



International Civil Aviation Organization

**Fifth Meeting of Aeronautical Telecommunication Network (ATN)
Transition Task Force**

Phuket, Thailand, 9 – 13 June 2003

Agenda Item 1: Review the latest developments in the ATN Panel and the Aeronautical Mobile Communication Panel

Report of the Last Meeting of ATNP Joint WG

(Prepared by Japan)

SUMMARY

This paper presents the report of last 4th meeting of Joint Working Group of ATNP held in Toulouse, France during 8-9 October 2002.

1. Introduction

The 4th meeting of Joint Working Group of ATNP was held in Toulouse, France during 8-9 October 2002.

2. Discussion

The topics of the meeting are as follows (please refer to the attached Minutes of ATNP JWG/04 Meeting for the detail):

2.1 Merge ATNP into AMCP

(See 3.1 and 3.2 in the Minutes.)

ATN Panel Secretary informed that ANC would consider a proposal by the Secretariat in November 2002, **to merge ATNP and Study Groups related to aeronautical communication matters into AMCP**, which would be renamed. There were considerable objection by ATNP members, but no conclusion was made.

NOTE: <Latest Information> This has been concluded at the AMCP/8 Meeting held in ICAO Headquarters, 4-13 February 2003. The previous work by ATNP WG-A, WG B and CCB will be continued by new Working Groups (WG C, WG N and CCB) of the new ACP (Aeronautical Communications Panel).

2.2 TCP/IP issue on AMHS

(See 4.3, 4.4 and Attachment D in the Minutes.)

Japan presented a position statement not to allow the implementation of IP-based AMHS as an ATN solution, which was implementing or planning in Europe region. After considerable discussion, the statement was considered as reasonable and ‘Guidance provided by ATNP on “AMHS over TCP/IP” ’ was developed.

In the guidance, it is clearly stated that **the “AMHS over TCP/IP” should be a local solution only and should not be a fully SARPs-compliant ATN implementation. The “AMHS over TCP/IP” should be subject to bilateral/regional agreements and necessary measures should be taken by the concerned State who implements the Non-SARPs-compliant “AMHS over TCP/IP”, to ensure interoperability with SARPs-compliant AMHS.**

2.3 Use of the Public Internet

(See 4.6 in the Minutes.)

ATN Panel Secretary reported that there could be a need for **Guidance Material concerning use of the public Internet for access to data banks or for exchange of AFTN messages**. It was agreed that the Panel would undertake initial investigation in relation with this issue, in expectation of receiving an ANC task in due course. This would be performed by WG B.

NOTE: This discussion is related with the Agenda Item 7 “Review the development of guidance material for the use of the Public Internet Technology to support AFTN”.

2.4 Status of Doc 9705 (Manual of Technical Provisions for the ATN)

(See 6. and 10 in the Minutes.)

Doc 9705 Edition 3 has been published and available in CD-ROM format only. After ATNP/4 expected to be mid-2004, **Doc 9705 Edition 4** was expected to be published to include the enhancements, i.e. the **IP SNDCF** (the use of IP Subnetworks as part of the ATN) and **Confidentiality solution** (cryptograph). Considering the target of ATNP/4 at the beginning of 2004, enhancements that were being developed would have to be completed for Summer 2003.

NOTE: This discussion is related with the Agenda Item 5 “Review the development of guidance material for the use of IP as a Sub Network for the ATN”. Since the technical provisions for the IP/SNDCF is still under development by ATNP WG, though almost completed, it seems appropriate to develop the APAC regional Guidance Material after the work completion by ATNP WG expected in this year (2003). This will meet the target of 2005 of the Task 8 in the list of Subject/Tasks of the ATN Transition Task Force.

2.5 Status of Doc 9739 (Comprehensive ATN Manual)

(See 7. in the Minutes.)

Working Groups A and B together agreed to recommend publication of **Doc 9739 Edition 2** by the ICAO Secretariat, based on the available material at that time.

