AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL

WORKING GROUP 3 MEETING

Langen, Germany, 23 – 26 June 1997

Agenda Item 4:

4.3 BRIEFING ON POTENTIAL PDRs AND CCB WORKING

Presented by Sub-Volume II SME

1 INTRODUCTION

1.1 The role of the ICAO Configuration Control Board (CCB) is to manage the configuration of all the ATN SARPs, and to ensure that when defects are found they are correctly and efficiently resolved. The CCB will also be responsible for providing ICAO, via the Secretariat, all the change proposals in an appropriate format. The Secretariat will process the amendments according to normal ICAO procedures and practices. Please refer to the document "*ATNP Configuration Control Board (CCB) Procedures Document*" for more details on the CCB.

1.2 A Subject Matter Expert (SME) has been assigned to each SARPs sub-volume. The role of the SME is to co-ordinate, for a given sub-volume, the resolution of proposed defect reports (PDRs) submitted to the CCB, within an open group – the SME team - of technical experts wishing to be involved in such resolution, and to report the result of the debates to the CCB.

1.3 The SMEs have been tasked to report the progress of the CCB activities related to Sub-Volumes II, III and IV to WG3. This document is the report of the Sub-Volume II SME for the period between the WG3 Phuket meeting (March 97) and the WG3 Langen meeting (June 97).

2 STATUS OF THE CCB PROCEDURES AND TOOLS

2.1 The CCB lists are now operational on the DGAC server. The list dedicated to SARPs Sub-Volume II **atnp_ccb_sme2** is open to subscriptions. It will be used - after the Langen WG3 meeting - as the unique means for discussing the PDRs for the members of the Sub-Volume II SME team. Please refer to the document "*ATNP Archive and Electronic Mailing Lists*" for the mode of operation of this list.

2.2 The ATNP archive has been reorganised to hold both the SARPs and the PDRs discussed by the CCB and the SME team. The directories relevant for the Sub-Volume II are "**atnp/srpgm/P1/SV2**" for the Package 1 Sub-Volume II SARPs and GM and "**atnp/ccb/SME2**" for the Sub-Volume II PDRs. The access to the archive (by ftp) will be authorised after the Langen WG3 meeting. Please refer to the document "*ATNP Archive and Electronic Mailing Lists*" for the mode of operation of the archive.

2.3 Because the CCB tools were not available, the defects raised against the SARPs Sub-volume II since the Phuket WG3 meeting have not been considered by the CCB itself. They have been discussed informally by the WG3/SG-2 members. A meeting took place in Whistler, Canada, 28th April - 2nd May 1997.

2.4 Some of these defects have been considered as real defects by WG3/SG-2. The technical solution issued from the discussion has been appended to the defect. Formal PDRs are ready to be submitted to the CCB chair mailing list for initial consideration. These PDRs are attached to this working paper in Appendix A.

2.5 The other defects raised require either more investigation or some co-ordination with the ADS Panel to insure that they address a real problem. The issues addressed by these defects are briefly described in this working paper. Some are covered by draft PDRs attached to this working paper in Appendix B

3 ENGINEERING VERSION

3.1 The editor of each air-ground application SARPs maintains an engineering version. This document edited in Word Perfect contains the changes agreed by the CCB to fix the PDRs before they are effectively integrated in the Master version of the SARPs by ICAO.

3.2 A version numbering system has been agreed by Sub-Volume II editors. A new level of number is added to the ICAO version numbers to form the version number of the engineering versions. Versions IV1.1.1 to IV1.1.x are the engineering versions implementing subsequent sets of agreed PDRs raised against IV1.1.

3.3 Since no PDRs has been formally approved by the CCB yet, no engineering version is presented at the Langen WG3 meeting.

4 CM SARPs

4.1 A PDR addressing the following issue will be sent to the CCB chair.

4.1.1 Time Stamp Addition. The time stamp, consisting of the date-time group, is missing from CM. The ICAO Manual of ATS D/L Applications mandates the inclusion of a timestamp in all CM uplink and downlink messages. It is proposed to modify accordingly the CM ASN.1 description.

4.2 The following issue is still open and requires additional discussion by the SME team members or co-ordination with the ADS Panel.

4.2.1 ETD Correction. ETD (Estimated Time of Departure) as presented in the CMLogonRequest does not match the definition of the ICAO Manual of ATS D/L Applications. The SARPs include Date and Time while the manual only has Time. This issue will be raised at the next ADSP meeting (07/97 in Brisbane).

5 ADS SARPs

5.1 PDRs addressing the following issues will be sent to the CCB chair.

5.1.1 Invalid Reference to 'Flight Id'. ADS SARPs chapter 7 states incorrectly that the "flight-id" field is included in the ADS emergency reports. This field has been replaced during the development of the ADS SARPs by the "aircraft address" field. It is proposed to change chapter 7 accordingly.

5.1.2 Facility Designation Correction. The Facility Designation parameter can be four to eight characters instead of only eight characters. It is proposed to change accordingly the ADS SARPs chapters describing the ADS and ADS-RF abstract services.

5.1.3 Specification of an Invalid Value. The ADS SARPs do not specify a means for the ADS-air-user to indicate that the value of an aircraft parameter is no more available.

5.1.4 Unbounded ASN.1 Types. The presence of unbounded sets of elements (SET OF) in the ADS ASN.1 description makes the size of the ADS message virtually infinite. This causes some troubles to implementers. Since the bounds of these sets are in fact known, it is proposed to add PER size constraints in the ADS ASN.1.

5.2 The following issues are still open and require additional discussion by the SME team members or co-ordination with the ADS Panel.

