment in 2001. In light of the Eleventh Air Navigation Conference (AN-Conf/11) in 2003 and the Sixth Meeting of the Air Navigation Commission Consultation with Industry in May 2004, the second amendment to the Global Plan was prepared in January 2006.

6.2 A presentation on the draft second amendment of the Global Air Navigation Plan was presented to the meeting which addressed past and future work associated with achieving a global ATM system; the Global Plan Initiatives (GPIs); the performance-based approach to measuring success with implementation; and the process of carrying out regional integration and transition. The revised planning process would be facilitated through project and programme management techniques and new reporting methodologies. The revised Global Plan would not cause major changes to the work already in progress in the regions since the objective was to harmonize work programmes, improve reporting processes and help to ensure interoperability and seamlessness between regions. It would also introduce methods to ensure that performance objectives were developed and measured.

6.3 The meeting noted that the ICAO Secretariat was consulting States regarding the revised Global Air Navigation Plan and sought the views of the ALLPIRG/5 Meeting held in Montreal in March 2006. Consequent to this coordination process, the revised draft second amendment is scheduled to be presented to the Air Navigation Commission for its final review in October 2006, and subsequently to the Council for its approval in November 2006.

6.4 The meeting, recognizing that evolution continues from a systems-based to a performance-based approach to planning and implementation of the air navigation infrastructure, noted that the Global Plan is a significant component in the development of regional and national plans and that, together with the global ATM operational concept, it provides an effective architecture for achieving a harmonized and seamless Global ATM system.

6.5 The meeting was further informed that the GPIs are options for ATM improvements which, when implemented, would result in direct performance enhancements. States and regions would choose initiatives that meet performance objectives. These would be identified through an analytical process, specific to the particular needs of a State, region, homogeneous ATM area, or major traffic flows. Longer-term strategies for transition to the ATM operational concept are being developed and will be included in the Global Plan when completed. The Global Plan would then provide a complete roadmap for a global ATM system as envisioned by the ATM operational concept.

6.6 The meeting was also briefed on the new business approach being taken by ICAO. The ATN Implementation Coordination Group went to some effort to update its Subject and Task Lists in accordance with the strategic objectives and the Global Plan Initiatives (GPIs). The recommended list of Subject and Tasks developed by the ad-hoc Working Group during the meeting was endorsed by the meeting and is provided under Agenda Item 3.

The emerging requirements for ground-to-ground data communications

6.7 A paper was presented by the Secretariat outlining the emerging requirements for ground-to-ground data communications. The ATM operational concept adopted by AN Conf/11 includes establishment of an information-rich environment which would become one of the most valuable and important enabling conditions. Timely availability from authorized sources of high quality electronic aeronautical, meteorological, airspace and flow management information will be necessary. It was agreed at the AN Conf/11 that quality-assured aeronautical information should ultimately be available in real-time, through the seamless interchange of aeronautical information between parties in an interoperable, flexible, adaptable and scalable manner. The Aeronautical

Telecommunications Network specified by ICAO would be able to contribute and support the establishment of an information-rich environment for the ATM operational concept.

6.8 The system expectations as indicated in the second amendment to the Global Air Navigation Plan also identify databases and data exchange as key elements for harmonization of global ATM interoperability. The Global Plan Initiatives (GPI-17, GPI-18, GPS-19 and GPI-22) contained in the draft second amendment to the Global Air Navigation Plan also specify the need for the implementation of data link applications and the functional integration of ground systems with airborne systems and ATS Inter-facility Data Communications (AIDC).

6.9 AFTN in the ASIA/PAC region has been implemented successfully and has been meeting operational requirements satisfactorily. Many ATS, MET and AIS applications including ATM automation systems are dependent on the existing AFTN system. However, the capability of AFTN to meet telecommunication service requirements is limited in terms of introducing new applications and improving efficiency. The constraints are due to the aging character-oriented technology used by the AFTN.

6.10 In order to ensure smooth transition from AFTN to ATN/AMHS, existing applications and traffic demands need to be supported throughout the transition period and beyond. In addition, the following emerging requirements for new applications should be also supported:

Use of Lower Cases characters in NOTAM messages

6.11 At the request of the user community, the Air Navigation Commission (ANC) considered permitting the use of lowercase letters, in addition to uppercase letters, in NOTAM messages. As identified by the ATNTTF/7 meeting in Shanghai in 2005, most AFTN centers would require extensive software changes in order to support lowercase characters although some switching centres already have the capability to handle lowercase text. In addition, most AFTN terminals were not in a position to support such changes. It was also noted that an AFTN/AMHS gateway service that fully complies with the provisions of Annex 10 might not have the capability to handle both upper-and lower-case characters. Other AIS automation including NOTAM exchange requires faster links between AIS databases and between States. There is a need to continue supporting access to regional OPMET databanks and to ROBEX applications.

AIDC and BUFR coded Metrological Information

6.12 The OPLINK/1 meeting held in September 2005 updated the provisions for AIDC contained in the PANS-ATM Doc 4444 and the Manual of ATS Data Link Applications (Doc 9694). In addition to the need for ATN to support AIDC applications, there is also the need to support the transmission of the BUFR coded Meteorological information as adopted by WMO.

Agenda Item 7: Discuss regional planning for the transition to BUFR coded OPMET information**Outcome of the Fourth Meeting of the OPMET Management Task Force**

7.1 The outcome of deliberations on BUFR code by the Fourth Meeting of the ASIA/PAC OPMET Management Task Force (OPMET/M TF/4) of the CNS/MET Sub-group of APANPIRG held in February 2006 was presented to the meeting by the Secretariat. It was recalled that the result of the Meeting of the ATN Transition Task Force (ATNTTF) ad-hoc Working Group held during the ATN Seminar in January 2006 was reviewed by the OPMET Management Task Force

7.2 The meeting was informed that the binary-based AMHS would be able to support transmission of the binary-based BUFR coded files. However, modifications to some existing AMHS systems may be necessary.

7.3 The meeting also reviewed an information paper which was presented by Japan to the OPMET/ M TF/4 Meeting. It was noted that AMHS would support transmission of binary files through the binary data being transmitted in an “envelope”. In this case the AMHS would be required to check only the address of the envelope and it would not be necessary to process the message content. This method would be generally applicable to a variety of forms of binary data and only minor software modification would be required to existing MTAs and gateways. It will be necessary to consider the use of File Transfer Body Part (FTBP) functionality.

File Transfer Body Part (FTBP) to support BUFR coded messages.

7.4 An expert from China explained with two slides, the concept of using FTBP within an Inter-Personal Message (IPM) to support the exchange of BUFR coded meteorological information via AMHS. Most of the representatives from industry present at the meeting indicated that their systems would be able to support the requirements through an FTBP solution. However, it was identified that it is more critical to specify the relevant capabilities that will be required from User Agent and/or AMHS/AFTN gateway applications. A BUFR code generating device and/or converting facilities would be required on the user application side. Specifications for message or file sizes to be used for BUFR coded meteorological information, and other requirements for using BUFR code, will need to be specified in more detail by the MET representatives on the OPMET Management Task Force.

7.5 It was noted that descriptions of the contents of FTBP are being introduced into the draft Edition 4 of ICAO Doc 9705 which will be reviewed by the ACP Working Group at its next meeting. This material is likely to be available by September 2006. The implementation of AMHS should not be delayed awaiting publication of the Edition 4 of ICAO Doc 9705.

Suggested time frame of the transition to BUFR

7.6 The meeting noted the following suggested time frame for the transition to BUFR code along with amendments to Annex 3:

- End of 2007 – amendment 74 to Annex 3: Will allow the use of BUFR coded OPMET in addition to TAC between States under bilateral agreement;
- 2010 – Amendment 75 to Annex 3: Provisions for exchange/distribution of BUFR between OPMET databanks in the form of a recommended practice (RP);
- 2013 – Amendment 76 to Annex 3: The above RP become a Standard with a provision allowing all States to issue BUFR coded OPMET data to OPMET databanks as recommended practice; and
- 2016 – Amendment 77 to Annex 3: Above becomes a Standard leading to full implementation of BUFR coded OPMET data.