2.6 Next Meeting

(See 10. in the Minutes.)

Provisional dates were reserved for the next ATNP working group and subgroup meetings, **from March 11th to 20th, 2003.**

NOTE: <Latest Information> The above ATNP meetings have been cancelled due to the new structure of ACP. The ATN related meeting of WG M and N of ACP will be held in April 2003.

3. Recommendation

The meeting is recommended to note the information in this document.

ATTACHMENT: Minutes of ATNP JWG/04 meeting
 (ATNP JWG (A and B) – 4th Meeting, Toulouse, 7-10 October 2002.)

ATNP JWG/4-DP/01a

09/10/02

AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL (ATNP)

JOINT WORKING GROUP (A AND B) – 4TH MEETING

Toulouse, 7 – 10 October 2002

Minutes of ATNP JWG/04 meeting

Presented by Jean-Yves Piram

Summary

This document is the approved ATNP JWG/04 meeting minutes.

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1. AGENDA ITEM 1: MEETING ORGANIZATIONAL ISSUES

- 1.1 The meeting was co-chaired by Brian Cardwell (Working Group B Rapporteur) and Jean-Yves Piram (Working Group A Rapporteur), who welcomed the participants to the 4th joint meeting of ATNP Working Group A and Working Group B (Joint Working Group). The list of participants is included as Attachment B to this report.

2. AGENDA ITEM 2: APPROVAL OF AGENDA

- 2.1 Jean-Yves Piram presented WP01, which was the agenda of the meeting. This was approved without comments. The agenda is included as Attachment A to this report. It was also agreed that Agenda Item 8 (TCP/IP Issues) would be discussed before Agenda Item 7 (ATN Security Issues).

3. AGENDA ITEM 3: PANEL SECRETARY'S REPORT

3.1. Update from the Panel Secretary

- 3.1.1 Masoud Paydar presented WP04 "an Update from the Panel Secretary". He said that he had received the information from the OPLINK Panel Secretary that changes in Operational Requirements for AIDC may be forthcoming. He said that there was no formal request to ATNP to take on work related to the activities reported in section 4 (relevant planning/implementation issues). These were reported because they were felt to be of interest to the Panel. It had been agreed in the AFI Region to use Internet for non time-critical exchanges, because of the unreliability or non-existence of AFTN. The Panel Secretary insisted that there was confusion introduced by some information about the question of TCP/IP vs. ATN ICS that was being conveyed in Regional Groups without support or (informal) co-ordination with the ATN Panel. The ANC would soon consider a proposal by the Secretariat, to merge all Panels and Study Groups related to aeronautical communication matters into a single Panel. The main reason was that the ATNP had now completed most of its work. There was also a general trend in ICAO to streamline the technical work by Panels. Also there had been co-ordination issues between Panels, or uncertainty areas about which Panel should be in charge of a specific topic (e.g. ground-ground sub-networks).

3.2. Discussion of the consolidation proposal

- 3.2.1 Jim Lenz, U.S. FAA Panel member, said that the ATN community was at a critical junction, where there were implementations of specific subsets in progress, but the full deployment of ATN was not yet completed. He thought that the merging of all communication Panels would not reduce work, but rather increase confusion. He suggested that a vote should take place among ATN Panel Members. Arnaud Dedryvere, French Panel member, feared that the need to share the work of such a Panel among many subgroups would not make the working structure more efficient. Claude Leclerc, Eurocontrol Panel member, supported this view and said that he was very worried with the idea to merge activities. Brian Cardwell, U.K. Panel member, said that the envisaged work was so diverse that there would be very little co-ordination enhancements resulting from the proposed consolidation. If gaps were existing (e.g. ground-ground communications), this should be resolved by clearly allocating the task to an existing body. Klauspeter Hauf, German Panel member, said that also in Germany there was little commonality between AMCP activities and ATNP activities in his organization. He said that for States it would not mean less work or less travels, but conversely more work. A debate took place about the main arguments for the consolidation and in particular about co-ordination issues.
- 3.2.2 Masoud Paydar said that ICAO was willing, at a management level, to have the technical work focusing on high level requirements and the technical details being gradually passed to other non-ICAO standardization bodies. This was an area of concern for several Panel members. Klauspeter Hauf highlighted that there was a

contradiction between such an approach and the request to provide technical support to Regional Groups in such an environment.

