AERONAUTICAL TELECOMMUNICATION NETWORK PANEL (ATNP)
Working Group 3 -- Applications and Upper Layers
Fourth Meeting

(Banff, Alberta, Canada, 16-20 October 1995)

I.   Introduction

The fourth meeting of ATNP Working Group 3 (WG3) took place on 16 to 20 October 1995 in Banff, Alberta, Canada, hosted by Transport Canada.

Mr. Ron Jones, US Member and Rapporteur of WG3, welcomed the participants.   After introductions by the WG3 participants the list of working papers was prepared.

A copy of the meeting agenda is presented in Attachment 1. A list of participants is presented in Attachment 2.   A list of working papers with presenter and agenda item is presented in Attachment 3.

II.   Minutes of the Meeting

1.   Agenda Item 1: Approval of the Agenda

The proposed agenda (Attachment 1) was reviewed by the working group and accepted. The Working Group accepted a proposal to review the topics of agenda item 7 (i.e., Administrative Issues) during the first day of the meeting rather than covering this item near the end of the meeting.

2.   Review and Approve Reports of the second (Toulouse) and the third (Fairfax) meetings of WG3.

The reports of the second and third meetings of WG3 were reviewed. Both meeting reports were approved by WG3 without any changes.

2.1   Review issues and action items from the previous WG3 meetings

The principal action items from the previous working group meetings related to tasking to the WG3 subgroups for the development of draft SARPs and Guidance Material. The status of this tasking was to be reported under the related agenda item.

2.2   Review proposed structure for CNS/ATM-1 Package SARPs

The WG3 Rapporteur pointed out the structure for the CNS/ATM SARPs was proposed at the Joint WG2/WG3 meeting in May 1995 and shown in Attachment 4 to the WG3 report from May 1995. He also informed WG3 that WG1, at its third meeting held 9-12 October 1995, accepted the general structure for the SARPs. He also reported that WG1 has formed a drafting group to

develop the "Introduction and System Level Requirements for CNS/ATM-1 Package" materials. It was also reported that the Joint Working Group Meeting held 13 October, 1995 had changed the term for each division of the CNS/ATM-1 Package SARPs from "Parts" to "Sub-Volumes".

3. Review inputs received from other ATNP working groups and other ICAO bodies

Flimsy 5 from the Joint WG2/WG3 meeting held in May 1995 (Fairfax, Virginia) was a request to the ADSP for operational requirements for the CNS/ATM-2 Package. The WG3 Rapporteur reported that no response had been received. He also reported that based on informal coordination with members of the ADSP, it appears that the ADSP focus is on 'end-state' operational requirements and there is currently no activity to specifically define the operational requirements for Package-2. He also reported that as the ATNP WG1/2/3 rapporteurs will attempt to hold a meeting with the ADSP WG rapporteurs in late November to address the above issue.

Mr. Jones, as the U.S. panel member, presented WP4-4, titled ATN Systems Inc. Position on CNS/ATM-1 Package. The WP conveyed (by way of a copy of letter from ATN Systems Inc.) the consensus position of the eleven U.S. air carriers that own ATN Systems Inc. The position stated that relative to the ATNP working group meetings in Banff; "..it is imperative that no new requirements are introduced at the meetings and the meeting conclude with no unresolved issues which affect the technical implementation of the CNS/ATM-1 Package." WG3 noted this position.

4. ATN Upper Layer SARPs

4.1 Report from SG3

Mr. Steve Van Trees presented the report of SG3 on the progress made on drafting of the upper layer architecture SARPs. He reported that SG3 had held one meeting in August 1995 and subsequently there had been substantial e-mail and telephone coordination among the ULA SARPs editors. He reported that naming and addressing was still and open issue that needs to be addressed by WG3. He also reported that user data in D-U-ABORT, was not allowed in ITU-T/ISO upper layer efficiency enhancements but is desired to support the air-ground application SARPs. He indicated he will try to get the needed changes into the standards activities as U.S. comments. He reported that Chapter 3 of the ULA draft SARPs was reworked over the two weeks immediately prior to the WG3 meeting in an attempt to document recently agreed changes, by the SG3 editors, to the 'control function.' One of the issues that was addressed by the ULA editors was an inconsistency in the ACSE second edition standard and the efficiency enhancements in the upper layers (i.e., fast byte). The solution reflected in the current draft ULA SARPs was to the use the mapping for the A-release as defined for Edition 3 of ACSE. This greatly simplified the ULA Control Function definition in the draft ULA SARPs. Chapter 7 of the draft ULA SARPs describes the confirmed data service element (CDSE). This is not currently required by any of the CNS/ATM-1 Package applications and unless such a requirements emerges this material will be relegated to Package-2 material. Additional work would be required on the CDSE to fully resolve some outstanding issues.

Mr. Van Trees reported on the progress that has been made with the ITU-T and ISO forums to progress the standards that are needed to support the CNS/ATM-1 Package and Package-2 ULA

requirements that had been identified at previous WG3 meetings (dating back to the first WG3 meeting in Oct. 1994). The schedule for the progressing of the efficiency enhancements and ACSE revisions that had been envisioned at earlier WG3 meeting is still valid and all of the milestones for ITU-T and ISO actions and approvals postulated to occur by the end of 1995 have in fact been met. It was noted that during the development of the ULA SARPs a problem was discovered in the draft ISO ACSE 2nd edition standard when used in conjunction with PER coding. The necessary changes to correct the problem (i.e., the addition of extensibility markers) was put into the ITU-T standard for ACSE.