7.7 It was noted that the OPMET/M Task Force established a Project Team on BUFR Transition for OPMET information (PT/BUFR Transition). Participants from Australia, China, Fiji, India, Japan and Thailand have confirmed their membership of the Project Team. Communications experts from ATNICG were also encouraged to participate in the Project Team.

7.8 The meeting was informed that during the Tenth Meeting of the CNS/MET Sub-group of APANPIRG, scheduled for July 2006, a joint ad-hoc meeting comprising experts from both the ATN Implementation Coordination Group and the OPMET/M Task Force will meet in the afternoon of the second day of the meeting to further discuss this matter. The members of the BUFR Transition Project Team of the OPMET/M Task Force were strongly encouraged to participate in this meeting.

Result of BUFR Study from Japan

7.9 As follow-up action to those questions discussed at OPMET/M TF/4, a response from Japan was presented to the meeting. It was stated that currently it would not be feasible to calculate the maximum data-size of BUFR coded OPMET message as the definitions of BUFR templates for OPMET data are still in draft form. Japan recognized the necessity to define the interface characteristics required between AMHS and MET including the ICD for generating/receiving MET data, distribution and display requirements, tracking and storage requirements and the transition of OPMET systems from AFTN to AMHS.

BUFR transition planning in Europe

7.10 The representative from the European AFSG informed the meeting that the AFSG has been given the task of developing plans to accommodate BUFR OPMET transmission within the constraints of the EUR AFS network (EANPG/45). For this purpose, the use of AMHS "File Transfer Body Parts" functionality is being considered. However, as the transition to BUFR is still being reviewed by the appropriate MET bodies (EANPG Conclusion 47/27), the AFSG is awaiting specific detailed requirements concerning communications before it proceeds any further with this task.

7.11 In order to further progress the study and complete the task given by APANPIRG under its *Decision 15/40 - Planning for migration to BUFR-coded aeronautical meteorological messages*, the meeting agreed that the member from Japan would prepare a discussion paper to be presented to the Tenth Meeting of the CNS/MET Sub-group of APANPIRG through the project team, based on the information provided and the discussions held at the meeting.

7.12 Members from China, Hong Kong China and USA were requested to provide their contributions and comments on the prepared discussion paper to the member from Japan by 15 June 2006. Japan was requested to include background information concerning BUFR coded OPMET messages in the paper. Accordingly, the meeting formulated the following Decision.

Decision 1/2 - Supporting BUFR coded OPMET messages by AMHS

- That, a) Member from Japan to prepare a discussion paper on supporting BUFR coded OPMET Messages by AMHS and other Facilities based on the discussions at the meeting; and
- b) Experts from China, Hong Kong China, USA to provide comments to finalize the paper which should then be presented to the Tenth Meeting of CNS/MET Sub-group of APANPIRG to be held in July 2006.

Agenda Item 8: Identification of urgent ATN-related regional guidance material to be developed**AMHS Address Register**

8.1 The meeting noted the work in this regard being carried out by the European AFSG. It was also noted that the ICAO ACP is currently considering the offer made by Eurocontrol for the publication of the AMHS Address Register organized by Eurocontrol in Brussels to be made available through its website to relevant administrations and organizations on a global basis. The maintenance of the Address Register would be performed by Eurocontrol, under the auspices of ICAO.

8.2 The meeting noted, in the paper presented to this meeting on behalf of the Secretary of the ACP, the offer made by Eurocontrol for a global database service to be provided to all of the ICAO regions. The meeting agreed and supported the proposal. The meeting also proposed that work on the establishment of an ASIA/PAC database proposed to be established in Bangkok should progress. The ASIA/PAC database could share data and synchronize data between databases. It was also pointed out that a coordination procedure should be established formally between two databases, lack of which may disrupt AMHS operations. In this regard it was suggested that the ATS Message Management Manual developed by the EUR AFSG should be used as guidance.

Regional AMHS Address Database

8.3 Thailand informed the meeting of the progress made by Aerothai on the development of an Interim Regional AMHS Address Database. It was recalled that it was recognized during the Seventh ATN Transition Task Force (ATNTTF/7) Meeting in Shanghai, that formation of an interim database of AMHS addresses would be essential for ATN implementation within the ASIA/PAC region. The ICAO ASIA/PAC Regional Office was requested to administer the database. Thailand was asked to provide the support necessary for the implementation of an AMHS Address database for the ICAO ASIA/PAC region.

8.4 As a follow-up action to a decision made by the ATNTTF/7, Japan provided a draft requirements document for an interim AMHS database for consideration by Aerothai. Based on these requirements, Aerothai created an interim AMHS database with editing/viewing functionality. Both the database and the associated functionality are in a preliminary state and still require more comments from users.

8.5 It was noted that the database being developed uses Microsoft® SQL Server 2000 and the current application uses ASP.NET as the framework for development. The reason for choosing this kind of setup is because of the available resources within Aerothai. However, the implementation can be imported to LAMP (Linux, Apache, MySQL/PostgreSQL, Perl/PHP) as suggested in the requirements in the future.

8.6 A Directory Service will be essential when the number of User Agents and Message Transfer Agents in the Region becomes large enough to render a manually administered table-based database impractical.

8.7 The meeting was informed that the system specified and developed needs to be enhanced further. There is a requirement for the detailed database structure to be finalized. The member from Hong Kong China was requested to take the leading role in coordinating with Japan to finalize the detailed specification and structure of the database. It was agreed that Thailand should proceed with the work of establishing the database. Accordingly, the meeting formulated the following decision:

Decision 1/3 - Detailed Interim Regional AMHS Address Database

That, Hong Kong China with assistance from Japan be requested to further develop requirements for a detailed database structure to provide an interim regional AMHS address look-up service, pending the availability of a directory service to be introduced in the region.

Agenda Item 9: Review States' ATN Implementation/Operational activities and issues**Review of FASID Tables**

9.1 The meeting noted with appreciation that Tables CNS-1B and CNS-1C were updated in accordance with the Conclusions 15/18 and 15/17 of APANPIRG/15. The updated Tables and Charts have been published in the First Edition, 2006 of ASIA/PAC ANP Vol II, FASID. A proposal for the amendment of FASID, replacing the existing Table CNS-1D with an updated Table CNS-1D was also processed in accordance with Conclusion 16/27 of the APANPIRG/16 meeting. Table CNS-1D was also amended after approval of amendment proposal APAC 05/14 CNS on 24 February 2006. The existing Table will be replaced with the updated Table CNS-1D in the APAC FASID in the next amendment to the First Edition of Doc 9673.

9.2 The meeting reviewed Table CNS-1B - ATN Router Plan, Table CNS-1C - AMHS Implementation Plan, and Table CNS-1D - AIDC Implementation Plan. During the review it was noted that the name of the ATM station in Japan needs to be amended from Tokyo to Fukuoka as the Fukuoka ATM Centre has been in commission since October 2005 and all the functions are now carried out by Fukuoka ATMC.

9.3 The implementation of the ATN Router plan specified in Table CNS-1B for links between India and Kenya and between India and Oman has not progressed. India would continue to follow up with the States concerned to coordinate the implementation plans. It was also agreed that the Regional ICAO Office would facilitate coordination in this regard.

9.4. There has not been any progress with the upgrading of the existing circuit between Fukuoka and the Russian Federation. Coordination between Japan and the Russian Federation for the establishment of a target date for implementation of the ATN Router Plan is yet to be initiated. In this regard the Secretariat agreed to invite the Russian Federation to the CNS/MET Sub-Group meeting to be held in Bangkok from 17 to 21 July 2006 in order to facilitate coordination.

9.5 Taking advantage of the availability at the meeting of representatives from Kuwait, a bilateral discussion had taken place between China and Kuwait concerning implementation of the link within the established target date.

9.6 With respect to the requirement reflected in Table CNS-1D for an AIDC link between Karachi and Kuwait, the representative from Kuwait made it clear that Karachi is not adjacent to Kuwait and so there is no requirement for an AIDC link between Karachi and Kuwait. It was recognized that Pakistan should review this requirement and initiate action to delete it from the Plan.

9.7 It was noted that most of the States were ready to implement the recommended facilities specified in Tables CNS-1B, CNS-1C and CNS-1D within the established target dates. During the review it was emphasized that States should coordinate implementation with adjacent States and finalize details of implementation. Furthermore, it was stressed that the Main Backbone Boundary Intermediate Systems (BBIS) should be implemented as a first priority. It was also noted that failure to implement the recommended facilities within the established target date(s) may be considered as a deficiency on the part of the State(s) concerned.

