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10th August 1995

To: ATNP WG2 Members & Interested Parties

File Ref. C7/1/120

Report of the ATN Panel 5th WG2 Meeting
Rome
17th - 21st July 1995

Please find attached the First Issue of the Report of the Fifth ATNP WG2 meeting. Any comments by those who attended the meeting would be greatly appreciated by the 31st August so that they may be included in a revision of the report if appropriate. Any clarification relating to the proceedings of the meeting by those who have an interest but did not participate should be sent to me ideallly addressed to the above internet e-mail address.

Version 3.0 of the Draft Internet SARPs have been made available on the atn-internet mailing list as had been planned at the Rome meeting. As agreed this Version is the "Validation Baseline Draft" upon which the implementation and validation work for both avionics and ground components will be based. Any changes to technical requirements contained in this Version must be justified based on the results of on-going and planned validation/implementation activities.

I look forward to meeting you all again at our October meeting scheduled to take place in Banff, Canada in the period October 16th - October 20th. Tom Calow (internet e-mail: calowt@tc.gc.ca) has sent out administrative details relating to the meeting which you should all have by now. If you have not received them then in the first instance contact your Panel Member and failing that then Tom. Please note that the Banff Springs Hotel (tel:1-403-762 6866), where the meeting is being hosted, must receive reservations no later than **September 8th** identifying yourself as being a member of the ATNP WG.

An agenda for the Banff WG2 meeting will be sent out in due course. In the mean time I would request that you let me have the details of any WP's that you intend to present.

Yours Sincerely

Akhil Sharma

Akhil Sharma
(Rapporteur ICAO ATNP WG2 (ATN Internet WG)

ATNP/WG2/5/Report
10th August, 1995

AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL
Rome, Italy
17.7.95-21.7.95

Issue 1.0

ATN Internet Working Group 2 (WG2)

Fifth Meeting Report

1. Agenda Item 0 - Meeting Organisational Issues

At the initial ATNP-1 meeting held in Montreal 8-21 June 94, three working groups were created in order to further the work of the Panel. This is a report of the fifth meeting of Working Group 2 (WG2) of the ATNP which took place in Rome, Italy in the period 17th - 21st July 1995.

Sixteen experts from six States (Italy, Japan, Germany, USA, France, UK) and four International Organisations (ARINC, SITA, IATA, EUROCONTROL) attended the meeting. The list of attendees is at Appendix A. A total of twenty three Working Papers were submitted to the meeting, the list is at Appendix B.

2. Agenda Item 1 - Approval of Agenda and Objectives

2.1 Mr. Sharma, Rapporteur of WG2, opened the meeting and drew the participants attention to the Working Papers that had been prepared for the meeting and, in particular, to WP/134 comprising the agenda, a list of all working papers, their assignment to agenda items, a list of meeting objectives, and a proposed schedule for the meeting. This had been prepared by Mr. Sharma in advance of the meeting.

2.2 In addition to the objectives proposed in WP/134 the meeting agreed that the over-riding objective to be achieved was to finalise all technical requirements for the CNS/ATM-1 Internet in order to provide a stable basis for the timely development of both avionics and ground components to support initial implementations in the 1998 time-frame.

2.3 The agenda was adopted as proposed in WP/134 and reproduced in Appendix C.

3. Agenda Item 2- Approval of the 4th WG2 Meeting Report

3.1 The report of the 4th WG2 meeting was approved without comment.

3.2 Mr. Sharma drew the meetings attention to Appendix I of the Report, also made available as WP/144, which documented the agreements of Joint WG2/WG3 May meeting on the structure of the CNS/ATM-1 Package SARPs and Guidance Material. The meeting noted that the Internet SARPs that it is developing will comprise Part V of the CNS/ATM-1 Package SARPs.

3.3 It was further noted that the joint WG2/WG3 agreements required each of the five parts of the SARPS will be self-contained and therefore not dependent upon the completion of any other Part.

3.4 Mr. Jones informed the meeting that based on discussions he had had with Panel Secratary the deadline for submission of draft SARPs material was June 1996 in order to ensure that all translation could be completed by ATNP/2. It was noted that this date was based on the assumption that the translation process would be contracted out by ICAO. However, it was agreed that the WG should endeavour to submit stable SARPs material to ICAO before the June '96 date.

3.5 Mr. Sharma stated that, in his view, a stable set of Part V SARPs should result from the Jamaica meeting currently scheduled to take place in early February 1996.

4. Agenda Item 3 - Review of Part I of the CNS/ATM-1 SARPs

4.1 As a result of the joint WG2/WG3 agreements on structuring the meeting was reminded that WG2 would provide the initial input to Part I of the SARPs (Introduction and System Level Requirements for the CNS/ATM-1 Package) for which the ultimate responsibility was assigned to WG1.

4.2 A first draft of Part I was presented by Mr. Sharma as WP/135. Since the WP had not been made available in advance Mr. Sharma requested that comments be made available to him either by the end of the meeting or by the end of July. Mr. Jones proposed that the revised version of the WP be made available to the WG3 SG meetings scheduled to take place in Canberra in early August so as to receive the appropriate application/upper layer input. It was agreed that following the incorporation of comments from the WG3 sub-

groups that Mr. Sharma would circulate the draft on the mailing list to solicit any final WG2 comments. Following incorporation of these comments it was agreed that the draft would be submitted to WG1 in Banff as a WG2 contribution.

4.3 In the brief review of the WP it was agreed to remove the material related to Managed Object Implementation Conformance Statements (MOCS) since no Systems Management is being mandated for CNS/ATM-1.

ACTION - 5/1 - MR. SHARMA TO CO-ORDINATE FURTHER DEVELOPMENT OF PART 1 WITH WG3 SG S AND SUBMIT WG2 APPROVED VERSION TO WG1 OCTOBER MEETING.

5. Agenda Item 5.1 - Revised Structure for Part V of the CNS/ATM-1 SARPs

5.1 Mr. Snively presented WP/153 (Time Critical Need for Mature CNS/ATM-1 SARPs). The WP re-iterated the IATA need for a final set of stable requirements for the ATN internet if the participating airlines are to meet the stated objective of supporting initial implementations in the 97/98 time-frame. The request expressed in the WP was noted by the meeting and was wholly consistent with the over-riding objective of the meeting. Mr. Snively stated that IATA was not so much concerned with the final format of presentation of the material, the primary concern was that the meeting should produce a 'clean' copy of SARPs clearly identifying all CNS/ATM-1 internet requirements.

5.2 As a result of a statement in WP/152 Mr. Hof questioned whether IATA were aware of the May WG2 decision, based on a US proposal, that would **mandate** IDRP from 1999 onwards instead of **recommend** as had been previously agreed in Toulouse. In making this proposal at the May WG2 meeting the US had stated that they had discussed the change with Mr. Hennig and that he had no apparent objections.

5.3 The question revealed that there had been some mis-understanding between the various parties on the precise interpretation of the original Toulouse agreement which recommended IDRP implementation from 1999 onwards. Mr. Jones had assumed that the Toulouse recommendation was applicable to "all" aircraft i.e. those aircraft that had been equipped with ATN avionics prior to 1999 and to those that would be equipped post 1999. Mr. Snively clearly felt that the recommendation would only be applicable to those aircraft equipped post 1999 and not involve any retro-fitting of existing aircraft. It was agreed to revert to the text of the Toulouse agreement i.e. that IDRP would be recommended for implementation from 1999.

5.4 As a general principle it was questioned whether it is appropriate for SARPs to include implementation dates as in the case of IDRP. Mr. Jones believed that some of the SICASP material had included such dates. Mr. Sharma undertook to seek further guidance from the Panel Secratary.

ACTION - 5/2 - MR. SHARMA TO SEEK GUIDANCE FROM PANEL SECRATARY ON ICAO PRACTICE WITH RESPECT INCLUSION OF IMPLEMENTATION DATES IN SARPS

5.4 WP/143 (Proposal for production of Baseline CNS/ATM-1 SARPs to support ATN Internet Validation Exercises) was presented by Mr. Colliver. The WP proposed a number of "validation milestones" that need to be achieved in order for the WG to be able to present a set of validated draft SARPs to ATNP/2. The WG reviewed and refined the proposed mile-stones. It was agreed, however, that these milestones provided an overall framework for the validation programme and should therefore be used by States/Organisations contributing to the validation solely as guidance from the WG. The final set of milestones are reproduced in Appendix D, Flimsy #1.

5.5 It was agreed that the results of any Validation Activities should be available to the June '96 WG meetings so that they may be forwarded to the Panel as a WG input. However, it was also noted that Validation activities will likely continue post the June '96 meeting and that the results of these activities would be input to the Panel as individual State/Organisation inputs.

5.6 The WG approved the 2nd proposal in WP/143 relating to the availability of the "Validation Baseline" draft CNS/ATM-1 Internet SARPs (Version 3.0) to be based on the input draft 2.1 plus agreed editorial changes at the WG meeting by 7th August at the latest.

5.7 WP/142 (Proposal for the Progression of the ATN Draft SARPs and Guidance Material) was presented by Mr. Whyman. The WP was produced as the result of an action arising out of the Toulouse meeting were it had been agreed that the SARPs need to be re-structured into an 'interface' based structure. After much discussion the decision to re-structure the material along the lines proposed in WP/142 was deferred to the end of the meeting. It was, however, agreed that the "Validation Baseline" (i.e. Version 3.0 would not be re-structured) and furthermore it would only include the revised Appendices and not the Guidance Material (i.e. the Chapters).