4.2   Review of draft ULA SARPs material

The working group reviewed the draft ULA SARPs that were input to the WG3 meeting on a chapter-by-chapter basis. The main issues identified with the draft ULA SARPs were:

  a) part of the material was written in the form of a service description rather than in the form of SARPs requirements/recommendations;

  b) the draft SARPs contained material that related only to Package-2 requirements;

  c) lack of support for user data in a D-U-Abort. The air-ground application SARPs assume that user data can be provided with a D-U-Abort but the upper layer efficiency enhancements do not allow for this.

These first two issues were most apparent in chapter 3 of the draft SARPs. This material had been prepared within the two weeks preceding the WG3 meeting. The document editor noted additional editing would been needed. A editing group convened during the week of the WG3 meeting and provided significant revisions to the draft ULA SARPs to better present the material in a SARPs format consistent with the CNS-ATM-1 Package requirements. This revised ULA SARPs was reported back to WG3 for further consideration. Mr. Van Trees indicated that chapter 3 of the draft SARPs had been significantly reworked and the Package 2 related material had been removed. He also reported that an 'work around' solution had been added to compensate for the lack of support for user data in the D-U-Abort. However, he reported the U.S. will submit a defect report against the ITU-T standards (and the equivalent ISO draft standards) in an attempt to provide a better long-term solution for this issue. WG3 generally endorsed the revisions made to the draft SARPs. A small number of outstanding editorial and technical issues associated with chapter 3 of the draft ULA SARPs were raised at the last minute based on inputs from one of the document editors not present at the WG3 meeting. WG3 decided these concerns would be best resolved by the document editors subsequent to the conclusion of the WG3 meeting. The working group empowered the document editors to resolve the remaining issues and update the document with the goal issuing Version 1 of the ULA SARPs by the end of November 1995. When issued, Version 1 should be considered a baseline document and should be considered stable and suitable as a basis for validation activities.

Mr. Van Trees presented WP4-18 on the subject of ATN naming and addressing. The paper proposed that SG3 could serve as the registration authority for the application names and WG2 as the registration authority of the NSAPs. The proposal was supported by WG3 as an interim solution, but WG3 requested that the WG2 and WG3 rapporteurs raise the issue to the ANC for the need for ICAO to ultimately identify an office that would assume the responsibility as the registration authority for the ATN naming and address and serve as a source for providing the

directory of ATN addresses. It was noted that Klaus Peter Graff has agreed to serve as the focal point in WG1 for the coordination on the overall naming and addressing plans and issues.

Mr. Moulton introduced WP4-21 on the subject of naming and addressing in the upper layers. The working group did not review this material in detail but referred it to SG3 for their consideration in resolving the remaining omissions of the ULA SARPs in this area.

Mr. Moulton introduced WP4-22 on the confirmed data service element. This material was provided for information purposes and was not specifically discussed by the working group.

4.3   ULA SARPs validation approach and plans

The working papers on this subject also covered the application SARPs validation and they were taken up under agenda item 6.3.

4.4   Tasking for SG3

The principal tasking to SG3 was already covered the existing terms of reference for the subgroup. As noted in 4.2 above, the ULA SARPs editors were empowered to update chapter 3 of the draft SARPs then release this updated draft as Version 1. The document editors plan to meet in the United Kingdom in late November 1995 to finalize the revisions to chapter 3. The goal is to release Version 1 of the draft ULA SARPs immediately following the meeting of the ULA SARPs editors in late November 1995. Specific SG3 tasks identified for the next WG3 meeting were the development of the initial draft of the CNS-ATM-1 Package ULA guidance material, validation documentation (e.g., data base) and proposed changes identified against the baseline ULA SARPs. SG3 has scheduled a meeting 11-15 December 1995 in North America (location to be determined) to work on this material.

5.   Ground Application SARPs

5.1   Report from SG1

Mr. Jean-Yves Piram, chairman of SG1 presented WP4-8 to the working group summarizing the progress, status, plans and issues associated with the SG-1 activities. He reported that SG1 had held two meeting in June and October 1995. He also reported that two drafting group had been established to progress the SARPs for Message Handling Service (MHS) over the ATN and the SARPs for the Inter-Centre Communications (ICC). He reported that SG1 had produced version 0.2 of the draft SARPs for MHS over the ATN and version 0.0 of the draft SARPs for ICC. He reported that neither of these draft SARPs are currently ready for a detailed review by WG3, but anticipates they will be mature enough for review at the next WG3 meeting in Feb. 1996. Mr. Piram indicated there were a number of issues where SG1 was requesting inputs from WG3 (as described below).

5.2   Review of draft Ground Application SARPs material

Mr. Jean Marc Vacher presented WG4-9, a status report on the draft SARPs on Message Handling Services over the ATN (version 0.2) with the draft SARPs itself as an attachment. He reviewed the structure of the draft SARPs and described changes that have been made to the ATN Pass-Through Service (Type A) and the ATS Message Service (Type B) . Type A is

viewed as the short term solution and Type B as the long-term solution message handling services over the ATN. While WG3 did not review the draft SARPs itself, WG3 members were invited to submit comments to the document editor (Mr. Vacher). The drafting group of this SARPs has scheduled meetings 6-10 November 1995 in Paris and 8-12 January 1996 (location in Europe - to be determined).

Mr. Leclerc present WP4-10 providing the status of the draft SARPs for ICC. He reported that version 0.0 is available on request. SG1 recommended that the structure for the ICC SARPs should be the same as the structure adopted by SG2 for the air-ground application SARPs. WG3 endorsed this recommendation. WP4-10 raised the following issues where SG1 requested WG3 guidance:

a) endorsement or amendment of the SG1 orientation for the drafting of the I.C.C. SARPs as reported in section 3-4 of WP4-10 and in WP4-8;

b) provision of the operational concept and requirements for Ground-Ground data exchanges in support of Air-Ground Applications (CM and CPDLC), coming from SG2 or ADSP;

c) scope of the I.C.C. SARPs, concerning the inclusion of the Flight Planning Service within the set of operational services supported by the I.C.C. SARPs.