Strategy for ATN Implementation in the ASIA/PAC Region

9.8 The Strategy for Implementation of ground-to-ground ATN communications adopted by APANPIRG was reviewed, as required. During the review of the Strategy it was noted that there was no problem with the purchase of an ATN system based on the OSI/ISO protocol suite. Two States had already implemented ATN AMHS and some States were in a process of implementing AMHS in 2006. Several States have planned to implement AMHS by the end of 2007. All six of the vendors present at the meeting assured that they would provide support for the equipment the foreseeable future for implementation of ground-to-ground ATN for both ISO/OSI and IPS protocols, and for the

ISO/OSI protocol for air-ground communications. The meeting had recognized that there was no problem at all for the supply of ISO/OSI based systems.

9.9 Taking note of the work in progress in the ACP for development of SARPs for IPS and considering the need to ensure the harmonization of procedures and protocols, the meeting proposed an amendment to the Strategy to permit deployment of a network approach for the provision of dual stack (ISO/OSI AND IPS) protocols. The proposed amendments have been highlighted in the attached **Appendix B**.

9.10 In view of the forementioned, the meeting formulated the following draft conclusion:

Draft Conclusion 1/4 - Updating of the Strategy for implementation of ATN

That, the Strategy for implementation of ATN in the ASIA/PAC region be amended as shown in **Appendix B** to the report of the first meeting of ATNICG.

ATN Implementation Plan in the Republic of Korea

9.11 The Republic of Korea (ROK) presented an information paper outlining the current operational status of their AFTN system and their future transition plan to ATN. The meeting was informed that the ROK installed an AFTN/AMHS system at Gimpo Airport in 2001 as the first step in the establishment of an ATN in order to cope with the increasing air traffic volume and to promote exchange of information between ground stations in a timely manner. It was noted that AFTN and AIS systems have been integrated by Frame Relay within the country. This new system is configured with duplicated systems in order to ensure uninterrupted operation. A 9600bps X.25 satellite circuit (SAT/d) for AFTN communications between Seoul and Beijing and a 9600bps X.25 AFTN circuit (LDD/d) between Seoul and Tokyo have been installed. These International circuits have been established to provide alternate routing. If a breakdown occurs on either one of these international circuits, the AFTN messages are diverted through the alternate routing. The ROK is considering a variety of ways to implement ATN and plans to establish ATN by connecting ATN Routers to neighboring States in accordance with the regional Air Navigation Plan for ATN transition in the ASIA/PAC region. ROK also plans to upgrade its existing system to establish ATN links with China and Japan.

9.12 The meeting also noted the current volume of AFTN traffic in the Republic of Korea. The number of AFTN messages processed annually has increased almost 7 times, from about 6,000,000 to 43,000,000 messages, over the last 10 years (1996-2005). The AFTN/AMHS Gateway Server commissioned in March 2002 could support a domestic AMHS Service. The AMHS service is performed by a MTA-MTA link. The telecommunication network links Incheon ACC, local airports, airline companies etc. with Seoul AICC (Aeronautical Information Communication Center). It has a telecommunication network linking each airport using IP Addresses over dual logic communication channels. The meeting was informed that the AMS, AIS, AIP and PDC/D-ATIS systems provide their services to international and domestic subscribers through this telecommunication network. It was noted that the Flight Data Processing Subsystem (FDPS) of the Incheon radar system and the exchange of Air Traffic Service Messages exchange are realized using AFTN.

VDL Mode 2 Trial in China

9.13 China informed the meeting that air-ground data link communications have become more and more important in flight operation and service. There are 87 ACARS RGSs located nationwide and operationally cover most Chinese air routes. Both ATC and AOC services are provided to aircraft equipped with ACARS. In order to cope with the introduction of the Airbus A380 planned to be operating in Chinese airspace later this year, and other newly equipped aircraft, CAAC plans to set up five VDL Mode 2 stations in Beijing, Pudong, Shanghai, Guangzhou and Hong Kong in 2006. VDL Mode 2 trials will be conducted in addition to ATN trials. The VDL Mode 2 stations will be bilingual stations which also support ACARS data link communications. The frequency used

in the VDL Mode 2 data link service will be 136.975MHz. Fifteen D-FIS systems which include a Pre-Departure Clearance system and a D-ATIS system will be installed in by the end of 2007 in several airports: Beijing, Pudong, Hongqiao, Guangzhou, Shenzhen, Chengdu, Kunming, Xian and Haikou. In order to improve secured ATS service, CAAC has adjusted the eastward FANS ATS route L888. China will also conduct testing along the new CNS/ATM air route from Chengdu to Lhasa by July, 2006.

Dual Stack Protocol for AMHS Solution

9.14 China informed the meeting of its dual stack AMHS solution. The AMHS system was developed by Aero-Info Technologies Co. Ltd for the ATN Research project of CAAC which supports both ICAO's existing ATN provisions compliant protocol and the TCP/IP protocol. It complies with the ICAO ATN SARPs for ATS Messaging using AMHS and with TCP/IP v2.0 (EUROCONTROL) for supporting TCP/IP (RFC1006). It was reported that many civil aviation systems and their applications currently being used or being introduced in China are based on an IP protocol. ATS information is the data source for many applications. Therefore, smooth implementation of an AMHS system in China requires the provision of support systems and/or applications which use TCP/IP protocols.

Fiji-Roadmap for implementation

9.15 Fiji provided details of their current ATN activities and the proposed roadmap adopted for implementation of ATN. As part of their ATN Transition and Implementation plan, Fiji initiated this process by participating in an ATN trial program planned from July 2005 to June 2006. Several suppliers were involved in the ATN trial. Trials was also conducted involving interoperability tests with Australia and with the FAA Tech center. The objective of the trials was to provide Fiji's technical and operational staff with knowledge and understanding of ATN/AMHS systems by practically interacting with the system. A System Requirements Specification (SRS) for the ATN/AMHS required in Fiji will be developed at the end of the trial and will be used for the normal RFT process. The results of the trials have so far been satisfactory.

9.15.1 Fiji will adopt the ASIA/PAC region's AMHS ICD transition approach in defining a roadmap to implement ATN in Fiji and the surrounding region. Implementation of the transition from AFTN to full ATN is proposed to be in 5 phases. This will result in an ATN network consisting of domestic, regional (neighbouring States) and international links. The ATN BBIS and AFTN/AMHS Gateway will be implemented by 2007 for international use. Domestic operation is planned for 2009 and full ATN/AMHS will be implemented in 2010. During the discussion Fiji was advised to consider the inclusion of a plan in their roadmap for the implementation of the requirement for AIDC between adjacent centres.

Singapore-AMHS Implementation Plan

9.16 Singapore informed the meeting that an award has been made for the supply of ATN Routers and an AMHS system. The implementation will take place in two phases. During the first phase, scheduled for completion by December 2006, a basic ATS Message Handling Service will be implemented to support the initial start of ATN/AMHS. During the second phase an extended AMHS will be implemented in the middle of 2007. The need to amend the AMHS ICD was identified as it related to the second edition of Doc 9705 and does not support the CAAS addressing scheme as prescribed in the ATN technical provisions of the Third Edition of Doc 9705 with respect to the AMHS addressing scheme. This problem identified by Singapore was addressed. A task involving amendment of the AMHS ICD relating to the addressing scheme has been included in the work programme of the Group. It was also agreed that pending the amendment of the ICD, States should follow the provision of the Third Edition of Doc 9705 and IPM 88.

ATN BIS Router and AFTN/AMHS Implementation Activities in Malaysia

9.17 Malaysia informed the meeting of their activities involving the implementation of an ATN BIS Router and AFTN/AMHS Gateway in Malaysia. It also highlighted the importance of close coordination with neighboring States on project implementation activities. Implementation activities will start in September 2006 and are expected to be completed in December 2006. These activities, especially testing and commissioning, will only be successful if the Malaysia BIS Router and AFTN/AMHS Gateway can be connected through the BBIS nodes in Singapore and Thailand so that testing can be performed using real data. DCA Malaysia has been coordinating with both of these States and was informed that the BBIS nodes of both States will be ready for testing at that time. Malaysia has taken initiatives to procure a BIS router in accordance with the earlier commitment in 2005. In order to ensure the successful implementation of the regional ATN plan close coordination between neighboring States is considered very important.