- 3.2.3 Another comment made by Claude Leclerc and Jim Lenz was that the proposed consolidation occurring at this moment would probably be interpreted by some parties e.g. in the industry, as a message that ICAO does no longer believe in ATN.
- 3.2.4 Masoud Paydar re-stated that ICAO was no more in position to maintain the ATN Panel, since its work of SARPs development was completed. Maintenance activities were not sufficient to justify the need for a technical Panel. He finally explained, on an informal basis, that the other options for ICAO were termination of the ATN Panel activities, transformation into a Study Group, or creation of an Operations Group. 5 of 6 panel members attending this meeting cited substantial opposition to the timing of the proposal to merge ATNP into other Panels at this time.

3.3. Grade of service

- 3.3.1 The meeting came back on another issue mentioned in the Panel Secretary report, that there could be a need for Guidance Material concerning standardized "grade of service" for use by States in their dealing with communication service providers (for leasing ATN services).
- 3.3.2 It was agreed that the Panel would undertake preliminary investigation in relation with this issue, in expectation of receiving an ANC task in due course. This would be performed by WGA, as part of its terms of reference that included the provision of expert advice when appropriate.

4. AGENDA ITEM 8: TCP/IP ISSUES

4.1. Internet-based activities in Europe

- 4.1.1 Claude Leclerc briefly presented WP06 (Use of Internet-based protocols to support ground communications in Europe). The main views included in the paper had already been presented in the Phuket JWG meeting. The paper reported that since August 2001, Eurocontrol and its member States were actively engaged in the study of the deployment of the TCP/IP protocol suite, in accordance with the objectives set in the EATMP Communications Strategy. The main driver for this activity was to study the replacement of the obsolescent X.25 technology that was widely used in Europe to support ground-to-ground data exchange. The paper also included recommendations about a possible adaptation of the work programme of the ICAO ATN Panel, in order to develop the necessary specifications to achieve a harmonised deployment of IP inter-network services to support ground data communications.
- 4.1.2 Eivan Cerasi (Eurocontrol) then presented IP02 (iPAX Task Force presentation). The scope of the Task Force is primarily ground-data oriented, but system-wide support is needed, potentially including voice or mobility (the latter for ground mobiles, e.g. buses on airports). The intention was to use industry standard communication products, to provide a secure internet protocol (IP) network service for European ATM services.
- 4.1.3 Brian Cardwell asked about priority handling in iPAX. Eivan Cerasi replied that this was a difficult subject that was on the work programme of iPAX. It would be addressed in the forthcoming months. Brian Cardwell was concerned with the fact of having no priority handling, if ATN were to be supported by such an IP sub-network. The Joint Working Group noted with concern the phrase *"It will correspond to the European regional implementation of the ICAO ATN internet SARPs"*. Clarification revealed this not to be correct, and iPAX will not be the ATN inter-network for Europe, however it could provide one regional ground-ground sub-network.
- 4.1.4 Eivan Cerasi said that Eurocontrol had observed that the subject of IP was not being discussed at present by an ICAO body. Hence the recommendation in WP06 previously presented by Claude Leclerc.

4.1.5 Masoud Paydar noted that there was no notion of a long-term fully-ATN compliant objective in the presentation. Eivan Cerasi said that it was the intention of having the iPAX infrastructure as the ground subnetwork for ATN applications. However, the short-term priority was the migration of currently X.25 based applications rather than the implementation of new ATN applications. The target was to have IP operational internationally by 2005. Concerning ATN, the relevant programme was Link2000+ and was being managed separately. At some point in time, both programmes would probably interface to build a full communication architecture for the ATN.