6. Agenda Item 4 - Review of Part V of the CNS/ATM-1 SARPs and Guidance Material

6.1 Mr. Crenais kindly volunteered to record all changes agreed at the meeting as a result of the detailed review that was about to take place. He also kindly volunteered to implement all agreed changes to draft 2.1 and to make Version 3.0 of the draft SARPs available on the agreed date.

6.2 Mr. Sharma thanked members of the CISEC and, in particular, Mr. Crenais as CISEC Chair for their efforts completion of draft 2.1 and making it available according to the plan agreed in May.

7. Agenda Item 4.1 - Review of Chapters 1,2,3,4

7.1 Due to the priority of having to agree all technical requirements it was agreed that all Appendices would be reviewed first and then the Guidance Material time-permitting.

8. Agenda Item 4.2 - Review of Chapter/Appendix 5

8.1 Appendix 5 was presented by Mr Sharma. Prior to conducting a detailed review of the material Mr. Sharma requested any major comments. Two main issues were raised:

- the requirement on the use of IDRP in airborne BISs
- changes to table A5-1 (priority)

8.2 On the "IDRP" issue the meeting agreed a resolution that is documented in Appendix E (Flimsy #2) which 'recommended' that "All ATN airborne BIS's should support the use of ISO 10747 from July 1999".

(Note: A a result of subsequent discussion with the Panel Secratary in response to action 5/1 it appears that it is not appropriate for a recommendation to include a date. The Secratary recommended removal of the date from the recommendation and the inclusion of a note that could include references to dates. This advise has been taken and is reflected in Version 3.0. The revised version of Flimsy #2 is also included in Appendix E).

8.3 WP/139 (Priority Definitions within Annex 10 and the relationship to the ATN SARPs) was presented by Mr. Jones. The WP resulted in a number of changes being agreed to Table A5-1. Specifically these were the replacement of the "Communications relating to Direction Finding" message category with "High Priority Flight Safety Messages" and renaming of the "Flight Safety Messages" category with "Normal Priority Flight Safety Messages". The final change related to moving the solid black line in Table A5-1 to below the "Aeronautical Administrative Messages Category" indicating that all message categories above the solid line relate to traffic concerned with the safety and regularity of flight.

8.4 It was recognised that the changes implemented in Table A5-1 need to be made available to the AMCP, SICASP and ATNP WG3 so that they may amend their documentation as appropriate. The meeting

agreed on a Flimsy (#3, Appendix F) that is to be forwarded to these other bodies. The Flimsy also requested AMCP and SICASP to provide input to WG2 on the mapping of CLNP priority to subnetwork priority.

ACTION 5/3 - MR SHARMA TO FORWARD FLIMSY #3 TO ATNP SECRATARY FOR FORWARDING TO SECRATARY OF SICASP AND AMCP.

8.5 In the review of A5.6 (Priority) Mr. Graf referred to a WP that had been submitted to the CISEC which included proposed additional changes to Table A5-1 and the text in section A5.6. He agreed to present this WP, modified as appropriate as Flimsy #4, the final version of which is at Appendix G.

8.6 Mr. Whyman pointed out that the ES-IS column in Table A5-1 was not appropriate and undertook to develop Flimsy #5 which would recommend appropriate text as to how ISH priority is to be handled. (Note. due to lack of time Flimsy #5 was not produced and Mr. Whyman undertook to submit a DR to the CCB once Version 3.0 of the SARPs had been issued).

ACTION 5/4 - MR. WHYMAN TO DEVELOP DEFECT REPORT AND CHANGE PROPOSAL FOR SUBMISSION TO CCB ON ISH PRIORITY

8.7 The IDRP column was removed from Table A5-1 and it was agreed to add a note that IDRP BISPDUs shall be conveyed using a CLNP priority value of [14].

8.8 Following a detailed review of the text a number of editorial changes were agreed.

9. Agenda Item 4.3 - Review of Chapter/Appendix 6

9.1 Appendix 6 was introduced by Mr. Whyman as WP/137. Mr. Whyman reported that WP/137 was only different to Appendix 6 as in draft 2.1 in that some editorial changes had been implemented as had been advised on the mailing list. Before conducting a detailed review of the Appendix Mr. Sharma requested that major comments on the material be taken first. The US delegation raised four such areas:

- requirements relating to the IDRP route aggregation function and their applicability to CNS/ATM-1;
- requirements relating to the Home/Island/Backbone Concepts and their applicability to CNS/ATM-1;
- requirements related to the specification approach adopted for specifying how CLNP packets are routed in line the with user specified routing policy requirements;
- the need for procedures supporting “balanced mode” route initiation.

9.2 The need to mandate the IDRP route aggregation function for was questioned. After much discussion it was agreed that the function should be a recommended practice since it would be desirable, if not essential, when IDRP is operating over the air/ground link and a complex ground topology exists. A drafting group was established with the task of developing appropriate editorial instructions to reflect the WG decision and to define the term “complex topology”. (Note: the results of the drafting group were reported back to the WG in Flimsy #6).

9.3 The need to mandate the internal structure of an ATN Island including the requirement to support a “home” was questioned. It was suggested that the requirement for the support of the “home concept” had been discussed at the Fairfax meeting and agreement had been reached that it was not required for Package 1. Mr. Sharma stated that, whilst the applicability of the home concept to Package 1 had been raised in Fairfax there had been no further discussion or proposal to remove the requirement at that meeting.

9.4 The European representatives presented a Flimsy (#7) which documented the European position on the requirements related to the Home Concept and the ATN Island. The principles of the Flimsy were accepted and the drafting group requested to develop editorial instructions accordingly. (Note: the results of the drafting group were reported back to the WG in Flimsy #6).

9.5 It was stated that the manner in which the requirements related to the specification approach adopted for specifying how CLNP packets are routed in line the with user specified routing policy requirements were

implementation specific and that a more functional approach was required. This was agreed and Mr. Whyman undertook to develop the desired approach (Flimsy #8 - Appendix I).

9.6 It was proposed that the SARPs should allow for symmetric route initiation procedures i.e. where both the airborne and ground routers may receive join events. The proposal was accepted and appropriate editorial instructions were drafted and documented in Flimsy #9 ("Balanced Mode Route Initiation"). It was, however, recognised that currently no subnetwork exists that is capable of issuing join events from both its airborne and ground components.

9.7 Having addressed the major issues the meeting then went on to conduct a detailed review of Appendix which resulted in a set of detailed editorial instructions.

10. Agenda Item 4.5 - Review of Chapter/Appendix 8

10.1 Appendix 8 was introduced by Mr. Crenais. Before conducting a detailed review of the Appendix Mr. Sharma requested that major comments on the material be taken first. Two main areas were raised:

- the first related to the interface to the TS-USER;
- the second area was concerned with requirements for Congestion Management in the CNS/ATM-1 Package.

10.2 It was agreed that the Appendix requires to include some material up front related to the information that the transport layer requires to be specified by the TS-USER. Such requirements were drafted in Flimsy #12 and it was agreed that they should be integrated into the introduction of Appendix 8.

10.3 On the issue of Congestion Management, Mr. Hof presented WP/140 (Minimal Solution for Congestion Management). The WP addressed the need for congestion management in CNS/ATM-1 and also proposed a solution with accompanying draft SARPs. The meeting agreed with the need to address the issue, however, there was little support to adopt the solution proposed due to the fact that such a solution may not be appropriate for a mobile environment and may result in unnecessary periods of transport back-off and poor performance. It was agreed that the solution proposed will need to be further validated before it can be accepted for inclusion in the CNS/ATM-1 SARPs. Mr. Hof stated that EC will continue their validation of the proposed solution. Mr. Herber stated that the DFS would support Eurocontrol in their effort.

ACTION 5/5 - EUROCONTROL - TO CONTINUE TO VALIDATE CONGESTION MANAGEMENT SOLUTION AS PROPOSED IN WP/140.

10.4 Having addressed the major issues the meeting then went on to conduct a detailed review of Appendix which resulted in a set of detailed editorial instructions.

11. Agenda Item 4.4 - Review of Chapter/Appendix 7

11.1 Appendix 7 was introduced by Mr. Graf. Before conducting a detailed review of the Appendix Mr. Sharma requested that major comments on the material be taken first. Two main areas were raised:

- the first related to the proposed change related to the previously reported defect concerned with routing to all mobiles. The change requires the VER field to differentiate between fixed and mobile systems, the removal of the RDF field, and the increment of the size of the loc field by one octet.
- the second issue related to the need for the definition of a NET

11.2 With respect to the first issue the meeting agreed to reinstate the RDF field but with <reserved> values and to change the size of the loc field back to 2 octets.

11.3 On the issue of the definition of the NET the meeting developed and agreed a Flimsy (#13), Appendix L which will be incorporated into Appendix 7.

11.4 Having addressed the major issues the meeting then went on to conduct a detailed review of Appendix which resulted in a set of detailed editorial instructions.

12. Agenda Item 4.9 - Review of Chapter/Appendix 12

12.1 Appendix 12 (WP/138) was presented by Ms. Thulin. No major comments were made on the material contained therein. A small number of editorial instructions were agreed.