ATN/AMHS Transition Plan of Sri Lanka

9.18 The meeting noted that the proposed ATN/AMHS transition plan of Sri Lanka consists of two phases. By the end of 2006, Sri Lanka will implement the following three subsystems within their AMHS management domain.

- (i) ATS Message Server Plus AFTN/AMHS Gateway
- (ii) AMHS User Agents
- (iii) Domestic AMHS Network Infrastructure

9.18.1 The domestic network infrastructure will be based on Internet Protocol (IP) and will utilize COTS IP routers and other ancillary network equipment. Sri Lanka does not seriously consider the X.25 path as a long-term or cost-effective solution for international communications. Sri Lanka is patiently waiting for the development of ATN SARPs in respect of the Internet Protocol Suite (IPS).

FAA ATN/AMHS Implementation Plan

9.19 An AMHS was installed in Salt Lake City, Utah in March 2005. The AMHS service currently operates with a connection to the AMHS located in Tokyo ACC, utilizing ATN routers on X.25 sub-network protocol. The FAA AMHS will support both Translated Form (XF) and Common AMHS Addressing Scheme (CAAS) addresses. The FAA will use a testing facility to perform conformance test with other States that would like to migrate from AFTN to AMHS. The test platform has been used for testing a variety of AMHS vendors' equipment. The FAA will provide dual stack network protocols (ATN/OSI and Internet Protocol, IP) in the implementation of the ATN router at its Salt Lake City (SLC) facility. The FAA proposes to expand the AMHS service to Atlanta (ATL) Center to support facility and network diversification. This will ensure that the SLC and ATL Centers can backup one another. The FAA can support additional AMHS service with Australia, Fiji and New Zealand. The FAA was working with ATMB/CAA China to conduct a conformance test between ATMB and the FAA ATN Router and AMHS.

9.20 The AMHS Extended Service to support binary universal form for the representation of meteorological data (BUFR) coded messages and Directory Services is being considered by the FAA management. A well-defined BUFR-generated system interface and its operational impact have to be determined before a decision can be made. The FAA is moving to an Internet Protocol (IP) network to reduce its operational costs. However, it was recognized that the IP interface will require a new IP protocol Interface Control Document, IP routing policy, IP addressing scheme and other implementation and operation related documents.

Results of the AFSG/9 Meeting in April 2006

9.21 A comprehensive presentation on the results of the AFSG/9 meeting was provided by the representative of the Aeronautical Fixed Services Group (AFSG) of the European Air Navigation Planning Group (EANPG). The meeting was held in April in Paris. The structure of AFSG and its activities were introduced. The meeting noted the progress of AMHS implementation made in Europe. Clarification was also provided on the transition time frame from AFTN/CIDIN to AMHS, the Pan-European Network Services (PENS) and the IP protocol used to support AFS communications in the European region.

EUR/NAT AMHS PRMD Names and Addressing Plan Registry

9.22 It was reported that in absence of an official ICAO document, the AFSG has maintained a document contains information about PRMD names and addressing schemes which is required for future use in AMHS systems in the EUR/NAT Regions. Due to the urgent operational need for the setup of AMHS systems, the EUR Registry was maintained as a stand alone document, using the following principles:

- All available information will be checked. If no major deviations from the SARPs' principles are detected, the information is to be respected in the Registry.
- If deviations are detected or the information is not clear or is inconsistent, the default value is to be used in the Registry.

9.22.1 Since 7 February 2006 the EUR Registry had been used operationally. This required it to be accurate and up-to-date, including ICAO Doc 7910 changes, in order to ensure consistent address conversion (AFTN – AMHS and vice versa) in the operational EUR AMHS environment. The update and release of new AMHS table entries would follow the AIRAC cycle. It is currently organised by the CIDIN Management Centre (CMC) and in the near future will be organised by the ATS Messaging Management Centre (AMC). The latest version of the EUR Registry (Version 0.10) was provided to the meeting.

EUR AMHS related Manuals

9.23 The meeting appreciated the documents provided by the member from EUR AFSG. These include EUR AMHS related Manuals and their appendices.

First International AMHS Link in Europe

9.24 The meeting was informed by the member of the EUR AFSG that the first international AMHS connection in Europe, between Madrid and Frankfurt, has been carrying operational ATS traffic since 7 February 2006. The activities performed during the FIRST testing phases were the main and an important precondition for the step to go into AMHS operation and were as follows:

- Provision of validated testing documentation for Bilateral Basic, Bilateral Extended and Trilateral Tests (Network Tests), which were incorporated into the Appendices of the EUR AMHS Manual;
- Input for the refinement of ICAO AMHS SARPs - Doc 9705 (11 PDRs);
- Evidence of interoperability between three different Implementations.

9.25 All of the procedural steps such as operational AMHS application set up and testing, operational setup, operational test phase with duplicate traffic, AMHS operational traffic exchange after cutover and back up procedures were defined in the document “AMHS Pre / Operational Procedures”. The scope of the document was to describe the operational procedures and configuration of the Frankfurt and Madrid COM Centres. These have been used by the operational staff since the cutover on 7 February 2006 to the first international AMHS connection in Europe. In addition, a trouble-shooting procedure for the underlying network was included. The AMHS, the systems and the IP infrastructure which have been running since the cutover are stable.

**First Multipartite International Realisation of ICAO SARPs AMHS Trials
(First)**

9.26 The meeting was informed that during 2005, the Civil Air Navigation Service Providers (ANSPs) of Germany (DFS) and Spain (Aena) and the Military ANSP of Germany, AFSBW (BATSO), conducted the last set of trials in order to verify the adequacy of their respective systems to undertake the transition stage to operational AMHS. The manufacturers of the systems also jointly undertook to make engineering and implementation know how available to the trials. The meeting was informed of the details of the trials, the detailed procedures followed for the trials and the various documents used for the trials. The information provided was noted with interest.

SITA AMHS Migration and Services

9.27 SITA provided an overview of their messaging and networking services as follows:

- messaging services including type B gateway with AFTN;
- X.400 services ;
- Proposed AMHS services including Relay; and
- Mailbox services

9.28 The details of AMHS benefits, issues and AMHS services offerings were provided. The network topology of SITA was also presented. During the discussion, in response to a query, SITA agreed to provide information to the Secretariat regarding existing type B connections to AFTN within the Asia and Pacific Region. The possibility of using AMHS interconnections of the SITA network as a backup was also discussed.

Agenda Item 10: Develop future work programme**Establishment of a Working Group of the ATNICG**

10.1 The meeting agreed to establish a Working Group to continue to undertake all the Tasks assigned to the experts and to co-ordinate timely completion of the Tasks. In this connection, the meeting formulated a Decision as follows:

Decision 1/5 – Establishment of Working Group of ATNICG

That, a Working Group consisting of 12 members of the Group was established to co-ordinate activities carried out by each team. Team Leader and supporting members were designed to complete each task as indicated in **Appendix A2**.

10.2 The Working Group will work by correspondence and will conduct meetings, as and when required. The First Meeting of the Working Group will be held in Bangkok during November/December 2006 to clarify various issues and to review progress of activities.

10.3 The Chairman of the ATNICG Group will act as Rapporteur of the Working Group and will co-ordinate arrangements for the meeting.

Next meeting of the Group

10.2 The next meeting of the Group will be held in Hong Kong China in May 2007. The exact date of the meeting will be notified to the members immediately after the APANPIRG/17 meeting to be held in August 2006.

Agenda Item 11: Any other business**Note of appreciation**

11.1 The meeting expressed its appreciation and gratitude to the Korean Civil Aviation Safety Authority (KCASA) and to the Korea Airports Corporation (KAC) for the excellent arrangements made for the meeting, the activities organized during the meeting, the warm hospitality extended to all the participants and the opportunity provided to visit the air navigation facilities at GIMPO International Airport.

11.2 The meeting thanked the member from the European AFS group for his participation and for the useful information shared with the participants. The meeting also thanked the participants from Kuwait for their participation and coordination activities carried out for implementation of an inter-regional trunk circuit.