5.2.1 ATSC and AOC ADS AE Invocations. An aircraft implementing the ADS application shall be able to support ADS contracts with at least 4 ground ADS systems. It is not specified whether these 4 connections are reserved for ATSC communications only or if some can be used for AOC communications. Neither is specified how the aircraft shall react when the establishment of a new ATSC ADS contract is requested but the 4 ADS connections are already set up with ATSC and AOC ground systems. Information is sought from the ADS Panel to describe how the ATSC vs. AOC ADS contracts shall be managed onboard. This leads to the problem for the ADS-air-user to identify the type of an ADS contract established by a ground system. The type of communication is supplied in the QoS parameter of the D-START request when the supporting dialogue is established (field "traffic type") but this parameter is not provided to the ADS-air-user.

5.2.2 Time Stamp Addition. The time stamp, consisting of the date-time group, is missing from most ADS messages. The ICAO Manual of ATS D/L Applications mandates the inclusion of a timestamp in all ADS uplink and downlink messages. In the ADS SARPs, only the ADSReport and the ADSReportEmergency contain a timestamp. It is proposed to modify accordingly the ADS and ADS-RF ASN.1 descriptions. The operational requirement to have a timestamp in all ADS messages shall be confirmed by ADSP. This issue will be raised at the next ADSP meeting (07/97 in Brisbane).

6 CPDLC SARPs

6.1 PDRs addressing the following issues will be sent to the CCB chair.

6.1.1 "Lat/Lon" ASN.1 Definition. The current ASN.1 mandates the presence of both the latitude and the longitude in the clearances identifying a position. In some cases, only one is needed. It is proposed to modify the ASN.1 type to allow the specification of only one.

6.1.2 "FrequencyVHF" ASN.1 Definition. The current ASN.1 definition of this field does not match the range and the resolution defined for a VHF Frequency. It is proposed to align the ASN.1 type definition to these values.

6.1.3 Start Collision Problem. The current specification of the CPDLC-start situation causes both CPDLC-users to wait events they cannot receive. It is proposed to modify SARPs chapter 7 in such a way the CPDLC-ground-user aborts the ground-initiated CPDLC dialogue and accepts the air-initiated one.

6.2 The following issues are still open and require additional discussion by the SME team members or co-ordination with the ADS Panel.

6.2.1 Maximum Size of CPDLC Message. The current ASN.1 definition allows for the encoding of 5 message elements containing each a route clearance in a single CPDLC message. The memory requirement for handling this message exceeds the actual capacities of the airborne computers. Industry requests that the composition of these messages be prohibited in the SARPs. Two proposals are on the table. The first consists in adding new message

composition rules for the users in the SARPs chapter 7. The second consists in addition to these rules in modifying the ASN.1 to make impossible the composition of these messages. In any case, the ADS Panel must provide ATNP with guidelines on the number of route clearance message elements in a single CPDLC message (e.g. UPL#80 CLEARED [routeClearance] + UPL#86 AT [position] EXPECT [routeClearance]).

6.2.2 Modification of the CPDC Message Intent Table. WG3 agreed in Phuket to allow the CPDLC-ground-user to uplink some clearances specifying a range of flight levels instead of a single flight level. The phraseology and the meaning of these messages in the Message Intent Table (SARPs section 7) have been slightly modified to reflect the two possible uses. For instance UPLINK Message #38:

	Message Intent/Use	**Message Element**	**URG**	**ALRT**	**RESP**
38	Urgent instruction to immediately climb to the specified level *or* *Vertical range*	IMMEDIATELY CLIMB TO [level] *Or* *IMMEDIATELY CLIMB TO BLOCK [level] TO [level*].	D	H	W/U

The SARPs are now inconsistent with the Doc. 4444 and the ICAO Manual of ATS D/L Applications. It is proposed to leave the table as it was (the field level is defined in the Manual as specifying a single level or a vertical range).

6.2.3 Facility Designation Correction. The ASN.1 description of the Facility Designation has been modified in Phuket to allow the specification of 4 to 8 characters instead of only 4. The IV1.1 redline version contains the modification, but the IV1.1 clean version does not. The CPDLC editor will issue a PDR.

6.2.4 Use of the NDA Message Onboard. The NDA message is sent by the CDA to request the aircraft to establish a CPDLC dialogue with the next ATSU when the aircraft can not communicate with the next ATSU on the current CPDLC dialogue. The NDA message is also used in the aircraft to display to the aircrew the controlling ATSU.

In case the T-ATSU (Transferring) and the R-ATSU (Receiving) are connected to the same ground CPDLC End System, there is no NDA message sent to the aircraft when the aircraft is transferred from the T-ATSU to the R-ATSU. Thus, the aircrew is not informed by data link that the controlling authority has changed. A possible solution is to create a new message (e.g. CURRENT DATA AUTHORITY [facility designation]) equivalent to the NDA sent to the aircraft to indicate the change of data authority when there is no transfer of D/L communication. This issue will be addressed at the next ADSP/WG-B meeting.

6.2.5 CPDLC Exception Handling. This section in the SARPs does not cover all exception cases (e.g. what happens when an APDU is expected and no data is received). In addition, the actions performed by the ASE when the check on the QOS parameter fails are incomplete. The CPDLC editor will issue a PDR.

7 FIS(ATIS) SARPs

7.1 PDRs addressing the following issues will be sent to the CCB chair.

7.1.1 Facility Designation Correction. The Facility Designation parameter can be four to eight characters instead of only eight characters. It is proposed to change accordingly the FIS(ATIS) SARPs chapter describing the FIS abstract service. A PDR addressing that issue will be sent to the CCB chair.

8 CONCLUSION

8.1 The WG3 meeting is invited to notice the problems raised against version IV1.1 described in this working paper and to participate in the elaboration of the proposed solutions.

8.2 Anyone interested in taking part in the discussion on these issues is requested to register the **atnp_ccb_sme2** mailing list. Anyone interested in being informed of the result of the CCB process on these issues is requested to register the **atnp_ccb_list** mailing list.