4.1.6 Naoto Sakaue asked why X.400 was not replaced with SMTP at the same time as X.25 was being replaced with TCP/IP. Claude Leclerc replied that the AMHS was part of the ECAC Comms strategy, and that applications and upper layers were not hit by the X.25 obsolescence. Jean-Marc Vacher added that whilst X.400 was also ageing, it was only software and there was no dependency on external hardware manufacturers, and thus long-term maintenance would be easier.

4.2. IPv6 integration with the ATN

4.2.1 Tony Whyman presented IP03 (IPv6 integration with the ATN). The presentation started with background information, and then provided some details about the "IP SNDCF" approach, that was being currently developed by ATN SG B1. The presentation also included a comparison between Mobile IP and the ATN, concluding that Mobile IP was not currently able to support the ATN air-ground communication requirements. This presentation had been given in the recent ATN2002 conference.

4.3. Position Statement of Japan on IP-based AMHS

4.3.1 Naoto Sakaue presented WP07 (Position Statement of Japan on IP-based AMHS). The paper presented the position statement of Japan regarding IP-based AMHS, the implementation of which was currently being investigated in the European Region, as reported at the 3rd ATNP WG and SG meetings in Phuket, in March 2002. The paper analysed the impact of such implementations on ATN conceptual matters, ATN implementation activities and past/current investment in the Asia/Pac Region. The paper concluded that the adoption of IP-based AMHS by ICAO would have enormous impact on the current status and the future development of the ATN. The paper recommended to decide that non-SARPs compliant IP-based implementations should not be recognized as ICAO ATN solutions, and that non-SARPs-compliant-IP-based AMHS implementations were only permissible as a "local solution" within a State or Region, subject to bilateral agreements and to provision of interoperability means by Parties implementing IP-based AMHS systems.

4.3.2 Masoud Paydar was grateful to receive such a clear State position statement. He said that additionally, some technical material making the comparison between both solutions would be needed to provide guidance to States.

4.3.3 Jim Moulton thought that ICAO should not get into technical discussion papers arguing why the ICAO solution should be developed rather than local non-SARPs compliant implementations. Jim Lenz said that only compliance with the SARPs allowed to gain benefit from the enormous effort that had been put in the ATN. Jack McConnell added the work described in WP07 was progressing in the Asia/Pac Region, with the goal of starting operational services in 2004. Klauspeter Hauf, Claude Leclerc and Jean-Yves Piram confirmed the view expressed in WP07, that it would be the role of States that are not strictly compliant with SARPs to provide the conversion facilities towards the fully compliant implementations.

4.3.4 Arnaud Dedryvere said that the main driving factor for the TCP/IP implementation in Europe was the announced obsolescence of X.25. Naoto Sakaue said that in Japan this was not seen as an issue. Tom McParland said that this could also be resolved at the subnetwork layer. In the U.S. for NADIN2, the plan was to replace X.25 with IP as a like for like sub-network replacement.

4.3.5 Masoud Paydar added to the discussion by noting that the Panel had to monitor implementations and provide expert advice to Regional bodies, in compliance with its terms of reference. He believed that such advice was needed as a matter of urgency by some Regional Planning Groups. On another hand, having the ATNP working on IP-based solutions would be an addition to the current ATNP work programme. Such an

addition would require an ANC approval before the ATNP can effectively work on the subject. Jim Lenz said that there was no problem in recognizing that local solutions exist, however such solutions should not be entered in the SARPs, because only one ICAO solution should be allowed to be in the SARPs.