13. Agenda Item 4.8 - Review of Chapter/Appendix 11

13.1 Appendix 11 was introduced by Mr. Whyman, in his presentation he pointed out that all ISO 9542 material that was not applicable to the air/ground data link had been removed in line with previous WG2 agreements. Before conducting a detailed review of the Appendix Mr. Sharma requested that major comments on the material be taken first. No such comments were raised. A number of editorial instructions resulted from the detailed review.

14. Review of Flimsy #2

14.1 As a result of the discussion as documented in para. 5.2 Mr. Jones presented Flimsy #2 (Non-Use of IDRP for early CNS/ATM-1 Package Implementation). A number of editorial changes were agreed to the proposed text and the final version of this Flimsy is at Appendix E. ***(Refer to Note under para. 8.2)***

15. Review of Flimsy 3 (Definition of Priority categories on the ATN Internetwork).

15.1 As a result of the discussions as documented in para. 8.2 and 8.3 Mr. Jones presented Flimsy #3 (Definition of Priority categories in the ATN Internetwork). A number of editorial changes were agreed and the final version of this Flimsy is at Appendix F.

16. Review of Flimsy #4 (Proposal for Revised Text on ATN Priority Provisions).

16.1 As a result of the discussions on Priority (reference A5.6 in the SARPs) under Agenda Item 4.2 Mr. Graf presented Flimsy #4 (Proposal for Revised Text on ATN Priority Provisions). A number of changes were agreed and the final version of this Flimsy is at Appendix G which will be incorporated into Appendix 5.

17. Agenda Item 4.7 - Review of Chapter/Appendix 10

17.1 Appendix 10 was introduced by Ms. Thulin. Ms. Thulin pointed out that the updated ACA procedure (as included in WP/152) was out of date as a result of the changes agreed to Appendix 7. Before conducting a detailed review of the Appendix Mr. Sharma requested that major comments on the material be taken first. Five main areas were raised:

- deletion of A10.3 (Subnetwork routing initiation and termination)
- deletion of table A10-2 (Mapping of Communications Priorities in the ATN)
- deletion of A10.11(SNDCF Requirements coming from ISO 8473)
- completeness of A10.13 (Subnetwork routing initiation/termination requirements list)
- V42 BIS Compression

17.2 It was agreed that A10.3 should be deleted since it was duplicating material in Appendix 6 on route initiation.

17.3 It was agreed to delete table A10-2 since the table was originally included in Chapter 8 in order to provide guidance. Inclusion of such a table in the Appendix was levying requirements on the subnetworks which is outside the scope of the internetwork SARPs.

17.4 It was agreed to remove A10.11 since it was duplicating requirements that had been addressed in Appendix 9.

17.5 It was pointed out that the material in A10.13 was incomplete since it did not address the optional non-use of IDRP case.

ACTION 5/6 - MR. WHYMAN TO REVIEW A10.13 (DRAFT 2.1) AND SUBMIT DR, CP TO CCB COVERING MISSING REQUIREMENTS.

17.6 Mr. Jones questioned whether any State/Organisation was planning to validate the V42bis compression scheme that was specified for use (optionally) in Appendix 10. Mr. Colliver stated that EURATN was validating a functionally equivalent compression algorithm.

17.7 The detailed review of Appendix 10 that followed resulted in a number of editorial instructions for the editor.

18. Agenda Item 4.6 - Review of Chapter/Appendix 9

18.1 Appendix 9 (WP/156) was introduced by Mr Cossa. Mr. Sharma requested that major comments on the material be taken first. No major comments were raised.

18.2 The meeting conducted a detail review of the Appendix which resulted in a set of agreed editorial instructions.

19. Flimsy #15 (Congestion Management)

19.1 Mr. Hof presented Flimsy #15 to which was attached WP/151 (Initial Simulation Results for Congestion Management). The flimsy proposed that a congestion management strategy is essential for CNS/ATM-1 due to the safety related nature of the applications that will be used and that the initial validation results in WP/151 indicated positive benefits. The Flimsy proposed that the solution proposed in WP/140 should be incorporated into Version 3.0 of the draft SARPs and then be subject to validation as all other requirements included therein. The Flimsy further stated that Eurocontrol plan to continue validation of the proposed solution and welcomed input from interested States/Organisations present.

19.2 The meeting did not agree to include the proposed solution in Version 3.0 due to lack of confidence in the proposed solution and problems that had been encountered in other mobile environments. However, the meeting agreed to include a statement in the draft 3.0 (Appendix 8) on the issue (Flimsy #16) and is included at Appendix M.

ACTION 5/7 - US/EUROCONTROL - CO-ORDINATE ON FUTURE CONGESTION MANAGEMENT PROPOSALS TO WG.

20. Review of Flimsy #12 (Internet Service Description)

20.1 Flimsy #12 was presented by Mr. Sharma. It was proposed to include the material in the introductory section of Appendix 8. The final version of the Flimsy is at Appendix K.

21. Review of Flimsy #8 (Routing CLNP Packets with User Specified Routing Policy)

21.1 Mr. Whyman presented Flimsy #8 which had been developed in response to a US concern during the review of Appendix 6. A number of minor editorial changes were agreed and the final version of the Flimsy (which will be incorporated into draft 3.0) is at Appendix I.

22. Review of Flimsy #13 (Definition of Network Entity Title)

22.1 The Flimsy was presented by Mr. Graf following the review of Appendix 7. It was proposed to include this definition into Appendix 7. The meeting agreed some editorial changes, the final version of the Flimsy is at Appendix L.

23. Review of Flimsy #16 (Use of Congestion Management)

23.1 Mr. Roy presented Flimsy #16 which documented the agreement resulting from the discussion of Flimsy #15 (para. 19). The final version of the Flimsy is at Appendix M.

24. Conclusions following review of all Appendices

24.1 The meeting agreed the following conclusions following review of all Appendix material:

- Version 3.0 of the SARPs will comprise the version 2.1 submitted to the meeting and all changes agreed at the meeting **(with the exception of Guidance Material)**;
- Version 3.0 will comprise the "Validation Baseline" draft SARPs for the CNS/ATM-1 Internet;
- Version 3.0 of Draft SARPs to be available on mailing list by 7th August;

ACTION 5/8 - MR. CRENAIS TO ISSUE VERSION 3.0 OF DRAFT SARPS BY 7TH AUGUST.

- Mr. Crenais will re-number the draft 3.0 SARPs time-permitting. Appendix 5 will become Section 2, Appendix 6 will become Section 3 etc.
- Mr. Sharma to draft Section 1 - Introduction

ACTION 5/9 - MR. SHARMA TO DEVELOP INTRODUCTION FOR VERSION 3.0

- Glossary and Reference List to be included in draft 3.0
- SARPs to be re-titled - Part V - Internet Communications Service
- Version 3.0 will be under change control in accordance with the CCB process;
- Version 3.0 represents the WG2 approved CP to CCB Defect Report 52;
- Eurocontrol (supported by ARINC, FAA and the DFS) will re-generate the Requirements Database to align with draft 3.0 by the next WG2 meeting in October (to be confirmed);

ACTION 5/10 - EUROCONTROL TO ALIGN REQUIREMENTS DATABASE WITH VERSION 3.0 OF THE DRAFT SARPS

- Mr. Cassa (US) will replace Mr. Sanford as CCB Chair;
- Updated CCB membership as follows: Forrest Colliver, Jean-Michel Crenais, Klaus Peter Graf, Jean-Pierre Briand.

25. Guidance Material

25.1 Due to lack of time it was not possible for th meeting to conduct a review of the Chapters of version 2.1 of the draft SARPs & Guidance Material.

25.2 The meeting reviewed the proposed outline for guidance material in WP/142 and agreed that such an outline should be adopted. It was agreed that the guidance material in the existing version 2.1 will be used where appropriate within the new structure.

25.3 Mr. Sharma requested volunteers to undertake responsibility for editorship of the guidance material. None were forthcoming and Mr. Sharma agreed to act as a temporary editor up to the October meeting. Mr.

Cassa, Mr. Crenais, Mr. Hof and Mr. Bigelo agreed to support Mr. Sharma in any development of the guidance material up to the October meeting.

26. Agenda Item 5 - Future Work Plan

27. Agenda Item 5.1 -Revised Structure for Part V of the CNS/ATM-1 SARPs

27.1 During discussion of this agenda item on the first day of the meeting it was agreed to defer the proposal to re-structure the draft SARPs once all Appendices had been reviewed. Whilst the meeting recognised and agreed the need for some limited amount of re-structuring (i.e. merging Appendices 5 & 6) it was decided to defer further discussion of the issue to the Banff meeting.

28. Agenda Item 5.2 - Future Role of Requirements Database

28.1 This agenda item had already been discussed as reported under para. 24. No additional points were raised.

29. Agenda Item 5.3 - Future Role of CISEC

29.1 It had been agreed at the Fairfax WG2 meeting that the CISEC should be discontinued once the validation baseline draft was completed. Since this had effectively been achieved by this meeting the CISEC was closed. Mr. Sharma thanked all members that had participated in the CISEC and in particular Mr. Crenais who had taken on the responsibility of the Chair.

30. Agenda Item 5.4 - Future Role of CCB

30.1 As had already been stated the version 3.0 of the draft SARPs will be placed under change control under the CCB process. It was noted that the CCB Chair and VACM still have an outstanding action to issue the two CCB Procedures and Configuration Control documents. Mr. Crenais stated that the revised VRCI submission procedures had already been tested at CENA and would be activated once version 3.0 is available.