Appendix A

Sub-Volume II PDRs presented at CCB-2 (27 June 97)

Title: **CM Time Stamp Addition**

PDR Reference:	<?>
Originator Reference:	CMTS.DOC
SARPs Document Reference:	CM SARPs, Section 2.1.4.2.1
Status:	SUBMITTED
PDR Revision Date:	
PDR Submission Date:	27 June 97
Submitting State/Organization	ATNP WG3/SG2
Submitting Author Name:	Saccone, G
Submitting Author E-mail Address:	gsaccone@ccgate.hac.com
Submitting Author Supplemental Contact Information:	ph 1 604 821-5182, fx 1 604 279-5980
SARPs Date:	IV1.1, Input to Thailand (3 March 97)
SARPs Language:	English

Summary of Defect:

The time stamp, consisting of the date-time group, is missing from CM. Seconds must also be included for the time stamp.

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Add the following to ASN.1 in 2.1.4.2.1, after "-- Aircraft-generated messages":

```
CMAircraftMessage ::= SEQUENCE
      {
      dateTimeStamp          DateTimeStamp,
      cmAircraftMessage      CMAircraftAPDU
      }
```

Also add the following to ASN.1 in 2.1.4.2.1, after "-- Ground-generated messages"

```
CMGroundMessage ::= SEQUENCE
      {
      dateTimeStamp          DateTimeStamp,
      cmGroundMessage        CMGroundAPDU
      }
```

Also, change the following ASN.1 lines:

CMAircraftMessage ::= CHOICE

CMGroundMessage ::= CHOICE

by

CMAircraftAPDU ::= CHOICE

CMGroundAPDU ::= CHOICE

After DateTime, add:

```
DateTimeStamp ::= SEQUENCE
            {
            date             Date,
            timeStamp        HHMMSS
```

```
                }
```

After FacilityDesignation, add:

```
      HHMMSS ::= SEQUENCE
                {
                hours             Timehours,
                minutes           Timeminutes,
                seconds           Timeseconds
                }
```

After Timeminutes, add:

```
      Timeseconds ::= INTEGER (0..59)
      -- units = seconds, range (0..59), resolution = 1
```

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **ADS - Invalid Reference to 'Flight Id'**

PDR Reference:	<?>
Originator Reference:	5044/T04/PDR-ADS-01
SARPs Document Reference:	ADS SARPs, 2.2.1.7.6.3.5 b)
Status:	SUBMITTED
PDR Revision Date:	<dd/mm/yy>
PDR Submission Date:	27 June 97
Submitting State/Organization:	EUROCONTROL/Level-7
Submitting Author Name:	Maude, T
Submitting Author E-mail Address:	maude@level-7.co.uk
Submitting Author Supplemental Contact Information:	Tim Maude Level-7 Ltd Centennial Court Easthampstead Road Bracknell Berks RG12 1YQ UK Tel: +44 1344 867 199 Fax: +44 1344 868 442
SARPs Date:	12/03/97
SARPs Language:	English

Summary of Defect:

2.2.1.7.6.3.5 states that "flight-id" is included in an emergency report. "Flight-id" is not one of the items in an ADS emergency report. Some time ago, during the development of the ADS SARPs, flight-id was removed from the ADS report on the grounds that it was not necessary - the aircraft address is sufficient to identify the aircraft.

Assigned SME:	Sub-Volume II SME

Proposed SARPs amendment:

Replace "flight-id" with "aircraft address".

SME Recommendation to CCB:	<resolve, reject, forward>

CCB Decision:

Title: **ADS Facility Designation Correction**

PDR Reference:	<?>
Originator Reference:	ADSFD.DOC

SARPs Document Reference:

ADS SARPs, Sections 2.2.1.3.4.7, 2.2.1.3.4.7.1, 2.2.1.3.5.7, 2.2.1.3.5.7.1, 2.2.1.3.6.7, 2.2.1.3.6.7.1, 2.2.2.3.4.3.1

Status:	SUBMITTED
PDR Revision Date:	<dd/mm/yy>
PDR Submission Date:	27 June 97
Submitting State/Organization:	ATNP WG3/SG2
Submitting Author Name:	Saccone, G
Submitting Author E-mail Address:	gsaccone@ccgate.hac.com
Submitting Author Supplemental Contact Information:	ph 1 604 821-5182, fx 1 604 279-5980
SARPs Date:	IV1.1, Input to Thailand (3 March 97)
SARPs Language:	English

Summary of Defect:

The Facility Designation parameter can be four to eight characters instead of only eight characters.

Assigned SME:	Sub-Volume II SME

Proposed SARPs amendment:

Change the following sections from:

Notes to 2.2.1.3.4.7, 2.2.1.3.5.7, 2.2.1.3.6.7:

> ***Note.— This parameter contains the 8 character ICAO facility designation...***

Sections 2.2.1.3.4.7.1, 2.2.1.3.5.7.1, 2.2.1.3.6.7.1:

> **The *ICAO facility designation* parameter value shall conform to an abstract value corresponding to an 8 character ICAO facility designation.**

Section 2.2.2.3.4.3.1:

> **The *ICAO Facility designation* parameter value shall conform to the abstract syntax eight-character ICAO facility designation.**

To:

Notes to 2.2.1.3.4.7, 2.2.1.3.5.7, 2.2.1.3.6.7:

> ***Note.— This parameter contains the 4 to 8 character ICAO facility designation...***

Sections 2.2.1.3.4.7.1, 2.2.1.3.5.7.1, 2.2.1.3.6.7.1:

> **The *ICAO facility designation* parameter value shall conform to an abstract value corresponding to a 4 to 8 character ICAO facility designation.**

Section 2.2.2.3.4.3.1:

> **The *ICAO Facility designation* parameter value shall conform to the abstract syntax four- to eight-character ICAO facility**

designation.