TITLE AND TERMS OF REFERENCE

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

Terms of Reference: Coordinate ~~ATN~~ implementation of ATN ~~and transitional issues~~ in the Asia and Pacific Regions to satisfy performance requirements and address relevant implementation issues. ~~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.

Remarks: The ATNICG, while undertaking the tasks, should take into account of the work being undertaken by Aeronautical Communication Panel and other related regional groups in other ICAO regions with a view to avoid duplication.

ATNICG/1
Appendix A2 to the Report

No.	Contributing Task	ICAO Strategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members
1	ATN Implementation Coordination	D - 1 Efficiency	GPI-17 GPI-19 GPI-22	(1) Review of implementation problems and develop co-ordinated solutions	Expedite implementation activities, ensure system compatibility through out the region	Co-ordination Report	Ongoing/Semi-annually until (2010)	Ken Morris (Australia)	All members
2	ATN Operational Procedures	D - 1 Efficiency	GPI-17 GPI-19 GPI-22	(1) Development of Interim Database for Director Services (2) Develop the operational database management procedures	Make available real time and quality assurance addresses for ATN message delivery	(1) Interim Database (2) Operational Procedures	(1) (2007) (2) (2007)	Robert Hallman (USA)	Hong Kong, China Japan Thailand
3	ATN Certification & Validation Process	D - 1 Efficiency	GPI-17 GPI-19 GPI-22	(1) Develop conformance procedures and checklist for AMHS and ATN routers (2) Develop validation process document	Expedite implementation activities, ensure global system compatibility	(1) Checklist (2) Conformance Document	(1) (2007) (2) (2007)	Victor, Lee (Singapore)	China, Hong Kong, China Indonesia ROK USA

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Appendix A2 to the Report

No.	Contributing Task	ICAO Strategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members
4	ATN Documentation	D - 1 Efficiency	GPI-17 GPI-19 GPI-22	(1) Study DIR objects/attributes proposed in ACP and follow development within other groups (2) Development of AIDC documentation (including ICD) and follow development within other groups (3) Update of AMHS ICD to comply with SARPs 3 rd Edition	Expedite implementation activities, ensure global system compatibility	(1) Directory Report (2) AIDC ICD (3) Updated AMHS ICD	(1) Annually until (2010) (2) (2007) (ACP-dependent) (3) (2007)	Chonlawit B. (Thailand) Thailand Japan	
5	ATN Performance	D - 1 Efficiency	GPI-17 GPI-19 GPI-22	(1) Develop/establish/adapt/monitor/identify/analyze/performance indicators	Assure QOS, service continuity, timely delivery of services	(1) AMHS Performance Report	(1) Annually until (2010)	Japan	India ROK
6	ATN Service Enhancements	D - 1 Efficiency	GPI-17 GPI-19 GPI-22	(1) Review the impact of the implementation of Directory Services in the Region (2) Development of profiles for the directory access and exchange protocols (Ref. Decision 7/9)	Enhancing the service Enhancing the operation	(1) Report on directory (2) Report on profiles	(1) Annually until (2010) (2) (2008)	Fiji Fiji	Australia Japan New Zealand Thailand USA

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Appendix A2 to the Report

No.	Contributing Task	ICAO Strategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members
				(3) Study the use of IP	Lowering the operating cost	(3) Report on the use of IP	(3) (2008)	Singapore	China
				(4) Study for transition to BUFR code	Enhancing the service	(4) Report on the impact of BUFR code to ATN	(4) (2007)	Japan	New Zealand USA
				(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
				(6) Update the AMHS ICD to comply with Doc 9705 3 rd Edition		(6) Updated AMHS ICD	(6) (2007)	Japan	Comsoft ONS
7	Security	B. Security	GPI-17 GPI-19 GPI-22	(1) Develop Information Security Policy (2) Develop Information Security Guidance	Safe and Secure Inter and Intra Regional Communication and service infrastructure	(1) Policy Document (2) Guidance Document	(1) Annually until (2010) (2) (2008)	Vidyut Patel (USA)	

ATNICG/1
Appendix A2 to the Report

No.	Contributing Task	ICAO Strategic Objective	Associated GPI	Tasks/Strategy	Benefits	Deliverables	Target Date	Leader	Supporting Members
				(3) Develop Information Security Solution for Initial and Enhanced Services		(3) Security, Technical , Management and Operational Control	(3) (2008)		Australia Hong Kong-China
				(4) Co-ordinate and monitor ACP Working Group and other regions		(4) Report	(4) Semi-Annually until (2010)		Thailand

THE ATN PERFORMANCE OBJECTIVE

The APAC ATN ground-to-ground infrastructure will be fully operational 53 percent at 23 locations by 31 December 2007.

RELATED GPI ARE AS FOLLOWS:

(GPI-22) COMMUNICATION NETWORK INFRASTRUCTURE

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

Scope: To evolve the aeronautical mobile and fixed communication infrastructure, supporting both voice and data communication, 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 Objective: Application of data link; Functional integration of ground systems; with airborne systems; ATS inter-facility data communication (AIDC)

**STRATEGY FOR IMPLEMENTATION OF THE AERONAUTICAL
TELECOMMUNICATION NETWORK (ATN) IN THE ASIA/PAC REGION**

Considering that:

- a) the requirement for a robust ground-to-ground Aeronautical Telecommunication Network (ATN) to meet growing need for a digital data communications to support the Air Traffic Management Operational Concept;
- b) the availability of ICAO SARPs and Technical Manuals for implementation of ATN;
- c) the awareness generated in States for replacement of the present AFTN with digital data network by conducting various seminars and meetings;
- d) the availability of several guidance materials, interface control documents (ICDs) required to assist States to ensure harmonization of procedures and protocol to assure inter-operability within the region;
- e) the agreement in EUR region and [North American region](#) to provide gateways to support ATN protocol suites implemented in adjacent region;
- f) the feasibility of introducing SARPs compliment air-ground application in a secured network without prolonged delay;
- ~~g) the lack of SARPs for an alternative TCP/IP protocol for immediate use and introduction of material on the use of TCP/IP for air ground application, require significant technical work, which is not likely to be completed in the near future for amendment to Annex 10 SARPs and associated technical provisions in ATN documentations;~~
- g) [work in progress in ACP of IPS SARPs development for ground-to-ground communications and study undertaken on the feasibility of air-ground IPS;](#)
- h) the need to migrate to Binary Universal form of representation of meteorological data (BUFR) coded OPMET messages; the emerging need to use lower case letters in NOTAM messages; ~~and~~
- i) the trial and demonstrations conducted by several States in the ASIA/PAC region for implementation of ATN/AMHS and actions taken by States for introduction of ATN/AMHS; [and](#)
- j) [availability of equipment and readiness of vendors to support provisions of equipment for both OSI/IPS ground- to- ground and OSI air-ground communications.](#)

THE GENERAL STRATEGY FOR THE IMPLEMENTATION OF THE ATN INFRASTRUCTURE AND ASSOCIATED ~~GROUND-TO-GROUND-ATN~~ APPLICATIONS IN THE ASIA/PAC REGION SHOULD BE AS FOLLOWS:

- a) Implementation be in full compliance with Annex 10 SARPs, PANS, ICDs and guidance materials adopted by APANPIRG;
- b) in the ASIA/PAC region ground-to-ground ATN will initially support the implementation of ATS Message Handling System (AMHS) to replace AFTN;
- ~~e) Strategically deploy the ATN infrastructure with a limited number of ATN Backbone routers to support other ground-to-ground and air-ground applications;~~
- c) Strategically deploy backbone ATN routers to provide fault tolerant infrastructure to initially support ground-to-ground applications and eventually support air-ground applications;
- d) during the transition phase, some AFTN system may remain in operation. A reasonable time frame should be established for their replacement with AMHS;
- e) MTA sites should provide AFTN/AMHS gateways during the transition phase;
- f) States should work co-operatively to assist each other on a multinational basis to implement the ATN expeditiously and to ensure system inter-operability;
- g) States should organize training of personnel to provide necessary capability to maintain and operate the ground-to-ground ATN infrastructure and applications;
- h) upon successful deployment of ground-to-ground ATN infrastructures and applications within the region, States gradually introduce ATN air-ground infrastructures and applications; and
- i) Strategically deploy network approach that permits dual stacks protocols (OSI/IPS) operations.