The WG3 conclusions on each of these items were as follows:

a) It was the WG3 consensus that I.C.C. SARPs should focus, in terms of message format, on the exchange of ASN.1 structured messages using PER encoding, using the message descriptions provided in the ADSP documentation.

b) A definition is needed for the overall concept for Ground-Ground data exchanges in support of Air-Ground Applications.

It was further agreed that a group of SG2 and SG1 participants will draft a flimsy setting the scene for this operational concept.

c) As the I.C.C. drafting group will hold its first meeting in Montreal overlapping with an ADSP joint working group meeting, it was agreed that a decision should be made on the basis of a coordination with ADSP to be performed using this opportunity.

It was initially proposed to draft a WG3 flimsy to ADSP, requesting information on the status of Operational Requirements for the Flight Planning Service. It was initially agreed to write a flimsy with an attached copy of WP/25 from the Oct. 1995 SG1 meeting (Operational Framework for Inter-Centre Communications for CNS/ATM-1 Package). This WP had been informally coordinated with ADSP WG B members in Toulouse (March 1995) and had then been previously presented to and endorsed by WG3.

Rapporteur's Note: Drafting of such flimsy was superseded following an informal coordination meeting which took place outside the main WG3 meeting between M. Asbury, S.B. Pearce (both ADSP members), J.-Y. Piram and C. Leclerc (WG3/SG1). It was confirmed that flight planning messages have been removed from the AIDC message set as flight planning notification is no longer considered to be ATS interfacility data

communication (ref. Report on the Joint meeting of Working Group A and Working Group B of the ADS Panel Toulouse, 21 November to 2 December 1994).

The ICC drafting group will meet 20-24 November in Montreal and 8-12 January in North America (date tentative).

5.3   Ground Application SARPs validation approach and plans

The approach for the validation of the ground application SARPs was discussed. The discussion also included an number of general issues applicable to all of the sections for the CNS/ATM-1 Package SARPs. Some WG3 members felt that the SARPs do not require the same level of formal data base tracking for requirements versus validation results as envisioned for other section of the SARPs. Since this area of the SARPs can be validated to a large extent using commercially available products, only the ATN unique areas of the SARPs require detailed validation testing. The proposal recommended interoperability testing between two independent implementation as the means of demonstrating the validity of the SARPs. Some member of WG3 questioned the adequacy of this approach. Mr. Piram agreed to prepare a Flimsy to describe the proposed approach to the validation of the SARPs for MHS over the ATN.

Note: subsequently a joint breakout group of WG2 and WG3 members held a meeting on the subject of validation and a flimsy was prepared by WG2 reflecting an overall approach to CNS/ATM-1 Validation. (see section 6.3 for details)

5.4   Tasking for SG1

The tasking to SG1 was focused on the preparation of version 1 of both the MHS over the ATN and the ICC SARPs for review by WG3 at it next meeting in Feb. 1996 based on the conclusions described in section 5.2 above.

6.   Air-Ground Application SARPs

6.1   Report from SG2

Mr. M. Asbury, chairman of SG2, presented the report of SG2 (WP4-6). Mr. Asbury began by acknowledging the hard work of the editors of the 4 parts of the draft air-ground application SARPs. Namely, Jane Hamelink, Tim Maude and Frederic Picard as well at Stephen Pearce who was a major contributor to the drafting efforts. The draft air-ground application SARPs assume that voice backup will always be available and concluded that it is not practical for the CNS/ATM-1 Package air-ground applications to all address possible operational events. SG2 has paid special attention to supporting the use of version numbers to provide backward compatibility as future versions are standardized and implemented. This is necessary since not all aircraft and ground ATS automation systems will evolve to the next version at the same time. The draft air-ground application SARPs is organized into 4 parts with each part specifying the requirements for one of the four initial air-ground applications (CPDLC, CMA, ADS and FIS). Also a Part 0 is proposed to collect the material common to all of the air-ground applications into a single introductory part of the air-ground application SARPs.

While drafting the air-ground application SARPs, SG2 has attempted to avoid specifying anything which would unnecessarily limit user implementations. Also many of the operational timers are defined but are not yet quantified. Each part of the draft SARPs is organized into 7 sections and include the reference back to the source of the operational requirements for the specific application (generally ADSP generated material). Mr. Asbury estimated that the material is more than 95% complete and further coordination with the ADS Panel will be required to resolve a few outstanding issues. Coordination with the ADSP working group B is planned to occur at their working group meeting in late November 1995.

Mr. Asbury presented an overview of the status of each of the four parts of the draft air-ground application SARPs and recommended (section 10 of WP4-6):

a) ..that the WG review the proposed draft material prepared by the SG, and release it for initial validation, comment and action as required by the interested parties;

b) ..that the WG approve the future programme of the Air Ground Subgroup, for the continued support of the air-ground SARPs.

These recommendations were subsequently approved by WG3.

6.2 Review of draft Air-Ground Application SARPs material

Mr. Asbury, with support from Ms. Hamelink and Mr. Picard (two of the air-ground SARPs editors), presented the draft air-ground application SARPs. Each part of the draft SARPs is organized into a 7 part structure as follows:

1. Application Overview
2. General Requirements
3. The Abstract Service
4. Formal Definitions of Messages
5. Protocol Definition
6. Communication Requirements
7. User Requirements

A general comment applicable to all four parts of the draft SARPs was sections 1 through 3 contain material that is largely introductory, guidance and/or explanatory notes while some of the material in section 3 needs to be reworked to define the functional requirements in the form of SARPs rather than it current form of a service description.

