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To: Members of the ATN Panel and ATN Internet WG (WG2) Participants

Re: Final Report of the First Meeting of the ATN Panel 'ATN Internet Working Group (WG2).

Please find attached the final report of the Working Group 2 meeting that took place in San Diego from October 24 - 28th 1994. The report is being distributed to Panel Members, attendees of Working Group 2 and via e-mail to the atn-internet-technical mailing list.

Should there be any comments by meeting attendees with respect to the accuracy of the report then please let me have them as soon as possible so that I may issue the appropriate amendments. I would also be happy to try and answer any questions from those that did not attend the meeting.

Yours Sincerely

Akhil Sharma

Rapporteur ICAO ATNP ATN Internet Working Group (WG2)
UK ATN Panel Member

<u>AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL</u>

San Diego 24.10.94 - 28.10.94

ATN Internet Working Group (WG2) First Meeting

Meeting Report

Issue 1.0

0. Introduction

At thefirst meeting of the Aeronautical Telecommunications Network Panel (ATNP/1) held in Montreal 8-21 June 94, three Working Groups were created to further the work of the Panel. It was also decided that the first meeting of the Working Groups would be in San Diego, California, during the period 17 to 28 October 1994. During the first week, a meeting was held of Working Group 1 (WG1), followed by a one day meeting of a Working Group of the Whole (21/10/94). During the second week, concurrent meetings of the other two Working Groups (WG2, WG3) took place. This is a report of the meeting of Working Group 2 (WG2).

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 Working Paper 38 (WP/38) 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.

26 experts from 8 countries and 3 international organisations attended the meeting. The list of attendees is attached to this report as Appendix A. The list of papers submitted for WG2 consideration is attached to this report as Appendix B.

1. Agenda Item 1 - (Approval of Agenda and Meeting Objectives)

1.1 Agenda

Mr. Sharma presented WP/38 which included the proposed Agenda for the meeting. The proposed Agenda was accepted with one change which related to combining 4.2 (ATN Manual Validation Strategy) and 4.3 (SARPS Development Process) into a new 4.2 (ATN SARPs/Guidance Material Development and Validation Strategy), this was due to a considerable overlap between papers relevant to these agenda items.

Mr. Paydar, the Panel Secretary, was also present during the opening session of WG2 and drew the meeting's attention to WP/48 and WP/49. These papers originated from the AMCP and were concerned with the development of the VHF Data Link (VDL) SARPs. Mr. Paydar reported that in the absence of firm requirements for VDL, the AMCP had developed a set of assumptions as regards the users of the VDL, which had then been passed to the ANC. In turn, the ANC has asked the ATNP for comments on the AMCP's assumptions, and WG2 has been given responsibility by WG1 for preparing the ATNP's response. This is to be done by the end of the WG2 meeting scheduled for March 1995.

It was agreed that this subject would be taken into account when the WG2 work plan was discussed later in the meeting.

1.2 Objectives

The meeting considered the objectives for this first meeting of WG2 as proposed by WP/38. These were agreed as proposed and are reproduced below for ease of reference.

- To agree on a Working Group 2 work plan defining deliverables, milestones and supporting meeting schedule up to ATNP/2.

- To agree working method to be employed between WG meetings to progress WG2 work plan.

- To agree the version of the ATN Manual to be used and the ATN Manual validation strategy to be employed including the use of validation tools (e.g. Requirements Database, internet etc.).

- To agree on the process to be used to develop validated ATN SARPs and guidance material.

- To review ATN Manual defect reports and/or additions.

- To review and resolve any issues brought to the attention of the WG by the Panel Secretary.

- To resolve, where possible, issues referred to WG2 from ATNP WG1/1.

- To agree on the CNS/ATM-1 Package Internet Requirements subset.

1.3   Planning

The meeting schedule prepared by Mr. Sharma was agreed, except that WP/15 was deleted from the schedule. This working paper has been withdrawn by the US. WP/50 has been added and will be presented under agenda item 4.4.   Mr. Sharma pointed out that the schedule proposed that Agenda Item 4 be taken before Agenda Item 3 (Review of Progress on ATN Validation Activities) since the majority of papers under Agenda Item 3 were being presented as Information Papers. This was agreed.

2.   Agenda Item 2 - Review WG2 Terms of Reference and develop WG2 Work Plan

2.1   Terms of Reference

The meeting considered WP/39, the Terms of Reference given toWG2 by the ATNP.

In the review of WP/39, it was noted that item (e) had been inappropriately phrased and should be amended as follows;

e)   *development and validation of draft SARPs for encoding ~~rules~~ and data compression functions in the ATN Internet, where appropriate.*

Mr. Graf (Germany) asked if the development of draft SARPs and Guidance Material for the ATN Internet QoS features was covered by the WGs Terms of Reference. Mr. Sharma reported that WG1 had taken on the responsibility for the development of a QoS Management Concept, and that WG2 can assume that this will be an input deliverable from WG1. This will establish the framework for the development of the QoS Management features of the draft ATN Internet SARPs.

It was also noted that items, such as liaison with other Panels and Working Groups was not covered by the WGs Terms of Reference, and it was agreed that the meeting would return to this item after the work plan had been agreed, in order to ensure that the Terms of Reference were appropriate for the working group's program of work. It was agreed that any amendments to the working groups terms of reference would be submitted to the Working Group of the Whole meeting scheduled to take place in March 1995.

2.2 Development of WG2 Work Plan

The draft report of WG1 (WP/19), which had held its first meeting in the previous week was presented by Mr. Clarke. Mr. Sharma then pointed out the areas covered by WG1 that were specifically related to the work of WG2. It was noted that the Panel Secretary is to be kept informed of all meeting dates, and that it is the intention of WG1 that technical issues are to first be debated in WG2 or WG3 before being presented to WG1, if appropriate.

The meeting also noted WG1's intentions to prepare a new glossary (lexicon) of technical terms that would be in addition to that contain the ATN Manual 2nd edition. This lexicon, once agreed, would then be merged with the existing glossary prior to submission of the draft SARPs to ATNP/2.

The meeting then considered Mr. Sharma's proposal for the development of a 'WG2 Work Plan' as presented in WP/40. It was agreed that the results of the work to be delivered to ATNP/2 needs to be completed in 15 months if the ATN Panel's objectives are to be met. It was further noted that in order to meet this objective, a prioritisation of objectives will be necessary, and that some lower priority objectives may need to be deferred. The possibility of using a project management tool, such as Microsoft Project was also raised. WP/40 also referred to a comment that the Panel Secretary had made during the WG1 meeting related to the fact that the WGs should not consider any delay to ATNP/2, this being tentatively scheduled for the last quarter of 1996.

Mr. O'Sullivan (Ireland) reported a scheduling problem with the Systems Management, QoS and Security. These need to be delivered by WG2/2 (the second meeting of WG2). However, it will not be finalised until the subsequent meeting of WG1. They would thus have to be taken in draft form.

It was agreed that finalisation of the working plan would be deferred to the end of the meeting when the Working Group would have considered all proposed work items and to have prioritised them.

2.3 Working Methods between Working Group Meetings

Working papers 5 and 33 were considered by the meeting. Mr. Sanford (US) presented WP/5, and Mr. Colliver (France) presented WP/33. Both working papers proposed the establishment of subgroups in order to further the Working Group's objectives.

Both WP/5 and WP/33 proposed the establishment of a Change Control Board (CCB), as discussed at ATNP/1, to be responsible for considering and progressing Defect Reports on the ATN Manual 2nd edition. Given the nature of its work it was agreed that this sub-group should be established. It was noted that the majority of CCB business would be conducted through e-mail.

Both WP/5 and WP/33 also proposed a subgroup to be responsible for developing the technical program of work. Mr. Hof (Eurocontrol) commented that the assignment of work should be oriented around deliverables (i.e. result oriented) rather than activities, and was therefore concerned that such a working structure was not the most optimal. Mr. Colliver responded that in preparing the proposal in WP/33, it was the intention that the tasks set were to be result oriented; the proposal was for a management structure. After discussion, Mr. Sharma put forward the principle that work should be performed in the working group if possible, and noted that the WG had sufficient flexibility to meet as often as was necessary and need not be restricted to the schedule of meetings agreed at the Working Group of the Whole meeting in the previous week.

WP/33 also proposed the establishment of a subgroup to co-ordinate trials activities. Differing views were offered on whether such an activity was in the scope of the working group's terms of

reference, and no firm conclusion was reached. It was agreed to discuss this proposal further, under Agenda Item 8.

In conclusion, the meeting accepted that dedicated activities may be established in response to need, in between working group meetings. The actual establishment of these activities would be addressed towards the end of the meeting, as a part of the development of the work plan.

3.   Agenda Item 4 - Development of SARPs and Guidance Material for ATN Network and Transport Layer

3.1   Agenda 4.2 - Validation Strategy

3.1.1   Contents of CNS/ATM-1 Package Internet SARPs

Mr. Whyman (Eurocontrol) presented WP/25. This had already been partly presented to WG1 as WP/18, and presents a top down analysis of potential applications for initial ATN use and the requirements these applications have on the ATN Internet. The paper then considers how such requirements may be satisfied in an ATN compliant manner with the minimum change to commercially available software. This would result in a minimum set of ATN functions that needs to be provided in support of the initial applications and which is proposed as "CNS/ATM-1 Package" i.e. the contents of the validated ATN SARPs to be presented to ATNP/2. The paper also proposed a simplified exchange of routing information over the air/ground datalink that permitted the optional non-use of IDRP[1]. This was proposed in order to overcome perceived problems in implementing IDRP in avionics in the near term, and to support the concept of evolutionary incremental transition. IDRP was still necessary for the ground environment in support of mobile routing and it was proposed that this be included for the ground environment as part of CNS/ATM-1 Package.

Mr. Colliver presented WP/35 and WP/37. These papers similarly presented proposals for the CNS/ATM-1 Package and WP/37 provides a detailed and almost complete profile for the proposed protocol requirements. Mr. Colliver reported that these papers had been developed in a more "bottom up" fashion than had WP/25 and was essentially a "lowest common denominator" of currently available implementations. The result was, however, similar to that proposed by WP/25 with the differences being only in the detail of the proposals. The optional non-use of IDRP over the air/ground datalink was also proposed.

Mr. Sanford presented WP/12. This describes current US activities in respect of initial ATN implementation and proposed that what was being implemented was taken into account in the preparation of CNS/ATM-1 Package. Although the US does not intend to support certain features, such as Routing Domain Confederations, in its initial implementation, the US intends to implement IDRP over the air/ground datalink in such implementations.

In comments on WP/12, Mr. Whyman asked that an apparent contradiction between WP/12 and the yet to be presented WP/13 (also from the US) be clarified. WP/13 raises concerns over the time taken to perform route initiation over a Mode S subnetwork, when using IDRP, while WP/12, instead of taking such issues into account, appeared to be taking an approach that made the situation worse, rather than better. Mr. Sanford replied that there was no contradiction. WP/12 proposes a limited interworking scenario in which the FAA does not offer transit facilities to other organisations, and hence the observed problems would not occur. Mr. Whyman commented that such a limitation may not be appropriate in a European context.