- 4.3.6 Masoud Paydar cited the example of FANS-1, that, although not being an ICAO solution, was discussed in Doc 9739, in terms of "FANS-1 accommodation" because it was a significant issue with respect to existing systems.
- 4.3.7 Brian Cardwell also suggested to develop Guidance material on UA to MTA communications using TCP/IP lower layers. This was considered as useful, but not as a matter of urgency. This would be further progressed for inclusion in Edition 3 of Document 9739.

4.4. Discussion of Flimsy 2 ("Guidance provided by ATNP on AMHS over TCP/IP")

- 4.4.1 Flimsy 2 was tabled, providing a written summary of the discussions and views commonly agreed by the meeting concerning "AMHS over TCP/IP" implementations. The paper was discussed at some length, and amended accordingly. Flimsy 2 Rev. b was approved as the ATNP guidance on "AMHS over TCP/IP". The agreed document is attached to this report.
- 4.4.2 It was agreed that the document would be used as a stand-alone document that the ICAO Secretariat could distribute to appropriate bodies requesting guidance about AMHS related matters, e.g. ICAO Regional Offices.

4.5. Confusion regarding air-ground ATN applications over TCP/IP

- 4.5.1 Greg Saccone presented IP05a ("Confusion regarding air-ground ATN applications over TCP/IP"). Working Group B had become aware of work within AEEC and presentations made on behalf of the US indicating that "TCP/IP" was a viable alternative to ATN in the US. The Working Group and multiple Panels members called the attention of States and Organizations that this was a misrepresentation of the US-policy regarding ATC-related services.
- 4.5.2 The US FAA Panel member was invited by the meeting to take appropriate actions to clarify this potential confusion about the US policy and to report to the ATNP Working Groups about the outcome of this task.

4.6. Use of the public Internet

- 4.6.1 The meeting came back on another issue reported in the Panel Secretary report, that there could be a need for Guidance Material concerning use of the public Internet for access to data banks or for exchange of AFTN messages.
- 4.6.2 It was agreed that the Panel would undertake initial investigation in relation with this issue, in expectation of receiving an ANC task in due course. This would be performed by WGB.

5. AGENDA ITEM 5: CCB REPORT

5.1. Presentation of the CCB Report

- 5.1.1 Greg Saccone briefly presented the CCB report, highlighting the number of active PDRs, for each Sub-Volume.

5.2. Publication of PDRs

- 5.2.1 Brian Cardwell asked how RESOLVED PDRs would be introduced in the SARPs, now that Document 9705 Edition 3 had been published. The question was on how to make sure that implementers are kept aware of such RESOLVED PDRs, that were applicable from their day of resolution.
- 5.2.2 The Panel Secretary suggested to place RESOLVED PDRs on the ATNP web site. This was agreed by the meeting.
- 5.2.3 The CLNP priority mapping table would need to be amended as the result of co-ordination with AMCP, concerning the inclusion of VDL Mode 3 and Mode 4 priorities. Concerning changes to Annex 10, it was agreed that the Panel Secretary would introduce a Draft Amendment 78 to the ANC to reflect this agreement. At ATNP level, a PDR would be raised in anticipation so as to keep Document 9705 in line with the Core SARPs as soon as Amendment 78 becomes applicable.

5.3. CCB participants

- 5.3.1 The Joint Working Group approved the nomination of Simon Blake-Wilson as CCB SME8, in replacement for Jim Simpkins.
- 5.3.2 The Joint Working Group invited nominations for SME6, to fill a vacant position.

6. AGENDA ITEM 4: DOC 9705 EDITION 3 STATUS

6.1. Status of Edition 3

- 6.1.1 Masoud Paydar reported that Edition 3 was published and publicly available for purchase at ICAO Headquarters, in CD-ROM format only.

6.2. Document 9705 Edition 4

- 6.2.1 Amendment 1 to Document 9705 Edition 3 was expected to be published at the end of 2003 (after publication of Amendment 78 to Annex 10), including all RESOLVED PDRs.
- 6.2.2 After ATNP/4 expected to be mid-2004, Edition 4 of Doc 9705 was expected to be published to include the enhancements being developed in the current series of working group meetings, i.e. the IP SND CF and Confidentiality solution.