A modest number of clarifications and specific minor changes were identified as a result of the WG3 review. There are a few additional inputs needed from ADS Panel in order to finalize certain of the SARPs requirements, such as the range of parameters, the appropriate values for operational timers and the need for both English and Metric units for certain of the parameters.

A concern was raised by the representative from IATA that the operational requirements from the ADS Panel and the CPDLC SARPs include an option for a air-to-ground logical acknowledgment, but there is no equivalent provision for a ground-to-air logical acknowledgment. The working group concluded that if IATA felt that a case could be made for adding such a provision, then IATA should provide inputs to the ADS Panel proposing to add a new operational requirement for this capability.

After the review of the nearly 500 pages of draft air-ground application SARPs material (time did not permit a very detailed review of the technical requirements), WG3 determined that the material was adequately mature to baseline as version 1 of the draft air-ground application SARPs. Future revisions to the draft air-ground SARPs will be tracked against this baseline.

Mr. Akimoto presented WP4-19 which described the need to identify some additional functionality in the ground context management application. The working paper resulted in a discussion of the need to insure the SARPs materials being developed by SG1 and SG2 fully and consistently define the CNS/ATM-1 Package applications that have both a ground-ground and air-ground element. The subgroup chairman both confirmed to the working group an intent to maintain a dialog between the activities of the two subgroups in an effort to insure the CNS/ATM-1 Package will properly define the applications that involve the documentation being produced by both subgroups. WP4-19 was referred to SG1 and SG2 for there further consideration to insure that the issues raised by the working paper are properly taken into account in the ground and air-ground sub-volumes of the CNS/ATM-1 Package SARPs.

Mr. Jones presented WP4-20 that proposed a definition of ATSC traffic types to reflect the operational requirements for the CNS/ATM-1 Package air-ground applications. WG2 at its May 1995 meeting had defined eight ATSC traffic types, A through H, as having an associated value (to be defined) of maximum transit delay. WG2 had requested that WG3 provide the specific definition of the traffic type values. WP4-20 proposed to assign values to four of the eight available ATSC traffic types. After some discussion, Flimsy 2 (Attachment 5 to this report) was produced by WG3 and presented to WG2 where it was accepted.

6.3   Air-Ground Application SARPs validation approach and plans

Flimsy 12 from WG2 was reviewed by WG3. This flimsy was generated by WG2 as the result of an off-line meeting between a number of WG2 and WG3 members. It proposed an approach for validation of the CNS/ATM-1 Package SARPs. This approach included the following steps:

a) Create a validation database tracing requirements at the level necessary to achieve the validation objective

b) define validation objectives and means

c) define requirements for validation tools

d) prepare validation exercise specification to meet objectives

e) conduct validation exercise

f) perform analysis and report results

The flimsy also proposed that system level requirements be included in Sub-Volume 1 of the CNS/ATM-1 Package SARPs and these system requirements also be subject to validation (WG1 responsibility). WG2 and WG3 should identify the relationships of lower level SARPs to these high-level system requirements and validate those relationships.

The Working Group considered this flimsy along with a number of working papers with a view of defining an overall framework applicable to the validation of all of the CNS/ATM-1 Package SARPs being developed by WG3.

Mr. Asbury presented WP4-7 that described a stepped approach for air-ground application SARPs validation. The approach proposed include both a technical validation phase that was similar to that proposed in flimsy 12 from WG2, but also proposed system trials as a longer range (post SARPs approval by ATNP) object for operational validation.

Next the working group considered four working papers submitted by EUROCONTROL related to the validation of the CNS/ATM-1 Package SARPs. The Mr. Valentine presented WP4-13 that proposed an approach to validation of CNS/ATM-1 Package SARPs. Although this WP proposed a more rigorous tracking of the detailed SARPs requirements than that proposed in flimsy 12, Mr. Valentine expressed his support for the approach described in flimsy 12. Mr. Van Roosbroek presented WP4-15 that proposed an approach for the use of a SARPs validation database as an tool for tracking SARPs requirements against the validation results. Mr. Van Roosbroek then presented WP4-16 proposing Scenarios for the CNS/ATM-1 Package SARPs validation. The focus of the paper was on air-ground applications and he requested that SG2 review the proposed scenarios. WG3 endorsed a review of the proposed scenarios by SG2. Mr. Van Roosbroek then presented WP4-17 describing the Trials End System Project by EUROCONTROL to support validation of the CNS/ATM-1 Package air-ground applications and upper layer architecture SARPs. It was noted that the FIS application was not specifically included in the trials end system.

While there were proposals to create a formal configuration control board (CCB), as has been done for the internetwork SARPs being prepared by WG2, WG3 did not specifically endorse the necessity of this formal measure. It was felt that each of the WG3 subgroups could serve in this role as the CCB as well as the document editors.

After review of flimsy 12 (from WG2) and the above working papers, WG3 concluded that all 3 subgroups of WG3 should use the SARPs validation framework proposed in flimsy 12 as the basis for the CNS/ATM-1 Package SARPs validation. Each subgroup was task with reviewing this framework and reporting back to WG3 at its fifth meeting on how they would propose to apply this framework to the SARPs sub-volume for which they are responsible.