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[1] Not precluding the use of IDRP if it is supported.

In discussion of all three working papers, Mr. Sanford stated that the US was unable to accept, at present, the proposals in WP/25 and WP/35 for the optional non-use of IDRP on the air/ground datalink. He explained that as the FAA has now established an implementation program, he needed to discuss the impact of the proposal within the FAA and to have its implications fully analysed. He also complained that such a proposal should have been circulated in advance of the meeting so that he could have properly prepared his position. Mr. Sanford asked for a delay of one month before responding to the proposed optional non-use of IDRP.

Mr. Snively (IATA) had joined the meeting for this part of the discussion and stated that American Airlines were unsure as to when they might have IDRP onboard an aircraft. He was interested in the potential cost benefits from not using IDRP, referring to the anticipated decrease in communications traffic, and encouraged the working group to look at the optional non-use of IDRP. He also observed that requiring IDRP air/ground will delay introduction of the ATN and its benefits and might lead to airlines looking to alternative solutions. Mr. Sharma asked whether the view expressed was typical of other aircraft operators, and Mr. Snively responded 'yes', he believed this was the case.

Mr. Sharma proposed, and the meeting agreed, that the US be given the requested one month to respond to the proposal. However, concerns were raised that this should not delay the work program, and it was agreed that the working group should continue assuming both possibilities (i.e. use and optional non-use of IDRP on the air/ground datalink for CNS/ATM-1 Package). It was observed that the WP/25/WP/35 proposal still permitted the use of IDRP air/ground and hence this was not a significant problem.

The meeting then turned to harmonising the proposals in WP/25 and WP/35/WP/37. However, this proved to be more difficult than had been expected. This was because WP/37 was a very detailed proposal and essentially a line by line review was necessary.

It was agreed that the Security attribute was to be supported by CNS/ATM-1 Package routers and that its use in End Systems would be optional. However, routers would not be required to use the attribute for the routing decision but should also not discard NPDUs which have the security parameter set except as an aspect of local policy. Optional non-use of QoS attributes was also agreed. However, further detailed work will be necessary to harmonise the proposals. (*Rapporteurs note: Given the creation of an activity to define the requirements for CNS/ATM-1 Package - (Deliverable Reference WG2-2, Appendix J) - any decision on these and related issues may be revisited during this activity.*)

After having spent a considerable amount of time in attempting to harmonise the detail of the proposals in WP/25 and WP/35/WP/37 it became evident that a considerable amount of detailed work was still necessary and that it would not be possible to finalise the CNS/ATM-1 Package definition at this meeting.

Mr. Crocker (US) proposed that the working group discuss the validation strategy to be adopted by the working group, and that the definition of the CNS/ATM-1 Package SARPs be revisited in the context of such an agreed strategy. This was agreed.

3.1.2   Validation Activities

Mr. Hof gave a detailed presentation of WP/29. He reminded the working group that WP/29 had already been presented to ATNP/1, and that the paper explains the European Strategy for validation of the ATN Manual, and lays down the principles on how validation, in Europe, is being approached and structured.

Mr. Sharma proposed that the meeting should agree on the need for an 'ATN SARPs and Guidance Material Validation Strategy' as well as the approach and the methods. This was agreed. The meeting then continued to debate the appropriateness of the European approach in a wider context.

Key issues included whether we need to have "pre-operational flight trials" or are "laboratory trials" sufficient, and to what extent should the equipment used have been developed by established commercial vendors. Mr. Crocker (US) informed the meeting that the US flight trials would use prototype equipment rather than equipment that could be used operationally, and that he believed that this was sufficient. Mr. Colliver said that in the UK and French ADS trials, the equipment would be supplied by recognised avionics manufacturers, but would still probably be prototype rather than operational equipment. Mr. Sharma stated that he believed that the approach described by Mr. Colliver was necessary to enable the approval of the draft SARPs.

Summing up the subsequent discussion, Mr. Sharma said that in order for validation activities to be finalised, there needs to be an "operating concept" developed for CNS/ATM-1 Package. This will present the context in which the CNS/ATM-1 Package SARPs will be used and hence determine the full set of validation activities. If the WG accepts the approach outlined in WP/29, it needs to add the need for validation to take place in the context of such an operating concept. The WP/29 proposals, modified to include the development of an operating concept were agreed.

3.1.3   ATN Internet Performance and Related Issues

Mr. Crocker presented WP/8. This paper drew on published work on communications networks and proposed that WG2 should adopt certain networking goals as essential properties for the ATN Internet. These goals included "scaleability", "robustness", "determinism" and similar concepts.

Mr. Whyman commenting on WP/8, generally supported the principle of having such goals, but cautioned the meeting from setting absolute targets. For example, Mobility and Scaleability are not always compatible and a limit on scaleability may have to be set if we are to ensure that we have a workable mobile routing strategy. There are also many examples of non-deterministic networks that operate successfully (e.g. Ethernet).

Mr. Sharma proposed that the principle having such goals be adopted. Mr. Hof added that the list in WP/8 was also not necessarily complete, and should thus be viewed as a starting point. This was accepted by the meeting.

Mr. Crocker then presented WP/13. This provides an analysis of the resulting time it takes to complete the route initiation procedures specified by the ATN Manual, over the Mode S and AMSS subnetworks. The results of this analysis could be used to question the operational viability of the proposed route initiation procedures.

Mr. Sharma asked Mr. Crocker if WP/13 could be viewed as supporting the proposals in WP/25 and WP/35 for the optional non-use of IDRP over the air/ground datalink. Mr. Crocker answered that this paper, in support of the technical notion relating to the optional non-use of IDRP, the answer was yes.

Technical discussion followed with much questioning as to the assumptions behind the analysis. The access time to a satellite channel assumed by the analysis was questioned. Both Mr. O'Sullivan and Mr. Colliver reported that recent trials had measured the access time at 10-12 seconds. The statement was made that that DATA3 equipment could improve upon this.

The WP/13 analysis had also shown a defect in the ATN Manual which did not state a preference for either "passive" or "active" IDRP connection establishment; passive open would significantly improve on the figures, while WP/13 assumes active open. Mr. Crocker replied that active open was used because it was believed that this was more robust. Mr. Whyman offered the opinion that as the IDRP Open procedures took place after the subnetwork connection had been established, he believed that passive open was sufficient.

Mr. Whyman also commented that the time for route initiation was unlikely to be a significant issue as Eurocontrol studies had taken the view that communications would be established in a "make before break" procedure with communications established with the next ATC Centre en route prior to termination of communications with the current ATC Centre. Mr. Crocker responded that this would not be the case in error recovery situations should a communications outage occur.

Mr. Sharma summed up that again issues that needed to be dealt with by an "operating concept" had surfaced. WP/13 can be another input to this process and can help develop an operating concept that will avoid the problems identified.

Mr. Crocker then presented WP/3 (this paper was also presented to WG1 as WP/27). This emphasises the distinction between functional and performance based validation, and recommends states to present their expected operational requirements. Mr. Sharma concluded that we need to develop performance requirements in co-operation with WG3, as part of the validation work and referred to the draft meeting report of WG1 (para. 6.1 of WP/19).

Having reviewed the WPs related to Validation Mr. Sharma proposed that a drafting group be established to begin drafting the Validation Strategy and to report back to the WG later in the week. It was agreed and the drafting group comprised Mr. Crocker, Mr. Hof, Mr. Graf, Ms Thulin and Mr. Crenais.

3.1.4 Flimsy #1 - Validation Principles

As a result of the discussions relating to the CNS/ATM-1 Package definition (WPs 25, 35 and 37) Mr. Sharma and Mr. Colliver had prepared a draft Flimsy #1 listing principles and constraints to be applied to the ATN Internet Validation Strategy and the definition of the CNS/ATM-1 Package. This flimsy was discussed in detail by the working group and resulted in a number of agreed amendments. The final version is attached as Appendix C to this report.

3.2 Agenda 4.1 - ATN Manual Status

Mr. van Trees (US) joined the meeting to present WP/24. He reported that he had assisted the ICAO Secretariat in final editorial work on the ATN Manual 2nd edition and helped ensure the alignment of the official ICAO Text with the editor's final text (WP/1). He had also identified all the outstanding differences which will be presented as WP/41. This was presented as a defect report which, when applied to WP/1 would result in text identical to the official ICAO version.

He reported that the ATN Manual had also been translated into the official languages and would soon be ready for publication. Copies of the English Language version were available for delegates to this meeting, but in strictly limited numbers.

Mr. Sharma thanked Mr. van Trees for the excellent, detailed work and co-ordination he had done with Victor Iatsouk which, he hoped, would continue until the final publication of the ICAO edition.

3.3 Agenda 4.2 (Continued)

3.3.1 Change Control Procedures

As Mr. Colliver had now left the meeting, Mr. Sanford presented WP/2 (Report of the ad hoc London meeting), and, in particular the Change Control Procedure for the draft SARPs developed at this meeting and proposed to WG2.

In discussion, Mr. Hof proposed that a more interactive use of the Eurocontrol developed ATN Requirements Database be included in the procedures. He also proposed that the Change

Control Board (CCB) proposed by WG2 should be explicitly included in the flow charts presented in WG2. This was agreed. In further discussion, it was also agreed that the CCB would not directly update the ATN Requirements Database. This would be officially performed only on the instruction of WG2.

Ms Thulin reported that she had used the proposed "forms" for preparing the defect reports contained in WP/22, and that, as a result, she believed that it would be valuable to include a descriptive title and a category (i.e. Major Technical, Minor Technical, or Editorial). This would aid the later discussion of a defect report. This was agreed. It was also agreed that Minor Technical and Editorial Defect Reports should include proposed changes to resolve the defect.

The WG endorsed the recommendations made in WP/2 (with the exception of rec. no. 2 related to the use of the Requirements Database, which would be re-visited later). Mr Sharma undertook to incorporate the relevant material, as modified, into the WG2 Work Plan.

It was also agreed that it was essential to use Internet Email in order to expedite the process of defect resolution. So that the ICAO Secretariat was involved in this process, the working group would strongly recommend that the Panel Secretary obtains appropriate Email facilities.

3.3.2   The ATN Requirements Database

Mr. Whyman presented WP/21. This was a progress report on the development of the ATN Requirements Database. Mr. Whyman reported that this work was now complete and that the creation and categorisation of requirements had been reviewed by the EurATN consortium. The database and a database application for using the data contained within it, were now available from the CENA fileserver. A User Manual for this application was attached to WP/21, along with an example report prepared using this application. A first version of a "Windows Help File" version of the database had also been prepared. This was a processed version of the requirements held in the database, and would enable fast access to that information by anyone with access to Microsoft Windows. However, this was limited by being a standalone application and could only support access using a limited number of predefined queries to create indexes for requirements access.