7. AGENDA ITEM 6: DOC 9739 EDITION 2 STATUS

7.1. Status of Working Groups' work

- 7.1.1 Jean-Yves Piram reported that in Phuket, it had been agreed that further guidance material should be developed concerning AMHS addressing. This had been performed by Working Group A and Subgroup A3, and the related work had been recently approved for publication by Working Group A in its 4th meeting (Toulouse).
- 7.1.2 Brian Cardwell said that Doc 9739 had been ready for publication in Phuket, as far as WG B work was concerned. However, since that time, there had been a few security PDRs that had been resolved. Tom McParland further explained that the Guidance Material associated with the concerned topics had been updated accordingly, and a few amendments were being completed. Ten more days were needed to fully complete this work.

- 7.1.3 It was agreed that Guidance Material about further enhancements concerning security, e.g. regarding confidentiality, the IP SNDCF or other subjects would go into Edition 3 of Document 9739. Guidance Material associated with additional enhancements appearing in Edition 4 of Document 9705 would be handled in the same way.

7.2. Publication of Document 9739 Edition 2

- 7.2.1 Working Groups A and B together agreed to recommend publication of Document 9739 Edition 2 by the ICAO Secretariat, based on the available material (subject to the minor amendments concerning ATN security being completed shortly).

8. AGENDA ITEM 7: ATN SECURITY ISSUES

8.1. Status of SGB3 work

- 8.1.1 Tom McParland reported about the work that had been performed since the Phuket meeting about ATN security, that would be presented by means of several working papers to the joint work group.
- 8.1.2 Simon Blake-Wilson presented WP08, providing a summary report of the cryptographic approach adopted by the proposed confidentiality solution.
- 8.1.3 Tony Kerr presented WP09, providing a summary report of "Addition of Confidentiality in ULCS and Applications" Issues. He was confident that the Secure Dialogue Service that had been defined with the inclusion of confidentiality would meet the expectations of AOC as well as those of ATC, in line with the general practice of SGB2 to develop solutions that would be applicable for both AOC and ATC.
- 8.1.4 Jean-Yves Piram said that maintaining interoperability between secure and non-secure implementations was essential, including when confidentiality would be implemented. Jim Lenz insisted on the need for a sunset date being defined for communications without authentication.

8.2. AMHS security issues

- 8.2.1 Simon Blake-Wilson presented WP10, that provided responses to the paper presented in Phuket that was named "AMHS Security Questions".
- 8.2.2 Claude Leclerc said that the SGB3 responses had been commented by SGA3, as presented in WP13. Both subgroups were generally in agreement but a small number of items had been identified as requiring further investigation and co-ordination between both subgroups. He said that whatever the conclusions of the process would be, special care would be taken so as to not destabilize existing AMHS SARPs.
- 8.2.3 The question of analysing whether there is a requirement for the pending security services (e.g. non repudiation of origin) identified in the Phuket paper was discussed. It was agreed that this should be passed to Subgroup A1 in charge of institutional issues. It was considered premature to have SGB3 working on such technical subjects for which the requirement might well not be confirmed.

8.3. Security institutional issues

- 8.3.1 Tom McParland presented WP11, that listed a number of issues that had been identified, whose resolution was beyond the scope of SGB3 which was a technical subgroup. The establishment of a sunset date for ATN communications without authentication was an example of such issues.
- 8.3.2 It was agreed that this list of issues should be passed to SGA1 for further analysis and process. It was noted that SGA1 had not yet been formed, and this was seen as a matter of urgency by the meeting. Jim Lenz encouraged Panel members to provide resources for attendance and participation to Subgroup A1's work.

Jean-Yves PIRAM repeated the request that he had made in earlier meetings, that somebody would candidate as SGA1 chairperson.