**The First Meeting of Aeronautical Telecommunication Network (ATN)
Implementation Co-ordination Group of APANPIRG
Seoul, Republic of Korea
22-26 May 2006**

LIST OF PARTICIPANTS

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
AUSTRALIA (1)			
Mr. Ken Morris	Team Leader Airservices Australia Locked Bag 747, Eagle Farm Brisbane 4009, Queensland <u>AUSTRALIA</u>	Tel: +61 (7) 3866-3441 Fax: +61 (7) 3866-3280	ken.morris@airservicesaustralia.com
BHUTAN (1)			
Mr. Pema Tashi	Deputy Chief of COM/NAV Department of Civil Aviation Ministry of Information & Communications Royal Government of Bhutan Paro Airport, Paro <u>BHUTAN</u>	Tel: +975 (8) 271-407 Fax: +975 (8) 271-407	aviationcom@druknet.bt
BRUNEI DARUSSALAM (3)			
Mr. Haji Osman Bin Haji Damit	Aeronautical Telecommunications Engineer Department of Civil Aviation Brunei International Airport Bandar Seri Begawan BB 2513 <u>BRUNEI DARUSSALAM</u>	Tel: +673 233-0518 Fax: +673 233-3666	osman_damit@civil-aviation.gov.bn

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Koh Han Kok	Air Traffic Control Officer ATSC Department of Civil Aviation Brunei International Airport Bandar Seri Begawan BB 2513 <u>BRUNEI DARUSSALAM</u>	Tel: +673 233-1157 Fax: +673 233-1157	hankokkoh@hotmail.com
Mr. Hj Mohd Tahir Bin Hj Metali	Air Traffic Control Officer Department of Civil Aviation Ministry of Communications Negara Brunei Darussalam BB 2513 <u>BRUNEI DARUSSALAM</u>	Tel: +673 233-0142 Ext. 1834 Fax: +673 233-1157	hirmet269@hotmail.com
CHINA (8)			
Mr. Du Ming	General Manager Aero-Info Technologies Co., Ltd. Management Air Traffic Bureau Civil Aviation Administration of China 802 Tower B Technology Fortune Center No. 8 Xue Qing Road, Haidian District Beijing 100085. <u>PEOPLE'S REPUBLIC OF CHINA</u>	Tel: +86 (10) 8273-1771 Fax: +86 (10) 8273-1181	duming@ait.cn
Mr. Xin Quan	Chief Engineer Aero-Info Technologies Co., Ltd. Management Air Traffic Bureau Civil Aviation Administration of China 802 Tower B Technology Fortune Center No. 8 Xue Qing Road, Haidian District Beijing 100085 <u>PEOPLE'S REPUBLIC OF CHINA</u>	Tel: +86 (10) 8273-1161 Fax: +86 (10) 8273-1181	xq@ait.cn

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Ms. Guo Jing	Senior Engineer CNS Division Air Traffic Management Bureau Civil Aviation Administration of China No. 12, Dongsan huan zhong Road Chao Yang District Beijing 100022 <u>PEOPLE'S REPUBLIC OF CHINA</u>	Tel: +86 (10) 8778-6967 Fax: +86 (10) 8778-6910	guojing@atmb.net.cn
Mr. Zhu Yanbo	Chief Engineer Aviation Data Communication Corp. Air Traffic Management Bureau Civil Aviation Administration of China Floor 16, Bai Yan Building, No. 238 Bei Si Huan Zhong Road, Haidian District Beijing 100083 <u>PEOPLE'S REPUBLIC OF CHINA</u>	Tel: +86 (10) 8232-5050-201 Fax: +86 (10) 8232-5552	zyb@adcc.com.cn
HONG KONG, CHINA			
Mr. William Pui-kay, Ching	Senior Aeronautical Communications Supervisor Civil Aviation Department 2/F, Air Traffic Control Complex Hong Kong International Airport, Lantau <u>HONG KONG, CHINA</u>	Tel: +852 2910-6202 Fax: +852 2910-1160	pkching@cad.gov.hk
Mr. Pak-cheung, Chan	Senior Electronics Engineer (Computer Systems) Civil Aviation Department, E & SD 10/F, Commercial Building Airport Freight Forwarding Centre 2 Chun Wan Road Hong Kong International Airport <u>HONG KONG, CHINA</u>	Tel: +852 2591-5002 Fax: +852 2845-7160	pcchan@cad.gov.hk
MACAO, CHINA			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Sun Shabo	Consultant – Telecomm. and Radio Navigations Civil Aviation Authority Macao – China Alameda Dr. Charlos D’Assumpção, 336-342 Centro Commercial Cheng Feng, 18° andar <u>MACAO, CHINA</u>	Tel: +853 511-213 Fax: +853 338-089	airportinfrastructure@aacm.gov.mo
Mr. Lo Veng Tong, Freeman	Technical Officer – Telecomm. and Radio Navigations Civil Aviation Authority Macao – China Alameda Dr. Charlos D’Assumpção, 336-342 Centro Commercial Cheng Feng, 18° andar <u>MACAO, CHINA</u>	Tel: +853 511-213 Fax: +853 338-089	freemanlo@aacm.gov.mo
FIJI (1)			
Mr. Kelepi Dainaki	Team Leader CNS/ATM Support Airports Fiji Limited Private Mail Bag Nadi Airport <u>FIJI ISLANDS</u>	Tel: +679 673-1623, +679 990-6104 Fax: +679 672-5161	kelepid@afl.com.fj
GERMANY (1)			
Mr. Wabra Kolja	Project Manager DFS – German Air Navigation Services DFS Deutsche Flugsicherung AM DFS-Campus 10 63225 Langen <u>GERMANY</u>	Tel: +49 (61) 03 70-72435 Fax: +49 (61) 03 707-2490	Kolja.Wabra@dfs.de
INDIA (3)			
Mr. A.K. Dutta	Deputy General Manager (ATM-OPS) Airports Authority of India Rajiv Gandhi Bhavan Safdarjung Airport New Delhi 110-003 <u>INDIA</u>	Tel: +91 (11) 2462-9015 Fax: +91 (11) 2461-1078	akdutta@aai.aero

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. P.K. Kapoor	General Manager (COM) Airports Authority of India Rajiv Gandhi Bhawan New Delhi 110003 <u>INDIA</u>	Tel: +91 (11) 2463-2950 Ext. 2303 Fax: +91(11) 9198-7161	pk Kapoor@aai.aero
Mr. A.K. Kapur	Assistant General Manager (COM-E) Airports Authority of India Rajiv Gandhi Bhawan New Delhi 110003 <u>INDIA</u>	Tel: +91 (11) 2463-2950 Ext. 2589 Fax: +91(11) 2463-2950 Ext. 2589	ak Kapoor@aai.aero
INDONESIA (3)			
Mr. Ir. Ahmad Nurdin Aulia Dea	Directorate General of Air Communications Department Perhubungan Gedung Karya Lt. 23 Jl. Medan Merdeka Barat No. 8 Jakarta 10110 <u>INDONESIA</u>	Tel: +62 (21) 381-1308 Fax: +62 (21) 348-32663	auliahmad@telkom.net
Mr. Nanang S. Taruf	Deputy Director System and Procedure for Air Navigation Directorate of Aviation Safety –DGAC Department of Transportation Jl. Merdeka Barat No.8 Jakarta 10110 Katak Pos 1389 Jakarta 10013 <u>INDONESIA</u>	Tel: +62 (21) 350-6554 Fax: +62 (21) 350-7569	swastya@telkom.net