6.4   Tasking for SG2

SG2 was tasked with coordinating with working group B of the ADSP to resolve the few outstanding issues needed to finalize the air ground application SARPs requirements. Furthermore SG2 was tasked with drafting a version 1.1 of the SARPs for review at the next WG3 meeting in Feb. 1996. Comments on the current version 1.0 were requested to be submitted to the applicable editor by 15 Dec. 1995. SG2 plans to hold a meeting in 8-12 January 1996 in Toulouse, France to prepare the version 1.1 of the document and distribute this updated version to WG3 members in advance of the WG3 meeting in Feb. 1996. SG2 was also ask to review the validation scenarios proposed in WP4-16.

7.   Administrative Issues

7.1   Confirm Chairman of SG2 and SG3

The Rapporteur informed the working group that Mr. Murphy and Mr. Overgaauw would no longer be in a position to serve as the chairman of subgroup 2 and subgroup 3 respectively. The working group recognized the outstanding contributions of Mr. Murphy and Mr. Oversauw in progressing the work program of WG3. The meeting approved Mr. Mike Asbury (U.K.) as the new chairman of SG2 and Mr. Steve Van Trees (U.S.) as the new chairman of SG3.

7.2 Discuss need for an additional WG3 meeting in the April 1996 timeframe for detailed SARPs review

As previous reported at the third meeting of WG3, the proposed SARPs and Guidance Material will need to be submitted to ICAO for translation no later than June 1996. However earlier submission would increase the probability the materials will be translated by the proposed November 1996 date for the ATNP/2 meeting.

The Rapporteur requested the meeting consider adding a WG3 meeting in April 1996, of two weeks duration, to permit a detailed final review of the proposed SARPs material (and guidance material, time permitting) prior to submission to ICAO. The meeting supported such a meeting and requested that all comments against the draft SARPs and Guidance Material be submitted to the document editors in writing 4 weeks in advance of the meeting.

The need for an additional meeting of WG3 in September was also discussed. This meeting would focus on finalizing the validation report for submission to ATNP/2. It was suggested that the validation of certain areas in the SARPs will not be completed before Munich (June) and the proposed meeting in Sept. 1996 would allow more comprehensive validation results to be reported to ATNP/2. The meeting agreed to review the need for such a meeting at the next meeting of WG3 in Feb. 1996.

7.3 Date and location of next WG3 meeting

The scope of the planned fifth meeting of WG3 in Feb. 1996 was discussed. The meeting concluded the focus of the fifth meeting of WG3 should be on specific technical issues (should not involve large architectural changes), review progress on validation activities and review the initial drafts of the CNS/ATM-1 Package guidance material. Also the SARPs for ICC and MHS over the ATN are expected to be mature enough for a detailed review.

The meeting developed a flimsy (Attachment 4) to propose a modification to the schedule for the next WG meetings that was discussed at the Joint Working Group meeting of 13 October, 1995. This flimsy was coordinated with WG2 and the WG1 Rapporteur. The dates finally selected for the next (fifth) meeting of WG3 was 5-14 February 1996 in either South Brisbane or Sydney, Australia.

The date for sixth meeting of WG3 will be 15-26 April 1996. The meeting location will be Brussels, Belgium at EUROCONTROL headquarters.

The seventh meeting of WG3 will be held in Munich, Germany 24-28 June, 1996.

If an eighth meeting of WG3 is required before ATNP/2, the tentative dates and location are September 1996 in the United States.

As a working arrangement for future meetings of WG3, the proposed changes against Draft SARPs should be submitted to the responsible WG3 subgroup and/or document editor, and the subgroups should track changes against the baseline SARPs. Each subgroup should have a central repository of comments/defects/resolutions against the SARPs. This repository should be available to WG3 members so they can retrieve/view them. For those without electronic access, a high level list of defects should be available on request from the subgroup chairman or a designated point of contract for the subgroup.

Summary of Planned WG3 and Subgroup Meetings

WG3 Fifth Meeting	Australia (Sydney or South Brisbane)	5-14 February 1996
WG3 Sixth Meeting	EUROCONTOL Headquarters, Brussels, Belgium	15-26 April 1996
WG3 Seventh Meeting	Munich, Germany	24-28 June 1996
WG3 Eighth Meeting (tentative)	United States (specific location to be determined)	September 1996
SG1- MHS Drafting Group	Paris, France	6-10 November 1995
SG1 - ICC Drafting Group	Montreal, Canada	22-29 November 1995
SG1 Meeting	London, U.K.	4-6 December 1995
SG1 - MHS Drafting Group	Europe (location to be determined)	8-12 January 1996
SG1 - ICC Drafting Group	North America (location to be determined)	8-12 January 1996
SG1 Meeting	Australia (Sydney or S. Brisbane in parallel with WG1 meeting)	29-2 February 1996
SG2 Meeting	Toulouse, France (at CENA)	8-12 January 1996
SG3 Editor's Meeting	U.K.	Late November 1995
SG3 Meeting	North America (location to be determined)	11-15 December 1995
ATNP/2 (Panel Meeting)	ICAO Hdq. Montreal, Canada	5-16 November 1996 (tentative)

Rapporteur's Note: Subsequent to the conclusion of the WG3 meeting, coordination between the ATNP working group rapporteurs concluded that a Joint Working Group meeting will not be scheduled during the working group meetings in Australia in January/February 1996.

8.   Any other business

WG2 provided flimsy 9 indicating they had approved minor revisions to the definition of internet (CLNP) priorities. WG3 noted these revisions and concluded that they would not impact the priority levels being specified for use by the Package-1 applications.

List of Attachments

Attachment 1 - WG3 Draft Agenda

Attachment 2 - WG3 Attendance List

Attachment 3 - WG3 List of Working Paper

Attachment 4 - Flimsy 1

Attachment 5 - Flimsy 2

Attachment 6 - WG2 Flimsy 9

ATNP WG3 - Fourth Meeting - AGENDA

October 16-20, 1995

Monday, 16 Oct.