31. Agenda Item 5.5 - Additional WG Meeting in April/May '96

31.1 Mr. Sharma reported that the WG3 Rapporteur had indicated that it would be likely that WG3 would be scheduling an additional meeting in the April '96 time-frame. He asked whether WG2 believed that it should also schedule an additional meeting at that same time. Mr. Graf suggested that it might be more appropriate to schedule any additional meeting in the September '96 time-frame thereby allowing the WG to review the results of on-going validation activities such that they may be submitted to ATNP/2 as a WG input. The meeting decided to review the need for an additional meeting at its next meeting in October.

32. Agenda Item 6 - Development of WG2 Internet Validation Report

32.1 Mr. Sharma reminded the meeting that he already had an action assigned at the Fairfax meeting to develop a detailed format for the WG2 Validation Report which was on-going. Mr. Hof stated that he would assist Mr. Sharma in discharging this action.

33. Agenda Item 7 - Any Other Business

33.1 Mr. Sharma drew the meetings attention to WP/141 (DTE & NSAP Addressing Plans) which had been received from the AEEC via Steve Van Trees. Mr. Bigelo reported that he was providing a response related to the relationship between ATN NSAP addresses and subnetwork DTE addresses.

33.2 The meeting was saddened to hear the news from Mr. Herber of the untimely death of Mr. Klaus-Peter Berg. Mr. Klaus-Peter Berg had been an active member of German delegation the SICAS Panel and its Working Groups.

34. Agenda Item 8 - Conclusions and Action List

34.1 The meeting agreed the following high level conclusions:

- Part I of the CNS/ATM-1 SARPs (WP/135) will be submitted to the October WG1 meeting as a WG2 input following incorporation of comments received from the WG3 SG2 and SG3 meetings;
- Version 3.0 of the CNS/ATM-1 Internet SARPs (Part V) will form the "Validation Baseline" for the validation programme
- Version 3.0 will be available by 7th August;
- Version 3.0 will not comprise any guidance material
- Version 3.0 will be placed under change control in accordance with CCB procedure
- Version 3.0 will require a limited amount of re-structuring to be agreed at the October meeting
- A new format for the guidance material (as proposed in WP/142) was agreed

34.2 The next WG2 meeting is being hosted by Transport Canada in Banff, from Monday 16th October to Friday 20th October.

35. Review of Flimsy #6

35.1 Mr. Colliver presented Flimsy #6 "Routing Architecture: Considerations for the Update of ATN Internet SARPs Draft 2.1" (Appendix H) which had been developed during the meeting by the drafting group that had been established on Tuesday.

35.2 The meeting accepted Recommendation #1 and the associated Action #1 which was related to the principles of ATN Backbone/Island and Home Concepts. Action #1 required that the definitions contained in Attachment #1 of Flimsy #6 be included in the version 3.0 of the draft SARPs. The meeting agreed three editorial changes to the definitions as proposed in Attachment #1.

35.3 The meeting accepted Recommendation #2 which was related to allowing the "home" to be located off the Backbone. However, the supporting editorial changes had not been developed and it was agreed that they would be submitted via the CCB once version 3.0 of the draft SARPs was available.

ACTION - 5/11 - EUROCONTROL TO SUBMIT DEFECT REPORT AND CP TO CCB BASED ON VERSION 3.0 RELATED TO PROVISIONS ALLOWING THE HOME TO BE LOCATED OFF THE BACKBONE.

35.6 Recommendation #3 (Robustness of Connectivity) and Recommendation #4 (Mobile Routing Initiation Approach) were related to requirements and recommendations on the number of connections between an airborne routing domain and reachable ground routing domains with direct or indirect connectivity to an ATN Backbone and the supporting routing initiation procedures. The meeting felt uncomfortable with both of these Recommendations since no prior discussion on the proposal had taken place within the WG and there was insufficient time available to have a major discussion on the issues involved. Furthermore the extent of changes being proposed was unclear since no editorial changes supporting Recommendation #3 had yet been developed. Mr. Whyman who had participated in the drafting group did not support the recommendations and believed that more thought on the issue was required. Mr. Herber had concerns on the impact on the Mode S subnetwork which has been specified as a ground initiated subnetwork and adoption of recommendation #4 would effectively result in Mode S being an air-initiated subnetwork. Mr. Colliver stated that the recommendation could be amended to preclude Mode S. Mr. Sharma concluded by stating that participants were invited to submit the change to the CCB or as a WP to the next WG meeting thereby allowing the WG members more time to assess the nature and impact of the changes being proposed.

35.7 Recommendation #5 related to a defect that existed in A.6.7.3 concerning routing information propagation to routing domains that were more than one hop away from an ATN Backbone RDC. The Flimsy proposed that additional policy was deemed necessary in this case to ensure that routers in such "one hop away"

routing domains receive routes to mobiles via the connected backbone RD or RDC. The meeting accepted the recommendation and EUROCONTROL agreed to submit a defect report to the CCB.

ACTION - 5/12 - MR. WHYMAN TO SUBMIT DEFECT REPORT AND CP RESULTING FROM ADOPTION OF RECOMMENDATION #5, FLIMSY #6.

35.8 Recommendation #6 and Action #6 related to Route Aggregation and Merging. were accepted by the WG. Flimsy #6 attachment 3 contained detailed editorial instructions.

35.9 Sections 5.1 (Back-Off Procedures), 5.2 (8208 Clearing Causes and Leave Events) and 5.3 (Revisions to Appendix 10 concerning Routing Initiation and Termination) contained identified problems with the draft 2.1 SARPs. Since no supporting editorial changes were proposed it was agreed that defect reports should be submitted to the CCB.

ACTION - 5/13 - MS. THULIN TO SUBMIT DEFECT REPORTS AND CP TO CCB BASED ON SECTIONS 5.1, 5.2 AND 5.3 OF FLIMSY #6.

35.10 Section 5.4 of Flimsy #6 proposed a modification to table A10-6. The proposed modification was accepted and it was agreed would be included in version 3.0 of the draft SARPS.

12. Appendix A - WG2 ATTENDANCE LIST

NAME	DELEGATION
Hof, Henk	EUROCONTROL
Whyman, A	EUROCONTROL
Colliver, Forrest	FRANCE (CENA)
Cossa, Ron	US (Mitre)
Crenais, Jean-Michel	FRANCE (CENA)
Crocker, Kenneth	USA
Herber, Andreas	GERMANY (DFS)
Jones, Ron	USA
Bigelo, Mike	ARINC
Roy, Alok	ARINC
Graf, Klaus-Peter	GERMANY
Sandrelli, Fabrizio	ITALY
Miyauchi, Naoto	JAPAN
Snively, Austin	IATA
Sharma, Akhil	UK
Thulin, Hélène	SITA

13. Appendix B - List Of Working Papers

No.	Title	Presented By	Agenda Item
134	Proposed Objectives, Schedule & Planning	A Sharma	1
135	Draft Part I CNS/ATM-1 SARPs	A Sharma	3
136	Draft 2.1 of Part V of CNS/ATM-1 SARPs & Guidance Material	CISEC	4
137	Updated Appendix 6	A Whyman	4
138	Updated Chapter/Appendix 12	H Thulin	4
139	Priority Definitions within Annex 10 and the relationship to the ATN SARPs	R Jones	4
140	Minimal Solution for Congestion Management	H Hof	4.4
141	DTE & NSAP Addressing Plans	Sv Trees	7
142	Proposal for Revised Structure of Part V of CNS/ATM-1 SARPs & Guidance Material	A Whyman	5.1
143	Proposal for Production of Baseline SARPs to Support ATN Internet Validation Exercises	F Colliver	5.1
144	Structure of CNS/ATM-1 SARPs and Guidance Material	A Sharma	2
145	ATN Validation Strategy (WG2/1 Flimsy #2)	A Sharma	6
146	Proposed Structure for WG2 ATN Validation Report (WG2/WP59)	A Sharma	6
147	Disposition of Deleted Requirements in Appendix 6 of theATN Manual	A Whyman	4.3
148	Editorial Changes performed on the Appendix 10 of Draft SARPs V2.0	H Thulin	4.7
149	Disposition of Deleted Requirements in Appendix 11 of the ATN Manual	A Whyman	4.8
150	Comments on Solutions for Congestion Management in the Transport Layer	R Cassa	4.5
151	Initial Simulation Results for Congestion Management	H Hof	4.5
152	Updated Appendix 10	H Thulin	4.7
153	Time Critical Need for Mature CNS/ATM-1 SARPs	A Snively	5.1
154	Comments on Chapter 12 of ATN Manual	N Miyauchi	4.9
155 IP	IP Mobility Support	K Crocker	N/A
156	Updated Appendix 9	R Cassa	4.6

14. Appendix C - Meeting Agenda

		WPs
0.	Meeting Organisational Issues	
1.	Approval of Agenda and Objectives -	134
2.	Approval of the Washington WG2 Meeting Report	144
3.	Review of Part I of the CNS/ATM-1 SARPs	135
4.	Review of Part V of the CNS/ATM-1 SARPs & Guidance Material	136
4.1	Review of Chapters 1,2,3,4	
4.2	Review of Chapter/Appendix 5	139
4.3	Review of Chapter/Appendix 6	137, 147
4.4	Review of Chapter/Appendix 7	
4.5	Review of Chapter/Appendix 8	140, 151, 150
4.6	Review of Chapter/Appendix 9	156
4.7	Review of Chapter/Appendix 10	148, 152
4.8	Review of Chapter/Appendix 11	149
4.9	Review of Chapter/Appendix 12	138, 154
5.	Future Work Plan	
5.1	Revised Structure for Part V of CNS/ATM-1 SARPs	142, 153
5.2	Future Role of Requirements Database	
5.3	Future Role of CISEC	
5.4	Future Role of CCB	
5.5	Additional WG2 Meeting in April/May ‘96	
6.	Development of WG2 Internet Validation Report	145, 59
7.	Any Other Business	141
8.	Conclusions and Action List	