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Harjoko	Head of Surveillance and Flight Communication Section Directorate of Aviation Safety –DGAC Department of Transportation Jl. Merdeka Barat No.8 Jakarta 10110 Katak Pos 1389 Jakarta 10013 <u>INDONESIA</u>	Tel: +62 (21) 350-6554 Fax: +62 (21) 350-7569	-
JAPAN (6)			
Mr. Narihiro Nishida	Special Assistant to the Director Operations and Flight Inspection Division ATS Department Japan Civil Aviation Bureau 2-1-3 Kasumigaseki, Chiyoda-ku 100-8981 Tokyo <u>JAPAN</u>	Tel: +81 (3) 5253-8751 Fax: +81 (3) 5253-1664	nishida-n2xy@mlit.go.jp
Mr. Naoto Sakaue	Manager Mitsubishi Electric Corporation 325 Kamimachiya Kamakura 247-8520 Kanagawa <u>JAPAN</u>	Tel: +81 (4) 6741-3530 Fax: +81 (4) 6741-3570	Sakaue.Naoto@ak.MitsubishiElectric.co.jp
Mr. Mark A. Brown	System Engineer Oki Electric Industry Co., Ltd. 4-10-16 Shibaura Minato-ku 108-8551 Tokyo <u>JAPAN</u>	Tel: +81 (3) 3454-2111 Fax: +81 (3) 3798-7623	Mark667@oki.com
Mr. Sadayuki Izuka	Senior Manager Air Traffic Control System Division NEC Corporation 7-1, Shiba 5-chome Minato-ku Tokyo 108-8001 <u>JAPAN</u>	Tel: +81 (3) 3798-6636 Fax: +81 (3) 3798-5450	s-izuku@cq.jp.nec.com

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Tetsuo Mizoguchi	Professor HOSEI University 3-7-2, Kajino-cho Koganei 184-8584 Tokyo <u>JAPAN</u>	Tel: +81 (42) 387-4358 Fax: +81 (42) 387-6028	mizo@k.hosei.ac.jp
Mr. Masato Ohtani	Manager ATN Product OKI Electric Industry Co., Ltd. 4-10-16 Shibaura Minato-ku Tokyo 108-8551 <u>JAPAN</u>	Tel: +81 (3) 5445-6211 Fax: +81 (3) 5445-6219	ootani723@oki.com
<u>KUWAIT (STATE OF)</u>			
Mr. Eng Fozan M. AlFozan	Deputy Director General of Civil Aviation for Navigational Equipment Affairs Directorate General of Civil Aviation P.O. Box 17 Safat – P. Code 13001 <u>KUWAIT (STATE OF)</u>	Tel: +965 476-0421 Fax: +965 431-9232	cvnedd@qualitynet.net
Mr. Eng. Abdullah Al-Ansari	RADAR Chief Engineer Directorate General of Civil Aviation P.O. Box 17 SAFAT Kuwait 13001 <u>KUWAIT (STATE OF)</u>	Tel: +965 476-0421 Fax: +965 431-9232	cvnedd@qualitynet.net
<u>MALAYSIA (1)</u>			
Mr. Jamil Khir Mohamed	Deputy Director, ATS Division Department of Civil Aviation Malaysia Level 4, Podium Block B Lot 4G4, Precint 4 Federal Government Administrative Centre 62570 Putrajaya, Wilayah Persekutuan <u>MALAYSIA</u>	Tel: +603 8871-4228 Fax: +603 8871-4290	jamilkhir@dca.gov.my
<u>NEPAL (2)</u>			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Thapa Surya Bahadur	Manager Aviation Technical Services Department Civil Aviation Authority of Nepal Head Office, Babar Mahal Kathmandu <u>NEPAL</u>	Tel: +977 (1) 426-2387 +977 (1) 426-2518 Fax: +977 (1) 426-2516	sbthapa@wlink.com.np
Mr. Bajracharya Gyan Man	Senior Officer Aero COM Divison Tribhuvan International Airport Civil Aviation Office Kathmandu <u>NEPAL</u>	Tel: +977 (1) 447-1411 Fax: +977 (1) 447-1411	gyanmanb@yahoo.com
NEW ZEALAND (1)			
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 8005 <u>NEW ZEALAND</u>	Tel: +64 (3) 358-1697 Fax: +64 (3) 358-1566	ian.dore@airways.co.nz
PHILIPPINES (2)			
Mr. Cecilio M. Ortiz	Chief Air Navigation System Specialist Air Transportation Office Department of Communication and Communications MIA Road, Pasay City, 1301 Metro Manila <u>PHILIPPINES</u>	Tel: +63 (2) 879-9166 to 167 Fax: +63 (2) 879-9250	ortizcecilio@hotmail.com
Mr. William I. Astrologo	Chief, Airways Communication Division Air Traffic Services Department of Communication and Communications MIA Road, Pasay City, 1300 Metro Manila <u>PHILIPPINES</u>	Tel : +63 (2) 879-9282 +63 (2) 879-9162 Fax: +63 (2) 879-9158	Chief_aed@ato.gov.ph w_astrologo@yahoo.com
REPUBLIC OF KOREA (9)			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Hyeong-Taek Park	Director, Airway Facilities Division Civil Aviation Safety Authority Ministry of Construction and Transportation 274 Gwahae-dong Gangseo-gu Seoul 157-711 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2669-6410 Fax: +82 (2) 6342-7299	htkpark@moct.go.kr
Mr. Kim Seo Won	Deputy Director, Airway Facilities Division Civil Aviation Safety Authority Ministry of Construction and Transportation 274 Gwahae-dong Gangseo-gu Seoul 157-711 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2669-6414 Fax: +82 (2) 6342-7299	seowkim@moct.go.kr
Mr. Jae Man Ryu (Calvin)	Assistant Director, Airway Facilities Division Civil Aviation Safety Authority Ministry of Construction and Transportation 274 Gwahae-dong Gangseo-gu Seoul 157-711 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2669-6412 Fax: +82 (2) 6342-7299	yjm71@moct.go.kr
Mr. Park Yoon Chang	Radio Operator Seoul Regional Aviation Administration Ministry of Construction and Transportation 2850 Un seo-dong Joong-Gu Incheon 400-340 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2666-5390 Fax: +82 (2) 6342-7299	Johnpark76@dreamwiz.com
Mr. Kim Jun Sung	Radio Operator Seoul Regional Aviation Administration Ministry of Construction and Transportation 2850 Un seo-Dong Joong-Gu Incheon 400-340 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2666-5390 Fax: +82 (2) 6342-7299	yesjun@hanmail.net

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Han Byeong-Sun	Deputy Director, Incheon ATCC, POB 26 2851 Joong-Gu, Unseo-Dong Incheon 400-650 <u>REPUBLIC OF KOREA</u>	Tel: +82 (32) 880-0243 Fax: +82 (32) 889-5905	bshan@moct.go.kr
Ms. Yeon Suk, Park	Assistant Manager Korea Airports Corporation 274 Gwahae-Dong, Gangseo-Gu Seoul, 157-711 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2660-2383 Fax: +82 (2) 2660-2376	psy0330@airport.co.kr
Mr. Munju Jeong	Manager Korea Airports Corporation 274 Gwahae-Dong, Gangseo-Gu Seoul, 157-711 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2660-2932 Fax: +82 (2) 2660-4200	jmjkac@airport.co.kr
Mr. Jeong Bin Park	Deputy Manager Incheon International Airport Corporation 2850 Unseo-Dong, Joong-Gu Incheon 400-700 <u>REPUBLIC OF KOREA</u>	Tel: +82 (32) 741-5628 Fax: +82 (32) 741-2700	jbpark@airport.or.kr
SINGAPORE (3)			
Mr. Lee Hoong Kwan, Victor	Engineer (Communications) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 918741 <u>SINGAPORE</u>	Tel: +65 6541-2409 Fax: +65 6542-2447	victor_lee@caas.gov.sg
Mr. Chan Kok Sunn	Technical Officer (Communications) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 918141 <u>SINGAPORE</u>	Tel: +65 6541-2910 Fax: +65 6542-2447	chan_kok_sunn@caas.gov.sg