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **ADS_ASN1: Unbounded types**

PDR Reference: <?>

Originator Reference: A044PD0A.doc

SARPs Document Reference: ADS SARPs, Section 2.2.1.4

Status: SUBMITTED

PDR Revision Date:

PDR Submission Date: 27 June 97

Submitting State/Organization: Aérospatiale

Submitting Author Name: Monteil, A

Submitting Author E-mail Address:
arnaud.monteil@avions.aerospatiale.fr

Submitting Author Supplemental Contact Information:

SARPs Date: IV1.1, 12/03/97

SARPs Language: English

Summary of Defect:

Unbounded types are not implementable on an on-board computer.

Page 2.2.1.4-4: SET OF without limited size

```
NoncomplianceNotification ::= CHOICE
{
     demand-ncn               [0]  SET OF ReportType,
     event-ncn                [1]  SET OF EventTypeContracted,
     periodic-ncn             [2]  SET OF ReportTypeAndPeriod,
     ...
}
```

Page 2.2.1.4-13 : SEQUENCE OF without limited size

```
GroundSystemsUsingService ::= SEQUENCE OF IA5String
(SIZE(4..8))
-- contains a sequence of ICAO facility designations
```

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

The size of these two types should be bounded according to the maximal proposed enumerated for the SET OF (the extension mark is maintained in the size)and according to the required link number for the SEQUENCE OF.

```
NoncomplianceNotification ::= CHOICE
{
     demand-ncn        [0]  SET SIZE(1..7,...)OF ReportType,
     event-ncn         [1]  SET SIZE(1..11,...)OF
EventTypeContracted,
     periodic-ncn      [2]  SET SIZE(1..8,...)OF
ReportTypeAndPeriod,
     ...
}

GroundSystemsUsingService ::= SEQUENCE SIZE(4..Max)
                                                    OF
IA5String (SIZE(4..8))
-- contains a sequence of ICAO facility designations
```

Note: the minimum size is four because of the SARPS requirements. Cf. §2.2.1.7.1.5.2: The ADS-air-user shall be capable of supporting contracts from at least four different ground systems at the same time.

The Max bound has to be defined by the airborne user according to his limitations.

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **ADS – Validity Indication for Downlink Parameters**

PDR Reference: <?>

Originator Reference: A047PD0A.doc

SARPs Document Reference: ADS SARPs, Section 2.2.1.4.2

Status: SUBMITTED

PDR Revision Date:

PDR Submission Date:

Submitting State/Organization: Aérospatiale

Submitting Author Name: MONTEIL, A
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Tel: 33 (0) 5 61 18 44 18
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SARPs Date: IV1.1, March 1997 (Phuket)

SARPs Language: English

Summary of Defect:

What shall be done if a data of an ADS report is temporarily invalid / not available (for any reason in the avionics)?

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Solution 1:

A bit could be added to indicate if the data are valid or not.
This validity bit could be added at the last level of the ASN.1 description, i.e. in the parameter description preceding its value (see ASN.1 example below).

Example of validity bit on an ADS Report Type (lower level):

```
ProjectedProfile ::= SEQUENCE
{
next-way-point              Position,
next-time                   Eta,
following-way-point         Position
}

Position::SEQUENCE
{
latitude-validity    BOOLEAN,
latitude             Latitude,
longitude-validity   BOOLEAN,
```

```
longitude            Longitude,
level-validity       BOOLEAN,
level                Level
}
```

Other implementation:

```
Position::SEQUENCE
{
validity-mask        BITSTRING (SIZE(3))
                        {
                        latitude (0),
                        longitude (1),
                        level (2)
                        }
latitude             Latitude,
longitude            Longitude,
level                Level
}
```

Solution 2:

One also can choose to add a bit string at the level of the group description. One bit is dedicated to one parameter of the group and there are as many bits as parameters (see ASN.1 example below).

Example of validity bit on an ADS Report Type (Group level):

```
ProjectedProfile ::= SEQUENCE
{
next-way-point-validity       BOOLEAN,
next-way-point                Position,
next-time-validity            BOOLEAN,
next-time                     Eta,
following-way-point-validity  BOOLEAN,
following-way-point           Position,
}
```

Other implementation:

```
ProjectedProfile ::= SEQUENCE
{
validity-mask           BITSTRING (SIZE(3)){
                                   next-way-point (0)
                                   next-time (1)
                                   following-way-point (2)}
next-way-point                Position,
next-time                     Eta,
following-way-point           Position
}
```

This example is available for all the types defined in the ADS Report:

- ProjectedProfile, GroundVector, AirVector, Weather, ShortTermIntent, ExtendedProjectedProfile(to be clarify)

SME Recommendation to CCB:

CCB Decision:

Title: **CPDLC - Revision on Position Definition for Latitude/Longitude**

PDR Reference:	<?>
Originator Reference:	PDRPOS.DOC
SARPs Document Reference:	CPDLC SARPs, Section 2.3
Status:	SUBMITTED
PDR Revision Date:	<dd/mm/yy>
PDR Submission Date:	27 June 97
Submitting State/Organization:	ATNP WG3/SG2
Submitting Author Name:	Hamelink, J
Submitting Author E-mail Address:	Jhamelin@adsystech.com
Submitting Author Supplemental Contact Information:	
SARPs Date:	IV1.1, Post Phuket March 1997
SARPs Language:	English

Summary of Defect:

CPDLC SARPS require that both the lat and lon be specified when giving a position. Operationally it is required that only one or the other need to be supplied as in a clearance which says: "CROSS 50W ..."

