AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL

WORKING GROUP 3 MEETING

Brussels, 15-26 April 1996

Agenda Item 9: Air/Ground Applications SARPs

ATNP WG3/SG2 MEETING, CAA HOUSE, LONDON, 12-16 MARCH 1996

SUMMARY

This paper reports on the work of SG 2 (Air/ground SARPs) since the last meeting of WG 3 in Brisbane. Revised copies of the SARPs for DLIC, ADS, CPDLC and DFIS, redlined as required, are appended

1. INTRODUCTION

1.1 Sub Group 2, charged by WG 3 with the preparation of the Standards and Recommended Procedures (SARPs) for Air/ground data link applications, met in London from 12 - 16 March 1996. The main tasks for the meeting were to review the SARPs material produced at Brisbane on a line by line basis (with particular attention being paid to the consequences of the changes introduced at that meeting), the preparation of early validation programmes, and the outline of Guidance Material.

1.2 The line-by-line review of the existing Draft SARPs material took up most of the time available, and copies of the redlined Version 2.0 are available as

a. Context Management Application (CMA) SARPs at WP 6-10

b. Automatic Dependent Surveillance (ADS) SARPs at WP 6-11

c. Controller pilot Data Link Communications (CPDLC) SARPs at WP 6-12, and,

d. Data Link Flight Information Service (DFIS) SARPs at WP 6.13.

2. REPORT OF THE ATNP WG3/SG2 MEETING, CAA HOUSE, LONDON, 12-16 MARCH 1996

2.1 The report of this meeting is attached at Appendix A.

3. RECOMMENDATIONS

3.1 WG 3 is recommended to note the changes, and accept the proposals identified in the redlined versions of the WPs 6-10 to 6-13 inclusive.

Appendix A

to WP___

NOTES OF THE ATNP WG3/SG2 MEETING, CAA HOUSE, LONDON, 12-16 MARCH 1996

1. Present:

Mike Asbury (MA)	NATS, UK (Chairman)
Jane Hamelink (JH)	Adsystech/FAA
Gregg Anderson (GA)	FAA
Greg Sacconne (GS)	Hughes/Transport Canada
Tim Maude (TM)	Level 7/Eurocontrol
Frederic Picard (FP)	Marben/CENA

2. Apologies were received from Ann Sophie Luce (Thomson/CSF), Rene Esser (NLR) and Stephen Pearce (AirServices Australia).

Agreement of the Agenda

3. The Agenda as notified was agreed (see Attachment). FP was worried as to whether the SG would have time to do a line by line review of all the SARPs. This was discussed, and it was agreed that it had to be done sooner rather than later. MA wanted the SARPs to be translatable after the Brussels WG 3 meeting - this was the number 1 priority. The development of a suitable validation programme was next, with Guidance Material lowest, as much of this could be taken from the ASP work. The SG agreed this course of action.

4. JH also pointed out the need to identify system ORs etc. for the SubVolume 1 being produced by ATNP WG 1.

Automatic Tagging

5. FP apologised again for having advised the removal of automatic tagging in the ASN.1 notation. Only the most sophisticated compilers would be able to cope with automatic tagging - it was not an industry-wide capability. Regretfully they would therefore have to be re-introduced, by hand, by the editors.

Configuration Control

6. Configuration control was discussed. The version to be submitted to Brussels would be V 2.1, dated 22 April, which would be a redlined version of V 2.0, the output from the Brisbane meeting. FP had got the definitive versions of all the Draft SARPs, lifted from the CENA fileserver, and these were used as working documents.

7. GS would take over as Editor of the CM SARPs from JH, who would continue to provide guidance in the short term (i.e. for the duration of this meeting.)

7. Editorial changes would not be redlined, but any changes of substance would. The meeting would decide what changes would be redlined as the work progressed.

8. MA produced hard and soft copies of the Defect Report agreed at Brisbane, and they would be completed as required. (There would be one generated by each editor to cover Editorial changes, for example.) Where defect reports had generated a specific change, they would be referenced in the configuration control sheet at the front of each document.

9. Editors would be responsible in the short term for filing and control of their own defect reports. They would prepare a paper for the relevant WG 3 meetings, summarising the defects and the actions taken The SG would act as its own Configuration Control Board.

CMA Draft SARPs.

10. Configuration Control Pages

Minor changes were agreed. If a change has a knock on effect, the change will be repeated in each section affected, and the relevant paragraphs noted

11. Chapter 1

There were editorial and clarification changes. Document references were updated - Ref. [5] has yet to be presented (by GA, to ADSP/Dakar). The references to TSAP made clear that this was an address, or the component of an address.

12. Chapter 2

Changes in this chapter could be copied across all four SARPs. Reference to RCP was deleted. Error processing details were clarified.

13. Chapter 3

There were changes relating to the handling of version numbers, and an expansion of the classes of communication.

TM thought that the CMForwardRequest as written would inhibit the use of a CM Server implementation. There was also a need for positive response to the forward request, regardless of whether or not there was version compatibility.

It was therefore agreed that the CMForwardRequest message would be identical to the CMLogonRequest message. This had a knock-on effect on the ASN.1, eliminating the need for CMNameLongTSAP. Table 3.7 could be eliminated, and 3.6 slightly expanded to cover the need for the positive response, indicating 'success' or 'failure'.

14. Chapter 4

Tagging was reintroduced, and tagging rules agreed. FP confirmed that over-tagging would not jeopardise compilation. Changes consequent from other work were made.

15. Chapter 5

Both CM and CPDLC SARPs contained fairly complex 'if..then..else' paragraphs, covered by a single 'shall' statement. FP pointed out the difficulty of validating such 'shalls', and also the problems of extracting the 'shalls' into a database, and covering all implicit requirements.

16. Chapter 6

The question of retention of the Mapping table, 6.1, was discussed. In the long term it is expected that this, or a table similar to it, with values extracted from the ADSP Guidance Material, will be made available in Sub-Volume 1, to be prepared by ATNP WG 1. However, the SG felt that industry was likely to want some information before SV 1 would be available. It was therefore agreed that the Table would be retained (in all the SARPs), but that it would be made available to WG 1 as part of the overall system SARPs.

17 Chapter 7

It was decided that there was no need to have an indication of whether the CM logon was successful in the CMLogonResponse message. This would be indicated by the passing of the necessary addresses, indicating the applications which could be supported. This led to knock-on changes in chapters 1, 3,4 & 5.

Chapter 7 is seen as a linking chapter between the ADSP operational requirements, and the ATNP technical solutions. Being user implemented, the 'shall' statements are somewhat more literal than technical.

18. GS will finish the editing, including review of the diagrams, by the end of the meeting.

ADS SARPs

19. Some common read-across changes from the CM SARPs discussion has been incorporated, and will not be covered further.

20. Chapter 1

There were some editorial changes, including missing abbreviations and definitions.

A major change was from Emergency Mode to Emergency Contract. This allowed analogous operations and functional descriptions to other contracts. This caused significant amendments to functionality, both general and specific. Any reference to 'immediately' was removed, as this would be difficult to test/validate.

The Ground/Ground functionality, developed at Brisbane, was reviewed in detail, and some important changes were made.

21. Chapter 2

No new changes were made, other than discussed in the CM review.

22. Chapter 3

All contract services are confirmed services, which means that a reply is mandatory. In some cases the acknowledgement is sent back on its own, but in some cases it is embedded in an ADS report. This required that the parameter tables had to cover both cases. This could not be done as presented, and two tables, and the accompanying text had to be derived for all contract cases.

Additional words indicating that messages may be lost during an Abort situation were also added.

23. Chapter 4

TM wanted an independent check on his derivation of Altitude and Speed Units. JH would do this (hopefully prior to the Dakar meeting, since it was the topic of a paper to ADSP).

Tags had to be put back in - this was not an easy task, and would not be done by the end of the meeting.

There was a problem trying to decide whether the Flight Identification (Callsign) or the 24 bit ID would be used to identify an aircraft. The ADSP Manual only served to confuse. It was decided that the 24-bit ID would be used, referred to as Airframe ID, and this would be the only identification passed, except in the Ground/ground message, when both would be sent, (in case a receiving ground system did not' have the FPN).

The ASN.1 was tightened up by eliminating repetitions and simplifying variables. The Year derivation was changed.

24. Chapter 5

Minor changes were made to the diagrams.

There was extended discussion on timers, and from when they ought to start. They are done differently in ADS and FIS, compared to CM and CPDLC, due to their modular construction. It was

agreed to leave the differences at present, but to make an advisory strong note, saying that the values are recommended, but not the only ones.

TM was most unhappy at the way ground/ground forwarding had had to be implemented, in order to meet the WG 3 requirements. The use of one ASE is very limiting. He and FP spent a considerable time trying to improve the implementation, with only limited success. TM felt, quite rightly, that an otherwise neat and tidy package had suffered a major disruption as a result of this work.

Work was started on the protocol definitions. FP identified several double 'shall' statements. This will require considerable editorial work to rectify, and will have to be done post-hoc. However, it will eliminate about 75 'shalls', which will help the validation programme no end.

25. Chapter 6

Since it was planned to make this chapter as nearly common as possible to all applications, most of the changes mooted for inclusion in the CMA SARPs (see para 16 above), would be read across to ADS.

26. Chapter 7

This chapter needed an introduction, and one or two new 'shall' statements indicating that reports should only be sent at the rate requested, and containing the information requested.

Additional changes were included to further clarify the ground forwarding of ADS messages and to differentiate between message types.

Error handling procedures were improved, and Abort error functionality was enhanced. Several existing 'shall' statements were rewritten as notes, or extracted to be potential Guidance Material. This was all in the interests of reducing validation complexity.

Baseline information relating to event contracts had to be defined more clearly.

The ADSP Manual defines ADS to be operating in Emergency Mode when the pilot has initiated the emergency indication in the aircraft. In reality this is really only a different form of periodic contract, and is identified and treated this way in these SARPs. In addition, firm rules had to be stated as to who may initiate or cancel the setting of the emergency contract.

27. Changes post meeting

As a result of the large number of small changes which were required, TM took the opportunity to review the implementation of the ground forwarding of ADS messages which had been constructed at the last WG 3 meeting. This review led to a reconstruction of the SARPs, and to a major revision in the way that the ground forwarding was implemented. This implementation has not yet been examined by the rest of the SG, acting in its role as configuration control authority. However, there is little effect on the user requirements.

CPDLC SARPs

28. Changes to the CPDLC SARPs arise from -

a. Submission of Defect Notices

b. Updates proposed by the SG 2 Meeting, and,

c. Proposals prepared for submission to the ADSP Meeting at Dakar

29. Many of the changes are simply editorial. The reduction of major changes, apart from those arising as a consequence of the implementation of the ground/ground message forwarding introduced at the last meeting of WG 3, reflects the general trend toward more stable material.

30. Chapter 1

Ground/ground forwarding changes initiated here carry on throughout all other chapters. Changes to message response tables as proposed by the ADSP WG B meeting in February were accepted.

31. Chapter 2

Changes are in keeping with those in other Applications.

32. Chapter 3

This has been edited, with superfluous 'shall' statements removed. There are now a large number of Notes, but the sense of the information has not changed.

Some of the 'if' statements have been strengthened, and reference to Classes of Communication include the additional two proposed for adoption by the ADSP in Dakar.

The ICAO Facility Designator has been changed to the full ICAO 8-letter code, in line with ADSP recommendations.

33. Chapter 4

The number of sidebars in this chapter largely reflect the re-introduction of Manual tagging. In addition the ASN.1 syntax descriptions have been alphabetised, which makes for a clearer presentation and reference. (These changes have not been highlighted.)

Ranges and resolutions were not changed at this meeting, only because it was expected that they would have to be changed as a result of the ADSP Dakar meeting, and any changes would be nugatory.

The name 'Pre-Departure Clearance' was changed to Departure Clearance, as a result of clarification by the ADSP WG B.

34. Chapter 5

Significant changes have been introduced here. New time sequence diagrams have had to be derived for the ground/ground message forwarding, protocol descriptions have had to be amended, and there has been a general re-ordering and editing of the contents for clarification. In addition, State Tables have required to be altered.

35. Chapter 6

The Quality of Service requirements have been changed to reflect the changes to Residual Error Rate for the application. In addition, communications classes 'I' and 'J' have been added, and the 'Null' class removed, after discussion with ATNP WG 2.

36. Chapter 7

This chapter covers User Requirements, and has been changed to reflect the addition of the ground/ground functionality.

The greatest change is the inclusion of the Message Element table previously seen as Appendix material.

37. Post Meeting Changes

The CPDLC SARPs material presented now reflects the changes which have been included as a result of the ADSP meeting in Dakar, and also includes corrections resulting from the submission of defect reports based on the earlier edition (Version 2.0)

FIS SARPs

38. The FIS application is the only one of the four air/ground applications not to be affected by the addition of a ground/ground message forwarding requirement. Changes to this document are therefore very much of an editorial nature. The Editor was pleased that more time has been made available to peruse this section on a line-by-line basis, and as a result, many small editorial errors and inconsistencies were highlighted and corrected.

39. Again, changes which have been made to common sections of all four applications have been included here without further mention.

CONCLUSION

40. The meeting was very productive, resulting in much cleaner material, with several points clarified, and many of the minor editorial points amended. The changes introduced at the last WG 3 meeting took longer to incorporate and check for consistency than was expected, and hence little work was done on the development of Validation programmes and Guidance Material.

41. The next meetings will be held in Toulouse (29 April - 3 May), and USA/Canada (4 - 10 June)

Attachment
to WP__

AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL

WORKING GROUP 3 (APPLICATIONS AND UPPER LAYERS)

Sub group 2(Air/Ground Applications)

7th Meeting, London, 12 - 16 March 1996

Agenda

1. Introduction and Apologies
2. Reports of Relevant Meetings
   - i. 6th Meeting - Toulouse, January 1996
   - ii. WG3 Meeting - Coolangatta, February 1996
   - iii. ADSP WG B Meeting - San Francisco, January 1996
3. CNS/ATM Package - 1 SARPs Sub-volume 2 - Air/ground Applications

   General Line-by-line Final Review - Part 0 thru' Part 5
4. Draft A/g SARPs - Validation programme
5. Draft A/g SARPs - Development of Guidance Material
6. Draft A/g SARPs - Status
9. Review of Future Work Programme
10. Dates and Places of future meetings