1. Approval of the Agenda

2. Review and Approve Reports of the second (Toulouse) and the third (Fair Oaks) meetings of WG3
   2.1 Review issues and action items from previous WG3 meetings
   2.2 Review proposed structure for CNS/ATM-1 Package SARPs

3. Review inputs received from other ATNP working groups and other ICAO bodies

4. ATN Upper Layer SARPs
   4.1 Report from SG3
   4.2 (Begin) Review of draft ULA SARPs material

Tuesday, 17 Oct.

   4.2 (Conclude) review of draft ULA SARPs material
   4.3 ULA SARPs validation approach and plans
   4.4 Tasking for SG3

5. Ground Application SARPs
   5.1 Report from SG1
   5.2 (Begin) Review of draft Ground Application SARPs material

Wednesday, 18 Oct.

   5.2 (Conclude) Review of draft Ground Application SARPs material
   5.3 Ground Application SARPs validation approach and plans
   5.4 Tasking for SG1

Thursday, 19 Oct.

6. Air-Ground Application SARPs
   6.1 Report from SG2
   6.2 (Begin) Review of draft Air-Ground Application SARPs material

Friday, 20 Oct.

   6.2 (Conclude) Review of draft Air-Ground Application SARPs material
   6.3 Air-Ground Application SARPs validation approach and plans
   6.4 Tasking for SG2

7. Administrative Issues
   7.1 Confirm Chairman of SG2 and SG3
   7.2 Discuss need for an additional WG3 meeting in the April 1996 timeframe for detailed SARPs review
   7.3 Date and location of next WG3 meeting

8. Any other business

Anderson, Gregg	FAA/Air traffic requirement services	800 Independence Ave SW Washington, DC 20591 USA	202-358-5042 202-358-5092	
Asbury, Michael	UK NATS	Room T804b CAA House 45-59 Kingsway, London WC2B 6TE UK	44-171-832-5472 44-171-832-5562	
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LIST OF WORKING PAPERS
ATNP WG3 - Forth Meeting - Banff, Canada 16-20 October 1996

No	Agenda Item	Presenter	Title
4-1	1	R. Jones	Agenda
4-2	2.1	WG3	ATNP WG3 Report Second Meeting (Toulouse 13-17 March 1995)
4-3	2.1	WG3	ATNP WG3 Report Third Meeting (Fairfax 15-19 May 1995)
4-4	3	R. Jones	ATN Systems Inc. Position on CNS/ATM-1 Package
4-5			DELETED
4-6	6.1	M. Asbury	Report of Subgroup 2 (Including the 4 parts of the air-ground application draft SARPs)
4-7	6.1	M. Asbury	Stepped Approach for A/G Applications SARPs Validation
4-8	5.1	J. Piram	SG1 Chairman's Report to WG3
4-9	5.2	J. Piram	Draft SARPs on MHS over the ATN
4-10	5.2	J. Piram	Status of Draft SARPs on ICC
4-11	4.2	S. Van Trees	Draft SARPs for Upper Layer Architecture
4-12	4.1	S. Van Trees	ATNP WG3 SG3 (Upper Layer Architecture) - Briefing
4-13	6.3	I. Valentine	Approach to Validation of CNS/ATM-1 Package SARPs
4-14	4.2	I. Valentine	Comments on Draft SARPs and Guidance Material for ATN Upper Layers for CNS/ATM-1
4-15	6.3	D. Van Roosbroek	The SARPs Validation Database
4-16	6.3	D. Van Roosbroek	Proposed Scenarios for the CNS/ATM-1 Package Draft SARPs Validation
4-17	6.3	D. Van Roosbroek	Trials End Systems Project
4-18	4.4	S. Van Trees	CNS/ATM-1 Package Registration Authority
4-19	6.2	M. Akimoto	Some Additional Functionalities in Ground Context Management Application
4-20	6.2	S. Van Trees	The use of ATSC Traffic Types for CNS/ATM-1 Package
4-21	4.2	J. Moulton	Naming and Addressing in the Upper Layers
4-22	4.2	J. Moulton	Confirmed Data Service Element

Proposed Change to ATNP Working Group Meeting Dates for Jan./Feb. 1996

17 October 1996

(Rapporteur's Note: This proposal was modified based on inputs from WG2 and the WG1 Rapporteur - See section 7.3 of the meeting report for the approved WG3 meeting schedule)

The plans for future ATNP working group meetings were discussed at the JWG meeting in Banff, 13 October 1995. The invitation from Australia was accepted as the location for the next ATNP working group meetings. The dates selected were 29 Jan. - 1 Feb. for WG1, 2 Feb. for JWG and 5-9 Feb. for WG2/3. Subsequently, at the fourth meeting of WG3 in Banff, the proposed schedule for the ATNP working group meetings was discussed and a proposed change was recommended. The proposed revisions were motivated by:

  a) a desire to extend the duration WG3 meeting; and
  b) desire to permit WG3 members to also attend the JWG meeting without having the combined period span two weekends.

The proposal for the revised schedule is:
(Rapporteur's Note: See para. 7.3 of WG3 meeting report for the approved meeting schedule)

30 Jan. - 1 Feb. 1996	--	WG1 (Tuesday through Friday)
4 Feb. 1996	--	JWG (Monday)
5 Feb. - 14 Feb. 1996	--	WG3 (Tues. through Wed. of the following week)

WG1 and WG2 members are invited to comment on the above proposal.