9. AGENDA ITEM 9: ATNP WORK PROGRAMME PROGRESS

- 9.1 Jean-Yves PIRAM presented a verbal report of WGA activities. He detailed the activities of Subgroup A2 concerning air-ground applications. There had been close co-operation and joint meetings with SGB2 and SGB3. Greg Saccone stressed the issue of Mode 3 frequency variables to be included in CPDLC. None of the possible solutions were really satisfactory, either in terms of additions to the existing CPDLC specification or in terms of interoperability. Jim Lenz clarified that during the Built 1/1A CPDLC implementation that was in progress in the U.S., there had been no mention at all of a potential requirement to support VDL Mode 3. Concerning ground-ground applications as part of subgroup A3 activities, the focus had been on the production of Guidance Material on AMHS addressing, including the development of pro forma for AMHS address management by ICAO. Jean-Yves PIRAM also informed the meeting about various implementation activities that had been reported to WGA, including in particular several projects leading to AMHS systems expected to be operational in 2005.
- 9.2 Brian Cardwell presented WP12, summarising the WGB work programme status. The main areas of activity had been Sub-Volumes IV and VIII of Doc 9705, for the inclusion of confidentiality services in SARPs. Guidance Material associated with security (authentication) had also been further developed and updated for Doc 9739 Ed2. The development of the IP SNDCF had been started, as well as initial validation. It was expected that 2 to 4 months would be needed to complete the IP SNDCF technical provisions. Some initially identified potential work items had not been started, such as multicast, because there were no clear user requirements for these functions. Brian Cardwell requested that States allocate resources to work in SGB3, since this was the main area for further work. The development of confidentiality provisions was expected to complete in 6 months and to have completed GM and validated in 12 months.
- 9.3 The meeting noted the status of Working Groups A and B work items.

10. AGENDA ITEM 10: SCHEDULE OF FUTURE MEETINGS

- 10.1 To make sure that dates were reserved, it was agreed to plan for future meetings, irrespective of the possible ANC decision of merging Panels that could be taken in November 2002. In this context the target was still that ATNP/4 would be held at the beginning of 2004. To meet this deadline, enhancements that were being developed would have to be completed for Summer 2003.
- 10.2 Provisional dates were reserved for a round of ATNP working group and subgroup meetings, from March 11th to 20th, 2003. The location was to be determined. Masoud Paydar said that ICAO would be prepared to host working group meetings in general, and that he would investigate if a sufficient number of rooms would be available at ICAO headquarters at these dates.
- 10.3 In the absence of further subjects to be addressed under Agenda Item 11 (Any Other Business), the meeting ended with these considerations.

11. ATTACHMENT A : AGENDA AS APPROVED BY THE MEETING

1. Organizational Issues
2. Approval of the Agenda
3. Panel Secretary's Report
4. Doc 9705 Edition status
5. CCB Report
6. Doc 9739 Edition status
7. ATN Security Issues
8. TCP/IP Issues
9. ATN Work Programme Progress
10. Schedule of Future Meetings
11. A.O.B.

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13. ATTACHMENT C : LIST OF WORKING, INFORMATION AND DISCUSSION PAPERS

Paper Number	Agenda Item	Presenter	Title
WGA04-WP01	1	J.Y. Piram / B. Cardwell	Agenda
02	1	J.Y. Piram / B. Cardwell	List of Working Papers
03	1	J.Y. Piram / B. Cardwell	List of Attendees
04	3	M. Paydar	Update from Panel Secretary
05			withdrawn
06	7	C. Leclerc	Use of Internet-based protocols to support ground communications in Europe
07	7	N. Sakaue	Position Statement of Japan on IP-based AMHS
08	8	T. McParland	Summary Report of Confidentiality Solution
09	8	T. Kerr	Addition of Confidentiality in ULCS and Applications
10	8	S. Blake-Wilson	Response to "AMHS Security Questions"
11	8	T. McParland	Security Institutional Issues
12	9	B. Cardwell	WG B programme status report
13	8	C. Leclerc	Commented response to "AMHS Security Questions"
WGA04-IP01		None (report already approved in Thailand)	JWG03 Report
02	7	C. Leclerc	IPAX Task Force presentation (slides)
03	7	T. Whyman	IPv6 integration in the ATN
04			withdrawn
05	7	J. Moulton	Confusion regarding air-ground ATN applications over TCP/IP