15. Appendix D - Validation Framework (Flimsy #1)

Based on discussions during the Rome WG2 meeting the following milestones are understood to be critical concerning the completion of validation of the ATN Internet Standards and Recommended Practices (SARPs);

November 1996:	Next meeting of ATN Panel, including the review and approval of validation results.
July/August 1996:	a) Completion of ATN Internet validation activities. b) Completion of validation reports by States and Organizations, submitted to ICAO as Panel Working Papers for translation.
June 1996:	Completion of ATN Internet SARPs, incorporating validation results, forwarded to ICAO as Panel Working Paper for translation.
January 1996:	a) ATN Internet validation systems (i.e. routers and end-systems), deployed in validation network configurations, ready for commencement of validation exercises among multiple States and Organizations. b) Commencement of validation studies, analyses, and simulations, for support of preparation of validation reports.
August 1995:	Version 3.0 of Draft ATN Internet SARPs available as "Validation Baseline Draft".

16. Appendix E -Non-use of IDRP for early CNS/ATM-1 Package Implementation (Flimsy #2)

At previous meetings of WG2 it was decided that the CNS/ATM-1 Package SARPs will include the provisions for the optional non-use of IDRP by avionics routers for air-ground routing exchange. Further, the Working Group agreed that the draft SARPs will include language to either recommend or require that avionics systems support IDRP for air-ground routing exchange by July of 1999. The draft SARPs input to the fifth meeting of WG2 included text that would require all airborne ATN routers to support IDRP by July 1999. The representative from IATA objected to this requirement and the working group agreed to replace this text with a recommendation. The following changes and additional text are proposed for para. A5.3.2.2 and para. A5.3.2.3 of the draft internetwork SARPs.

1) Add the following note under A5.3.2.2 item f):

> Note 2. - Some States may legislate that aircraft operating in their airspace and desiring ATSC services will be required to support ISO 10747, as specified in Appendix 11.

2) Replace the existing Note 1 under A5.3.2.3 item e) with the following Recommendation and note:

> **Recommendation. --** All ATN airborne BIS's should support the use of ISO 10747 from July 1999.
> Note. - Some States may legislate that aircraft operating in their airspace and desiring ATSC services will be required to support ISO 10747, as specified in Appendix 11.

FLIMSY 2
2 August 1995 Draft Revision

Note. - Based on advice from the Panel Secratary following conclusion of the meeting regarding the inclusion of dates in recommendations the following is a revised version of Flimsy #2 and is the version that has been reflected in Version 3.0 of the draft SARPs.

At previous meetings of WG2 it was decided that the CNS/ATM-1 Package SARPs will include the provisions for the optional non-use of IDRP by avionics routers for air-ground routing exchange. Further, the Working Group agreed that the draft SARPs will include language to either recommend or require that avionics systems support IDRP for air-ground routing exchange by July of 1999. The draft SARPs input to the fifth meeting of WG2 included text that would require all airborne ATN routers to support IDRP by July 1999. The representative from IATA objected to this requirement and the working group agreed to replace this text with a recommendation. The following changes and additional text are proposed for para. A5.3.2.2 and para. A5.3.2.3 of the draft internetwork SARPs.

1) Add the following note under A5.3.2.2 item f):

> Note 2. - Some States may ~~legislate~~ require that aircraft operating in their airspace, after July 1999, and desiring ATSC services via the ATN support the use of ISO 10747, as specified in Appendix 11.

2) Replace the existing Note 1 under A5.3.2.3 item e) with the following Recommendation and note:

> **Recommendation. --** All ATN airborne BIS's should support the use of ISO 10747 ~~from July 1999~~.
> Note - Some States may ~~legislate~~ require that aircraft operating in their airspace, after July 1999, and desiring ATSC services via the ATN support the use of ISO 10747, as specified in Appendix 11.

17. Appendix F -Definition of Priority Categories on the ATN Interwork (Flimsy #3)

This flimsy documents a decision by Working Group 2 of the ATN Panel to revise the definition of priority categories on the ATN internetwork. The following material should be reviewed and accounted for by the AMC Panel, the SICAS Panel and Working Group 3 of the ATN Panel.

Working Group 2 (WG2) of the ATNP is tasked with preparing the draft ATN Internetwork SARPs. At the fifth meeting of ATNP WG2 the attached working paper (WP/139) was reviewed by the working group and the proposal presented in section 4 was accepted. This will result in the following changes, from the ATN Manual - second edition, that will be reflected in the draft ATN Internetwork SARPs:

1. CLNP priority values 10 and 11 are to be defined as "Normal priority flight safety messages" and "High priority flight safety messages" respectively; and

2. All message categories with CLNP priority of 5 or higher represent communications pertaining to flight regularity and safety of flight.

Developers of ATN subnetwork SARPs (i.e., AMCP and SICASP) and application SARPs (i.e., ATNP WG3) should be aware of this change and reflect the revision as appropriate in their documentation. The AMCP and the SICASP are invited to provide inputs on the mapping of CLNP priority to subnetwork priority. Specifically:

a) The AMCP is requested to clarify the VDL subnetwork support for communications priority. Inputs from the AMCP that were received, by the SICASP while preparing the second edition of the ATN Manual, indicated that the VDL would not support the use of priority within this subnetwork. It is the understanding of the ATNP that while this is correct for Mode 1 and Mode 2 of VDL, Mode 3 of VDL is expected to support the use of priority within the subnetwork. AMCP is invited to confirm this assumption and to provide further details as the SARPs for Mode 3 of VDL matures.

b) The SICASP is requested to consider the change in the definition of the range of CLNP priorities associated with flight regularity and flight safety communications. SICASP is requested to confirm the assumption by the ATNP WG2 that CLNP priorities 5 through 9 would be mapped onto the low priority Mode S subnetwork connection and CLNP priorities 10 and above would be mapped onto the high priority Mode S subnetwork connection.

18. Appendix G - Proposal for revised Text on ATN Priority Provisions (Flimsy #4)

A5.6 ATN Priority Provisions

Note.-- CNS/ATM-1 applications are required to specify an application service priority value to be associated with their data in a manner consistent with this document.

A5.6.1 Relationship of Communication Priorities

An ATN End System shall ensure, by an appropriate mechanism, that the network protocol priority which is associated with the application service priority as specified in Table A5-1, is assigned to the priority field of each CLNP NPDU related to that application. Every NPDU associated with a transport connection shall therefore have the same priority value in its priority field.

Note1.-- The transport priority is only of significance between the end-users of the transport service by indicating the relative priority of transport connections that exist between end-users. Transport priority will not necessarily invoke processing within the local transport service entity. However, the use of the transport priority by the local transport entity for internal processing purposes and/or internal resource allocation (e.g. connection and/or buffer management) is a local issue.

The relationship between the application service priority, the transport protocol priority (if used), and the network protocol priority shall be as defined in Table A5-1. If no application service priority is specified by the transport service user, the transport service shall be invoked with the lowest priority, i.e. [14].

IDRP BISPDUs shall be conveyed using the CLNP priority value [14].

Note 2.- The priority mapping given in Table A5-1 does not represent, either explicitly or implicitly, policies for traffic to be granted access for conveyance via particular subnetworks, or policies for traffic to be denied access for conveyance via particular subnetworks. Rather, policies are applied by means of the ATN routing mechanisms, specifically those relating to access control and security. In the ATN, priority is viewed solely as a means of managing communication resources.

Table A5-1 Relationship of Communication priorities in the ATN

Categories of Messages	**Relationship of Priorities**			
	Application Service Priority	**Transport Protocol Priority**		**Network Protocol Priority**
		COTP	**CLTP**	**CLNP**
Network/Systems Management	0	0	N/A	14
Distress Communications	1	1	N/A	13
Urgent Communications	2	2	N/A	12
High Priority Flight Safety Messages	3	3	N/A	11
Normal Priority Flight Safety Messages	4	4	N/A	10
Meteorological Communications	5	5	N/A	9
Flight Regularity Communications	6	6	N/A	8
Aeronautical Information Service Messages	7	7	N/A	7
Network/Systems Administration	8	8	N/A	6
Aeronautical Administrative Messages	9	9	N/A	5
<unassigned>	10	10	N/A	4
Urgent Priority Administrative and U.N. Charter Communications	11	11	N/A	3
High Priority Administrative and State/Government Communications	12	12	N/A	2
Normal Priority Administrative	13	13	N/A	1
Low Priority Administrative	14	14	N/A	0

Note 3.- In Table A5-1, the term "N/A" is used to indicate that a certain value is not applicable in a certain context, or that it is not supported. The term "<unassigned>" is used to indicate that the use of a particular level of priority is undefined, and that this level must not be used by systems conforming to this specification.

Note 4.- The CLTP (ISO 8602) does not provide a priority field in its TPDUs. Hence, application requiring the use of CLTS cannot specify a transport priority.