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Modify CPDLC SARPs as follows:

Modify ASN.1 from: (Section 2.3.4)

```
LatitudeLongitude ::= SEQUENCE
      {
      latitude          Latitude,
      longitude         Longitude
      }
```

To:

```
LatitudeLongitude ::= SEQUENCE
      {
      latitude          [0]   Latitude    OPTIONAL,
      longitude         [1]   Longitude   OPTIONAL
      }
```

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **CPDLC - Range is Wrong for VHF Frequency Variable**

PDR Reference: <?>

Originator Reference: PDRVHF.DOC

SARPs Document Reference: CPDLC SARPs, Section 2.3

Status: SUBMITTED

PDR Revision Date: <dd/mm/yy>

PDR Submission Date: 27 June 97

Submitting State/Organization: ATNP WG3/SG2

Submitting Author Name: Hamelink, J

Submitting Author E-mail Address: Jhamelin@adsystech.com

Submitting Author Supplemental Contact Information:

SARPs Date: IV1.1, Post Phuket March 1997

SARPs Language: English

Summary of Defect:

The indicated range for the VHF frequency choice does not meet the requirements.

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Change ASN.1 (Section 2.3.4) from

```
Frequencyvhf ::= INTEGER (14000..17000)
--    unit    =    Megahertz,    Range    (117.00000..138.00000),
      resolution = 0.025
```

To:

```
Frequencyvhf ::= INTEGER (4680..5520)
--    unit    =    Megahertz,    Range    (117.00000..138.00000),
      resolution = 0.025
```

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **CPDLC - Start Collision in CPDLC**

PDR Reference:	<?>
Originator Reference:	PRDSRT.DOC
SARPs Document Reference:	CPDLC SARPs, Section 2.3
Status:	SUBMITTED
PDR Revision Date:	<dd/mm/yy>
PDR Submission Date:	27 June 97
Submitting State/Organization:	ATNP WG3/SG2
Submitting Author Name:	Hamelink, J
Submitting Author E-mail Address:	Jhamelin@adsystech.com
Submitting Author Supplemental Contact Information:	
SARPs Date:	IV1.1, Post Phuket March 1997
SARPs Language:	English

Summary of Defect:

When both the aircraft and ground initiate a CPDLC-start such that the CPDLC-start indication is received prior to the receipt of a CPDLC-start confirmation (i.e., ”crossing starts”) both sides are locked out from doing anything other than an abort. This is operationally unacceptable and very inefficient

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Modify CPDLC SARPs as follows:

Paragraph 2.3.7.5.1.1.2 would be changed from:

> **If a CPDLC-ground-user has invoked a CPDLC-start request, the CPDLC-ground-user shall be prohibited from invoking any CPDLC-service primitive, except the CPDLC-user-abort request with that aircraft, until after it has received a CPDLC-start confirmation.**

To:

> **If a CPDLC-ground-user has invoked a CPDLC-start request, the CPDLC-ground-user shall be prohibited from invoking any CPDLC-service primitive, except the CPDLC-user-abort request with that aircraft, until after it has received either a CPDLC-start-indication or a CPDLC-start confirmation.**

Add a new paragraph after 2.3.7.5.1.1.2:

> **If a CPDLC-ground-user receives a CPDLC-start indication from an aircraft for which it has invoked a CPDLC-start request primitive and has not yet received a CPDLC-start confirmation, the CPDLC-ground-user shall:**
> **a) invoke a CPDLC-abort-request “crossing-start” on the ground initiated dialogue, and then**
> **b) invoke a CPDLC-start-response with the *Result* parameter set to the abstract value “Accepted”.**

Change the ASN.1 type CPDLCUserAbortReason from:

```
      CPDLCUserAbortReason ::= ENUMERATED
            {
            undefined                              (0),
            no-message-identification-numbers-available    (1),
            duplicate-message-identification-numbers (2),
            no-longer-next-data-authority          (3),
            current-data-authority-abort           (4),
            commanded-termination                  (5),
            invalid-response                       (6),
            ...
            }
```

To:

```
      CPDLCUserAbortReason ::= ENUMERATED
            {
            undefined                              (0),
            no-message-identification-numbers-available    (1),
            duplicate-message-identification-numbers (2),
            no-longer-next-data-authority          (3),
            current-data-authority-abort           (4),
            commanded-termination                  (5),
            invalid-response                       (6),
            crossing-start                         (7),
            ...
            }
```

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **FIS Facility Designation Correction**

PDR Reference:	<?>
Originator Reference:	FISFD.DIC
SARPs Document Reference:	FIS SARPs, Section 2.4.3.3.2.1, 2.4.3.4.2.1
Status:	SUBMITTED
PDR Revision Date:	<dd/mm/yy>
PDR Submission Date:	27 June 97
Submitting State/Organization:	ATNP WG3/SG2
Submitting Author Name:	Saccone, G
Submitting Author E-mail Address:	gsaccone@ccgate.hac.com
Submitting Author Supplemental Contact Information:	ph 1 604 821-5182, fx 1 604 279-5980
SARPs Date:	IV1.1, 3 March 97
SARPs Language:	English

Summary of Defect:

The Facility Designation parameter can be four to eight characters instead of only eight characters.

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Change 2.4.3.3.2.1 and 2.4.3.4.2.1 from:

2.4.3.3.2.1 The *ICAOFacilityDesignation* parameter value shall conform to the abstract syntax eight-character ICAO Facility Designation.

2.4.3.4.2.1 The *ICAOFacilityDesignation* parameter value shall conform to the abstract syntax eight-character ICAO Facility Dsignation.

To:

2.4.3.3.2.1 The *ICAOFacilityDesignation* parameter value shall conform to the abstract syntax four- to eight-character ICAO Facility Designation.

2.4.3.4.2.1 The *ICAOFacilityDesignation* parameter value shall conform to the abstract syntax four- to eight-character ICAO Facility Dsignation.

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Appendix B

Sub-Volume II PDRs in preparation

Title: **CM ETD Correction**

PDR Reference:	<?>
Originator Reference:	CMETD.DOC
SARPs Document Reference:	CM SARPs, Section 2.1.4.2.1
Status:	SUBMITTED
PDR Revision Date:	<dd/mm/yy>
PDR Submission Date:	27 June 97
Submitting State/Organization:	ATNP WG3/SG2
Submitting Author Name:	Saccone, G
Submitting Author E-mail Address:	gsaccone@ccgate.hac.com
Submitting Author Supplemental Contact Information:	ph 1 604 821-5182, fx 1 604 279-5980
SARPs Date:	IV1.1, Input to Thailand (3 March 97)
SARPs Language:	English

Summary of Defect:

ETD, as presented in the CMLogonRequest does not match the definition in the ICAO Manual of ATS Data Link Applications. The SARPs include Date and Time while the manual only has Time.