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Ng Sya Kee	Manager. AFTN Centre NCS Pte Ltd Singapore Air Traffic Control Centre 60 Biggin Hill Road 509950 <u>SINGAPORE</u>	Tel: +65 6541-1875 Fax: +65 6542-3195	skng@ncs.com.sg
SRI LANKA (2)			
Mr. N. K. Abeyasinghe	Senior Electronics Engineer Bandaranaike International Airport Katunayake <u>SRI LANKA</u>	Tel: +94 (11) 225-2861 Ext. 3553 Fax: +94 (11) 225-2116	obeysinghe@airport.lk
Mr. K J Perera	Senior Aero Communication Officer Bandaranaike International Airport Katunayake <u>SRI LANKA</u>	Tel: +94 (11) 225-2861 Ext. 3553 Fax: +94 (11) 225-2116	kjalai@airport.lk
THAILAND (6)			
Mr. Somnuk Rongthong	Vice President Air Traffic Services Engineering Planning and Developing Bureau Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathon Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285-9904 Fax: +66 (2) 287-8166	somnuk@aerothai.co.th
Mr. Nuttawat Supanundha	Director, Air Traffic Services Engineering, Research and Development Department Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathon Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285-9246 Fax: +66 (2) 287-8630	nuttawat.su@aerothai.co.th

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Suriya Samittachati	Director, Aeronautical Network Management Centre Aeronautical Radio of Thailand Limited 102 Ngamduplee, Tungmahamek, Satorn Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285-9692 Fax: +66 (2) 287-8538	suriya.sa@aerothai.co.th
Ms. Narissara Narangsri	Aeronautical Communications & AIS Manager Aeronautical Radio of Thailand Limited 102 Ngamduplee, Tungmahamek, Satorn Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285-9333 Fax: +66 (2) 287-3131	naris.land@gmail.com
Ms. Jittima Asawachaiporn	General Administrative Manager Aeronautical Radio of Thailand Limited 102 Ngamduplee, Tungmahamek, Satorn Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285-9082 Fax: +66 (2) 287-8538	jittima.as@aerothai.co.th
Mr. Chonlawit Banphawatthanarak	Senior Systems Engineer Air Traffic Services Engineering, Research and Development Department Aeronautical Radio of Thailand Limited 102 Ngamduplee, Tungmahamek, Satorn Bangkok 10120 <u>THAILAND</u>	Tel: +66 (2) 285-9578 Fax: +66 (2) 287-8630	chonlawit.ba@aerothai.co.th
USA (4)			
Mr. Andy Isaksen	Computer Scientist/NADIN Lead Federal Aviation Administration William J. Hughes FAA Technical Center FAA Technical Center Atlantic City International Airport NJ 08405 <u>USA</u>	Tel: +1 (609) 485-4296 Fax: +1 (609) 485-4391	andy.isaksen@faa.gov

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Vidyut Patel	Security Engineering Group Manager FAA/Air Traffic Organization Operational Planning (ATO-P) William J. Hughes FAA Technical Center Mail stop: ACB-250 Atlantic City International Airport Atlantic City, NJ 08405 <u>USA</u>	Tel: +1 (609) 485-5046 Fax: +1 (609) 485-5630	vidyut.patel@faa.gov
Mr. Robert Hallman	Facility Manager Federal Aviation Administration Air Traffic Organization, Technical Operations 2150 West 700 North Salt Lake City, UT 84116 <u>USA</u>	Tel: +1 (801) 320-2165 Fax: +1 (801) 320-2117	robert.hallman@faa.gov
Mr. Hoang Tran	ATN/AMHS Programme Manager ATC Communications/Telecommunication Service Group Federal Aviation Administration AOS-600, 800 Independence Avenue S.W., Washington DC 20591 <u>USA</u>	Tel: +1 (202) 493-5995 Fax: +1 (202) 493-5945	hoang.tran@faa.gov
INTERNATIONAL ORGANIZATION			
SITA (3)			
Mr. David Fung	Regional Manager SITA Room 1201, 12/F Centre Point 181-185 Gloucester Road Wanchai <u>HONG KONG, CHINA</u>	Tel: +852 9400-7979 Fax: +852 2831-4588	david.fung@sita.aero

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Yin Au-Yeung	Head of Marketing Asia Pacific SITA Level 11, 37 Pitt Street Sydney 2000, NSW AUSTRALIA	Tel: +61 (4) 1308-3080 Fax: -	Yin.au-yeung@sita.aero
Mr. Marc Speltens	Business Development Consultant ANSP-ATC market SITA Excelsiorlaan 40-42 B-1930 Zaventem BELGIUM	Tel: +32 (2) 745-0562 Fax: +32 (2) 745-5072	Marc.speltens@sita.aero
INDUSTRY			
Avitech AG (1)			
Mr. Norman G Nunn	Sales & Marketing Director Avitech AG Bahnhofplatz 1 Friedrichshafen 88045 GERMANY	Tel: +49 7541 282-447 Fax: +49 7541 839-679	norman.nunn@avitech-ag.com
BCI (1)			
Mr. Thomas j. Mcparland	Vice President 381 Egg Harbor Road Suite 200 Sewell, NJ, 08080 USA	Tel: +1 (609) 425-4410 Fax: +1 (856) 582-5737	tmcparland@bcisse.com
Comsoft GmbH (2)			
Mr. Uwe Kurpat	Division Manager Comsoft GmbH Wachhausstr. 5a D-76227 Karlsruhe GERMANY	Tel: +49 721 9497-203 Fax: +49 721 9497-129	uwe.kurpat@comsoft.de

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. Hans-Jörg Merkle	System Engineer Comsoft GmbH Wachhausstr. 5a D-76227 Karlsruhe <u>GERMANY</u>	Tel: +49 721 9497-245 Fax: +49 721 9497-129	han-joerg.merkle@comsoft.de
ONS Inc. (1)			
Mr. Jim Moulton	President Open Network Solutions, Inc. 22636 Glenn Dr. Suite 305 Sterling, VA 20164 <u>USA</u>	Tel: +1 (703) 481-9590 Fax: +1 (703) 481-9509	moulton@ons.com
Telematics (1)			
Mr. Un Chul, Jung	CEO 11 th Fl., West Bldg. IT Venture Tower 78 Garak-dong, Songpa-gu Seoul, Korea 138-830 <u>REPUBLIC OF KOREA</u>	Tel: +82 (2) 2142-2900 Fax: +82 (2) 2142-2949	ucjung@telematics.co.kr
Thales ATM (1)			
Mr. Ian Glover	Senior Segment Manager Thales ATM 630 Church Street Richmond 3121 <u>AUSTRALIA</u>	Tel: +61 (3) 9425-7542 Fax: +61 (3) 9425-7599	ian.glover@thalesatm.com
Top Engineering (1)			
Mr./Dr. Hae Uk Chung	General Director and Head of R & D Center 51-15,Jeongja-dong, Jang ahn-gu Suwon, 440-833 <u>REPUBLIC OF KOREA</u>	Tel : +82 (31)258-9450 Fax: +82 (31)258-9455	huchung@toptel.co.kr
ICAO (2)			

STATE/INTERNATIONAL ORGANIZATION/NAME	DESIGNATION/ADDRESS	TELEPHONE & FAX	E-MAIL
Mr. K.P. Rimal	Regional Officer CNS International Civil Aviation Organization 252/1, Vibhavadee Rangsit Road Chatuchak, Ladyao Bangkok 10900 <u>THAILAND</u>	Tel: +62 (2) 537-8189 Fax: +62 (2) 537-8199	kriminal@bangkok.icao.int
Mr. Li Peng	Regional Officer CNS International Civil Aviation Organization 252/1, Vibhavadee Rangsit Road Chatuchak, Ladyao Bangkok 10900 <u>THAILAND</u>	Tel: +62 (2) 537-8189 Fax: +62 (2) 537-8199	pli@bangkok.icao.int

International Civil Aviation Organization
**THE FIRST MEETING OF AERONAUTICAL TELECOMMUNICATION
NETWORK (ATN) IMPLEMENTATION CO-ORDINATION GROUP OF
APANPIRG (ATNICG/1)**

 Seoul, Republic of Korea, 22-26 May 2006

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3	9	Review Status of Implementation of AMHS Plan – Table CNS-1C	Secretariat
4	9	Review the ASIA/PAC AIDC Implementation Plan – Table CNS-1D	Secretariat
5	3	Terms of Reference (TOR) and Subject/Tasks List of the ATN Implementation Co-ordination Group	Secretariat
6	7	The Development of Transition to BUFR Coded OPMET Information	Secretariat
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8	6	Discussion on the Emerging Requirements for the Ground-to-Ground Data Communications	Secretariat
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6	9	AMHS Migration and SITA Services	Marc Speltens SITA
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8	9	First International AMHS Link in EUR	Germany/Spain
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