14. ATTACHMENT D : GUIDANCE PROVIDED BY ATNP ON "AMHS OVER TCP/IP"

Agenda Item 8: TCP/IP Issues

Flimsy 2 Rev. B (approved): Guidance provided by ATNP on "AMHS over TCP/IP"

It has been observed that some States or even Regions are implementing or planning to implement AMHS systems making use of lower communication layers that are not conformant to the ATN Internet Communication Services (ICS). Such AMHS systems conform to Doc 9705, Sub-Volume III, Chapter 1, with the exception of the clauses related to interfacing with ATN ICS. The most frequent occurrence of such non-compliant systems is related to AMHS systems making use of TCP/IP lower layers through a RFC1006 interface ("AMHS over TCP/IP").

Due to the store-and-forward nature of the AMHS, this can be done without compromising the end-to-end interoperability at the AMHS application layer with SARPs-compliant AMHS implementations, but at the cost of some dual-stack systems¹ for lower layers. Strict conformance to Doc 9705, Sub-Volume III, Chapter 1 is required, with the only exception of clause 3.1.2.2.1.2 ("Use of Transport Service"), to ensure such end-to-end interoperability.

The reasons invoked by States adopting such local policies include the following:

- The need for an immediate or short-term transition from existing ground networks, and in particular from X.25 networks that are reaching obsolescence;
- The use of a common ground network infrastructure shared with other ground applications, such as radar data distribution or inter-centre communications (such as OLDI in Europe), such infrastructure being sometimes already in operation.

It should be noted that in all known cases, the IP network used or planned to be used is a network infrastructure in which switching equipment and links are dedicated to ATS communications, building a so-called "private" IP network.

It is recognized that other transition strategies can also be developed, that make use of the proposed IP SND CF to enable IP sub-networks to be used as ATN sub-networks, in a fully SARPs-compliant ATN ICS architecture. However such an architecture is not discussed in the present document.

Despite the fact that the implementation of "AMHS over TCP/IP" can meet, as described above, the specific objectives of a State on a local or regional basis, the attention of implementers should be drawn to the fact that the implementation of two different architectures has the following drawbacks:

- It limits "any-to-any" communication between AMHS systems on a global basis that could be needed in specific cases, e.g. for performance requirements;
- it requires the implementation by some States of "dual-stack" AMHS systems, to gateway between AMHS systems using the ATN ICS and AMHS systems using TCP/IP. This may reduce performance and availability;
- The cost of such gateway facilities is expected to be borne by States implementing non SARPs-compliant AMHS

¹ Such dual-stack systems are beyond the baseline ATN architecture which is specified by ICAO.

systems.

In view of the elements above, the following guidance is offered by the ATN Panel on the use of "AMHS over TCP/IP":

1. "AMHS over TCP/IP" implementations should not be presented as fully SARPs-compliant ATN implementations.
2. Non-SARPs-compliant "AMHS over TCP/IP" implementations are seen as a "local solution" within a State or Region. Inter-State or inter-Regional connections between such systems using TCP/IP should be subject to bilateral/regional agreements.
3. States or Regions that implement "AMHS over TCP/IP" systems within their domains are responsible for taking those necessary measures to ensure interoperability with SARPs-compliant implementations in other States or Regions.
4. Appropriate security measures should be taken when using an IP network, irrespective of whether AMHS uses TCP/IP directly or via the IP SNDCE.

The ATNP will continue to monitor related developments and will provide further guidance as appropriate.