Mr. Sharma thanked Eurocontrol for the considerable work that had gone into the development of the ATN Requirements Database which, as a result of the agreement of WP2's recommendations, would be used to assist in the development of the draft SARPs. He then invited the meeting to consider the issues raised in WP/21.

The meeting agreed that including Guidance Material in the database would be desirable, but also recognised the technical difficulties in doing so, and thus did not demand it. Links from the requirements in the database to associated guidance material would be very useful if this could be established.

The meeting then considered the need for additional fields in the database identified by WP/2. It was noted that the proposed "validation status", "package number" and "critical path item" were straightforward additions, and Eurocontrol accepted their inclusion. "Request Number" was also straightforward provided that when a requirement was modified by a Change Proposal it was replaced by a new requirement - there then being at most one "Request Number" applied to a requirement.

The requirement for a "validation methodologies" field was seen as technically more difficult as there could be 'n' methodologies of which 'm' of these could apply to a single requirement. Eurocontrol will assess the impact of this on the database application and report back, taking into account the final result of the drafting group activity related to the validation strategy.

The need for an "in the context of" database relationship was also discussed. However, the effort involved in providing it was recognised and it was agreed to re-visit such a requirement after initial use of the database.

WP/21 also pointed to where relations established during the database's development had indicated that defects (e.g. requirements duplication) might exist. Mr. Hof agreed to prepare detailed defect reports for each such case observed.

WP/28 was then presented by Mr. Hof. This working paper proposes detailed procedures for ensuring continued alignment of the requirements database with the draft SARPs, and also modifies the procedures proposed in WP/2. Given the significant nature of the detailed proposals Mr. Sharma proposed that the recommendations be re-visited later in the meeting allowing meeting participants sufficient time to review the paper in detail.

It was agreed that the database would be made available in Access 2.0 only.

3.3.3 Establishment of the CCB

The proposal contained in WP/28 for establishing separate editors for the draft SARPs and the ATN Database was accepted. CENA offered the editor for the draft SARPs, and Eurocontrol offered the editor for the ATN Requirements database. This was accepted by the meeting. The US (Mr. Sanford) offered to chair the CCB. This was also accepted by the meeting. Mr. Sharma asked for some indication as to the level of participation that might exist in the CCB and the following States/Organisations indicated their interest: USA (3), France (2), Canada (1), SITA (2), Japan (1), Germany (1-2), Eurocontrol (1-2), UK (1).

3.3.4 User Requirements

Mr. Whyman presented WP/27. This paper provides an analysis of the User Requirements identified during the mark-up of the ATN Manual when preparing the ATN Requirements Database. These requirements have been reformulated in order to make the requirement clearer. In the light of earlier discussions in the working group, a further recommendation (recommendation (d)) was added to the recommendations made by WP/27. This is to use the agreed User Requirements as part of the validation process when determining the fitness for purpose of the ATN Internet.

Mr. Sharma proposed that WP/27 recommendations be accepted. He proposed that a task force be set up to review the identified user requirements and the defect reporting mechanism should be used to include the agreed User Requirements in the draft SARPs. This was agreed.

Mr. Graf was concerned as to how the User Requirements would be incorporated in the draft SARPs. It was not simply a matter of replacing existing text. Mr. Sharma said that this should be decided at a future meeting of the working group. He did not rule out a new chapter devoted to User Requirements.

3.3.5 Validation Tools

Mr. Sanford presented an information paper (WP/10) reporting the remote access communications facilities used to support Mitre's validation activities. Mr. Hof presented an information paper (WP/23) reporting the various developments in Eurocontrol in support of validation.

3.4 Agenda 4.4 - Review of ATN Manual Defect Reports and/or Additions

3.4.1 Routing Concept

Mr. Whyman presented WP/31. This paper had already been presented at ATNP/1 and provides proposed new guidance material on ATN Routing. It had been developed in response to concerns raised that the existing ATN Manual guidance material only presented the mechanics of routing in the ATN and did not try to inform the reader as to the underlying concept.

Mr. Sharma proposed that WP/31 be the subject of a task to progress its contents. This was accepted. Mr. Sanford also reported that the US had comments on this material that they would present to this task.

3.4.2   Data Compression

Mr. Kerr (Eurocontrol) joined the meeting to present WP/43. This paper presented background information on data compression and discusses various aspects of compression in the ATN Internet and upper layers. The paper urges WG2 to make a decision on the availability of data compression in the ATN Internet, and recommends that it should be possible to use both V.42bis compression and the ICAO Address Compression Algorithm (ACA) simultaneously. The paper states a preference for link level compression.

Mr. Whyman queried whether the issue of the Unisys patent on an algorithm used by V.42bis had been investigated. Mr. Kerr reported that this had not been looked into.

The WP initiated a discussion on data link versus subnetwork compression and where the working group's responsibility ended. As a result, it was agreed that data compression was preferably performed at the lowest level possible (i.e. the data link layer) and that the subnetwork compression specified in the ATN Manual should therefore be viewed as an interim solution until other ICAO Panels (e.g. SICASP and AMCP) had incorporated data compression within ICAO subnetworks such as Mode S, AMSS and VDL. This decision will be reported to WG1. It was, however, recognised by the meeting that the draft SARPs for the AMSS & VDL subnetworks were considered to be mature and that any changes proposed to these SARPs through their responsible Panels were unlikely to be accepted in the near term.

It was agreed that there did not appear to be any overriding technical reason why ACA and V.42bis could not be used simultaneously. Mr. Hof reported that it was probable that Eurocontrol would conduct a simulation of the simultaneous use of ACA and V.42bis, and would report back when this was done. Such work would also include interaction with upper layer functions including the impact of using the ASN.1 Packed Encoding Rules (PER). A final decision on the availability and use of data compression in the ATN Internet would therefore be deferred until Eurocontrol had reported the results of its simulations.

3.4.3   Validation Strategy Drafting Group Report

Mr. Crocker presented Flimsy #2 providing a report of the initial discussions of the Validation Strategy Task Force, which had met the previous evening. The final version of Flimsy #2 is attached as Appendix G to this report.

This resulted in further discussion, in particular, concerning the importance of flight trials and the use of emulations of mobile subnetworks during validation. It was agreed that flight trials should only be seen as a final confirmation and demonstration of validation work performed in the laboratory. Emulations should be used both to test normal operation and to simulate extreme conditions and thereby provide information on the stability of the ATN Internet. It was also noted that flight trials are not relevant to the validation of the ATN when used ground-ground.

Mr. Herber (Germany) proposed that the definition of validation be moved to the front of the flimsy, which was agreed. It was also agreed that text from WP/29 would be added. Emulation would also be documented as a tool. The working group actioned Mr. Crocker to prepare a revised version of Flimsy #2 for presentation the next day (p.m.).

3.4.4   The Need for an Addressing Concept

Mr. Graf presented WP/42. This had already been presented to WG1 and provides tutorial and analysis of addressing in the ATN. WP/42 also provides an initial set of Operational Requirements for ATN Addressing. Mr. Graf reported that the WG1 discussion had revealed two

important issues. Firstly, that there was a need to develop further guidance material on the ATN Addressing Concept and, secondly, that the initial set of operational requirements for ATN Addressing needs to be progressed for validation of the draft SARPs.

Mr. Sharma asked the meeting to note that WG1 was concerned that consideration of WP/42 should not result in changes to the ATN Address Structure.

Mr. Sharma proposed that WG2 should accept that there is a need for an Addressing Concept and handle its inclusion in the draft SARPs through the defect reporting procedure. This was agreed by the meeting. Mr. O'Sullivan commented that an Addressing Concept must look at how applications will use addresses to locate each other. Mr. Sanford added that this requires consideration of the use of a Directory.

Mr. Whyman commented that the definition of an address contained in WP/42 needs to be expanded to include a reference to the routing algorithm that operates on the address, and that addressing and routing cannot be discussed in isolation of each other. Addresses must be defined and allocated to support efficient routing as well as respecting the needs of applications. Noting earlier comments, Mr. Whyman said that the need was for a Naming, Addressing and Routing Concept that will bring together all these different requirements.

Mr. Sharma proposed that a task is created to support this work and which must take account of the fact that WG1 is also developing an addressing concept and WG2 must support this work. This was agreed.

3.4.5   QoS Management

Mr. Graf presented WP/44 on the need for QoS Management in the ATN. Mr. Graf reported that WP/44 had already been presented to WG1 which will be developing a QoS Management Concept. This will be an input to WG2's work program.

Mr. O'Sullivan queried how this subject related to the earlier decision not to include QoS support in CNS/ATM-1 Package. Mr. Sanford said that the decision was CNS/ATM-1 Package specific and when we do include QoS support in later packages then we will need a QoS Concept. Mr. Sharma stated the paper does allude to deficiencies in the draft SARPs and that an activity needs to be identified *(WG2 deliverable WG2-14)* that reviews the QoS material in the draft SARPS and results in any Defect Reports (that are considered necessary) to the CCB.

3.4.6   Alignment of Draft SARPs and the ATN Manual

Mr. van Trees rejoined the meeting to present WP/41. This is "Defect Report #1" and is the result of his work in assisting ICAO preparing the final version of the ATN Manual 2nd edition. Mr. van Trees reported that WP/41 contained a list of all the changes that would be necessary to bring WP/1 into alignment with the ICAO ATN Manual, which would be published on the 15th December 1994. In addition, WP/41 also includes further editorial defects, common to both versions, which he had identified during his work.

Mr. Sharma proposed that the WP/41 items necessary to bring WP/1 into alignment with the ICAO manual are forwarded to the CCB for action. This was agreed and Mr. Sanford and Mr. van Trees will extract these items from WP/41 and re-submit them as a single defect report.

The other items in WP/41 were considered by the meeting. Item 071 was rejected as spurious. Items 061,088, 112, 151, 154, 156, 181 and 207 were accepted and the remainder were marked for CCB consideration. It was agreed that two further defect reports should be prepared from WP/41 material, respectively comprising the agreed changes and those for CCB consideration. It was agreed that thosew defects identified in WP/41 that were not applicable to SARPs ans Guidance Material would be implemented as a part of the process to create Version 1.0 of the draft SARPs. The resolution of such defects would subsequently be counteracted by the submission of further defect reports to be applied to Version 1.0 of the draft SARPs.

3.4.7   Other Defect Reports

Mr. Whyman presented WP/30. This collects together reports of defects in the SICASP/5 agreed text of the ATN Manual, but not yet actioned. This will be forwarded to the CCB in the correct format.

Mr. Whyman presented WP/26. This provides a Compliance Statements and PICS Proforma for the Mobile SNDCF. This is not present in the ATN Manual and is necessary to support procurement. Mr. Whyman drew the meeting's attention to item "lrDiscard" in table 4.6, which is an error and should be deleted.

