ATNP/WG 3

W3/15-W06

AERONAUTICAL TELECOMMUNICATIONS NETWORK (ATN)

WG3 - (ATN Applications and Upper Layers) Fifteenth Meeting

Honolulu, Hawaii, USA

19 - 22 January 1999

Agenda Item 4: Air/Ground Applications

Chairman's Report - Working Group 3, Subgroup 2

(Presented by M J Asbury)

1. INTRODUCTION

1.1 The ICAO Aeronautical Telecommunications Network Panel Working Group 3 Subgroup 2 has held one meeting since the last meeting of WG 3. This meeting was held in Albuquerque, NM, from 8 - 11 December 1998.

1.2 The attached paper constitutes the Draft report of the meeting.

2. RECOMMENDATION

2.1 Members are recommended to review the report, comment on the work done, and give suitable advice concerning the future work of the subgroup.

NOTES OF THE 19TH MEETING OF AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL WG3/SG2 (AIR/GROUND SUBGROUP), ALBURQUERQUE, NEW MEXICO, USA, 8 - 11 DECEMBER 1998

1. INTRODUCTION

1.1 The 19th Meeting of the ATNP WG3/SG2 (Air/Ground communications) was held, courtesy of the FAA, in the Sheraton Old Town Hotel, Albuquerque, from 8 – 11 December 1998.

Present:

Mike Asbury (MA)	NATS UK (Chairman)
Jane Hamelink (JH)	Adsystech/FAA
Greg Anderson (GA)	FAA
Frederic Picard (FP)	STNA
Greg Saccone (GS)	ONS/FAA
Ian Valentine (IV)	ECSoft/Eurocontrol

1.2 The meeting had noted the e-mail from Tim Maude, saying that he was withdrawing from WG3/SG2 activities, due to involvement in other work. He was thanked for all the work he had done for the SG and for ADS SARPs generally. Apologies were received from Pam Tupitza and Paul Camus. JH was thanked for making all the arrangements for the meeting.

1.3 Ian Valentine had joined the SG principally for work related to the development of conformance Protocol Implementation Conformance Statements – PICS: he has a wide knowledge of many aspects of communications protocols, and his attendance and experience was very welcome.

1.4 The Agenda (Appendix A) had been circulated earlier, and was approved. A list of Working Papers is at Appendix B, and a 1-page resume at Appendix C.

2. AGENDA ITEM 1 - NOTES, BRIEFING AND OUT COME OF RELEVANT MEETINGS -

18th WG3/SG2 Meeting, Toulouse 1 - 4 September 1998

WP 2 – Notes of the 18th Meeting of WG3/SG2

2.1 The report of the Toulouse meeting was reviewed. There were no changes required.

2.2 Actions in general were completed. MA had tried in vain to get hold of Dave Allen in Boeing, but bearing in mind the massive reorganisation in Boeing, this was hardly surprising. CNS/ATM – compatibility was not removed from the agenda due to the recent publication of the ICAO ADSP Transition Paper FANS-1/A.

ATNP WG3 and WGW Meeting, Bordeaux, 28th September - 7 October 1998 (inc Technical timers, Systems Management & Security Requirements)

WP 3 – Notes of the 14th Meeting of WG3

2.3 The report of the meeting was reviewed. There were several topics which impinged on SG 2 work, including Interoperability Issues for A/G D/L Applications, Adding the METAR Service to CNS/ATM-1 FIS, Proposed PDUs for Package-1 CM Server Considerations, Data Link Application Servers and Backward Compatibility Considerations. These will be considered at the appropriate time in the Agenda.

2.4 With regard to systems management activities, FP said that he has defined a reduced MIB, and has reworked the application level MIB in draft. There were no major changes from the Toulouse paper. MA asked about the revised Concept of Operations (CONOPS) document, promised for the next WG 3 meeting. FP said that Stephane Tammalet was the new editor, and a

revised version had been produced – he had seen a copy, and he thought it had been posted on the CENA server, now available to all on the WG2 mailing list.

2.5 Concerning Security, a new version of Gerard Mittaux-Biron's paper had been prepared – FP had had a hand in this. This will be proposed as guidance material, and is much more readable than the previous version. This is the result of much discussion, and will describe how security will work in the Upper Layers. FP felt its was a much better document.

2.6 There had been some procedural discussion at WG 3 concerning the admissibility of IATA operational requirements being fed directly to the ATNP Working Groups, rather than through the ADSP. The appropriate ICAO Secretariats had apparently agreed that this was acceptable, and space will be made in the agenda for the next meeting to allow for this. JH pointed out that a similar paper to that presented to WG 3 had been presented to a recent meeting of the AMCP VDL Mode 4 Subgroup meeting, which came out strongly in support of the IATA position. JH also noted that the AMCP seemed to be basing its operational requirements on technical capabilities, rather than the other way round, and she thought that sooner or later there was going to be a collision of philosophies both inside and outside ICAO, due to the different OR drivers.

Action: SG2 members were urged to get a copy of the VDL Mode 4 SG notes, for clarification

2.7 WG3/SG3 had reported that they had all but completed the CLNP SARPs. MA suggested that CLNP could solve the problem presently identified where a delayed or missing message would hold up later messages, due to OR that messages would be delivered in the order sent. FP said that this would happen anyway in CLNP, and artificial barriers would have to be built into the applications layer to compensate for this if the OR was still a necessity. It was agreed that this was not an SG2 problem, and that MA would raise it at the next WG3 meeting as a WG3 item.

Action: MA

2.8 WG3 had been given a demonstration of the ATN SARP electronic library, which seemed to have great potential. MA asked about the current state of this tool: JH said that to the best of her knowledge, work on the developments of the tool was dormant.

Action: JH to find out, and report to MA for an addition to these notes.

ADSP WG A & B Meetings, Madrid, October 1998

WP 26 – ICAO Official Reports of ADSP WG A & B Meetings

2.9 MA said that, due to the size of the combined reports, this WP would be available in soft copy only. MA reported that the majority of the work of the meetings had been centred round the development of the appropriate ADS and CPDLC chapters for Doc 4444, and final drafts were included in the paper. WG B has confirmed that there was no need for a contract mode of operation in the D-FIS METAR service, and listed the relevant part of the IA5 message set that would be used – there was not seen to be a need for lower case letters. Updated definitions of 'Data Authority' and its spin-offs (CDA, NDA and DDA) had also been developed. The WG had also indicated new requirements concerning the use of the LACK in certain specific circumstances. There had also been some discussion on the use of the 'Disregard' message.

3. AGENDA ITEM 2 - SARPS AND GM FOR VERSION 1 APPLICATIONS MAINTENANCE

2.0 General - SARPs Package -1 maintenance procedures

3.1 FP reported that the CCB procedures seemed to be working OK. There was some discussion on the maintenance of the Guidance material. FP reminded the meeting that it had been decided to put the existing document on the CENA server, and updates would be added and indexed as approved. Editors should maintain an Engineering version, and the whole question of document maintenance would be reviewed at ATNP/3, whenever that would be. There was no need to maintain configuration control of GM. JH noted that the GM for CPDLC could include paired messages, and she would look into this. (For further discussion on paired messages see Agenda Item 7 below.)

2.1 Accepted & Forwarded PDRs for CM, ADS, CPDLC & FIS

WP 4 – SME 2 (Air/ground Applications) Status Report

3.2 FP presented this paper, indicating the status of PDRs. There were 2 PDRs outstanding in ADS 2 – none for CM, one for CPDLC and two for FIS.

3.3 PDR 9810001. This PDR related to the differences between the CPDLC descriptions and message set tables in ICAO Docs 4444 and 9705. ICAO seemed to find it extremely difficult to standardise between supposedly the same material appearing in the two documents. The PDR had identified that there are differences between hard and soft copy of both documents, resulting in four different versions. It has not proved possible for the CCB chair, the CPDLC SARPs editor (JH) or FP to identify where the changes have occurred, and, perhaps more importantly, where changes and divisions may occur in the future. With regard to the message tables, the SG accepted that the definitive version should be that published in Amendment 2 to Edition 13 of Doc 4444. This should match up with Chapter 4 of the CPDLC SARPs in Doc 9705 (but doesn't!) In many cases the differences are nit-picking, which merely indicate the failings in ICAO's document control.

3.4 FP said that this was the latest (definitive) version of the PDR, but one of the problems was that it was not possible to carry out an automatic comparison. This PDR was definitive to the best of our knowledge. There was not thought to be any impact on interoperability.

3.5 JH said this was one more argument for taking the CPDLC message tables out of Chap 7 of Doc 9705, and to leave them in Doc 4444 as the master reference. MA was of a mind to agree – seeing the multiplicity of versions which now existed. He has been a strong advocate of keeping both the ASN.1 and the user-friendly message set intent tables in one document, for completeness, but he admitted that removal of the tables would cope with ICAO intersecretarial editorial difficulties, co-operation and untraceable autonomous decisions. It would facilitate maintenance of the documents. Doc 4444 Amendment 2 was now published, and we could therefore make reference to it. GS, on the other hand, felt that system implementers needed both Chapter 4 and the intent information in Chapter 7, but the information didn't have to be in the same document. However, elimination of Table is a CCB decision, because it is a package 1 change. MA had tried to contact Steve van Trees – the CCB chair, and Ron Jones, WG 2 chairman, for comment, but they were both out of town. In order to make any sort of decision on this, we would have to ensure co-operation between the two Secretariats.

3.6 MA felt that this decision should be ratified by WG 3 – unfortunately the CCB met before the WG, so any CCB action would not occur until post-Honolulu. JH agreed to prepare a short paper for WG 3, proposing the deletion of the tables from Chapter 7. This would also require some consequent changes to the narrative. JH would also prepare a draft PDR for consideration by the SG members prior to formal submission.

Action: JH to draft PDR and prepare paper for WG 3.

3.7 PDR 98100008. This was actually a re-submission of an earlier PDR. The original solution offered by the PDR proposer was rejected by Tim Maude, but subsequent analysis of the problem indicated that the earlier solution was correct. Tim recognised this and the PDR is to correct the his earlier error. No further action is required by SG2, and there is no effect on interoperability. It was not anticipated that there would be any problems from the CCB.

3.8 PDR 98110002. This apparently innocuous PDR relating to missing exception handling procedures in ADS actually has ramifications for the other applications. The PDR suggested that a new clause should be added in the Exception Handling sections of Chapter 5 to cover all cases where the application ASEs receive an unexpected dialogue primitive. This was in fact a generic reply to take into account of 'should not occur' primitives. MA queried whether we had to take account of a second order error, i.e. where an error in one user action had not been detected internally and was allowed to be passed, and subsequently caused a problem with the other end user. It was generally agreed that this was a tail, but it had to be taken care of somehow, and this was the way. There was a suggestion that if it was possible to distinguish a 'not permitted primitive', then we

should be able to give this as an abort reason. But FP was not happy at any suggestion to change the ASN.1, and this was generally agreed. But we could change the *description* of the abort reason in the ASN.1 to take account of both Dialogue Service Primitives and PDU errors. This would result in detail changes in chapter 5 and the State Tables.

3.9 Changes to the appropriate section of exception handling procedures of all applications were drafted, and will be submitted as appropriate PDRs. There were two possible ways of solving the problem – a patch solution, and a long-term correction solution. The SG agreed that we should propose the correct solution. At present if we used the existing abort reason related to the PDU we should have to make a note indicating that this could mean either an incorrect PDU or an incorrect Dialogue Service Primitive, which might not be helpful. It might be possible to change the error code to 'Protocol Error' for Ch 4 for CM and CPDLC.

3.10 FP agreed that the solution for all applications could be contained in one PDR, and he would liaise with the editors prior to submission.

Action: FP to organise submission of an 'all a/g applications' PDR

3.11 PDR 98110003. In the FIS application the LI timer is not stopped. This is an error to be rectified. It affected only the FIS, but corrective action would have no effect on the interoperability.

3.12 PDR 98110004. This PDR also dealt with missing exception handling procedures. It outlined two cases, one of which was covered in PDR 98110002 above. The second case arose where there was more than one FIS contract and one is terminated incorrectly, resulting in an erroneous D-End. The ground must check for outstanding contract before actioning a D-End request. FP thought that this may also be applicable in AIDC, and would talk to JM Vacher

Action: FP for PDR submissions, and to talk to JM Vacher.

WP 8 – PDR 98120001

3.13 This was a straightforward editorial correction to a previos PDR - 9710007.

4. AGENDA ITEM 3 – CM - DETAILED DEVELOPMENT OF FUTURE DLIC/LOGON PROCEDURES

WP 14 – CM Backward Compatibility Additions

4.1 As currently specified, a Version 2 CM-air-ASE will never be backwards compatible with a Version 1 CM-ground-ASE. GS presented this paper, in the form of a draft PDR, to rectify this situation. The solution, which allowed the air-ASE to operate in a degraded mode emulating Version 1, was generally approved, noting that there could well be a need to review the timers. FP did not think that this was a Package 1 problem, and rectification should not be through a PDR. JH agreed – she though that at worst this was Package 1 enhanced. GS said that if we use an X500 development, we may not need a CM version 2 anyway, but if you still wanted airborne initiation, then you still would need a CM.

4.2 The SG agreed broadly with FP that this was not a Package-1 PDR to be dealt with by the CCB; MA thought that it would actually be part of a grander plan, indicating that note was being taken of forward operational requirements, and this was an indication of how, when the time required, we had available the necessary mechanisms for dealing with CM Version negotiation. He asked that GS prepare a paper for Honolulu, introducing the solution, and putting all the clever bits (the part of his paper starting 'Proposed SARPs amendment:' and including the diagrams) into an Appendix to that paper.

Action: GS to prepare a paper for Honolulu

WP 12 – Commentary on Data Link Server Paper presented to WG 3 by Eurocontrol at Bordeaux

4.3 The Eurocontrol paper had indicated that, where CPDLC and Downstream Clearance to a server were concerned, the SARPs as currently written constrained a server implementation. This was not the case, and GS explained why in this short paper. Two methods were given which would allow the current SARPs to be used in a server environment, although care would have to be taken that integrity was not compromised. JH agreed that from the CPDLC viewpoint a free text message could always be used – she proposed that the format of this message be strictly controlled. MA suggested that this paper be submitted to the next ATNP WG 3 meeting, as an illustration of how flexible the present SARPs actually are (although he was aware of the need to avoid arguments and encourage positive discussions.)

Action: GS to submit this paper for the Honolulu meeting

5. AGENDA ITEM 4 - ADS - DEVELOPMENT OF FUTURE A/G ENHANCEMENTS, INCLUDING SECURITY, PILOT INTERFACE, INPUTS FOR EMERGENCIES, DIFFERENCES BETWEEN EMERGENCY AND URGENCY.

5.1 JH reported concerning the latest AMCP VDL Mode 4 Subgroup meeting. The source of Surveillance data for ADS position reporting was discussed – the VDL Mode 4 will provide independent source of navigation data from an in-built GPS receiver. They scoffed at the ADSP OR of having the system navigating the aircraft provide the data, saying that we cannot say that the data will come from the system navigating the aircraft. ADSP has not stipulated this for ADS-B, but is was assumed as a spin-off from ADS requirements.

5.2 MA asked about operational input to the VDL SG – JH said that there was none, and it is purely an engineering group, with little regard for operational requirements. MA was distinctly unhappy about this, noting that it had the potential to highlight all the problems of the early ADSP/ATNP disconnect. From an operational view he though it was unrealistic that there should be a requirement to carry yet another navigation system which would have to be certificated in addition to the aircraft systems, and he was disturbed that there should be dependence on a system whose global coverage and integrity could not yet be guaranteed. He firmly believed that position reporting should be carried out by the system in use. He suggested that SG members should discuss the problem with their AMCP members, and he would raise the problem of Panel co-ordination with ICAO.

Action: SG members to talk to AMCP members.
Action: MA to discuss with ADSP Secretary, and write paper for ADSP.

[Post Meeting Note – MA spoke with Chris Dalton. He will discuss the problem with Robert Vinzen, the AMCP Secretary, and report back.]

5.2 JH also noted that VDL Mode 4 cannot support 15 levels of priority – the bits allow only 8, and the SG had been looking at the ways of combining priority. She was surprised that any operational capability was being driven by a pre-defined technical format – in this case the number of bits that the VDL Mode 4 SG were prepared to allow for priority indication. IV said he didn't quite follow the logic of their argument – if VDL is going to use ATN protocols, then the levels are a given. For example, in satellite communications there are two levels of priority – high and low - and all ATNP traffic goes at the high priority. MA said that this was an ATNP WG2 problem, and asked JH to alert Ron Jones. WG 2 should have a VDL topic and be looking at these priorities.

Action: JH to raise the matter with Ron Jones

6. AGENDA ITEM 5 – CPDLC

WP 22 – Draft PDR – Service Not Available

6.1 JH explained that in the CPDLC SARPs, section 2.3.7 outlines permissible CPDLC messages. This information includes the operational requirements from ADSP which require that a Logical Acknowledgement be transmitted just prior to the display of a message to the pilot or controller.. Discussion at the last ADSP WG3 meeting in Bordeaux highlighted concerns from Eurocontrol concerning 'Service Unavailable' and other system messages. It was implied that any

system generated response could be generated prior to the Logical Acknowledgement and section 2.3.7 should be modified to take account of the fact that a LACK should not be sent if there was a system interrupt, and the message was never going to be presented to the end user anyway, due to, say, ERROR or Service Unavailable.

6.2 JH had not formalised or finalised the PDR, but indicated the changes to the Tables in Section 2.3.7 which would be required. She confirmed that the changes did not affect bits on the wire, but may have to go into the OICS (see below).

Action: JH to forward completed PDR to FP soonest

WP 24 – Draft Paper – Message Ordering.

6.3 JH noted that at Bordeaux attention was drawn to the fact that the operational requirement stating that messages should be delivered in the order given could cause problems if, in a string of messages, one was delayed or lost. Subsequent messages would be delayed, with no notification to the addressee that they were in the system. Eventually the transport layer technical timers would kick in, and an abort would be generated. But these technical timers were long time fall-back timers, in many cases resulting in system notification delays far in excess of what was operationally permissible for ATC. The question had been passed to SG2 for review.

6.4 FP pointed out that the OSI had recovery procedures, like Re-send and Repeat. Both GA & Ron Jones had said that this was a tail condition, due to the OSI performance requirements. There was a TP4 fix suggested by Jim Moulton (Selective response) but members of the SG were not sure how, or even if, this could be implemented, particularly in Connected Transport Protocol.

6.5 The real operational problem had been highlighted in connection with CPDLC. Both GA and JH were of a mind to do nothing at present but note the need to set appropriate technical timers. SG 2 members noted the problem, but were reluctant to investigate drastic action until the problem had been properly scoped. WG 2 were the experts on the Internet, and this was an Internet failure (or system property, depending on one's point of view) to note the problem. SG 2 therefore would take no further action, pending a more specific indication of the potential number of occurrences. However, the problem itself required wider operational publicity, and JH would prepare a paper for WG A/B.

Action: JH to prepare paper for ADSP WG A and B

7. AGENDA ITEM 6 - FIS - NEW FIS SERVICES(?)

WP 5 Liaison WP with ADSP WG/B
WP 7 Adding the METAR Service to the CNS/ATM P-1 FIS Application
WP 9 Current Status of METAR.

7.1 FP had presented an earlier version of WP 7 to WG 3 in Bordeaux - this version had only updated some of the ASN.1. The preparation and presentation of this paper had raised several questions, requiring a response from the ADSP, and these had been presented to ADSP WG B in WP 107 by Jean Francois Grout at the recent Madrid meeting. WP5 is a copy of WP 107. It was appear that even now some information is not stable - responses from ADSP are listed in Para 2 of WP 9. Answers had been provided where ADSP had control, but the request for information on the ranges and resolutions for METAR, and the state of their similarity to ATIS had had to be passed to the ICAO METLINK Study Group for clarification. On this basis FP was reluctant to do much further work on this application, and felt that we had no control over METAR timescales, since we seemed bound by delivery from METLINK. JH asked if RTCA had got a METAR section. Although FP was reluctant to do more work, MA said that if we did something, perhaps this would put ginger up the ICAO tail.

7.2 Arising from this discussion, MA spoke to Ollie Turpinnen (METLINK Secretary) at ICAO. He has a high urgency task to prepare a WP relating to METAR requirements for the next ADSP meeting in Adelaide. The proposed amendments to Annex 3 are the first in line of a new series, which will be implemented in 2001. The current amendments, for which we saw an early draft in

London, have gone through two iterations, including publication as a METLINK Memo, and have just been passed by the ANC (4/12/98) for sending out as a State Letter (probably about May!). Ollie thought that any changes to this would be few and far between, and we could go ahead and use this as a basis for a good working draft of a METAR service. He would like to see any draft proposals we may have, passed through Chris Dalton/Masoud Paydar, of course.

73. FP was a little happier about this level of progress, and indicated that if he had time, he would look further at the METAR service.

Action: JH/MA talk their METLINK members to get a draft copy of the State Letter
Action: MA to investigate the possible ODIAC requirement for D-VOLMET.

8. AGENDA ITEM 7 - PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENTS (PICS) AND INTEROPERABILITY

WP 15 – Interoperability Issues for Air/Ground Data Link Applications

8.1 IV presented this introductory paper, which was an updated version of the paper presented at the last WG 3 meeting. The problem if interoperability was really highlighted as a result of the lack of interoperability of the PETAL and EOLIA implementations of the SARPs, both ostensibly built to the same version. Both these implementations use partial sets (as distinct from ICAO approved subsets) of the CPDLC message set. In many cases this has meant a need to make pragmatic decisions, and where these differ, the problems arise. IV did offer a small crumb of comfort by saying that this was recognised as an OSI-generic problem.

8.2 Interoperability problems arose as a result of a possible combination of technical constraints, selections of technical options, HMI constraints and Marketing or service constraints. ISO had attempted to overcome this problem with the introduction of 'Implementation Conformance Statements' – but this only really resulted in the setting out in a formalised form the explicit or implicit operational requirements in the base specification. Subsetting (whether properly declared or resulting from a pragmatic partial implementation) was not really covered, thus the higher the number of options available the less was the chance of true interoperability. In the aeronautical community, the perceived need for CPDLC to replicate voice to the extent possible has resulted in a large (and increasing) number of options. For partial implementations to be successfully interoperable, the same options have to be chosen, all resulting in the same expected operational effect.

8.3 The means of achieving this interoperability at a technical/functional level is through the development of Protocol Implementation Conformance Statements (PICS) which indicate the behaviour of the individual PDUs and the results, and then to compare the PICS for the partial implementations. The main PICS work is at the functional level. Eurocontrol are developing PICS for the extended PETAL and EOLIA implementations, and in his paper, IV gave examples of PICS proforma covering PDUs for a sample of limited functions. These related to CPDLC - the SG members agreed that this was the most difficult of the applications for which to achieve interoperability, and that if a successful PICS or whatever could be developed for CPDLC, other applications could only be easier.

WP 23 – PICS profile for FAA Build 1A

8.4 There are also implementation conformance requirements and problems at the higher, operational, level. JH had prepared an operational 'PICS' for the FAA CPDLC build 1A (WP 25). FP said that what was being done there was almost a full profile. JH agreed that in this group we could develop a generic PICS, but this would be almost rewriting Ch 4 in a different way. IV pointed out that one of the advantages of having PICS in an given format was that it allowed automatic comparison. FP agreed with JH that all the generic stuff could be got from direct from the ASN.1. IV had produced some sample PICS tables in WP 15, and JH asked whether the column marked 'Received' also meant 'Processed', or 'Decoded'? A message would have to be decoded but not processed for a 'Service Unavailable' response to be generated. IV agreed that perhaps the column heading needed to be made more explicit.

8.5 WP 15 also gave some examples of sources of ambiguity, including speed, position and level. MA said that related to level, States had registered with ICAO as to what combination of units they used, and an aircraft flying in a 'feet' airspace should not be asking for Levels in metres (and vice-versa). However, it was pointed out that automation may not know what were the correct units at a given time. There was also some discussion on the functionality of the CPDLC End Service, and 'end service ' message. All this rather emphasised that the PICS should not really be limited to protocol conformance.

8.6 Agreeing that implementation compliance was necessary, GS felt that any implementation was not SARPs compliant if it was outside the subsetting Rules of Ch 8. Implementations taking account of hardware limitations in pre-operational trials were not a reason to be ex-SARPs. GA agreed - we should be looking beyond a trial situation. Trial work was of limited value, and did not justify long term special treatment. Also, it should be noted that where States did file exceptions to SARPs, this usually at a lower level of detail than just functions.

8.7 FP said that one of the implementers complaints was that, as a ridiculous example, a Cessna 150 with a data link system has to be able to encode all values, but the aircraft performance was such that it would only use a very limited set of any of the parameters. MA suggested that implementers may limit the use of parameters through judicious development of the appropriate HMI interfaces - JH noted that this may be the prerogative of the implementers, but there could be no parameter limiting using the ASN.1 in Chapter 4. A manufacturer must build/encode all the ASN.1, but need not use all of it. If one cannot encode/decode all ranges, one was not SARPs compliant. Any subsetting of ASN.1 would affect the bits over the wire. FP pointed out that Paul Camus had emphasised that Aerospatiale was very concerned that an aircraft performance will not need the full range of all parameters, and they were most reluctant to implement code they could/would not use.

8.8 FP suggested that what was really needed was a two level PICS – syntactic and semantic (technical and operational). This was generally accepted as a possible extension to the PICS philosophy. Nevertheless there was total acceptance by the group that some form of generic PICS was a good thing as a template. This would mean that whatever implementation was built, if you take messages out of the list, you have put an index and a Null. A black box must have a SARPs-like output for interoperability. MA asked if we needed clarification of this in the guidance, thinking of the Cessna ASI example, where a Mach 2.0 parameter was not exactly required. But nevertheless, this system would have to be interoperable with someone who wishes to encode everything.

8.9 FP said there were two options – we could either make reference to 'exchanged' messages on para 2.3.4.2.1 of the CPDLC SARPs, or refer to the problem in the guidance material. There seemed to be different interpretations relating to the 'encode/all decode' operating philosophy. FP said it was likely that Aerospatiale would issue a PDR related to this problem. Looking at the tables in WP 15, the PICS tables could be redesigned to reflect the need for two types of constraints – Protocol, and what is actually being done (operational).

8.10 The SG agreed that it should be responsible for establishing the PICS template, and this should be established and prepared for full compliance - operational or semi-operational partial subsets were a matter for local implementation and development. IV agreed to act as PICS editor on behalf of the SG for all applications except DFIS which would be done by FP.

WP17 - Specifications Used in the Implementation of ATN Data Link Automation Components

8.11 IV presented this paper, which described some of the 'information flows', and sources of Standard and quasi-standards. He had set this out as a means of determining what was missing at present, and where the generic PICS should feature, were they to be introduced. The dotted lines showed what was missing. We should be interested in Generic PICS and Profile requirements list. Also he had identified the need for a consistent Technical Services Specification, which pulls all 'shalls' together. This further demonstrated that a generic PICS proforma or template should be produced by SG2, to ASE level.

8.12 IV had also introduced in this paper the concept of the Profile Requirements List, which was a development of the PICS designed to meet a market need for subset implementations. The concept of 'Service Conformance' was also discussed, with an indication that it was a difficult

concept for ISO to adopt. However, since ICAO requirements are strongly defined through 'shall' statements in both Doc 4444 and Doc 9694 (the data link manual), the derivation of a formalised service definition may be much more achievable in the ICAO environment, and that sort of lead back to FP's comments about the two levels of the PICS.

8.13 JH agreed that, in the light of description given in this paper, her paper (WP 25, above) was really a profile for the FAA partial implementation.

WP 16 - Draft CPDLC PICS Proforma, for Review

8.14 IV had produced this paper as a nearly complete example of a possible generic PICS template for CPDLC. He wanted to know whether the tables and the heading were OK, and wondered if we should review it line by line?

8.15 FP thought we needed to agree on a general format. He also thought that if we want to know about compliance, we need to know the SARPs the implementations were based on, and we would also want to know what PDRs were implemented. IV felt that all partial implementations should incorporate all the appropriate PDRs, but JH thought that this was unrealistic – at any time we will always be between versions. IV said that every time there was a new PDR we should have to update the template. This was not thought to be a good idea - there should be space in the table to allow entry of PDRs, or we could expand notes to include all PDRs.

8.16 Looking at the tables themselves in the first instance, there was a suggesting that Tables 2,4 & 5 were covered by Table 3a/b. FP threw some doubt on how table 3 could be used. JH said we should fill in one subset and only one, with separate PICS for each case FP wants to keep the tables the same format as Ch 8. He though Tables 5 and 4 in the paper should be identical to tables 2.3.8.5 and 2.3.8.6 in Doc 9705. PICS should provide a check on compliance with Ch 8 – i.e. subset compliant.

8.17 With regard to Table 6, JH would have liked to see a positive split between air and ground within the body of the table. She thought we should prepare an air PICS and a ground PICS for each application (except for ground forwarding). IV was very sympathetic to this. He also thought that the PICS should indicate paired messages. MA asked if this was really a part of the PICS, and FP agreed noting that in his opinion paired messages were part of the communication PICS – they were more an HMI consideration. However, the rest of the SG thought that there was a possible need for a message pairing column. IV said that we in ATNP now have a mechanism for illustrating the pairing – but the pairing itself should be an operational task – perhaps done by ADSP? This message pairing, or better than that - an 'acceptable response' table - should be helpful to implementers. This would be a service level, not just at a functional level, and would help standardise operations.

8.18 JH agreed to write a 'paired message' paper (for those up link and down link messages with a Y requirement only) for ADSP WG B in Adelaide. (exclude ERROR and LACK). Uplink messages are usually one to one, but downlink replies are one to many. Pairing for the air is critical – if the ground supports it, the air must. She pointed out that there was a 'Chapter 7 mandated' core set – which told you precisely what message the air must respond with to small set of given messages. This includes notification of CDA, NDA etc. There were several messages where a multiplicity of responses were acceptable - JH proposed that if there were more than two permitted responses, then any implementation would be 'just tell them what you are doing'. GS was not optimistic - he thought that this would make the PICS too unwieldy and there may be a better way than PICS for permitted responses for ground responses to air initiating. However, IV was happy to include a 'Permitted Response' column in a redesigned PICS proforma.

8.19 Apart from anything else, this discussion confirmed the need for an 'air' table 8 and a 'ground' table 8, and a need to make a choice between technical or operational compliance.

8.20 JH asked whether her WP 25, with the PICS profile of the FAA Build 1A had a future. The SG agreed that JH's paper definitely had a future in support of IV's generic PICS proforma. FP asked who will use the PICS – for example ATNSI do not know how the ASE will work, and are still at the chapter 4 and 5 level. IV said that PICS come into play when you are building operational

implementations. Interoperability is more than just supporting the PDU exchange. JH suggested that one did not need the PICS if one was doing everything. FP says the risk is that the PICS will be used as the ISO PICS, but IV says we have a stronger base, in that we have a service description. Perhaps we have to get rid of the word PICS – like SICS (System Implementation Conformance Statements)!. IV agreed with JH in that we needed everything for completeness, but PICS are really only applicable where there were options/alternatives. JH was firmly of the opinion that there was only a need for PICS because there were partial sets, citing the problem of decoding 'Kilometres' in a 'Nautical Miles' environment.

8.21 FP defined the higher level of PICS as what you are going to send, what messages you propose to operationally process and procedures to handle those you do not. He suggested it was called OICS – operational implementation conformance statements. IV and JH were unhappy at leaving anything out - if you do not include everything, people will feel that something is missed out. FP thought we needed a conformance statement for all the messages we have identified in chapter 3. On this basis, CPDLC was the most difficult, ADS was plain and simple (event options are coped with by the NACK return), CM supported options, and DFIS, being wholly air initiated, will require a limited OICS.

8.22 JH asked about paired responses in the OICS, and whether the OIKS should have permitted responses in priority order? IV was most unhappy about the thought of this, but he would look at the possibility.

WP 18a – Generic CM PICS
WP 19a – Generic ADS PICS

8.23 These two papers, again presented by IV, contained outline PICS for CM and ADS. The SG confirmed that CM should be split into air and ground elements. In ADS there could be problems with emergency mode being optional in the event of a periodic contract not being in place - this means that the default for an emergency is an 'O' and not an 'M'. More work will be done on these examples when the format of the PICS/OICS is finalised.

Action: IV to prepare a second draft of a split PICS/OICS, with air and ground elements as required
Action: FP to refine his draft outline document, including both a PICS and an OICS.
Action: JH to prepare list of permitted operational responses, where practical – just the 'Y' messages.

WP 20 - Exchange of E-mails concerning CPDLC Implementation Labelling and Identification.

8.24 There had been some discussion by e-mail as to identification of the different partial implementation of the CPDLC message set in the different pre-operational and operational trials. GA had suggested the use of dM #73, such that the aircraft could indicate which partial implementation it supports. This seemed an eminently practical solution, particularly in that Rob Mead, the PETAL Project Manager, did not want a change in SARPs. FP had also responded, proposing the use of separate AE qualifiers for each version/variation - he agreed that compared to GA's idea that it was a bit complicated. There was consequent discussion on when version numbers should be incremented - it was generally agreed that we should not related message sets to protocol versions. IV said that there were more messages to be added to the set - MA said that both ODIAC and the UK had identified the need for more global type messages.

8.25 GA explained to IV why we needed version numbers. GS agreed that a way of differentiating partial subsets would be a good idea. GA thought that it was much more a ground worry – there was a need to know what each ground implementation required. (What about supersets? or up to five message elements with different version numbers.) JH thought that partial set implementation was the way things would develop - it would probably business case driven. If we look at a production build level, ADS is taken care of – there is just a CPDLC problem, and if partial implementation distinction was done of the done on the T-select, there would be no way of coping with multiple versions. IV considered that there had to be an ICAO control or some method of regularising the labels, but MA did not think that ICAO would take this task on. The more likely source of control would be the PIT WG.

8.26 GA forecast that there would probably be two initial versions - PETAL 2 (Extended) and FAA Build 2. US airlines had indicated that they only saw any benefits from Build 2. IV thought that we shouldn't worry about the EOLIA set - the trial is short term, and if it was to be extended, it would converge to PETAL2E. The choice of set supported could be sent down by the aircraft via message dl#73. At this stage this is probably a regional issue. FP/JH would look at an elegant solution – this could be done by changing the CPDLC header, or by doing it through CM, or just listing what messages are supported. It's a CPDLC problem only because we are implementing partial message sets – this was not really forecast four years ago when the aircraft were expected to carry all messages.

Action: FP/JH to review 'elegant' solution to identification of partial version implementations
Action: MA to notify ADSP and WG 3 through this report

9. AGENDA ITEM 8 - NEW SARPS FOR VERSION 2 APPLICATIONS

WP 6 - Proposed CPDLC Provisions to Support Package 2 Security Services

9.1 FP presented this paper, based on the ADSP operational requirement for data link system security. The ATN security architecture provides two main security services giving efficient countermeasures, namely peer entity strong authentication, and data integrity checking, and this paper looked at the ways the ATN application ASE establishes a secure dialogue. FP had sent an e-mail to Mike Bigelow (Chairman of the ATNP WG 1 Security Sub Group (SSG)) to review issues concerning guidance material for the security, and looking at CM and CPDLC scenarios – there had to be co-ordination between SG 2 and the SSG. There were still questions to be answered - for example, is there a need to for CM to exchange security data, and what is the nature of it. Also it was proposed that in CPDLC Package two at the communications changeover between data authorities, use could be made of the NDA exchange to send security information related to the next data authority, FP thought this was overkill, since CM could probably do this. IV, who was also a member of the SSG, offered to act as liaison between the two subgroups. This was generally though to be a Good Thing.

9.2 IV reported on the latest SSG meeting in Phoenix. Attendance had doubled, from 6 to 12 – mostly US crypto people. They had looked at the FP questions – the experts were querying the public/private key methodology. The SSG had set a limit of 32-64 bits for key information, otherwise there would be an unacceptable overhead. The experts said this was too short, and 180 was a more representative key length. CM logon may be the means for passing the addresses and the keys. There was a paper presented at Langen that the NDA message. IV said that there would need to be information sent up, and this was a SG 2 problem. The signature is 1024 bits per key, and there was possible a need to have a different key for each air/ground application on the ground (each aircraft would have one key.) We needed a short signature algorithm – IDRP has a 128 bit signature limit - Otherwise we may have to resort to secret key operations. There needs to be some discussion on which message exchange is the best vehicle. MA asked about the possibility of non-CPDLC equipped aircraft – but key passing would have to be done in CM anyway.

9.3 Security may be mandated from the ground. Although it was not proposed to encrypt ATS messages, commercial confidentiality may require AOC messages to be encrypted. IV said that pilots were very keen about authentication - protection was really seen to be against the terrorist, rather than the casual hacker. ADS could be a problem with its four requests for connections, and a lack of awareness by the pilot or the ground as to who was connected. Ground initiation is the problem. The SSG thought that SG2 should come up with a solution. IV appreciated that the level of security might be much less for ADS rather than CPDLC, but there was still a need to prove it was the aircraft and not a man on a hill which was being communicated with.

9.4 MA said he had no recollection of a NDA security paper being presented at Langen. IV confirmed that the proposal to extend the NDA was a WG 1 suggestion at Langen. JH said security on an NDA basis would only work in one domain. MA asked about the development of short signatures – IV said that this was being done under the auspices of NASA-Ames. MA said we needed to base work on the current CM, CPDLC etc., otherwise there would be too may variables. This seemed to be generally, if not ecstatically agreed. FP said that we will need to partake in

preparation of the SV 8 (Security) draft, with input to the CM and CPDLC sections. (SV8 is on the CENA server.)

9.5 Looking at some of the detail in WP 6, FP pointed out that interoperability with non-security equipment was guaranteed because of the add-on PDU capability. IV asked whether we needed to allow different levels of security for each application, or for different services in each application. JH said that we could handle the application of security levels just like we handle the priority now. MA agreed that this would seem to be a reasonable option. IV also asked why we need authentication stages at the start, because each message is going to be checked for authenticity. He asked what the specific ADSP requirements were. MA said that the ADSP has given a broad brush requirement for all applications. FP would like to see the flexibility maintained. JH suggested that it should be possible to switch security on or off, depending on Regions and requirements. This would mean no modification from Ch 3. In addition, SG 3 will need to provide an abort reason for security failure or ground/ground communications.

Action: FP to liaise with SG3 regarding abort reasons.
Action: IV to report to WG1 SG on the security on/off proposal.

WP 13 – Concerns with Package 2 Security Services

9.6 Gerard Mittaux Biron had submitted a major paper on Security to WG 3 at Bordeaux. GS had commented on this paper in WP 13. FP disagreed with GS's interpretation of how the SARPs would work with the security, and would discuss GS's comments with GMB.

Action: FP to co-ordinate with GMB.

10. AGENDA ITEM 9 - CONSEQUENT SARPS AMENDMENTS & VERSION CONFIRMATION

WP 10 - Version Control for ATN Air/ground Applications.

10.1 Paul Camus had prepared this paper, which was to an extent a resume of the current thinking on version and interoperability. He had come up with a clarification of technical and operational system co-operation. 'Interoperability' was a technical capability and end system 'Compatibility' reflected operational co-operation. This paper looked at ATN applications in the light of these definitions. He did not attempt to define compliance/conformance (which the SG accepted as one and the same thing). Paul had proposed that compatibility checks should be carried out, and the initiator should be informed if there was an incompatibility. The SG suggested that compatibility verification should be on a contract by contract basis in ADS, message by message in CPDLC and service by service in DFIS. JH liked the idea of 'compatibility', but IV asked 'compatible' with what? MA suggested that this should go in the ATN lexicon? It was also felt that the two definitions could affect the proposed new column heading on the OICS/PICS being considered by IV.

10.2 Paul suggested that the incidence of mutual incompatibility should be very rare, with implementation awareness limiting demands where incompatibilities existed. The SG thought that this could be carried out through the use of standardised procedures, regional awareness, and through trial like PIT and the FAA 1A application trying to regularise development. Aeronautical influences had to encourage a level of standardisation, due to the global effect.

10.3 Paul thought that the term 'version' in ATN referred implicitly to protocol versions. That being so, the SG argued that the rational for change was basically technical, and should be proposed by the SG, approved by the WG (3) and authorised by the Panel. Changes were likely to be bundled, and one a version number change had been approved, there were likely to be a number of associated changes crawling out of the woodwork, to be made when there was a major change in the protocol. Paul saw two reasons for change - namely when interoperability or compatibility were affected, and could not be cured by a fix - even one which resulted in an acceptable but less than optimal performance. The SG expected that any interim bodges to facilitate interoperability and/or compatibility would be rectified on a version change. There was also considerable discussion on the use of extensibility markers as a means of facilitating interoperation, with extracts from Tony Kerr's recent paper appended. Paul was also very unhappy with the use of 'Service Unavailable' type

messages, suggesting that they use should be minimised, if only through awareness of what was or was not acceptable operationally.

10.4 The SG discussed at what point version/Package numbers should be incremented. It was agreed that the version number should be rolled when there was it is technically non interoperable, but also when there was a significant change in operational capability, e.g. the implementation of security, whether or not this affected the interoperability.

10.5 Finally, Paul wanted to ensure that there was a way of distinguishing between technical and operational changes. This could be done using a two part version number e.g. 1.05, or by giving different operational capabilities different names. GS said that, currently, version numbers in CM were an integer (1-255) option, which would preclude a '1.05' type version number, but not an '015'. JH said that in general people supposed that version 3, say, was a superset of version 2. But this need not be the case - already there are a reduced number of messages, and this trend could be continued. The SG agreed with the long accepted principle that CM version 1 would have to be carried 'no matter what', at least until an agreed sunset date, but in other applications there could be pointwise interoperability - e.g. V3 could be interoperable with V2, and V4 with V3 but not V2 etc.

10.6 The SG was grateful for Paul's paper, and suggested he could update it in the light of comments received, for presentation to WG 3 in Honolulu

Action: Paul Camus to update paper for presentation to WG 3.

11. AGENDA ITEM 10. CNS/ATM1 & FANS/1 ACCOMMODATION

11.1 There were no papers for this agenda item

12. AGENDA ITEM 11. INPUT TO WORKING GROUP 3 MEETING, HONOLULU, JANUARY 1999

12.1 The prime input to the WG meeting would be the report of this meeting. It was agreed that work on the PICS/OICS was as yet too immature, and would have to be revisited by the SG at its next meeting before any presentation to the WG.

12.2 There were updates to various papers which should be available to the WG, and these had been highlighted above.

12.3 IV suggested possible input from the joint RTCA/Eurocae PIT group, meeting in Seattle a week before Honolulu. JH might be going, and IV was going anyway. MA said that the WG3 would welcome a report, written for preference, but verbal if necessary.

Action: IV/JH to prepare PIT meeting report for WG 3

13. AGENDA ITEM 12. AOB

WP 11 - Update on AEEC activities

13.1 GS presented this paper, an update on AEEC activities. GS and IV were a bit concerned about AEEC and the ATN. GS is the author of 638A, which may have to go beyond the acceptance of the ATN and specify implementation details of the Upper Layers and Applications. Paul Hennig agreed that the 638A strawman produced by GS was OK, and AEEC needed it expanded. AEEC also started 637A - Tony Whyman wrote the first draft reviewing the implementation of VDL mode 2 and Internet SARPs. 638A is CM guidance, and is a sort of virtual 622. GS had copied some of the GM and some of the SARPs material. AEEC reviewed the draft and said that there should be hooks for ADS and CPDLC procedures, rather like the 622. IV asked if this was tutorial material, since he would expect the build to be to SARPs. GS said that there was guidance and some SARPs material. However, the SARPs material included was for clarificatrion, as the main intent was to provide necessary user requirements beyond what was in the SARPs. 638A did not copy SARPs requirements; there are all referenced by 638A to the SARPs themselves. They are 'aircraft beyond SARPs' level requirements. AEEC want 638A and 637A by September 99. Implementations hinge

on AEEC document completion. GS said that 638A could be finished by September provided it did not go any deeper, and Pauls Camus and Hennig agreed everything on implementation sooner.

13.2 GS's questioned whether the ATNP should be looking to support the AEEC 638A work, in order to ensure that the ATNP policy was accepted. Mark Vollmer of Honeywell was concerned with a possible repeat of the FANS-1 problems with CPDLC, such as message pairing. Others were concerned with the timely completion of the AEEC ATN documents. Since groups like the Data Link Systems Subcommittee of the AEEC were also very busy with other issues (e.g. VDL Mode 2), ATN implementation needed support in these venues to encourage adoption, help ensure SARPs compliance and keep realistic schedules. GS felt that there would be a significant amount of 'near ATNP' material (i.e. guidance, since the SARPs would be referenced) in the AEEC documents.

13.3 JH pointed out that of course there were both MOPS and AEEC documents. She asked whether AEEC recognised that MOPS should come before AEEC Docs. It is accepted that there will be some levels of overlap. SARPs are another level of information. Also the AEEC looks at form, fit and function. Rob Mead and Tony Martin are tasked to produce updated MOPS – this will not be a revised Doc 219 - i.e. a 219A - but a new number each for ADS, CPDLC, CM and FIS. GS would not do the 'f,f & f' bit – he will write the pseudo-tutorial bit. He was asking for support to endure that ATNP was not derailed etc. MA said that this paper should also go to WG 2. MA said that he didn't think that there was any harm in placing ATNP material in the AEEC draft, provided it was acknowledged - it might be a good thing, and ensure standardisation. He would copy the relevant bits of this report to Masoud for notification and guidance.

Action: GS to prepare updated paper for WG 3 (copy to Ron Jones for possible WG 2 info)
Action: MA to give agenda and paper number.
Action: MA to copy this section of the report to Masoud Paydar

14. AGENDA ITEM 13 - DATE AND PLACE OF NEXT MEETING

14.1 The next meeting of ATNP WG3/SG2 will be held in the Eurocontrol Headquarters, Brussels, from 1- 5 March 1999. IV offered to confirm arrangements, and e-mail hotel rates etc. It was generally agreed that, if possible, SG members would stay in the Holiday Inn (Not the Holiday Inn Courtyard).

M J A Asbury
Chairman,
ATNP WG3/SG2

16 December 1998

End

Appendix A

AGENDA

THE 19th MEETING OF ATNP WG3/SG2 (Air/Ground Subgroup)

Alburquerque, New Mexico, USA

8 - 11 December 1998

1. Notes, Briefing and out come of -

   i. 18th WG3/SG2 Meeting, Toulouse 1 - 4 September 1998

   ii. ATNP WG3 and WGW Meeting, Bordeaux, 28th September - 7 October 1998 (inc Technical timers, Systems Management & Security Requirements)

   iii ADSP WG A & B Meetings, Madrid, October 1998

2. SARPs and GM for Version 1 Applications: maintenance

   2.0 General - Discussion on SARPs P-1 maintenance procedures

   2.1 Accepted & Forwarded PDRs for CM, ADS, CPDLC & FIS

3. CM - Detailed development of future DLIC/logon procedures

4 ADS - Development of future a/g enhancements, including security, pilot interface, inputs for Emergencies, differences between Emergency and Urgency.

5. CPDLC

6. FIS - New FIS services ?

7. PICS and Interoperability (Danny van Roosebroek's paper to Bordeaux meeting)

8. New SARPs for Version 2 Applications

9. Consequent SARPs Amendments & Version Confirmation

10. CNS/ATM1 & FANS/1 Accommodation

11. Input to Working Group 3 Meeting, Honolulu, January 1999

12. AOB

13. Date and Place of next Meeting (Toulouse/.London April 1999)

End

Appendix B

LIST OF WORKING PAPERS

ATNP WG3/SG2 - Nineteenth Meeting

Albuquerque, NM, USA

8 – 11 December 1998

Paper Number	Agenda Item	Presenter	Title
1	1	M Asbury	Agenda
2	1	M Asbury	Report of SG 2 Toulouse Meeting
3	1	M Asbury	Report of WG3 Meeting, Bordeaux
4	2	F Picard	SME 2 Status Report
5		F Picard	Liaison WP with ADSP WG/B
6		F Picard	Proposed CPDLC Provisions to support Package 2 Security Services
7		F Picard	Adding the METAR Service to the CNS/ATM 1 FIS Application
8		F Picard	ADS – PDR 97100007 Follow up
9		F Picard	Current Status of the SARPs Development for the METAR Service
10		F Picard	Version Control for ATN Air/ground Applications
11		G Saccone	Update on AEEC Activities
12		G Saccone	Commentary on Data Link Server Paper presented in Bordeaux by Eurocontrol
13		G Saccone	Concerns with Package 2 Security Services
14		G Saccone	CM Backward Compatibility Additions
15		Ian Valentine	Interoperability Issues for Air/Ground Data Link Applications
16		Ian Valentine	Draft CPDLC PICS Proforma for Review
17		Ian Valentine	Specifications used in the Implementation of ATN automation components
18		Ian Valentine	Draft CM PICS Proforma, for Review
18a		Ian Valentine	Generic CM PICS Proforma
19		Ian Valentine	Draft ADS PICS Proforma, for Review
19a		Ian Valentine	Generic ADS PICS Proforma
20		M Asbury	E-mail exchange – Issues, 1/3 Version
21		Jane Hamelink	TBN (SC)
22		Jane Hamelink	PDR – Service Unavailable (SC)
23		Jane Hamelink	TBN (SC)
24		Jane Hamelink	Missing Messages (SC)
25		Jane Hamelink	PICS Profile for FAA Build 1-a (SC)
26		M Asbury	Report of the ADSP WG A/B Meetings, Madrid, October (Soft copy only)

Appendix C

BRIEF NOTES OF THE 19TH MEETING OF ATNP WG3/SG2 (AIR/GROUND SUBGROUP), ALBURQUERQUE, NEW MEXICO, USA, 8 - 11 DECEMBER 1998

1. The 19th Meeting of the ATNP WG3/SG2 (Air/Ground communications) was held in Albuquerque, from 8-11 December 1998. Tim Maude, ADSP SARPs editor was withdrawing from WG3/SG2 activities, due to involvement in other work. Ian Valentine had joined the SG principally for work related to the development of conformance Protocol Implementation Conformance Statements – PICS.

2. There were two Potential Defect Reports outstanding in ADS, one for CPDLC and two for FIS. In CPDLC there were differences between the CPDLC descriptions and message set tables in ICAO Docs 4444 and 9705. ICAO seemed to find it extremely difficult to standardise between supposedly the same material appearing in the two documents. A solution could be to delete the CPDLC the message table from Doc 9705. This would be a WG 3 decision.

3. As currently specified, a Version 2 of Context Management will never be backwards compatible with a Version 1. A possible solution to allow compatibility was accepted, and would be presented to WG 3.

4. The SG has been tasked with investigating the problem of blocked messages and the knock-on effect, particularly in CPDLC which could result in significant delays far in excess of what was operationally permissible for ATC. SG 2 members noted the problem, but were reluctant to take drastic action until the problem had been properly scoped. However, the problem itself required wider operational publicity, and a paper would be prepared for ADSP WG A/B.

5. The D-FIS editor was preparing the METAR service for implementation in the D-FIS application. It appeared that some information was not stable - the request for information on the ranges and resolutions for METAR had had to be passed to the ICAO METLINK Study Group for clarification. On this basis the editor was reluctant to do further work on this application, since we seemed bound by delivery from METLINK.

6. A major topic of concern to the SG were interoperability problems. For partial implementations to be successfully interoperable, the same options have to be chosen, all resulting in the same expected operational effect. The means of achieving this interoperability at a technical/functional level is through the development of Protocol Implementation Conformance Statements (PICS) which indicate the behaviour of the individual PDUs and the results, and then to compare the PICS for the partial implementations. The main PICS work is at the functional level. There are also implementation conformance requirements and problems at the higher, operational, level. One of the advantages of having PICS in a given format was that it allowed automatic comparison. Sample PICS tables were presented and reviewed. Manufacturers were very concerned that an aircraft performance will not need the full range of all parameters, and they were most reluctant to implement code they could/would not use.

7. The SG accepted that what was really needed was a two level PICS – syntactic and semantic (technical and operational). The SG agreed that it should be responsible for establishing the PICS template, and this should be established and prepared for full compliance.

8. The SG reviewed the question of security. There were still questions to be answered - for example, is there a need to for CM to exchange security data, and what is the nature of it. US crypto experts were querying the public/private key methodology. Although it was not proposed to encrypt ATS messages, commercial confidentiality may require AOC messages to be encrypted. There had to be co-ordination between SG 2 and the Security SG.

9. The SG were concerned about version control for the Air/ground applications. They were presented with a clarification of technical and operational system co-operation. 'Interoperability' and 'Compatibility' were defined. The SG argued that the rational for change was basically technical, and should be proposed by the SG, approved by the WG (3) and authorised by the Panel.

10. The next meeting of ATNP WG3/SG2 will be held in the Eurocontrol Headquarters, Brussels, from 1- 5 March 1999.