Note 5.- In Table A5-1, the solid line below the descriptive category Aeronautical Administrative Messages indicates the boundary between the communication priorities assigned for traffic related to the safety and regularity of flight, and the communication priorities assigned for administrative traffic.

Note 6.- The term "messages" in Table A5-1 conforms to existing Annex 10 terminology. However, in the remainder of the CNS/ATM-1 Package SARPs, the term "message" is used in the broadest sense to apply to all types of communications traffic via the ATN.

A5.6.2 Intermediate System use of Priority

ATN intermediate systems shall ensure that the highest priority CLNP PDUs are always provided with the highest transmission priority. ATN Intermediate Systems shall ensure that low priority packets are discarded before high priority packets, when congestion is experienced.

19. Appendix H - Requirements Related to the ATN Island and the Home Concept (Flimsy #7)

During a separate ad hoc meeting, representatives of European States and Organisations present at the ATNP/WG2 meeting, discussed the requirements related to the ATN Island and the Home concept and agreed that:

1. The principles embodied in the specification of the ATN Island and the "Home" Concept are essential for the implementation and development of the European ATN, are applicable to interoperability between states and hence a valid matter for ICAO SARPs, and that it was necessary to validate these requirements in the Package 1 time frame.
2. While necessary for the European ATN, the internal specification of the ATN Island is not necessarily appropriate or applicable to other regions, and that hence such requirements should be recommendations rather than mandatory requirements.
3. The exchange of routing information to mobile systems between ATN Islands is appropriately a matter for bilateral agreement between regions and states, and that the ATN Internet SARPs should do no more than recommend the alternative procedures that are compatible with recommended practices within an ATN Island.

It is therefore recommended that ATNP/WG2 revises the current draft ATN Internet SARPs such that:

a) The ATN Island RDC is defined as an RDC nested within the ATN Fixed RDC and comprising RDs belonging to one or more states and/or organisations.
b) The internal organisation of an ATN Island RDC i.e. the remaining contents of A6.3.3.2 becomes a recommendation. In consequence, conditional clauses need to be added to A6.3.5.1 and A6.3.5.2. A6.3.5.3 needs to be changed to reflect that fact that ATN Islands may not have backbone RDCs, and that A6.7.3 is revised so that only routing policies between mobile and ground systems and between ATN Islands are mandatory requirements, with the remainder being conditional on implementation of the recommended structure of an ATN Island.
c) A6.7.1.4 is revised to allow for situations where an ATN Island does not implement the "Home" concept and to permit, in such situations the exchange of routing information to mobiles under the following situations:
    1) No exchange of routing information to mobiles
    2) Exchange of routing information to either all known mobiles (i.e. those current reachable via the ATN Island), or a subt determined according to a locally agreed mechanism.

20. Appendix I - Routing CLNP Packets with User Specified Routing Policy (Flimsy #8)

This Flimsy has been included directly into Version 3.0 of the draft SARPs and is available upon request. Alternatively, interested parties may download the file from the CENA ATN Validation Archive.

21. Appendix J -Routing Architecture: Considerations for the Update of ATN Internet SARPs Draft 2.1

Scope of this Paper

Editor's Note:	**This issue of Flimsy 6 includes text changes agreed by the WG2 meeting, and includes a summary of the Working Group 2 decisions in response to each recommendation.**

During the ATN Panel Working Group 2 Rome Meeting deliberations concerning the ATN architectural aspects contained in Appendix 6 and Appendix 11 of Draft 2.1 of the proposed ATN Internet SARPs and Guidance Material, the following issues were identified as requiring detailed analysis by a group of experts:

- Clarification of current minimum requirements concerning air/ground connectivity.
- Refinement of requirements concerning the ATN mobile routing architecture, particularly regarding the concept of homes, backbones and islands, and concerning enhanced connectitivity of mobile and fixed routing domains within the ATN.
- Refinement of requirements and terminology concerning route aggregation, in both Appendices 6 and 11.

The Working Group agreed that a subgroup of Working Group 2 should be formed during the meeting, to (a) resolve open issues in these three areas, and (b) to develop detailed editorial instructions concerning the draft SARPs in this regard. This flimsy presents the results of the work of that subgroup, and presents, in the form of attachments, the detailed editorial instructions developed for modification of SARPs contained in Appendices 6 and 11.

Summary of Draft 2.1 SARPs Provisions concerning Air/Ground Routing Domain Connectivity

The subgroup began this discussion by identifying the current draft SARPs provisions concerning the connectivity of airborne and ground-based Routing Domains, in order to establish the baseline assumptions already made concerning the relative contributions of the various aspects of the ATN Mobility Architecture to the overall reliability, availability and robustness of the ATN Internet.

The following was determined to be the current situation:

> *It is assumed in the current draft SARPs, concerning connectivity of Routing Domains along a desired end-to-end path between two communicating routing domains:*
>
> 1. *that connectivity via one mobile data link between the communicating airborne routing domain and one ground-based (i.e. fixed) routing domain which is either (a) within, or (b) has connectivity to the ATN Backbone RDC, is necessary and sufficient; and,*
> 2. *that connectivity via one fixed data link between the communicating ground routing domain and one ground-based (i.e. fixed) routing domain which is either (a) within, or (b) has connectivity to the ATN Backbone RDC, is necessary and sufficient.*
>
> *If these two conditions are satisfied, then connectivity is presumed to exist among the communicating routing domains.*

These provisions were deemed to be potentially insufficient to support all cases of operational suitability for the ATN mobility architecture, and was recognised to be the cause of certain uncertainties concerning the overall mobility architecture itself. It was thus agreed that following the development of a consensus regarding the mobility architecture and any associated change proposals concerning Appendix 6 and Appendix 11, proposals for enhancement of the basic connectivity provisions would also be developed.

Recommendations: ATN Mobility Architecture

Principles of the ATN Backbone/Island/Home Concepts

Subsequent discussion on these assumed conditions led to the following observations concerning the applicability of SARPs to ATN backbones and islands:

a) The dominant contribution to overall availability and reliability of the global ATN Internet is provided by the availability, reliability and continuity of service provided by ground-based ATN backbone elements.

b) In the limit, to support the required levels of availability, reliability and continuity of service, the ground based *Global ATN Backbone* must be a contiguous entity; thus, provisions supporting the ATN backbone concept must apply universally to all ATN Backbone RDCs that are members of the Global ATN Backbone.

c) Prior to achieving this limit state (i.e. the state where the Global ATN Backbone is fully connected), States and regions will implement ATN Backbone RDCs which are likely to be initially discontinuous on a global basis. However, these ATN Backbone RDCs must be capable of interconnection to form the Global ATN Backbone.

d) The ATN Island (i.e. an island RDC) is the smallest globally visible subdivision of the ATN, and thus must be subject to SARPs provisions, in order to properly construct the Global ATN Backbone.

e) Internal aspects of the design and operation of an ATN Island are considered to be matters internal to States and/or regions, and thus are not subject to SARPs provisions, as long as these ATN Islands maintain ATN Backbone RDCs capable of interconnection with the Global ATN Backbone.

Recommendation 1:	**It is recommended that the Working Group endorse the principles as stated in Section 0.**
Action 1:	**As the draft SARPs version 2.1 text specifies the needed elements to create the various RDCs noted above, no additional SARPs text was viewed to be necessary in this area prior to the commencement of ATN Internet validation. However, the set of definitions proposed in Attachment 1 are proposed to be included in Draft 3.0 of the ATN Internet SARPs.**
WG2 Decision 1:	**Recommendation 1 accepted; Action 1 to be taken during development of Draft 3.0 of the ATN Internet SARPs.**

Location of the "Home"

As a related matter, it was recognised that the current constraint whereby Homes must always be located within ATN Backbone RDCs was too restrictive. Thus, it is necessary to draft a revision of certain policies to allow the Home to be located outside the backbone, while preserving the needed access, and while avoiding routing loops.

Recommendation 2:	**It is recommended that the Working Group endorse the principles as stated in Section 0.**
Action 2:	**As certain detailed changes are required to the draft SARPs Version 2.1 text to specify the needed policies concerning the "Home" noted above, no additional SARPs text is provided with this Flimsy. Based on the acceptance of recommendation 2, these changes can be incorporated editorially in Version 3.0 of the Draft SARPs according to the agreed schedule.**
WG2 Decision 2:	**Recommendation 2 accepted; Action 2 to be taken during development of Draft 3.0 of the ATN Internet SARPs.**

Robustness of Connectivity

The preceding set of observations led to the realisation, given the dependence on the Global ATN Backbone availability and reliability, but also given the realities of mobile networking, that certain requirements needed to be expressed concerning connectivity among routing domains. These requirements may be summarised as follows:

1. A minimum connectivity **shall** be established between an airborne routing domain and at least one ground routing domain with direct or indirect connectivity to an ATN Backbone RDC. This is a

necessary (but potentially not sufficient) condition to establish the operational suitability of the ATN Internet.

2. Connectivity with a second ground routing domain with direct or indirect connectivity to an ATN Backbone RDC **should** be attempted, if deemed necessary in order to establish the operational suitability of the ATN Internet under expected conditions of ground connectivity.
3. Connectivity with additional ground routing domains **may** be attempted, based on local or regional policies, and based on the need to further enhance ATN Internet connectivity related to the establishment of the operational suitability of the ATN Internet.

The sense of this requirements set is that one link to the backbone is necessary, particularly to establish connectivity for purposes of emergency or distress communication, and that a second separate link to an ATN Backbone RDC, while not required in general, does enhance the general robustness of connectivity between mobile and fixed ATN routing domains, and may be required under certain conditions of ground discontinuity. Further connectivity establishment can be viewed as enhancing this robustness, and must be viewed as too costly in terms of resource consumption to be mandated in general, but may be necessary under conditions of poor ground connectivity and where stringent air/ground communication requirements exist.

Recommendation 3:	**It is recommended that the Working Group endorse the principles as stated in Section 0.**
Action 3:	**As many detailed changes are required to the draft SARPs Version 2.1 text to specify the general approach to routing initiation where the aircraft router exercises primary responsibility for establishment of a suitable connectivity environment, no additional SARPs text is provided with this Flimsy. Based on the acceptance of recommendation 3, these changes can be incorporated editorially in Version 3.0 of the Draft SARPs according to the agreed schedule.**
WG2 Decision 3:	**Recommendation 3 rejected; inputs regarding this recommendation and its associated action may be prepared for consideration during the next WG2 meeting, or as CCB inputs.**

Mobile Routing Initiation

Further discussion on the issues related to the robustness of the ATN mobility architecture led to the conclusion that, in general, airborne systems were best able to survey existing connectivities and to analyse needs for additional connectivity. Thus, in order to execute the decisions implicit in the preceding paragraphs, it was deemed necessary to revise the current philosophy of routing initiation, to allow the airborne systems to bear responsibility for examing the existing connectivity with the Global ATN Backbone RDC, and to take corrective action in the case of perceived discontinuities. This corrective action comprises the establishment of additional air/ground connectivities with ground RDs, to improve access to the Global ATN Backbone RDC.

Current Mobile Routing Initiation Approach:

The current situation may be generally described as follows:

1. Either an airborne or ground-based subnetwork entity delivers a join event to the attached ATN BIS.
2. Following this, the ATN BIS establishes subnetwork connectivity with remote and known ATN BIS(s), **based on the presumption of having local knowledge as to whether this is appropriate or not.**
3. If the remote BIS receives an indication of subnetwork connectivity (e.g. via an ISO 8208 call request), normal ATN Internet routing initiation commences.

The main problem with the current situation is that there is no way to ensure, for the purpose of timely normal service delivery, or for the purpose of emergency or distress communication service support, that suitable connectivity exists when needed.

Revised Mobile Routing Initiation Approach

The needed revision to the current approach may then be described as follows:

a) Either an airborne or ground-based subnetwork entity delivers a join event to the attached ATN BIS, as in the current case.

b) Following this, the ATN BIS establishes subnetwork connectivity with remote and known ATN BIS(s), **in all cases.**

c) After the remote BIS receives an indication of subnetwork connectivity (e.g. via an ISO 8208 call request), normal ATN Internet routing initiation commences, **initiated by the airborne peer, on an as-needed basis, based on operational requirements, and based on information only available to the airborne BIS**.

d) If the airborne BIS deems its existing connectivity suitable operationally, it may choose to retain information concerning ground peers for future use, should connectivity degrade.

Recommendation 4:	**It is recommended that the Working Group endorse the principles as stated in Section 0, comprising the "Revised Mobile Routing Initiation Approach".**
Action 4:	**Concerning the specific needs for resolution of the identified problem concerning the ground subnetwork initiation of routing via establishment of the initial air/ground virtual circuit between routers, the modifications proposed in Attachment 2 are proposed to be included in Draft 3.0 of the ATN Internet SARPs.**
WG2 Decision 4:	**Recommendation 4 rejected; inputs regarding this recommendation and its associated action may be prepared for consideration during the next WG2 meeting, or as CCB inputs.**

Route Propagation to RDs more that one hop from a Backbone RDC

A separate but related discussion on this subject led to the conclusion that a defect existed in the provisions of A.6.7.3 concerning routing information propagation to routing domains that were more than one hop away from an ATN Backbone RDC. An additional policy was deemed necessary in this case, to ensure that routers in such "one hop away" routing domains receive routes to mobiles via the connected backbone RD or RDC.

Recommendation 5:	**It is recommended that the Working Group endorse the principles as stated in Section 0.**
Action 5:	**As certain detailed changes are required to the draft SARPs Version 2.1 text to specify the policy noted above, no additional SARPs text is provided with this Flimsy. Based on the acceptance of recommendation 5, these changes can be incorporated editorially in Version 3.0 of the Draft SARPs according to the agreed schedule.**
WG2 Decision 5:	**Recommendation 5 rejected; inputs regarding this recommendation and its associated action may be prepared for consideration during the next WG2 meeting, or as CCB inputs.**

Recommendations: Route Aggregation and Merging

The text concerning Route Merging, primarily located in Appendix 11, was viewed to be confusing and potentially ambiguous, due to terminology choices. Thus, certain revisions were deemed to be necessary.

Further, it was recognised that clarified SARPs concerning overall strategies and procedures for Route Aggregation were required, implying changes in both Appendices 6 an 11.

Recommendation 6:	**It is recommended that the Working Group endorse the principles as stated in Section 0, including the "Revised Mobile Routing Initiation Approach".**
Action 6:	**Concerning the specific needs for resolution of the identified problems concerning route aggregation and merging, the**

	modifications proposed in Attachment 3 are proposed to be included in Draft 3.0 of the ATN Internet SARPs.
WG2 Decision 6:	**Recommendation 6 accepted; Action 6 to be taken during development of Draft 3.0 of the ATN Internet SARPs.**

Recommendations: Join/Leave Procedures

Backoff Procedures

Problem: A6.5.2.2.1.1 defines backoff procedures which apply in general to any clear indication. The Clearing Cause must be referenced to determine when backoff procedures should actually be applied. Additionally, the backoff procedures should not preclude initiation of emergency call requests as defined in A6.2.1.1.

8208 Clearing Causes and Leave Events

Problem: In current SARPs, the IS-SME generates leave events for all cases of 8208 clearing of calls or connections. IS-SME needs to reference clearing cause to determine proper action (e.g., 8208 connection may be taken down by a provider due to expiration of an inactivity timer; however, a route should still exist for that subnetwork).

Revisions to Appendix 10 concerning Routing Initiation/Termination

A10.13 Subnetwork routing initiation /termination requirements list

A10.13.1 ISO 8208 Subnetworks that do not Provide Information on Subnetwork Connectivity

Note O1: For this type of Air/ground Subnetworks , the initiating BIS is always an airborne BIS (see A6.5.2.3.1)

A10.13.1.1 Initiating BIS

Item	Description	ATN SARP Reference	CNS/ATM Package-1 Support
I-itConf	Configuration of Subnetwork addresses	A6.5.2.2.1	M
I-it1poll	Polling the first DTE in the selected configuration list	A.6.5.2.2.1	M
I-itpoll	Polling other DTE in the selected configuration list	A.6.5.2.2.1	M
I-itFstISH	Mapping ISH in fast select call user DATA	A10.6.4.3.3.1	O
I-itBckoff	Backoff procedure	A6.5.2.2.1.1	M
I-itNET	Call clearing due to an incoming NET not matching local policies	A.6.5.2.5	M
I-itSEL	Call clearing due to an incoming NET with an invalid selector	A.6.5.2.6	M
I-itTSMn	Notifying that all Vcs to a DTE are cleared	A6.5.2.11	M

A10.13.1.1 Responding BIS

Item	Description	ATN SARP Reference	CNS/ATM Package-1 Support
R-itDTE	Rejection of Call request from DTEs not matching local policies (validation of DTEs)	A6.5.2.1	O
R-itACPT	Call acceptance of valid DTEs	A6.5.2.1	M
R-itEM	Emergency procedure	A.6.5.2.1.1	M
R-itNET	Call clearing due to a NET not matching local policies	A6.5.2.5	O
R-itSEL	Call clearing due to an invalid NET selector	A.6.5.2.6	M
R-itFstISH	Mapping ISH in Call confirm user Data	A.10.6.4.3.3.2	O
R-itTSMn	Notifying that all virtual circuits to a DTE are cleared	A.6.5.2.11	M

A10.13.2 ISO 8208 Subnetworks that Provide Connectivity Information

A10.13.2.1 Initiating BIS - Airborne or Ground

Item	Description	ATN SARP Reference	CNS/ATM Package-1 Support
JLI-itConf	Validation of Join Event DTEs	A6.5.2.2.2 (airborne) A.6.5.2.3	O
JLI-itREQ	Issuing call request to DTEs located in the joint event	A.6.5.2.2.2	M
JLI-itFstISH	Mapping ISH in call user DATA	A10.4.3.3.1	O
JLI-itNET	Clearing calls due to an invalid NET	A6.5.2.4	M
JLI-itSEL	Clearing calls du to invalid NET sel	A.6.5.2.6	M
JLI-itTSMn	Reporting that all Vcs to a DTE are cleared	A6.5.2.11	M

A10.13.2.2 Responding BIS / airborne or ground

Item	Description	ATN SARP Reference	CNS/ATM Package-1 Support

JLR-itDTE	Rejection of Call request from DTEs not matching local policies	A.6.5.2.1	M
JLR-itACPT	Call acceptance of valid DTEs	A.6.5.2.1	M
JLR-itNET	Clearing calls due to invalid NET	A.6.5.2.4	M
JLR-itSEL	Clearing calls due to invalid NET selector	A.6.5.2.6	M
JLR-itTSMn	Reporting that all the Vcs to a DTE are cleared	A10.3.2.1.2	M
JLR-itFstISH	Mapping ISH in Call Confirm user data	A10.6.4.3.2	O

A10.13.2.2 Initiating BIS - ground Only

Item	**Description**	**ATN SARP reference**	**CNS/ATM Packag-1 Support**
JLI-itEM	Emergency procedure	A6.5.2.1.1	M

Proposed modification of table A10-6

Table A10-6 Diagnostics values for ATN call clearing

1.	1111 1001	Connection Rejection - unrecognized protocol identifier in user data
2.	1000 0000	Version number not supported
3.	1000 0001	Length field invalid
3.	1000 0010	Call Collision Resolution
4.	1000 0011	Proposed Directory Size too large
5.	1000 0100	Local Reference Cancellation Not Supported
6.	1000 0101	received DTE refused , received NET refused or invalid NET selector
7.	1000 0110	invalid SNCR field
8.	1000 0111	ACA compression not supported
9.	1000 1111	V42bis compression not supported
10.	1111 0000	System lack of resources
11.	0000 0000	Cleared by System Management
12.	1001 0000	Idle Timer expiration
13.	1001 0001	Need to re-use the circuit
14.	1001 0002	By local means (to be used for system local error)

Recommendation 7:	**It is recommended that the Working Group endorse the principles and modifications as stated in Section 0.**
Action 7:	**As certain detailed changes are required to the draft SARPs Version 2.1 text to specify the policy noted above, no additional SARPs text is provided as an attachment to this Flimsy. Based on the acceptance of recommendation 7, these changes can be incorporated editorially in Version 3.0 of the Draft SARPs according to the agreed schedule.**
WG2 Decision 5:	**Disposition of Recommendation 5:** **(a) Elements presented in Paragraph 5.1: This aspect of Recommendation 7 and its associated action may be prepared for consideration during the next WG2 meeting, or as CCB inputs.** **(b) Elements presented in Paragraph 5.2: This aspect of Recommendation 7 and its associated action may be prepared for consideration during the next WG2 meeting, or as CCB inputs.** **(c) Elements presented in Paragraph 5.3: This aspect of Recommendation 7 and its associated action may be prepared for consideration during the next WG2 meeting, or as CCB inputs.**
	(d) Elements presented in Paragraph 5.4: This aspect of Recommendation 7 was accepted by the WG2 meeting, the related part of Action 7 is to be taken during development of Draft 3.0 of the ATN Internet SARPs.

22. Appendix K -Internet Service Description (Flimsy #12)

INTERNET SERVICE DESCRIPTION

A8.1.2. Internet Service Description

Note 1. - When the TS-USER requires use of the connection mode transport protocol the TS-USER will provide the following information to the TS-PROVIDER on a per Transport Connection basis:

a) *called and calling TSAP address;*

b) *whether or not the expedited data option is required;*

c) the required residual error rate (RER) to determine whether or not the transport checksum is required;

d) *the Application Service Priority to be mapped into the resulting CLNP NPDUs according to Table A5-2;*

e) *the ATN Traffic Type, i.e.*

- *ATN Operational Communications;*
- *ATN Administrative Communications;*
- *General Communications;*
- *Systems Management Communications.*

In the case where the Traffic Type specified is ATN Operational Communications the TS-USER will additionally provide the Sub-type, i.e. Air Traffic Services Communications (ATSC) or Aeronautical Operational Control Communications (AOCC).

In the case of the ATSC sub-type the TS-USER will further specify the required Class of Communications Service from Class A to Class H.

In the case of the AOCC sub-type the TS-USER will further specify the subnetwork preference (including no preference).

The ATN Traffic Types and their associated Sub-types are specified in Appendix 9, Table A9-1.

23. Appendix L - Definition of Network Entity Title (Flimsy #13)

Note 1.— A Network Entity Title (NET) is the unique name of a Network Entity (NE) contained in an End system (ES) or in an Intermediate System (IS). It is used to unambiguously identify a given NE. An End- or Intermediate System may comprise multiple NE's, in which case each will be identified by a unique NET.
Note 2.— NET's are assigned from the same addressing space as Network Service Access Point (NSAP) addresses. The authority which is responsible for allocating addresses from a given address space to NSAP's, may choose also to allocate NET's following the same procedures and rules it observes in the allocation of NSAP's.
In the case of an airborne router, the authority which is responsible for allocating the NET shall be IATA for commercial aircraft and Administrations for General Aviation aircraft.
Note 3.— NET's and NSAP addresses are syntactically indistinguishable; any value that the responsible authority is permitted to allocate as an NSAP address may be allocated as a NET.
Note 4.— The ATN NSAP Addressing Plan mandates specific values for the Selector (SEL) field for two types of NE's contained in ATN Intermediate Systems, these being:

- ***[00]*** *for the NE of an ATN IS supporting IDRP,*
- ***[fe]*** *for the NE of an airborne router not supporting IDRP.*

24. Appendix M - Use of Congestion Management (Flimsy #16)

Introduction

Three working papers (WP-140, WP-150, and WP-151) were presented at the fifth WG2 meeting at Rome, Italy. These working papers addressed the congestion management needs for the ATN SARPS for the CNS/ATM Package-1. The Eurocontrol papers (WP-140 and WP-151) presented some simulation results to indicate that congestion management is required for the CNS/ATM Package-1 and proposed an algorithm for congestion management. The US paper (WP-150) stated that there are significant uncertainties with the congestion management and recommended that all provisions for congestion management be removed from the CNS/ATM Package-1 SARPS.

Proposal

It is recommended that the existing text in sections 8.2.6 and 9.2.4 be deleted and the following text be added to the respective sections.

Add to section 8.2.6:

Note: *ATNP/WG2 recognises the need for congestion management in the ATN. Specific algorithms for transport layer congestion management are not at present defined for the CNS/ATM Package-1, therefore no requirement has been placed in these SARPs. However, specific requirements may be added at the sixth WG2 meeting (October 1995) based on the validation results presented at that meeting. This will not preclude the use of explicit flow control for congestion avoidance which is a required element of COTP.*

Add to section 9.2.4:

Note: *No congestion management provisions have been defined for the network layer.*

23. Appendix N- On-Going Action List

Ref	Deliverable	Status
WG2-8	Review and agree ATN User Requirements, submit Defect Reports and supporting draft Change Proposals **EUROCONTROL*/** **GERMANY/JAPAN/US/** **UK**	On-going
	MELBOURNE WG	
2/29	Make Source Code of Unix Utilities available on CENA Server **France**	On-going
2/37	To derive procedures and Configuration Management Document from WP/66 **CCB Chair/VACM**	On-going
2/59	To provide results of Congestion Management Validation Activities **US**	On-going
	TOULOUSE WG	
3/2	Send message to technical list announcing operation of new procedures **France**	On-going
3/4	Submit Operational Requirements **ALL**	On-going
3/6	Incorporate comments on WP/87 and consolidate requirements from other input Working Papers **EUROCONTROL**	On-going
3/12	Submit WP/68 as Defect Report **EUROCONTROL/CISEC**	On-going
	Fair Oaks	
Action - 4/1	To develop high level proposals for CNS/ATM-2 internet requirements for presentation to the October ATNP WG meetings.	- US -
Action - 4/2	To develop detailed format for WG2 validation report for presentation at the Rome meeting.	- UK -
Action - 4/5	To develop additional guidance in chapter 6 related to the scenarios identified in WP/128 (issues related to meeting operational requirements for routing)	- CENA -
	ROME	
5/1	Mr. Sharma to co-ordinate further development of Part 1 with WG3 SG s and submit WG2 approved version to WG1 October meeting.	Mr. Sharma
5/2	Mr. Sharma to seek guidance from Panel Secratary on ICAO practice with respect inclusion of implementation dates in SARPs.	Mr. Sharma
5/3	Mr Sharma to forward Flimsy #3 to ATNP Secratary for forwarding to Secratary of SICASP and AMCP.	Mr Sharma
5/4	Mr. Whyman to develop defect report and change proposal for submission to CCB on ISH priority.	Mr. Whyman

5/5	EUROCONTROL to continue to validate Congestion Management solution as proposed in WP/140	EUROCONTROL
5/6	Mr. WHYMAN TO REVIEW A10.13 (Draft 2.1) and submit DR, CP to CCB covering missing requirements	Mr. WHYMAN
5/7	US/EUROCONTROL - Co-ordinate on future Congestion management Proposals to WG.	USA/EUROCONTROL
5/8	Mr. Crenais to issue Version 3.0 of draft SARPs by 7th August.	Mr. Crenais
5/9	Mr. SHARMA TO DEVELOP INTRODUCTION FOR VERSION 3.0	Mr. SHARMA
5/10	EUROCONTROL TO ALIGN REQUIREMENTS DATABASE WITH VERSION 3.0 OF THE DRAFT SARPS	EUROCONTROL
5/11	EUROCONTROL TO SUBMIT DEFECT REPORT AND CP TO CCB BASED ON VERSION 3.0 RELATED TO PROVISIONS ALLOWING THE HOME TO BE LOCATED OFF THE BACKBONE.	EUROCONTROL
5/12	Mr. Whyman to submit defect report and CP resulting from adoption of recommendation #5, Flimsy #6.	Mr. Whyman
5/13	Ms. Thulin to submit Defect Reports and CPs to CCB based on sections 5.1, 5.2 and 5.3 of Flimsy #6.	Ms. Thulin