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Change the following line of the CMLogonRequest:

dateTimeDeparture	**[7]**	**DateTime**	**OPTIONAL**

To:

ETD	**[7]**	**Time**	**OPTIONAL**

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **ADS Time Stamp Addition**

PDR Reference:	<?>
Originator Reference:	ads_time.doc
SARPs Document Reference:	ADS SARPs, Section 2.2.1.4.2
Status:	SUBMITTED
PDR Revision Date:	
PDR Submission Date:	27 June 97
Submitting State/Organization:	Aerospatiale
Submitting Author Name:	POPULUS, F.
Submitting Author E-mail Address:	frederique.populus @avions.aerospatiale.fr
Submitting Author Supplemental Contact Information:	Mrs Frédérique POPULUS, A/BTE/SY/GGV B0403, AEROSPATIALE, 316 route de 31060 Bayonne, Toulouse, France tel : 33 (0)5 61 18 44 18 fax : 33 (0)5 61 93 80 06
SARPs Date:	IV1.1, 4-6th march 1997 (Phuket)
SARPs Language:	English

Summary of Defect:

No time stamp has been defined for uplink ADS messages in this section whereas section 2.4.2 of ADS-P Manual part III says: 'time stamping will be available for all messages.'

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

As time stamp is required for both downlink and uplink messages, the ASN-1 structure could be changed by adding time stamp in each message definition.

Present ASN-1 declaration :

```
-- ------------------------------------------------------------
-- Ground-generated and Aircraft-generated message components -
Protocol Data Units
-- ------------------------------------------------------------
ADSAircraftPDUs ::= CHOICE
{
aDS-cancel-emergency-PDU            [0] NULL,
aDS-demand-report-PDU               [1] ADSDemandReport,
aDS-emergency-report-PDU            [2] ADSEmergency,
aDS-event-report-PDU                [3] ADSEventReport,
aDS-negative-acknowledgement        [4] NegativeAcknowledgement,
aDS-noncompliance-notification-PDU  [5] NoncomplianceNotification,
aDS-periodic-report-PDU             [6] ADSPeriodicReport,
aDS-positive-acknowledgement        [7] PositiveAcknowledgment,
aDS-provider-abort-PDU              [8] AbortReason,
…
}
ADSGroundPDUs ::= CHOICE
```

```
{
aDS-cancel-all-contracts                        [0] NULL,
aDS-cancel-contract-PDU                         [1] CancelContract,
aDS-cancel-emergency-acknowledgement-PDU        [2] NULL,
aDS-demand-contract-PDU                         [3] DemandContract,
aDS-event-contract-PDU                          [4] EventContract,
aDS-modify-emergency-contract-PDU               [5] ModifyEmergency,
aDS-periodic-contract-PDU                       [6] PeriodicContract,
aDS-provider-abort-PDU                          [7] AbortReason,
…
}


AbortReason  ::= ENUMERATED
{
communications-service-failure                  (0),
unrecoverable-system-error                      (1),
invalid-PDU                                     (2),
sequence-error                                  (3),
timer-expiry                                    (4),
cannot-establish-contact                        (5),
undefined-error                                 (6),
dialogue-end-not-accepted                       (7),
unexpected-PDU                                  (8),
decoding-error                                  (9),
invalid-qos-parameter                           (10),
...
}


CancelContract ::= ENUMERATED
{
event-contract                (0),
periodic-contract             (1),
...
}

DemandContract ::= SEQUENCE
{
aircraft-address              [0]  NULL               OPTIONAL,
projected-profile             [1]  NULL               OPTIONAL,
ground-vector                 [2]  NULL               OPTIONAL,
air-vector                    [3]  NULL               OPTIONAL,
weather                       [4]  NULL               OPTIONAL,
short-term-intent             [5]  ProjectionTime     OPTIONAL,
extended-projected-profile    [6]
                        ExtendedProjectedProfileRequest    OPTIONAL,
...
}

EventContract ::= SEQUENCE
{
lateral-deviation-change      [0]  LateralChange      OPTIONAL,
vertical-rate-change          [1]  VerticalRateChange OPTIONAL,
level-range                   [2]  LevelRange         OPTIONAL,
way-point-change              [3]  NULL               OPTIONAL,
air-speed-change              [4]  AirSpeedChange     OPTIONAL,
ground-speed-change           [5]  GroundSpeedChange  OPTIONAL,
heading-change                [6]  DegreesDirection   OPTIONAL,
```

```
extended-projected-profile-change
                              [7]  ExtendedProjectedProfileRequest
                                                          OPTIONAL,
fom-change                    [8]  NULL                OPTIONAL,
track-angle-change            [9]  DegreesDirection    OPTIONAL,
level-change                  [10] LevelChange         OPTIONAL,
...
}

ModifyEmergency ::= ReportingInterval

NegativeAcknowledgement ::= SEQUENCE
{
request-type                          RequestType,
reason                                Reason
}

NoncomplianceNotification ::= CHOICE
{
demand-ncn                    [0]  SET OF ReportType,
event-ncn                     [1]  SET OF EventTypeContracted,
periodic-ncn                  [2]  SET OF ReportTypeAndPeriod,
...
}

PeriodicContract ::= SEQUENCE
{
reporting-interval                  [0]  ReportingInterval
                                          DEFAULT {minutes-scale 5},
aircraft-address-modulus            [1]  Modulus            OPTIONAL,
projected-profile-modulus           [2]  Modulus            OPTIONAL,
ground-vector-modulus               [3]  Modulus            OPTIONAL,
air-vector-modulus                  [4]  Modulus            OPTIONAL,
weather-modulus                     [5]  Modulus            OPTIONAL,
short-term-intent-modulus           [6]  ShortTermIntentModulus
                                                            OPTIONAL,
extended-projected-profile-modulus [7]
                  ExtendedProjectedProfileModulus           OPTIONAL,
...
}

PositiveAcknowledgement ::= RequestType
```