The use of ATSC Traffic Types

WG3 has considered the inputs received from WG2 resulting from the meeting in Fairfax, Virginia in May 1995 related to the definition of ATSC traffic types. WG3 endorses the definition of ATSC traffic types by relating each of the proposed types A through H to a desired maximum (95%) transit delay (end-to-end). For CNS/ATM-1 Package, the Internet SARPs will need to specify that a routing policy would be invoked consistent with the specified Traffic Type. The intent of the proposal to specific ATSC Traffic Types in terms of the desired maximum transit delay is not for a BIS to guarantee delivery within the specified deliver time. Rather the intent is to permit a BIS in apply a routing policy that will result in the selection of subnetworks (especially mobile subnetworks) that could be expected to support the desired performance. This would be determined a priori and not on a dynamic basis. In moving beyond CNS/ATM-1 Package perhaps more intelligent routing decisions could be made if the dynamic performance of the available subnetworks is know to the BIS.

The proposed definition of the ATSC traffic types is:

ATSC Traffic Type	Desired Maximum (95%) end-to-end Transit Delay (seconds)
A	Reserved
B	Reserved
C	13
D	18
E	Reserved
F	74
G	95
H	Reserved

Proposed replacement text for ATN Internet draft SARPs on use of Priority in the ATN

Introduction

WG2/WP174 comprises a review of the ATN Internet draft SARPs provisions on priority and proposed replacement text provided in order to fix the identified problems. This working paper has been acccepted in principle by WG2 and the proposed replacement text has now entered the CCB process. During this period of review, WG2 solicits WG3's comments on the proposed new text, and, in particular, on the proposed text on "Application Priority". Comments should be passed to the WG2 rapporteur.

The proposed replacement text is attached to this flimsy.

Proposed Replacement SARPs for section 2.6 "ATN Use of Priority"

ATN Use of Priority

Note 1. The purpose of priority is to signal the relative importance and/or precedence of data, such that when a decision has to be made as to which data to action first, or when contention for access to shared resources has to be resolved, the decision or outcome can be determined unambiguously and in line with user requirements both within and between applications.

Note 2. In the ATN, priority is signalled separately by the application in the transport layer and network layer, and in ATN subnetworks. In each case, the semantics and use of priority may differ. Figure 1 illustrates where priority is applied in the ATN, and where it is necessary to map the semantics and syntax of ATN priorities

Application Priority

Note 1. Priority in ATN Application Protocols is used to distinguish the relative importance and urgency of application messages within the context of that application alone.

For the purpose of
a)   distinguishing the relative importance and urgency of messages exchanged by different ATN Applications, and
b)   distinguishing the relative importance and urgency of messages of the same application during their transit through the ATN,
application messages shall be grouped into one or more categories listed in Table 0-1.
Note 2. An ATN Application may include messages from more than one category.

When a message is sent between ATN Application Entities, the message shall be sent using either:
a)   a transport connection established using the Transport Connection Priority listed in Table 0-1 for the message's message category, or
b)   the connectionless transport service, signalling the Connectionless Transport Service Priority listed in Table 0-1 for the message's message category.
Note 3. The priority of an individual transport connection cannot be changed during the lifetime of the connection. Therefore, if an application exchanges messages belonging to more than one message category using the connection mode transport service, then a separate transport connection needs to be established for each message category.
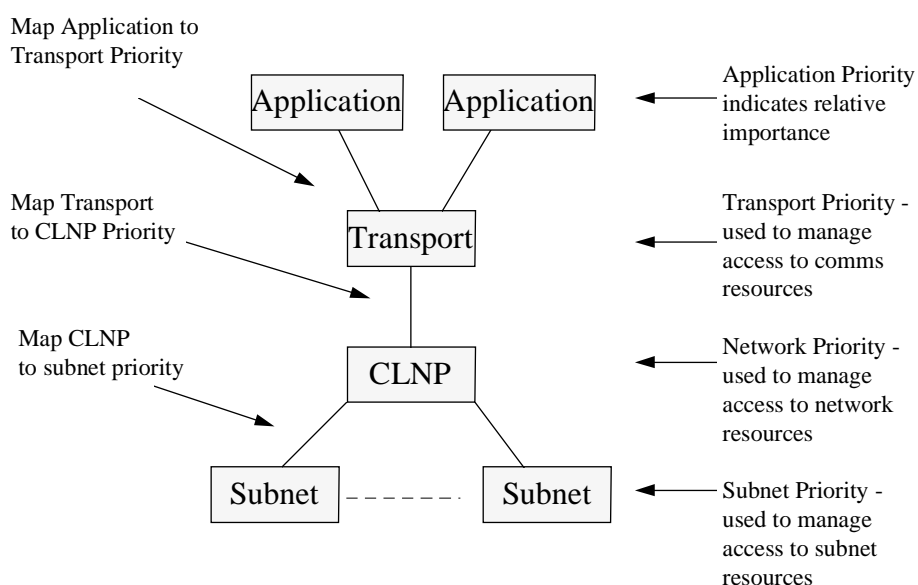

Figure 1 Use of Priority in the ATN   23

Transport Connection Priority

Note 1. Transport priority is concerned with the relationship between transport connections and determines the relative importance of a transport connection with respect to (a) the order in which TCs are to have their QoS degraded, if necessary, and (b) the order in which TCs are to be broken in order to recover resources.

Note 2. The transport connection priority is specified by the transport user either explicitly or implicitly, when the transport connection is established.

When an ATN Transport Layer entity is unable to satisfy a request for a transport connection from either a local or remote TSAP, and which is due to insufficient local resources available to the transport layer entity, then it shall terminate a lower priority transport connection, if any, in order to permit the establishment of a new higher priority transport connection.

Note 3. Implementation may also use transport priority to arbitrate access to other resources (e.g. buffers). For example, this may be achieved by flow control applied to local users, by discarding received but unacknowledged TPDUs, by reducing credit windows, etc.

All TPDUs sent by an ATN Transport Layer Entity shall be transferred by the ATN Internet Layer, using the Network Protocol Priority that corresponds to the transport connection's priority according to Table 0-1.

Connectionless Transport Service Priority

Note 1. There are no procedures required of the ATN Connectionless Transport Entity in respect of priority, except for mapping the TSDU priority supplied by the service user (i.e. an ATN Application), to the corresponding Network Layer Priority, and vice versa.

All UD TPDUs sent by an ATN Transport Layer Entity shall be transferred by the ATN Internet Layer using the Network Protocol Priority that corresponds to the TSDU priority provided by the service user according to Table 0-1

ATN Internet Priority

Note 1. In the ATN Internet Layer, an NPDU of a higher priority is given preferred access to resources. During periods of higher network utilisation, higher priority NPDUs may therefore be expected to be more likely to reach their destination (i.e. are less likely to be discarded by a congested router) and to have a lower transit delay (i.e. be more likely to be selected for transmission from an outgoing queue) than are lower priority packets.

ATN Internet Entities shall maintain their queues of outgoing NPDUs in strict priority order, such that a higher priority NPDU in an outgoing queue will always be selected for transmission in preference to a lower priority NPDU.

Note 2. priority zero is the lowest priority.

During periods of congestion, or when any other need arises to discard NPDUs currently held by an ATN Internet Entity, lower priority NPDUs shall always be discarded before higher priority NPDUs.

Note 3. In addition to NPDUs containing user (i.e. transport layer) data, the Internet Layer also forwards routing information contained in CLNP Data PDUs (e.g. IDRP) and as distinct NPDUs (e.g. ES-IS). These must all be handled at the highest priority if changes to network topology are to be quickly actioned and the optimal service provided to users.

BISPDUs exchanged by IDRP shall be considered as Network/Systems Management category messages, and sent using CLNP priority 14.

ES-IS (ISO 9542) PDUs shall be implicitly assumed to have priority 14.

Note 4. The priority encoded in an ISH PDU conveys the priority of the sending system, and not the priority of the PDU.

ATN Subnetwork Priority

Connection Mode Subnetworks

Note 1. In a connection mode ATN subnetwork, priority is used to distinguish the relative importance of different data streams (i.e. the data on a subnetworks connection), with respect to gaining access to communications resources and to maintaining the requested Quality of Service.

Note 2. On some subnetworks (e.g. public data networks), not all data streams will be carrying ATN messages. Therefore, subnetwork priority is also used to distinguish ATN and non-ATN data streams.

Note 3. So as not to incur the overhead and cost of maintaining too many simultaneous subnetwork connections, NPDUs of a range of Network Layer priorities may be sent over the same subnetwork connection.

When an ATN connection mode subnetwork does not support prioritisation of subnetwork connections, then the ATN Internet Entity shall not attempt to specify a subnetwork connection priority, and NPDUs of any priority may be sent over the same subnetwork connection.

Message Categories	Corresponding Protocol Priority		Internet Layer Priority
	Transport Layer Priority		
	Transport Connection Priority	TSDU Priority	CLNP Priority
Network/Systems Management	0	0	14
Distress Communications	1	1	13
Urgent Communications	2	2	12
High Priority Flight Safety Messages	3	3	11
Normal Priority Flight Safety Messages	4	4	10
Meteorological Communications	5	5	9
Flight Regularity Communications	6	6	8
Aeronautical Information Service Messages	7	7	7
Network/Systems Administration	8	8	6
Aeronautical Administrative Messages	9	9	5
<unassigned>	10	10	4
Urgent Priority Administrative and U.N. Charter Communications	11	11	3
High Priority Administrative and State/Government Communications	12	12	2
Normal Priority Administrative	13	13	1
Low Priority Administrative	14	14	0

Table 0-1 Relationship of Communication priorities in the ATN

Note 4. The following does not apply to AMSS and Mode S Subnetworks, which have specified their own priority mapping schemes.

When an ATN connection mode subnetwork does support prioritisation of subnetwork connections, then unless the relationship between ATN Internet Priority and subnetwork priority is explicitly specified by the subnetwork specification, the following shall apply:

a) Subnetwork connections shall be established as either "High" or "Low" priority connections.

b) For the "Low" priority connection type, the priority to gain a connection, keep a connection and for data on the connection shall be the defaults for routine use of the subnetwork.

c) For the "High" priority connection type, the priority to gain a connection, keep a connection and for data on the connection shall be appropriate for urgent and network management data in the context of the subnetwork, In the absence of guidance from the subnetwork provider, the value decimal 8 shall be used for each of the three priorities.

d) "High" priority connections shall be used to convey NPDUs of priority five and above. "Low" priority connections shall be used to convey all other NPDUs.

When a subnetwork connection is established between two ATN Internet Entities and no subnetwork connection between these two entities exists over any subnetwork, then that subnetwork connection shall always be established at a priority suitable for conveying priority 14 NPDUs (i.e. Network/Systems Management).

Note 5. This is to ensure that routing information can be exchanged at the appropriate priority.

Connectionless Subnetworks

Note 1. The purpose of priority on a connectionless subnetwork is to provide higher priority NPDUs with preferred access to subnetwork resources.

Note 2. The relationship between NPDU priority and subnetwork priority is subnetwork specific.

When an NPDU is sent over a connectionless ATN Subnetwork which supports data prioritisation, the subnetwork priority assigned to the transmitted packet shall be that specified by the subnetwork provider as corresponding to the NPDU priority.