It was agreed that WP/26 should be progressed as a defect report. However, there was discussion as to how it should be included. There was a preference from the meeting to discard the final column of the PICS Proforma and to insert it as an ATN Protocol Requirements List (APRL) similar to those already in the ATN Manual. However, Mr. Whyman disagreed with this as although this appears to be in line with the rest of the manual, the reverse is the case. This is because, with all the other APRLs, PICS Proformas exist in referenced documents. The ISO 10000 methodology from which APRLs are derived requires the existence of PICS Proformas, and a way needs to be found to ensure that the PICS Proforma itself is not lost.

Mr. Whyman will prepare a short flimsy on the subject, and a final decision was deferred until that is discussed.

Ms Thulin presented WP/22, which provides a set of defect reports derived from the mark-up of the ATN Manual. It was agreed to forward a set of properly formatted defect reports based on the material presented to the CCB.

Mr. Crenais presented WP/34 proposing the removal of specific NSEL values (other than zero) from the ATN Addressing Plan. Mr. Whyman observed that this was very necessary as the ATN Manual consequently rules out certain system configurations and commercial products for no good reason. WP/34 was agreed and will be forwarded to the CCB in the appropriate defect report format.

Mr. Graf presented WP/46 identifying one major defect and several editorial defects. The major defect concerns the requirement by ISO 10747 for BISs to support the default (empty) set of path attributes, which is not reflected in the ATN Manual. Mr. Whyman commented that this was a deliberate decision in order to support routing over ITU restricted subnetworks. It was agreed that work needs to be done to resolve the apparent conflict. Defect Reports based on WP/46 will be forwarded to the CCB for action.

Ms Thulin presented WP/50. She reported that this was presented as a defect report, although it applied to the optional non-use of IDRP over air/ground subnetworks, which was not yet part of the draft SARPs. WP/50 proposes an alternative strategy for identifying the optional non-use of IDRP, by using the ISO 9542 version number field.

Mr. Sharma proposed that WP/50 should be passed to the task responsible for developing material on the optional non-use of IDRP. This was agreed.

Mr. Sanford raised a concern over the use of the "Operational Requirement Change Request" form by WP/50, as this is clearly not an operational requirement. It was agreed that this form only be used for clearly identifiable operational requirements.

Mr. Sanford presented WP/7 containing a number of draft Defect Reports and other issues. He said these will be reviewed again and presented to the CCB as formal defect reports.

3.5 Further Consideration of WP/28

Mr. Hof again presented WP/28 on maintenance procedures for the ATN Requirements Database, meeting participants having been allowed some additional time to review the detailed proposals contained therein.

The proposal for Configuration Item (CI) Packages was accepted, as were the proposed CI Packages 1 and 2. CI Packages 3, 4 and 5 (other database formats) were deleted. The proposal for an additional version control number was also accepted, after discussion. It was also accepted that the database editor works on the output of the editor of the draft SARPs, except where changes are applicable to the database alone.

4. Agenda Item 3 - Review of Progress on ATN Validation Activities

Only information papers were submitted for this agenda item. Mr. Sharma asked for a short presentation of each such paper, with discussion (due to time constraints) to take place outside of the forum of the formal meeting where it was felt necessary.

Mr. Itano (Japan) presented WP/16 on Japanese Satellite Data Link Trials. Mr. Crocker presented WP/6 on US ATN Validation Activities. Ms Thulin presented WP/20 on SITA's Services and Facilities in support of FANS-II. Mr. Sharma presented WP/32 on the UK and France's joint ADS trials. Mr. Crenais presented WP/36 on the current status of the EurATN. Mr. Crocker presented WP/11 on the US OPNET simulation activities. Mr. Itano presented WP/17 on the Japanese Simulation Plan for the Japanese ATN Simulation System (ASS).

5. Consideration of Flimsies

5.1 Flimsy #3 on Optional non-use of IDRP

Mr. Sanford presented flimsy #3. He explained that he had produced this flimsy in order to provide a clear statement on the status of the optional non-use of IDRP within the working group. After discussion and refinement of the text, the flimsy was agreed and is attached as Appendix H to this report.

5.2 Flimsy #4 on the Terms of Reference for the CCB

Mr. Sanford presented flimsy #4, which provided a proposed Terms of Reference for the CCB. Mr. Crenais commented that the CCB should not be concerned with the actual use of validation tools, and Mr. Hof stated that the CCB should only be concerned to ensure that the appropriate validation tool had been used to justify a change. This was agreed.

Mr. Crocker asked how conflicts within the CCB were to be resolved. Mr. Hof proposed that if CCB consensus could not be achieved then the matter should be referred to the full working group. This was agreed.

Mr. Graf asked how changes to User Requirements were to be dealt with. After discussion, it was agreed that proposed changes to User Requirements should be referred to the full working group. Mr. O'Sullivan also questioned the use of the word "Operational" in "Operational Requirement Change Proposal". It was agreed that "Operational", in this context, should be changed to "User".

Mr. Sanford was actioned to prepare a final draft of flimsy #4 which is attached to this report as Appendix I.

5.3 Flimsy #5 Proposed List of Interim Deliverables

Mr. Sharma developed and presented Flimsy #5, comprising a proposed list of interim deliverables, and asked if the working group believed that such a list was necessary. This was agreed. The contents of the list was then reviewed and agreed. In each case a state or organisation was assigned responsibility for the task with support from other identified states and organisations where appropriate. The final version is attached to this report as Appendix J.

Word processing tools were discussed at this point. It was recognised that the draft SARPs are currently being prepared using Microsoft Word 6.0 and that this would not be changed. However, many WG2 members only had access to Word 2.0 and hence it was agreed that other documents would be circulated in Word 2.0 format.

Mr. Graf asked if we would distribute changes to the draft SARPs as change pages rather than re-issuing the complete text. This was agreed as was the consequential need for a version number on each page and Change Control information at the front of the document.

Mr. Sharma was actioned to prepare a WG2 Work Plan by the end of November 1994. This will be circulated for a two week comment period.

The scope of the proposed "Operating Concept" was also discussed. Mr. Hof stated that it would address ATN Internet requirements and environment, and would include items proposed in WP/25, such as the Charging Model and initial Network Design. Inter-dependencies with the Addressing, Systems Management and QoS Concepts were also noted.

Timings were also discussed, and it was agreed that the CNS/ATM-1 Package Definition must be completed by the year end. However, it was also noted that this work could not be finalised until the User Requirements had been agreed. The work on both these items would thus have to take place in parallel, with the CNS/ATM-1 Package Definition finalised as soon as possible after the agreement of User Requirements.

5.4 Flimsy #6 - Use of the Mobile SNDCF PICS Proforma

Mr. Whyman presented a first draft of flimsy #6. This outlined the reasons why he proposed including the PICS Proforma in the draft SARPs together with an APRLs derived from it.

Mr. Sanford reported that he did not believe that we were following the methodology referred to in flimsy #6, and preferred that the Mobile SNDCF be submitted to ISO and could therefore be a referenced standard rather than including the PICS Proforma in the draft SARPs. Mr. Herber stated that we are developing Annex 10 material and it is not the purpose of Annex 10 to assist states in procurement of systems.

Mr. Sharma summed up that the meeting did not support the proposals in flimsy #6, but should note Mr. Whyman's concern that we do not seem to have an agreed methodology for the development of APRLs.

5.5 Flimsy #2 - Validation Strategy

Mr. Crocker presented the revised version of flimsy #2 (attached as Appendix G to this report). This flimsy was accepted.

Mr. Sharma noted that WG2 Deliverable (WG2-5 identified in Flimsy #5) was now complete, and the implication that acceptance of flimsy #5 was also a decision that the ATN Requirements Database would need to be enhanced to include a reference to the validation tool(s) applicable to each requirement.

6. Agenda Item 5 - Development of SARPS and guidance material for ATN systems management and security for network and transport layers

Mr. Crocker presented WP/4. This proposed a minimum set of Network Management Functions and the use of "Firewalls" as a limited form of network security. Mr. Sharma reminded the working group that WG1 will be developing a Security and Network Management Concept, and it was noted that Eurocontrol will be taking WP/4 into account when undertaking the development of that concept.

Mr. Miyauchi (Japan) presented WP/18 on the Japanese Integrated Network Management System. This included a gateway providing protocol conversion between the OSI CMIP and SNMP Network Management Protocols using a mapping specified by the Network Management Forum (NMF). As a result of the successful conclusion of this work, the paper concluded that co-existence of SNMP and CMIP in the ATN was realistic and recommended that this be included in the draft SARPs. Japan also believes that there is a User Requirement for SNMP availability for ATN Network Management.

Mr. Hof commented that this was a useful paper and will be taken into account by Eurocontrol during the development of the network management concept.

7. Agenda Item 6 - Co-ordination with other ICAO Bodies

7.1 ASPP Future Work Issues

Gene White (US) joined the meeting to present WP/14 on future work issues left over from the work of the ASPP. It was agreed that WP/14 would be taken into account in the development of the network operating concept.

7.2 VDL Draft SARPs

Mr. Sanford presented WP/48 and WP/49. He commented on several issues in WP/49 (draft VDL SARPs), noting that there was no support yet specified for the join and leave events that are recommended for route initiation. He also observed that much of the text was unchanged from when he had previously worked on it some period of time ago. He said that we should develop a checklist of ATN Subnetwork Requirements, and apply that to this specification.

Ms Thulin said that SITA was willing to take on responsibility for the review of the VDL material, and this was agreed. (WG2 Deliverable WG2-24).

7.3 Registration Issues

Mr. Sanford presented WP/45 on various issues concerning the registration of identifiers. Mr. Sharma noted this as an information paper, and the implied need to co-ordinate with WG3 on this issue.

8. Agenda Item 7 - Any Other Business

8.1 Working Methods

Mr. Sharma proposed that WG2 work predominantly on a tasking basis, with the results of each task reported to the working group rather than to an intermediate subgroup. This was agreed.

Mr Sharma invited the WG to re-consider the recommendation in WP/33 for a Trials Subgroup since it was agreed to review the recommendation towards the end of the meeting. Mr. Sanford commented that the ASPP did have a responsibility to co-ordinate directly with regional planning groups rather than through the ANC, and there may be a need for the ATNP to do this too.

Mr. Sharma asked if there was any support for a Trials Subgroup, and asked who would attend such a subgroup. Mr. Yamada (Japan) stated a preference for Trials activities to be co-ordinated by the working group.

Mr. Crocker proposed that, for the moment, WG2 be used as a "clearinghouse" for reports on Trials related activities, and to set up a subgroup if and when the need was demonstrated. This was agreed, and Mr. Sharma asked that such reports be restricted to progress made since the preceding meeting of WG2.

Mr. Hof moved discussion onto working papers and suggested that the new way of working should result in a reduced number of working papers. Mr. Sharma proposed that Working Papers shall be circulated two weeks in advance of a meeting. This was agreed, noting that information papers would not be bound by this rule. *(Rapporteurs Note: It is recognised that, for the Ad-Hoc meeting scheduled in January '95 the CCB/1 output WP's will not be available in advance of the WG).*

It was also agreed to use Email and the CENA fileserver whenever possible to distribute papers and results of WG2 tasks.

Reviewing the draft list of deliverables the meeting agreed that there would be substantial benefit in holding an ad hoc meeting of WG2 in February 1995 in order to progress the results of assigned tasks, this being additional to the WG2/2 meeting scheduled for March '95. Mr. Sanford reported that a CCB meeting, if necessary may be called during mid-January. For travel budget reasons, these meetings may be held serially.

9.   Agenda Item 8 - Conclusions and Action List

Mr. Sharma opened this Agenda Item with the intent that it addressed:

- and agreed the CCB Terms of Reference (Flimsy #4)

- a high level review of the WG Report which had been made available to meeting participants on a daily basis from the start of the meeting

- the WG Terms of Reference that had been initially reviewed under Agenda Item 2

- the venue and dates for the Ad-Hoc WG2 meeting, the need of which had been agreed during discussions under Agenda Item 8 and finally

- the Objectives that had been set for the meeting in Agenda Item 2 (WP 38).

9.1   Flimsy #4 CCB Terms of Reference

Mr. Sanford presented the revised Flimsy #4 that had taken into account the changes discussed in the WGs review of the initial version. Mr. Sharma reminded the meeting that it was essential that the CCB Terms of Reference are approved by the WG in order to provide the CCB with a defined framework within which to conduct its activities and that any subsequent changes that the CCB would wish to make should be submitted back to the WG for formal approval. The WG agreed the Terms of Reference with the proviso that the word 'operational' be replaced with the word 'User' in the pen-ultimate line of the pen-ultimate bullet under the Terms of Reference.

The meeting then reviewed the 'Further Notes on Accomplishment of these terms', this comprising the 2nd part of Flimsy #4.   The meeting agreed this part of the Flimsy with the proviso that 1) the words 'or permanently' are deleted from the 6th paragraph and 2) that the status of 'WITHDRAWN' is included in the first sentence of the 7th paragraph. The final revised version of Flimsy #4 is at Appendix I to this report.

9.2   Review of WG2 Terms of Reference (WP 39)

As had been agreed under Agenda Item 2 the WGs Terms of Reference were re-visited in order to see whether any further changes were necessary in light of discussions that had taken place during the meeting.   No changes were proposed and Mr. Sharma stated that he would present a WP to the March meeting of the WG of the Whole outlining the proposed changes that had been agreed under Agenda Item 2.

9.3   Review of Draft WG2 Report

Mr. Sharma invited comments on the draft Report that had been updated and made available to meeting participants on a daily basis. He asked that only major comments be submitted and that editorial comments could be taken outside the meeting.   A number of comments were made and Mr. Sharma undertook to incorporate them into the final meeting report which he hoped would be available shortly. In particular, it was agreed to remove Flimsy #6 since its proposal had been rejected by the WG and Flimsy #1 will be re-structured along the two topics it addresses based on input to be developed by Mr. Graff. Mr Sharma also stated that meeting participants would be invited to submit further comments o the final report once it had been issued and that he would, where acceptable, incorporate them into the 2nd and final issue of the meeting report. If he received any comments that he did not agree with then these would be attached to the meeting report for resolution at the next WG meeting, if necessary.

During review of Flimsy 5 (WG Interim Work Plan) Ms Tulin aired her concern that the area of Systems Management did not appear to be addressed by any of the tasks identified and that, in her opinion, the related activity that WG1 will undertake will be at too high a level to impact detailed technical issues. Consequently she proposed that a sub-group be established to address the issue with particular attention to the issues raised in WPs 4 & 18. Mr. Crenais strongly supported the proposal and had similar concerns. Mr. Hof also supported the proposal but stressed that whatever the sub-group defines must be within the framework of the Overall Concept being developed by WG1. Mr. Sanford also supported the proposal to address the subject. Mr. Sharma questioned whether a sub-group was necessary to conduct this activity, or as with other identified tasks, it would be more appropriate to identify a Task Leader, those participants that would wish to assist the Task Leader and the date by which the Task is to be completed. The majority view of the meeting preferred the latter approach. Consequently an amendment to Flimsy #5 was agreed through the addition of Deliverable no. 25 - 'Systems Management draft SARPs and Guidance Material for CNS/ATM-1 Package (initial)', with SITA taking the lead with support from US, France, Japan and Eurocontrol.

9.4   Dates/Venue for Ad-Hoc WG2 Meeting

It had been agreed on the previous day, during discussions under Agenda Item 8, that given the limited time available between the present and ATNP/2 and the fact that the majority of tasks defined had completion dates of early '95 that there would be a significant benefit in holding an ad-hoc WG2 meeting in the January/February time-frame preceding the March WG2 meeting that had been scheduled during the WG of the Whole meeting.

It was agreed that, whilst the CCB will primarily work through use of e-mail, it would be highly likely that they hold a meeting in the January time-frame in order to 'iron-out' any procedural issues that might have arisen during work up to that point and, if still necessary, to review the defect reports that will be generated as a result of this WG meeting based on the numerous

input draft Defect Reports. For budgetary reasons it was consequently stated that the ad-hoc WG2 meeting should follow this first meeting of the CCB. This was agreed.

The dates agreed were as follows:

CCB/1   January 16th - 20th '95

WG2/Ad-Hoc   January 23rd - 27th '95

The US offered to host the meetings in Salt Lake City, subject to formal approval within their administration. Mr Sanford hoped to confirm the offer with the Rapporteur within 2 weeks. As a fall-back SITA offered to host the meetings in Paris. No other proposals to host the meeting were forthcoming.

9.5   Review of Meeting Objectives

Mr. Sharma invited the meeting to review the Objectives it had set for itself at the beginning of the week. In his summary, he noted that:

a.)   with respect to Objective 1 (to agree on a WG2 Work Plan) the WG had developed and agreed a detailed Work Plan (Flimsy #5, Appendix J) to support its near term work and on the ultimate deliverables to be presented to ATNP/2;

b.)   with respective to Objective 2 (to agree on a Working Method between WG meetings) that the meeting had agreed on a 'task force' approach to resolving actions that were identified at WG level with the view that these task forces would be charged with producing specific deliverables within specific time-scales, the results of which would be presented to the WG for action. The WG also agreed on the need to establish a Configuration Control Board (CCB) sub-group (the terms of reference were agreed and are at Appendix I);

c.)   with respect to Objective 3 (to agree on the process for the development of draft SARPs and Guidance Material) the meeting endorsed the recommendations made in WP/2, the Report of the Ad-Hoc Meeting that had taken place in London earlier in the year, with some minor clarifications;

d.)   with respect to Objective 4 (to review ATN Manual defect reports and/or additions) the meeting reviewed the defect reports presented at a high level and invited the presenters of these draft defect reports to formulate the material in the appropriate Defect Report format and to present them to the CCB in accordance with the procedures endorsed with reference to Objective 3 (above);

e.)   with respect to Objective 5 (review and resolve issues brought to the attention of the WG by the Panel Secretary) the meeting reviewed AMCP VDL related material at a high level and established a small task force to review the material in detail to report back at the next WG meeting with its recommendations. The meeting also noted the secratary's need to be kept informed of all WG related activity and strongly encouraged the secratary to obtain Internet access so as to be able to track the work of the WG;

f.)   with respect to Objective 6 (review issues arising out of WG/1) the meeting took note of the draft WG1 report and account of the issues that will impact on the work of WG2,

and finally,

g.)   with respect to Objective 7 (To agree on the CNS/ATM-1 Package Internet Requirements subset) the meeting agreed that, after substantial discussion, that it would not be possible to complete the objective. The main reasons being that the detailed material being proposed by the US, France and Eurocontrol had only been made available at the start of the

meeting and had not been previously co-ordinated and harmonised. However, it should be noted that the overall philosophy being adopted in the relevant WP's appeared to be converging with the one exception related to the Eurocontrol and French proposals proposing the optional non-use of IDRP for Package 1. The US delegation were not in a position to accept the proposal and agreed to respond within a month on its acceptability. The meeting agreed that, given the majority support for the optional non-use, that technical work should proceed assuming that the proposal is accepted and that a task force be established to complete the definition of Package 1.

9.6   Meeting Close

Mr. Sharma thanked the US delegation for hosting the meeting and the excellent support that had been made available throught the duration of the meeting. He also thanked all participants for their contributions and hoped for continuing contributions in order to execute the work plan that had been developed. He wished all participants a safe journey home and declared the meeting closed.

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List of Working Papers

No.	Title	Presented By	Agenda Item	WP / IP
1.	Draft ATN Standards and Recommended Practices (SARPs) and Guidance Material:Version 0.0 **(WG1/WP34)**	F Colliver	4.2	WP
2.	Report of the Ad-Hoc Meeting on ATN Validation Tools and Procedures **WG1/WP35**	B. Gouvine	4.2	WP
3.	Performance Based Validation of the ATN **WG1/WP27**	W Link	4.2	WP
4.	Network Management and Security Functions for the Phase 1 ATN **WG1/WP9**	D A Scott	5	WP
5.	U.S. Proposal for WG2 Sub-Group Structure	D Sanford	2.3	WP
6.	United States ATN Validation Facilities	T Signore	3.2	WP
7.	Initial Mitre ATN Validation and ICAO Report Generation Process	D Sanford	4.2	WP
8.	The Need for Adherence to Industry Accepted Network Properties	T Signore	4.2	WP
9.	Further Draft SARPs Validation Process Refinements	D Sanford	4.2	WP
10.	Additional Remote Access Tools to Support the ATN Manual Validation Process	D Sanford	4.2	WP
11.	Goals for Computer Simulation in U.S. ATN Validation Activities	W Link	3.3	IP
12.	U.S. Position on Communications Infrastructure Requirements to Support the CNS\ATM-1	D Sanford	4.2	WP
13.	Time Estimates for IDRP Initiation Sequence	T Signore	4.2	WP
14.	Issues raised by ASPP WG regarding AFS Priority Mapping Requirements	G White	6	WP
15.	US Flight Trials Activities for ATN Validation	K Crocker	3.1	IP
16.	Report of Satellite Data Link Trials in Japan	T Majima	3.1	IP
17.	Simulation Plan of ASS (ATN Simulation System) in Japan	T Majima	3.3	IP

18.	*Validation of ATN Management Concepts*	*T Majima*	*5*	*WP*
19.	*Draft Report ATNP/WG1/1*	*T Callow*	*1.2* *2.2* *4.2*	*WP*
20.	*SITA's Services and Activities for the Support of FANS II Communications* ***WG1/WP31***	*G Oliveau*	*3*	*IP*
21.	*Progress Report on the Preparation of an ATN Requirements Database*	*A Whyman*	*4.2*	*WP*
22.	*Initial Defect Reports identified during ATN Database Development*	*A Whyman*	*4.3*	*WP*
23.	*Report on Eurocontrol ATN Validation Tool Developments*	*H Hof*	*4.2*	*IP*
24.	*Status Report on ICAO ATN Manual, 2nd Edition*	*S V Trees*	*4.1*	*WP*
25.	*Requirements made by early Applications on the ATN Internet, and the consequent Transition Strategy*	*A Whyman*	*4.2*	*WP*
26.	*Mobile SNDCF PICS Proforma*	*A Whyman*	*4.3*	*WP*
27.	*User Requirements Derived from the ATN Manual*	*A Whyman*	*4.2*	*WP*
28.	*Maintenance of ATN Requirements Database and draft SARPs and Guidance Material*	*H Hof*	*4.2*	*WP*
29.	*European Strategy for ATN Manual V2.0 Validation*	*H Hof*	*4.2*	*WP*
30.	*Unresolved Defects from SICASP/V*	*A Whyman*	*4.3*	*WP*
31.	*The ATN Routing Concept*	*A Whyman*	*4.3*	*WP*
32.	*UK ADS & SATCOM Trials - Considerations for CNS/ATM Package 1* ***WG1/WP28***	*A Sharma*	*3.1*	*WP*
33.	*Proposed Organisation and Working Methods for ATNP/WG2*	*F Colliver*	*2.3*	*WP*
34.	*ATN Manual Defect Report:Allocation of Values to NSAP Selector*	*J-M Crenais*	*4.3*	*WP*
35.	*Proposed Internet Architecture for CNS/ATM Package 1* ***WG1/WP33***	*F Colliver*	*4.2*	*WP*
36.	*Status Report on the EURATN*	*F Colliver*	*3.1*	*IP*

37.	Proposed ATN Protocol Requirements Lists (PRLs) for CNS/ATM Package 1: Profile A	J M Crenais	4.2	WP
38.	Proposed Agenda, Objectives and planning for WG2	A Sharma	1	WP
39.	Working Group 2 Terms of Reference	A Sharma	2.1	WP
40.	Development of WG2 Work Plan	A Sharma	2.2	WP
41.	Defect Report for Alignment with the ICAO ATN Manual	S V Trees	4.3	WP
42	ATN Addressing **WG1/WP2**	K Platz	4.3	WP
43	Upper Layer and Lower Layer Data Compression Considerations in ATN **WG1/WP16**	H Hof	4.3	WP
44	Need for QoS Management in the ATN **WG1/WP3**	K Platz	4.3	WP
45	ICAO Registration Requirements **WG1/WP23**	D Sanford	6	WP
46	ATN Manual Defects	K Platz	4.3	WP
47	Proposal for Harmonisation of ISO/IEC, IATA and ICAO Profiling Activities to Facilitate Interoperability between Systems based thereon. **WG1/WP30**	M Pinelle	6	WP
48	ATNP/1-WP/59: Requirements and Desirable Features for a Future ATS Air-Ground Communications System; VHF Digital Link (VDL) Design Guidelines and Summary of VDL Mode 2 Performance Characteristics **WG1/WP19**	M Paydar	6	WP
49	AMCP/3-WP/53: Report on Agenda Item 8 - Material on Very High Frequency (VHF) Data Link (VDL)	M Paydar	6	WP
50	ATN Manual Defect Reports	H Thulin	4.3	WP

Meeting Agenda

0.   Meeting Organisational Issues

1.   Approval of Agenda and Objectives for this meeting   *38, 19*

    1.1 Agenda

    1.2 Objectives

    1.3 Planning

2.   Review WG2 Terms of Reference and develop WG2 Work Plan

    2.1 Terms of Reference   *39*

    2.2 Development of WG2 Work Plan   *40, 19AppxD*

    2.3 Working Methods between WG meetings   *5, 33*

3.   Review of Progress on ATN Validation Activities   *20*, 23**

    3.1 Trials activities   *15*, 16*, 32, 36**

    3.2 Experimental activities   *6*

    3.3 Simulation activities   *11*, 17**

4.   Development of SARPS and guidance material for ATN network and transport layers.

    4.1 Review of Status of ATN Manual   *24*

    4.2 ATN SARPs/Guidance Material Development   35,37, *19ApH*, 1*2,25,24,1,2, 21,27,*
    and Validation Strategy   *28, 29*, 23*,7,9,10,8,13,3*

    4.3 Review of ATN Manual defect reports and/or additions
      31,43,42,44,*41,30,26,22,34,46,50*

5.   Development of SARPS and guidance material for ATN systems management and security for network and transport layers.   *4, 18*

6.   Co-ordination with other ICAO Bodies   *48, 49, 45, 47, 14*

7.   Any Other Business

8.   Conclusions and Action List

Decision List

1.	A validation strategy including the approach to validation and the methods used, shall be agreed by WG2.
2.	An Operating Concept for Package 1 shall be developed, as an essential preliminary for the validation of the ATN Internet SARPs that will be presented to ATNP/2.
3.	Performance requirements for the ATN Internet shall be specified as part of the development of the validation strategy.
4.	A Work Plan for WG2 shall be established, including the change control procedures proposed by WP2 as agreed by WG2.
5.	MS Word 6.0 will be used to develop the draft SARPs and Guidance Material. MS Word 2.0 will be used for all other documents.
6.	WG2 will work on a tasking basis. Subgroups will be established for a limited purpose only.
7.	Working Papers shall be circulated two weeks in advance of future WG2 meetings.

Action List

	Action	Assigned To	Completion Date
WP2/1/1.	To respond to proposal for optional non-use of IDRP over air/ground datalinks in Package 1	Dave Sanford	1/12/94
WP2/1/2.	Obtain Electronic Mail Access in order to participate in progression of the draft SARPs	Panel Secretary and other WG2 Participants	31/12/94
WP2/1/3.	Prepare a defect from WP41 comprising the editorial changes necessary to bring WP1 into alignment with the ICAO ATN Manual	Dave Sanford/Steve van Trees	15/12/94
WP2/1/4.	Prepare two further defect reports from WP41 material, respectively comprising the agreed changes and those for CCB consideration	Dave Sanford/Steve van Trees	15/12/94
WP2/1/5.	Submit WP30 to CCB as a set of defect reports	Eurocontrol	
WP2/1/6.	Prepare WG2 Work Plan	Akhil Sharma	30/11/94
WP2/1/7.	Review and comment on WG2 Work Plan	All	14/12/94

Rapporteurs Note: The actions documented above have all (except no. 2 & 7) been taken into account in the List of Deliverables, Flimsy 5, Appendix J, which takes precedence over this appendix since the WG reviewed it in detail.

Principles and Constraints to be applied for Definition and Subsequent Validation of the CNS/ATM-1 ATN Internet Package SARPs and Guidance Material

28th October 1994

1.   Introduction

The first day of ATNP WG2/1 spent a considerable amount of time discussing and debating the internet requirements for the CNS/ATM-1 Package. As the discussion progressed (or digressed !) it became evident that without some clear overall understanding of a framework for the validation process and criteria to be applied to assess 'complete' validation that it would not be possible to define the internet requirements for Package 1 in a consistent manner.

2.   Principles and Constraints

In order to progress the work the following list of principles were agreed by the WG.

  a) The draft CNS/ATM-1 Package ATN Internet SARPs shall satisfy the requirements of the initial set of ATM Applications defined for standardisation by WG1.

  b) The definition of CNS/ATM-1 Package SARPs shall have as an objective, the need to satisfy infrastructure-based 'operational' requirements placed on the ATN Internet Service.

  c) The needs of civil aviation authorities (i.e. related to the support of safety and regularity of flight) and aircraft operators (i.e. related to the support of flight operations) shall be respected in the definition of the CNS/ATM-1 Package ATN Internet SARPs.

  d) The CNS/ATM-1 Package ATN Internet SARPs shall define a system that forms part of an evolutionary transition path towards the 'end state' ATN Internet communication infrastructure, while enabling in a cost effective manner, the identified CNS/ATM-1 Package ATM Applications.

  e) The definition of the CNS/ATM-1 Package ATN Internet SARPs shall not be unduly constrained by capabilities offered in commercially-available off-the-shelf equipment. In order to allow a feasible early implementation of these communication functions, the early ATN functions, the early ATN functions should be selected in such a way that available commercial-off-the-shelf software can be used to the highest possible extent.

  f) The definition of the CNS/ATM-1 Package ATN Internet SARPS shall include provisions to ensure efficient use of the air/ground bandwidth.

  g) The ATNP WG1 resolution on WG1/WP-33 (as documented in the draft report of ATNP WG1/1 and presented as WG2/WP-19) shall be respected in the definition of the CNS/ATM-1 Package SARPs.

  h) The draft CNS/ATM-1 Package ATN Internet SARPs presented to ATNP/2 for adoption shall have been validated to the level agreed, and by the means agreed, prior to presentation to ATNP/2.

i) A necessary condition for successful validation of the ATN protocols defined in CNS/ATM-1 Package is that at least two independently developed implementations of each of the CNS/ATM-1 Package protocols can be demonstrated to be interoperable.

j) The validation of the CNS/ATM-1 Package ATN Internet SARPs shall be conducted within the framework of an agreed network operating concept for CNS/ATM-1 Package, addressing network operation and performance.

k) The set of approaches expected to be used for ATN Internet CNS/ATM-1 Package validation includes:

- Analysis

- Simulation

- Prototyping

- Target environment testing

2.   Decision

The WG:

a) agreed the need for a set of constraints, principles and criteria to be applied to the validation process;

b) agreed on a set of constraints, principles and criteria to be applied to the validation process as documented in part 1 of this flimsy;

c) acknowledged that, due to time constraints, it was not possible to agree on the detail of the CNS/ATM-1 Package SARPs at its first meeting and consequently identified this activity as one that needs to be assigned to an appropriate sub-group or task force with the mandate to report back to the WG2 participants before the ad-hoc WG2 meeting scheduled for mid January '95.

ATN Validation Strategy

Kenneth Crocker, United States
Jean-Michel Crenais, France
Klaus-Peter Graf, Germany
Henk Hof, Eurocontrol
Helene Thulin, SITA

0. References

"Performance Based Validation of the ATN,"	K.L. Crocker, WP/3 ATNP WG2, San Diego, USA.
"The Need for Adherence to Industry Accepted Network Properties,"	T.L. Signore, WP/8 ATNP WG2, San Diego, USA.
"Time Estimates for the IDRP Initiation Sequence,"	T.L. Signore, WP/13 ATNP WG2, San Diego, USA.
"EUROPEAN Strategy for ATN Manual V2.0 Validation,"	H.J. Hof, et al, WP/29 ATNP WG2, San Diego, USA.
"Draft Principles and Constraints to be applied for Definition and Subsequent Validation of the Internet CNS/ATM-1 Package SARPs and Guidance Material,"	Flimsy 1, ATNP/WG2/1, San Diego, USA.

1. Introduction

The ATN Validation Strategy drafting group was tasked by Working Group 2 to define a strategy for ATN validation. As inputs to this work, the group was asked to consider the material presented in the above mentioned references. The work of the group was to be placed in the context of chapter 3 of WP/29. This report assumes that the definition of a package under validation has occurred.

2. The Term Validation

In the ICAO context, validation is considered complete when systems which meet user requirements to an agreed upon level of confidence can be produced from draft SARPs and Guidance Material. The following should be the goals of validation activities:

    (1)   Analyze the ATN draft SARPs and Guidance Material for a given package in detail to produce a consistent and identifiable set of user requirements,

    (2)   Form a complete definition of user requirements, including those which are not implicit to the draft SARPs and Guidance Material,

    (3)   Analyze the draft SARPs and Guidance Material for a given package to produce a complete, consistent, and identifiable set of technical requirements that are expected to meet the user requirements,

(4)   Construct practical systems based on the technical requirements in the draft SARPs and Guidance Material for a given package and verify their correct performance according to system specification,

(5)   Conduct validation exercises with the verified systems in order to validate technical requirements for a given package of draft SARPs and Guidance Material for internal completeness and consistency whilst assessing them against user requirements, and

(6)   Assess output of the validation exercises with respect to a given package of draft SARPs and Guidance Material and produce SARPs validation reports.

3.   Aspects of Validation

Two major activities which comprise the ATN validation process. These activities occur in parallel and require exchange of information between them. The aspects of validation apply to each category of means of validation (e.g., fit to purpose assessments). These activities are:

(1)   <u>Assessment and proof of ATN correctness, completeness, and consistency</u>: this activity assesses the documented requirements and design of the ATN internetwork on a functional level.

Issues to be addressed in this activity include: internal consistency of the ATN draft SARPs for a given package, the ability to build ATN components as specified in the draft SARPs for a given package, concept feasibility for a given package and the ATN internetwork, and interoperability testing of ATN internetwork components.

(2)   <u>Evaluation against user requirements</u>: this activity assesses the ATN suitability, or fit to purpose, within its intended context of operation.

A sub task of this activity will investigate, assess, and define where necessary a set of user requirements against which to validate the ATN. This task is seen as evolutionary (i.e., the task will involve iteration with the user community and other interested ICAO Panels and working groups). The goal of the requirements sub task is to provide as much fidelity as possible in the area of user requirements.

ATN validation efforts will use the evolutionary user requirements to continually assess ATN fit to purpose. Items such as those presented in WP/8 (e.g., scope, scalability, robustness, auto-configurability, tweakability, determinsim, and migration) should be included in fit to purpose assessments.

Decisions and tradeoffs made by WG2 and its CCB should consider the fit to purpose items defined by this activity.

Note: It is recognized by the drafting group that this may likely require WG2 to "seed" the process with an initial set of user requirements from which to iterate.

4.   Means of Validation

The Working Group agreed that validation itself is an evolutionary process and that to facilitate that process the following types of validation will be used:

(1)   <u>Analysis</u>: Paper studies to investigate internal consistency and design issues of the ATN internetwork. It is recognized that tools such as the ATN Requirements Data Base are essential to this process.

(2)   Simulation: Since ATN prototype components will not likely be large in number, simulation plays a key role in fit to purpose assessments. By this we mean that a small number of ATN implementation can be used to gather and assess performance data, and the simulation can then be calibrated against the "real world" results and used to extrapolate ATN performance and behaviors with a large number (e.g., thousands) of aircraft and routers.

(3)   Prototyping: This activity results in the construction of prototype ATN internetwork components. The prototype components will typically be based on a mix of commercially available, developed, and modified commercial software. Prototype implementations can be developed in a rapid prototyping (i.e., evolutionary) manner. Prototypes may or may not be developed in a rigorous quality assurance environment. When rigorous methods are not employed, States and Organizations are responsible to be aware of the limitations and context of these prototype implementations.

  (a)   Hybrid emulation and prototype: These implementations can be used to assess ATN performance and behavior without incurring the cost of utilizing actual air-ground and ground-ground links. Hybrid prototypes exist in laboratory settings, where measurements can be taken easily, and include a simulated means of producing the effects of aircraft mobility, network connectivity, etc. Data from this activity will be used to calibrate and validate the ATN simulation models and will facilitate more efficient target environment testing.

  (b)   Prototype components: These implementations consist of laboratory implementations, yet utilize target networking components (e.g., air-ground links, ground network connectivity). Prototypes will yield valuable data concerning ATN performance and behavior in a laboratory setting where measurements can be taken easily. Data from this activity will be used to calibrate and validate the ATN simulation models and will facilitate more efficient target environment testing.

  (c)   Rigorous prototyping: detailed rigorous implementation of ATN components in an environment of formal quality assurance.

(4)   Target Environment Testing: Laboratory based implementations, while useful for easily generating performance and behavior data, cannot predict all of the effects of operation in a target environment. This validation activity extends the use of prototype ATN components to the target operational environment. Target environment testing does not preclude the use of prototype components nor does it preclude the use of "commercial" products, if available. The intent of this activity is to gather and assess ATN performance and behavior data in an environment of ever increasing fidelity. Since these implementations will not likely exist in large numbers, data gathered and lessons learned from this activity will be used to calibrate and validate the ATN simulation models. Target environment testing includes the following activities:

  (a)   flight trials necessary to demonstrate the feasibility of ATN internetwork mobile components and to gather engineering data to be used in the evaluation of draft SARPs for a given package.

  (b)   ground - ground trials necessary to demonstrate the feasibility of the ATN internetwork ground components and to gather engineering data to be used in the evaluation of draft SARPs for a given package.

The four major categories of validation should be reflected in the method of validation field of the ATN Requirements Data Base.

5.   Validation Required for a Given Package

ATN components will exist in commercial form at some point in the future; however, it is not likely that they will exist for a given package under validation. Therefore, the use of commercial products, or products built in the target system environment, is not required for validation of a given package of draft SARPs. However, if package n implementation exists and package n+1 is under validation, then a hybrid environment of prototype n+1 and commercial n is desirable for validation of package n+1. In this way system loading and backwards compatibility can be assessed. It should be noted, however, that such a hybrid environment must be sufficiently proven in laboratory settings to mitigate as much risk as possible prior to subjecting the package to target environment tests.

A given package requires validation through target environment testing and simulation incorporating the results of the target environment test.

6.   CNS/ATM-1 Package Validation

With respect to CNS/ATM-1 Package, validation exercises performed by ICAO States and Organizations will consider the principles and constraints expressed in Flimsy 1. The validation exercises will be based upon the means of validation expressed above, with the recognition that full rigorous prototyping cannot likely be applied in the CNS/ATM-1 Package time frame. ICAO States and Organizations will present their validation results to ATNP WG2 in the context of the principles of validation described above. WG2 can then declare the contents of CNS/ATM-1 Package SARPs validated or not based upon these results.

7.   Conclusions

The Working Group endorsed the following concepts described in this report and noted that it concluded WG2 deliverable WG2-5, as defined in Flimsy 5, (as reproduced in Appendix J).

(1) definition of validation,

(2) aspects of validation,

(3) means of validation,

(4) principles of validation for a given package, and

(5) principles for CNS/ATM-1 Package validation.

Meeting Resolution with Respect to Optional Non-Use of IDRP

26th October 1994

At ATNP WG2/1 discussion on the definition of CNS/ATM-1 Package raised an issue with respect to a new feature that was believed by some to be needed in order to support CNS/ATM-1 Package validation activities. The primary change involved the perceived need to support the optional non-use of IDRP across the air/ground link. This was proposed primarily in order to overcome perceived problems in implementing IDRP in avionics in the near term. This was an issue because it requires in air/ground routers functionality additional to that in the ATN Manual to identify whether aircraft use IDRP and advertise connectivity with aircraft in either case. Up until this issue, CNS/ATM-1 Package was considered purely a subset of functionality previously agreed at the SICAS Panel level.

The WG 2 majority opinion was that optional non-use of IDRP across the air/ground link should be required in CNS/ATM-1 Package. The WG agreed that there was a pressing need to scope CNS/ATM-1 Package as soon as possible in order to ensure that it could be defined in line with expected commercially available implementations, in an operational ATC environment. The dissenting view was that CNS/ATM-1 Package should remain a subset of ATN Manual material and should describe initial limited use of IDRP across the air/ground link, which could imply a different time frame for the availability of commercial avionics implementations.

Mr Sanford expressed the view that IDRP for air ground use will be available in experimental time frame implementations (12-15 months). He also opined that IDRP will be available for commercial air ground use for the initial ATC operational ATN time frame (2-4 years). He questioned why this is not sufficient for the CNS/ATM-1 Package definition?

Mr. Hof expressed the view that the ATNP Panel agreed to an evolutionary process with each step on a transition path to the final ATN. Each step should result in operational benefits which justify the cost. If optional non-use of IDRP across the air ground is less expensive and meets the initial application requirements, why is this not the approach that should be chosen for CNS/ATM-1 Package?

Mr Snively expressed the view that American Airlines were unsure as to when they might have IDRP onboard an aircraft. He was interested in the potential cost benefits from not using IDRP, referring to the anticipated decrease in communications traffic, and encouraged the working group to look at the optional non-use of IDRP. He also observed that requiring IDRP air/ground will delay introduction of the ATN and its benefits and might lead to airlines looking to alternative solutions.

It was recognized that much work would be needed to agree on the details of optional non-use of IDRP, in terms of ground system recognition of whether or not IDRP is on avionics and consequent advertisement of aircraft connectivity in either case. Work is also required for avionics and ground systems to implement policy and the forwarding decision process without the use of IDRP across the air ground. Work is also needed to more accurately determine what will be available experimentally and commercially in avionics and when.

It was agreed that the US will come back in one month with a position on the ability to support the majority opinion or to propose an alternative that is believed to be acceptable to the WG majority.

Technical work will proceed during that month to evaluate and define material based on both the only IDRP across the air/ground and the IDRP plus optional non-use of IDRP cases. It is recognized that the majority of the work will be focused on the new work necessary to support optional non-use of IDRP, and that all efforts should be made to ensure that the definition of CNS/ATM-1 Package is not inappropriately delayed by this process.

Configuration Control Board (CCB) Terms of Reference

28th October 1994

The WG endorsed the following terms of reference for the CCB. Any changes identified by the CCB should be proposed to the WG for formal endorsement.

Terms of Reference

The Configuration Control Board is a sub-group of ATNP WG2 which is tasked with expediting and managing:

- the co-ordination process surrounding the development of draft SARPs and Guidance Material for the ATN Internet and the Requirements database.

- the decision process (acceptance/rejection), documentation of reasons for decisions, and the status of *ATN User Requirements Change Requests, ATN Defect Reports*, and *ATN Change Proposals.*

    Note: The italicised items will be referred to collectively as Validation Report Configuration Items (VRCIs). Decision documentation and VRCIs are considered configuration items under the responsibility of the CCB.

- the receipt of VRCIs from ATNP State and Organization representatives.

- continuity between the submission and resolution of the configuration items and the documentation of the resulting decisions in the draft SARPs and Requirements Database.

- a configuration management (CM) process which requires co-ordination between the CCB Chair, the Draft SARPs Editor, the Requirements Database editor and the Validation Archive Configuration Manager.

- the reflection of WG2 decisions into the details of the Requirements Database with respect to the scope and definition of individual ATM/CNS Packages. This includes the identification and documentation of User and other requirements in the Requirements Database for each Package.

- to take into account the validation method agreed by WG2 as part of the criteria in the decision process above.

Further Notes on Accomplishment of these terms

As noted and agreed in various WG2 papers, as much as practical of the CCB process will be done in a distributed fashion via the use of validation tools provided (or to be further developed, as need is recognized by the process). If and when there is an identified need will CCB meetings be called.

Ideally discussion of major issues will occur on the atn-internet-technical mail list prior to the submission corresponding VRCIs. This discussion can occur between anyone on the list. Based on discussion, issues may be resolved or one or more VRCIs may be generated.

Any representative of an ATNP Member can submit a VRCI via email to the Validation Archive Configuration Manager (VACM) once they believe sufficient discussion has occurred. The subject line for the email should be of the form:

URCR # X - "short descriptor phrase"

DR # X - "short descriptor phrase" or

CP # X - "short descriptor phrase"

VRCIs should be issued in the defined format with all necessary information and all necessary information to justify the VRCI. If this information is too extensive to be attached to email, it should be put on the server and referenced in the VRCI form.

Once a VRCI has been sent to the VACM, they will assigns a number to the VRCI and stores it on the archive. The VACM is responsible when receiving VRCI should check them for redundancy with other VRCI. This is an area of further work. File naming, directory structure and access options for archived VRCIs proposals are expected from the VACM by mid-January. The VACM sends the VRCI out on the atn-technical-list.

For URCRs all working group members are required to respond within two weeks. For DRs and CPs all CCB members are required to respond within two weeks. Members who cannot meet this responsibility can and should temporarily withdraw from the CCB. CCB and WG2 members can appoint temporary alternatives within their organizations to meet these responsibilities. It is the responsibility of the CCB Chair to maintain the current composition of the CCB and to remind CCB and WG2 members when they fail to respond in the time period. If someone has not responded in the time period for a VRCI, after attempts to notify them from the CCB Chair, the decision based on those that do respond is used.

Responses should recommend the status values of SUBMITTED, REJECTED, ACCEPTED, WITHDRAWN or PENDING, and contain justification for this response. Responses may be from any representative of an ATNP Organization or State, regardless of who has the explicit responsibility to respond. Every effort should be made to resolve issues and it is the responsibility of the submitter to provide additional documentation if needed to gain agreement on a VRCI. Agreement can also occur with responsibilities put on the originator to further document certain material (e.g. document additional known changes). This ideally includes the identification of all changes to the ATN Draft SARPs necessitated by the agreement. Resolution of a VRCI must always be accompanied by a reason based on the responses. It is the responsibility of the CCB Chair to compile responses, generate the reason and send this out with the status notice. If a VRCI is rejected, the originator (or any other State or Organization representative) can re-submit if the reason is sufficiently addressed, which will initiate a new two week cycle.

Every effort should be made to reach consensus and avoid situations where consensus cannot be achieved. Ultimately, if conflict resolution is required, decisions will be referred to the next WG2 for resolution. Once the CCB consensus has been achieved, the archive VRCI must be updated to reflect status.

It is the responsibility of the CCB Chair to ensure that agreement on VRCIs are reflected into the draft SARPs and Requirements Database and that the agreements are mapped

to specific versions in a manner that is appropriate to the schedule requirements of all involved.

It is the responsibility of the CCB Chair, Validation Archive CM, Draft SARPs Editor, and Database Editor to co-ordinate all version changes based on a set of CCB agreements, and in particular to co-ordinate version status prior to WG2 meetings.

It is the responsibility of the CCB Chair to document and prepare the CCB agreements on VRCI status for WG2 final agreement. Status information should include VRCI number, subject and status as well as the mapping between VRCI, draft SARPs and Requirements Database versions.

It is the responsibility of the CCB Chair to co-ordinate with the Draft SARPs Editor on the inclusion of changes and their corresponding version. It is the responsibility of the Draft SARPs Editor to identify and co-ordinate to the level necessary additional changes to the SARPs that have not been documented by the CCB process.

It is the responsibility of the CCB Chair to co-ordinate with the Requirements Database Editor on the inclusion of changes and their corresponding version. It is the responsibility of the Requirements Database Editor to identify and co-ordinate to the level necessary additional changes to the Requirements Database that have not been documented by the CCB process.

List of Interim Deliverables Agreed at ATNP WG2/1

Ref	Deliverable	WP Ref	Comp.	Pri	Dep.
WG2-1	Finalise Draft WG2 Work Plan UK	WG2/WP-40 WG2/WP-39 WG2/WP-2 WG2/WP-28 WG2/WP-9 WG2/WP-10	30/11/94	1	NIL
WG2-2	Develop CNS/ATM-1 Internet Package Definition (comprising PRL & definition of mechanisms to support optional non-use of IDRP) and, where necessary, Defect Reports and supporting draft Change Proposals required to support CNS/ATM-1 Package. FRANCE*/UK/US/SITA/EUROCONTROL	WG2/WP-25 WG2/WP-35 WG2/WP-37 WG2/WP-12 WG2/WP-19ApH WG2/Flimsy 1 WG2/Flimsy 2 WG2/Flimsy 3 WG2/WP-50	31/12/94	1	WG2-8 WG2-25
WG2-3	Respond to proposals regarding optional non-use of IDRP for CNS/ATM-1 Package US	WG2/1-Meeting Report	1/12/94	1	NIL
WG2-4	Develop Network Operating Concept EUROCONTROL*/GERMANY/SITA/FRANCE/USA/UK	WG2/WP-14 WG2/WP-13	28/2/95	2	
WG2-5	Develop ATN SARPs Validation Strategy **COMPLETED AT WG2/1 - Flimsy 2, Appendix G**	WG2/WP-29 WG2/WP-8 WG2/WP-13 WG2/WP-3 WG2/Flimsy 1 WG2/Flimsy 2	30/11/94		NIL
WG2-6	CCB Terms of Reference **COMPLETED AT WG2/1 - Flimsy 4, Appendix I**	WG2/WP-2 WG2/Flimsy 4	28/10/94	WG 2/1	N/A
WG2-7	Enhance ATN Requirements Database EUROCONTROL	WG2/WP-2	31/12/94	2	WG2-5
WG2-8	Review and agree ATN User Requirements, submit Defect Reports and supporting draft Change Proposals EUROCONTROL*/GERMANY/JAPAN/US/UK	WG2/WP-27 WG2/WP-4 WG2/WP-18	28/2/95	2	NIL
WG2-9	Agree, if necessary, changes to ATNP WG2 Terms of Reference for endorsement by WG of Whole meeting in March '95 **COMPLETED AT WG2/1**	WG2/WP-39	28/10/94	WG 2/1	N/A

WG2-10	CCB Resolution on submitted Defect Reports and supporting CCB approved Change Proposals CCB	WG2/WP-41 WG2/WP-30 WG2/WP-26 WG2/WP-22 WG2/WP-34 WG2/WP-46 WG2/WP-7 WG2/WP-50	20/1/95	1	WG2-11 to WG2-22 WG2-1 WG2-2 WG2-5
WG2-11	Review ATN Routing Concept (WG2/WP-31) and, if appropriate, develop Defect Report for CCB Review EUROCONTROL*/US	WG2/WP-31 WG2/WP-8	28/2/95	2	12
WG2-12	Develop additional guidance material related to ATN addressing for submission to CCB as a defect report(s) and supporting draft Change Proposals GERMANY*/US/FRANCE/EUROCONTROL	WG2/WP-42	28/2/95	2	11
WG2-13	Review, modify and enhance, where appropriate, operational requirements proposed with respect to ATN addressing, develop (if appropriate) Defect Reports and supporting draft Change Proposals for submission to CCB EUROCONTROL*/GERMANY	WG2/WP-42	28/2/95	2	NIL
WG2-14	Review QoS related ATN SARPs and Guidance Material and develop Defect Reports and supporting draft Change Proposals, where appropriate GERMANY*/EUROCONTROL	WG2/WP-44	28/2/95	2	NIL
WG2-15	Develop Defect Reports and supporting draft Change Proposals for alignment with ICAO ATN Manual, 2nd Edition text. US	WG2/WP-41	31/12/94	1	NIL
WG2-16	Develop Defect Reports and draft Change Proposals to counter those Change Proposals produced in WG2-15 that are not considered relevant for draft SARPs US	WG2/WP-41	31/12/94	1	WG2-15
WG2-17	Develop Defect Reports and supporting draft Change Proposals for resolution of 'unresolved defects from SICASP/V'. EUROCONTROL	WG2/WP-30	31/12/94	2	NIL
WG2-18	Develop Defect Reports and supporting draft Change Proposals relavant to the proposed Mobile SNDCF PICS Proforma EUROCONTROL.	WG2/WP-26	31/12/94	2	NIL
WG2-19	Develop Defect Reports and supporting draft Change Proposals identified in WG2/WP-22 EUROCONTROL	WG2/WP-22	31/12/94	2	NIL

WG2-20	Develop Defect Reports and supporting draft Change Proposals identified in WG2/WP-34 FRANCE.	WG2/WP-34	30/11/94	2	NIL
WG2-21	Develop Defect Reports and supporting draft Change Proposals identified in WG2/WP-46 GERMANY	WG2/WP-46	31/12/94	2	NIL
WG2-22	Develop Defect Reports and supporting draft Change Proposals identified in WG/WP-7. US	WG2/WP-7	31 /12/94	2	NIL
WG2-23	Create Version 1.0 of Draft SARPs & Guidance Material and Version 1.0 of ATN Requirements Database CCB	WG2/WP-41	20/1/95	1	WG2-15
WG2-24	Create a checklist of ATN Subnetwork Requirements and review and comment on draft VDL SARPs. SITA*/ US	WG2/WP-48 WG2/WP-49 WG2/WP-27	1/3/95	2	NIL
WG2-25	Systems Management draft SARPs and Guidance Material for CNS/ATM-1 Package (Initial) SITA*/US/France/Japan/Eurocontrol	WG2/WP-4 WG2/WP-18	31/12/94	1	WG2-2

Notes:

1. The '*' is used to denote the State/Organisation responsible for co-ordination and completion of the task within the time-scales tentatively agreed.