Proposed ASN-1 declaration :

```
-- ------------------------------------------------------------
-- Ground-generated and Aircraft-generated message components -
Protocol Data Units
-- ------------------------------------------------------------
ADSAircraftPDUs ::= CHOICE
{
aDS-cancel-emergency-PDU            [0] DateTimeGroup,
aDS-demand-report-PDU               [1] ADSDemandReport,
aDS-emergency-report-PDU            [2] ADSEmergency,
aDS-event-report-PDU                [3] ADSEventReport,
aDS-negative-acknowledgement        [4] NegativeAcknowledgement,
aDS-noncompliance-notification-PDU  [5] NoncomplianceNotification,
aDS-periodic-report-PDU             [6] ADSPeriodicReport,
```

```
aDS-positive-acknowledgement        [7] PositiveAcknowledgment,
aDS-provider-abort-PDU              [8] AbortReason,
…
}
ADSGroundPDUs ::= CHOICE
{
aDS-cancel-all-contracts                          [0] DateTimeGroup,
aDS-cancel-contract-PDU                           [1] CancelContract,
aDS-cancel-emergency-acknowledgement-PDU          [2] DateTimeGroup,
aDS-demand-contract-PDU                           [3] DemandContract,
aDS-event-contract-PDU                            [4] EventContract,
aDS-modify-emergency-contract-PDU                 [5] ModifyEmergency,
aDS-periodic-contract-PDU                         [6] PeriodicContract,
aDS-provider-abort-PDU                            [7] AbortReason,
…
}


AbortReason  ::= SEQUENCE
{
time-stamp                  DateTimeGroup,
abort-reason                AbortReasonType
}

AbortReasonType  ::= ENUMERATED
{
communications-service-failure                (0),
unrecoverable-system-error                    (1),
invalid-PDU                                   (2),
sequence-error                                (3),
timer-expiry                                  (4),
cannot-establish-contact                      (5),
undefined-error                               (6),
dialogue-end-not-accepted                     (7),
unexpected-PDU                                (8),
decoding-error                                (9),
invalid-qos-parameter                         (10),
...
}


CancelContract ::= SEQUENCE
{
time-stamp                  DateTimeGroup,
cancel-contract             CancelContractType
}

CancelContractType ::= ENUMERATED
{
event-contract              (0),
periodic-contract           (1),
...
}

DemandContract ::= SEQUENCE
{
time-stamp                        [0]  DateTimeGroup,
aircraft-address                  [1]  NULL              OPTIONAL,
projected-profile                 [2]  NULL              OPTIONAL,
```

```
ground-vector                       [3]  NULL                OPTIONAL,
air-vector                          [4]  NULL                OPTIONAL,
weather                             [5]  NULL                OPTIONAL,
short-term-intent                   [6]  ProjectionTime      OPTIONAL,
extended-projected-profile          [7]
                        ExtendedProjectedProfileRequest      OPTIONAL,
...
}

EventContract ::= SEQUENCE
{
time-stamp                          [0]  DateTimeGroup,
lateral-deviation-change            [1]  LateralChange       OPTIONAL,
vertical-rate-change                [2]  VerticalRateChange
                                                             OPTIONAL,
level-range                         [3]  LevelRange          OPTIONAL,
way-point-change                    [4]  NULL                OPTIONAL,
air-speed-change                    [5]  AirSpeedChange      OPTIONAL,
ground-speed-change                 [6]  GroundSpeedChange
                                                             OPTIONAL,
heading-change                      [7]  DegreesDirection    OPTIONAL,
extended-projected-profile-change
                                    [8]
ExtendedProjectedProfileRequest
                                                             OPTIONAL,
fom-change                          [9]  NULL                OPTIONAL,
track-angle-change                  [10] DegreesDirection    OPTIONAL,
level-change                        [11] LevelChange         OPTIONAL,
...
}

ModifyEmergency ::= SEQUENCE
{
time-stamp                          DateTimeGroup,
reporting-interval                  ReportingInterval
}

NegativeAcknowledgement ::= SEQUENCE
{
time-stamp                          DateTimeGroup,
request-type                        RequestType,
reason                              Reason
}

NoncomplianceNotification ::= SEQUENCE
{
time-stamp                          DateTimeGroup,
Non-compliance-Notification         NoncomplianceNotificationType
}

NoncomplianceNotificationType ::= CHOICE
{
demand-ncn                    [0]  SET OF ReportType,
event-ncn                     [1]  SET OF EventTypeContracted,
periodic-ncn                  [2]  SET OF ReportTypeAndPeriod,
...
}

PeriodicContract ::= SEQUENCE
```

```
{
time-stamp                          [0]  DateTimeGroup,
reporting-interval                  [1]  ReportingInterval
                                          DEFAULT {minutes-scale 5},
aircraft-address-modulus            [2]  Modulus            OPTIONAL,
projected-profile-modulus           [3]  Modulus            OPTIONAL,
ground-vector-modulus               [4]  Modulus            OPTIONAL,
air-vector-modulus                  [5]  Modulus            OPTIONAL,
weather-modulus                     [6]  Modulus            OPTIONAL,
short-term-intent-modulus           [7]  ShortTermIntentModulus
                                                            OPTIONAL,
extended-projected-profile-modulus [8]
                  ExtendedProjectedProfileModulus           OPTIONAL,
...
}

PositiveAcknowledgement ::= SEQUENCE
{
time-stamp                          DateTimeGroup,
request-type                        RequestType
}
```

