

**AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL**

**WORKING GROUP 3 MEETING**

**Alexandria, 7 - 15 October 1996**

**Agenda Item 5: SUBGROUP REPORTS**

**CHAIRMANS' REPORT ON SG 2 PROGRESS**

Presented by M J A Asbury

**1. INTRODUCTION**

1.1 Sub Group 2 has held one meeting since the last meeting of WG 3 in Munich. The 10th Meeting was held at Adsystem Inc, Silver Springs, from 26 - 30 August 1996.

1.2 The Agenda (effectively the work programme of the SG, and common, with minor variations, to all recent meetings of the SG) is at Appendix A.

Review of SARPs Format

1.3 Given that Version 3.0 had been passed to ICAO in WordPerfect format for distribution and reference at ATNP/2 in November, the question was raised as to how amendments would be handled up to and including presentation to the Panel.

1.4 It was ultimately agreed that we would have to maintain two versions - the WP version 3.0 for the ICAO meeting, and a Word-format 3.x (where 'x' may change as a result of any meetings before ATNP/2) as a working copy. Any changes being made to the Word version would be reflected in formal change papers (one for each application) to be submitted to the ICAO meeting. In all probability a Word version would also be made available to the Panel, indicating where the changes had been made, and how the document would look in the future.

**WP 19 - Boeing Concerns Regarding ATN SARPs - David Allen**

1.5 This paper, reflecting a sample of incompatibilities between FANS-1 and ADS had been widely circulated, in the belief that it would be the job of the ATNP Working Groups to effect a match between FANS-1, DO-219, ADS and ATN SARPs. Clearly this paper should be submitted to ADSP/4 for consideration, since ATNP WGs only were responsible for providing technical SARPs to meet the operational requirements generated by ADSP. The Chairman had sent an E-mail to Dave Allen (Boeing CAC) to that effect. It also seemed that the paper had mixed up the ADS and CPDLC messages, and which one had had some influence on the other.

1.6 Part of the problem is that SARPs are written for a global application, and also have to conform to ICAO nomenclature. This imposes some considerable restrictions on what is permitted. It is not unexpected that Boeing would request that SARPs should be based on ARINC documentation, and, to a great extent they are. But there are some areas where a better, more accurate or more formal definition or description is required, and this has led to changes being made.

1.8 The meeting agreed that the Chairman would send a further e-mail to Dave Allen, and that no further action would be taken regarding this paper at this meeting.

## **WP 20 - Comments and Considerations - Tom Kraft**

1.9 This paper had to be considered early in the proceedings, since it contained a broad spectrum of defects, problems, comments and general remarks. The SG were uncertain of the status of this paper, but nevertheless took note of the comments where applicable. Comments relating to individual applications were discussed under the appropriate agenda item.

1.10 The paper noted the very subjective guidelines which were the basis for inclusion of certain definitions into Sub Volume 1 (SV1). The SG had understood that all the definitions which had had to be removed from the individual SARPs earlier would be included in SV1. This did not appear to be the case, and the paper indicated that 'obscure' acronyms (and presumably words) should be defined in the text where they stood. Review of the relevant part of the SARPs in which the definitions were published indicated that definitions in many cases did not correspond to those removed from the SARPs. The SG agreed that individual editors should go through the current SV1 and an earlier version of the SARPs and highlight omissions and differences in definitions and acronyms, and present these at the WG 3 meeting in Alexandria.

1.11 The way in which some of the definitions have been changed is confusing. In the example given, to change 'authorised ATSU' to 'controlling ATSU' and 'ATC instructions' to 'ATC clearances' throughout the documents is wholly and totally wrong, and will do nothing to improve relationships with the operational air traffic users and providers.

1.12 The paper makes various comments relating to techniques used in the SARPs to achieve specific functionalities, e.g. year coding, version number negotiation and data type description. The SG did not make any changes based on these comments, rather interpreting them as a request for clarification, possibly through Guidance Material, yet to be prepared.

## **2. REVIEW OF CHANGES TO DRAFT SARPS POST MUNICH WG3 MEETING**

2.1 The meeting agreed that where possible, changes would be kept to a minimum. At this stage, only changes arising from Defect Reports would be considered. (The only exceptions to this were formatting changes forced on the Editors by ICAO through the Munich meeting. Several changes arising from defect reports were common to more than one applications - where this is the case, only the first event is noted.

2.2 A series of Defect Reports were submitted suggesting that the SARPs constrained implementation. To a great extent this is covered (e.g. in paragraph 2.1.3.1.1 of the CM SARPs) requiring the system '...to exhibit the behaviour.....', which implies minimal constraint.

2.3 Some defects had been resolved by correspondence, and these were not considered further.

### Context Management

2.4 Several cases of duplicated requirements were noted in Section 7. The Duplications were edited out. There were a number of instances of transcription errors, caused by 'cut and paste' operations during the editing process. Although many of these have been removed by careful proof reading, the

complexity of the documents suggests that the instances highlighted are unlikely to be the only examples. Minor changes were made to clarify the version number negotiation in the interests of maintaining backwards computability. Editing changes at Munich had given rise to the impression that only one logon attempt could be made - this was not the intention of the SG, and changes were made accordingly.

## ADS

2.5 Several defects had been highlighted as a result of early Eurocontrol validation work and had been passed to the Editor, who had prepared the necessary corrections. In most cases these were accepted. Several other inconsistencies had been detected in the course of analysis of the material, including some redundant material, incorrect references, and range and resolution parameters which differed from that in the ADSP source material. Minor editorial changes were also corrected.

## CPDLC

2.6 The majority of the main defects identified since the Munich meeting, and the adoption of Version 3.0, have arisen as a result of pre-implementation analysis by industry. Because of the nature of the CPDLC SARPs, and the amount of repetition, a single defect can have a significant 'knock on' effect, resulting in an apparently disproportionate number of changes. Several relatively minor changes have had this effect.

2.7 Several companies and organisations are reviewing the draft CPDLC SARPs, and as a consequence there were a relatively large number of defects highlighted for review. Many of these were rejected, on the basis that the existing wording was correct, and the lack of comprehension was caused by the somewhat convoluted way that SARPs are required to be drafted. This would be clarified in the Guidance Material (see below).

## FIS

2.8 There were very few defects highlighted in this application, possibly reflecting the fact that there has been little validation work on this topic as yet, and also that the Editor has had access to sophisticated compiling and checking tools during the development of the document. The majority of the defects have been discovered as a result of this work.

2.9 The SG was generally pleased with the reduction in the length of time taken to review the SARPs and defect reports during the course of the meeting. The members felt that this reflected the increasing state of maturity of the work. It was agreed that papers would be prepared by the Editors for the WG 3 meeting in Alexandria outlining the proposed changes to Version 3.0 (the output of the Munich meeting) and the subsequent presentation to ATNP/2. It had to be emphasised to WG 3 that these changes were necessary, and that more changes would become necessary as the validation work proceeded.

2.10 The Chairman would prepared a standard cover page for all correction papers, and e-mail it to the Editors. It was expected that the majority of the editors would be attending the WG 3 meeting.

## **3. SARPS VALIDATION PROGRAMME**

3.1 The Chairman reported that the WG 3 meeting at Munich had basically adopted the idea of Validation Objectives (VOs), although they had not been too keen on the hierarchical aspects of the format. WG 3 had produced Flimsy 15, which had indicated a need for two further high-level VOs, and had indicated a need to take note of System Requirements, but the concept was accepted. However, the meeting did not feel that WG 3 had made its requirements completely clear. As a result of this doubt, a Conference Telecon took place with STEL, Level-7 and Eurocontrol members, confirming the initial doubts of the SG. This was an extremely helpful discussion, which clarified the SG thoughts towards a validation path.

3.2 There was considerable discussion as to whether there would be a need, or indeed if it would even be possible, to validate every 'shall' in a 'shalls' data base. It was agreed that each shall would have to be proven to be both functional and essential, but this was not quite the same thing as individual validation. The FAA paper produced for WG 3 by Gigi Louden has contained a list of progressively more severe validation methods, ranging from 'Inspection and Analysis' to full double independent implementation, and it was agreed that this could be combined with a functional breakdown of each application to validate each function.

3.3 Each function in the SARPs had a number of 'shall' statements relating to it, although not necessarily on a one to one basis. Each validated functionality therefore implied that the related 'shalls' themselves had been validated - this would also be a way of validating 'shalls' in an abstract environment. It was agreed that this approach would also lend itself to a Matrix form of validation reporting, where the functionalities could be laid out, and an indication could be given of who was doing the work, and how far up the 'Louden List' the validation had reached.

3.4 There was also the question of what level of validation would actually be required for certain functionalities, and which body would be responsible for determining this. The SG agreed that they were in the best position to make initial proposals for this work, although this would obviously be subject to amendment and advice by both WG 3 and the Panel. It was also likely that industry would want to develop some of their own ideas during validation. But the SG did not want to find themselves in the position of arbitrator over which method of validation was best, or more correct. They were also not in the [position of any sort of authority - they could not force a particular path.

3.5 This might give a matrix/table along the following lines -

<b>Application Function</b>	<b>Validation Level Req'd</b>	<b>WG3/SG2</b>	<b>Other Organisation</b>	<b>Other Organisation</b>	<b>Other Organisation</b>	<b>Other Organisation</b>
	(a-g, from the Louden paper)					

3.6 In addition, it was likely that any validation report would have to have a descriptive section, indicating how the VOs were being met - this should only be an outline of activities, making reference to validation reports of the various organisations doing the work, in the interests of traceability.

3.7 The meeting worked through various applications, to provide an acceptable breakdown of the functions. In addition, it was proposed to add a section to the paper giving a brief resume of the defects which had arisen during the course of validation, from when validation started. This would in effect be from Version 2. Normal Editorial defects would not need to be included in this list.

3.8 This was considerable discussion as to for whom this Validation paper was being written. There was a general unwillingness to have this presented to the ATNP/2 meeting, since it would end up with Panel Members getting involved in the minutiae of validation, rather than being presented with the big picture. It was agreed that the route for these validation reports would be WG 3 and WG 4, and that the Rapporteur of WG 3 would be requested to use the information as source documentation, rather than presentation material for the Panel.

3.9 The further preparation of these papers was not something that could be done during the course of this meeting. First drafts of the work would be presented to the WG 3 meeting in Alexandria. If time permitted, they would be circulated to the SG members beforehand.

**4. PREPARATION FOR WG 3 VALIDATION MEETING, ALEXANDRIA**

4.1 Much of this agenda item had been discussed earlier. The papers which would be required were, for each application -

- a. Corrections to Version 3.0 SARPs
- b. Up-to-date list of Defects
- c. Draft Validation paper, and
- d. Revised Draft SARPs, V 3.1 (in Word, only for this meeting)

4.2 In addition, the Chairman would prepare a report of this meeting. The proposed Agenda for the WG 3 meeting has already been published by the Rapporteur.

## **5. DEVELOPMENT OF GUIDANCE MATERIAL**

5.1 This was the first opportunity that the SG had had to discuss in some depth the development and implementation of Guidance Material (GM). Indications from a number of defect reports had shown that although the SARPs were technically correct, and properly written and presented, there was a need for clarification and implementation guidance.

5.2 The SG formulated some guidelines for the development of the GM, based to an extent on draft material presented earlier by the other two SGs, but incorporating many of their own ideas resulting from validation enquiries and their own experience.

5.3 The guidelines for the preparation of GM are -

- a. GM is aimed at implementers, not users. (It should not be thought of as a User's Handbook)
- b. GM layout should follow SARPs, on a chapter by chapter basis. (If there is no existing or proposed GM for a particular chapter, there should still be a chapter heading, followed by a note saying that it is not proposed to publish GM for this chapter at present.)
- c. GM should, where necessary, provide an expanded commentary for each chapter.
- d. GM should be in readable narrative form.
- e. GM should be helpful and informal, and contain examples and diagrams where necessary.
- f. GM should also provide guidance to SARPs notes, explaining why they are there, and what the true intent is.
- g. GM can include text previously supplied as answers to defect reports.
- h. GM may refer to any other ICAO documentation which may help clarify the problem, however transient this documentation may be.
- i. GM information should not just copy information from other documentation, e.g. the ADSP Manual or SARPs themselves.

5.4 It is anticipated that the first draft of the GM for each air/ground application should be available by the next meeting in December, with a presentable draft for the WG by the next but one meeting in Toulouse in February.

## **6. DATE AND PLACE OF NEXT MEETING**

6.1 It is proposed to hold the next meeting from 16 - 20 December at Level-7 in Bracknell, and the next but one from 3 - 7 February, at CENA in Toulouse

**10TH MEETING OF SUBGROUP 2 OF THE ATNP WG 3**

**Held At Adsystem Inc.**

**Silver Spring, Maryland**

**26 - 30 August 1996**

**AGENDA**

1. INTRODUCTION
  - Review Of SARPs Format
2. REVIEW OF CHANGES TO DRAFT SARPS (Including Provision For Subsetting) -
  - a. CPDLC
  - b. ADS
  - c. FIS
  - d. CM
3. SARPS VALIDATION PROGRAMME
  - Demonstration Of Eurocontrol 'Shalls' Data Base Programme
  - Review Of ADSP ORs Against Validation Objectives
  - Task Breakdown
  - Subsetting
4. PREPARATION FOR ATNP/2 MEETING
  - Outline Of Draft WPs
5. DEVELOPMENT OF GUIDANCE MATERIAL
6. AOB
7. DATE AND PLACE OF NEXT MEETING (Bracknell, 16-20 December 1996)

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