SME Recommendation to CCB:

CCB Decision:

Title: **CPDLC - The Upper Limit on Message Size**

PDR Reference:	<?>
Originator Reference:	PDRRTCLR.DOC
SARPs Document Reference:	CPDLC SARPs, Section 2.3
Status:	SUBMITTED
PDR Revision Date:	<dd/mm/yy>
PDR Submission Date:	27 June 1997
Submitting State/Organization:	ATNP WG3/SG2
Submitting Author Name:	Hamelink, J
Submitting Author E-mail Address:	Jhamelin@adsystech.com
Submitting Author Supplemental Contact Information:	
SARPs Date:	IV1.1, Post Phuket March 1997
SARPs Language:	English

Summary of Defect:

Because 5 message elements can be in a single CPDLC message and each one of these could technically contain a route clearance, although this is not done operationally, the upper limit for message size is very large.

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

Restrict a CPDLC message to not allow more than one route clearance element in any given message. Add new section 2.3.7.2.3.4 to the CPDLC SARPs as follows:

2.3.7.2.3.4 A CPDLC message shall contain no more than one message element with the [route clearance] variable.

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision:

Title: **CPDLC - Memory Reservation Limitation**

PDR Reference:	<?>
Originator Reference:	A046PD0A.doc
SARPs Document Reference:	CPDLC SARPs, Section 2.3.4
Status:	SUBMITTED
PDR Revision Date:	
PDR Submission Date:	27 June 97
Submitting State/Organisation:	Aérospatiale
Submitting Author Name:	Monteil, A
Submitting Author E-mail Address:	arnaud.monteil@avions.aerospatiale.fr
Submitting Author Supplemental Contact Information:	
SARPs Date:	IV1.1, 28th June 1996
SARPs Language:	English

Summary of Defect:

The objective of this PDR is to reduce memory reservation for ATCDownlinkMessage sequence and ATCUplinkMessage sequence. In these sequences the field elementIds is a sequence of five elements of ATCDownlinkElementId (or ATCUplinkElementId).

The memory reservation is five time the size of the most restricting element like PositionRouteClearance or RouteCleareance.

According to last ATN Panel discussion , there will be just one RouteClearance (or PositionRouteClearance) elementId per message.

So, it’s possible to take advantage of this requirement and reserve the memory according to the size of one RouteClearance and not five.

Present ASN1 declaration:

```
ATCDownlinkMessage ::= SEQUENCE
{
   header              ATCMessageHeader,
   elementIds          SEQUENCE SIZE (1..5) OF ATCDownlinkMsgElementId

}


ATCDownlinkMsgElementId ::= CHOICE
{
<...>
   dM26PositionRouteClearance     [26] PositionRouteClearance,
   dM59PositionRouteClearance     [59] PositionRouteClearance,
<...>
}

ATCUplinkMessage ::= SEQUENCE
{
   header              ATCMessageHeader,
   elementIds             SEQUENCE SIZE (1..5) OF ATCUplinkMsgElementId
}

ATCUplinkMsgElementId ::= CHOICE
{
<...>
```

```
      uM79PositionRouteClearance       [79] PositionRouteClearance,
      uM80RouteClearance               [80] RouteClearance,
      uM83PositionRouteClearance       [83] PositionRouteClearance,
      uM85RouteClearance               [85] RouteClearance,
      uM86PositionRouteClearance       [86] PositionRouteClearance,
<...>
}
```

Assigned SME: Sub-Volume II SME

Proposed SARPs amendment:

It is proposed to:

1. Create MsgElementId typed NULL indicating the presence of PositionRouteClearance or RouteClearance as follows:

```
ATCDownlinkMsgElementId ::= CHOICE
{
<...>
   dM26PositionRouteClearance     [26] NULL,
   dM59PositionRouteClearance     [59] NULL,
<...>
}

ATCUplinkMsgElementId ::= CHOICE
{
<...>
   uM79PositionRouteClearance       [79] NULL,
   uM80RouteClearance               [80] NULL,
   uM83PositionRouteClearance       [83] NULL,
   uM85RouteClearance               [85] NULL,
   uM86PositionRouteClearance       [86] NULL,
<...>
}
```

2. In the 'ATCDownlinkMessage' and in the 'ATCUplinkMessage' sequence, add a field rteClearanceElementIds typed RteClearanceDownlinkElementIds (or RteClearanceUplinkElementIds) containing the PositionRouteClearance/RouteClearance corresponding to the content of the indicators created in item 1.

Downlink :

```
ATCDownlinkMessage ::= SEQUENCE
{
   header       ATCMessageHeader,
   elementIds   SEQUENCE SIZE (1..5) OF ATCDownlinkMsgElementId,
   rteClearanceElementIds  RteClearanceDownlinkElementIds  OPTIONAL
}

RteClearanceDownlinkElementIds ::= CHOICE
{
   positionRouteClearance        [0] PositionRouteClearance,
   ...
}
```

Uplink :

```
ATCUplinkMessage ::= SEQUENCE
{
```

```
   header              ATCMessageHeader,
   elementIds          SEQUENCE SIZE (1..5) OF ATCUplinkMsgElementId,
   rteClearanceElementIds  RteClearanceUplinkElementIds  OPTIONAL
}

RteClearanceUplinkElementIds ::= CHOICE
{
   positionRouteClearance        [0] PositionRouteClearance,
   routeClearance                [1] RouteClearance,
   ...
}
```

3. User requirement

When an ATCDownlinkMsgElementId or ATCUplinkMsgElementId is one of the new created indicators, the content of the message is in the field rteClearanceElementIds with the corresponding type (PositionRouteClearance or RouteClearance).

In other cases, users do not care about the content of this field.

So, PositionRouteClearance\RouteClearance memory is reserved only one time and not five times.

SME Recommendation to CCB: <resolve, reject, forward>

CCB Decision: