



ATNP/WG3/SG3/WP 12-05

25 February 1998

**AERONAUTICAL TELECOMMUNICATION NETWORK PANEL**

**WORKING GROUP 3 (APPLICATIONS AND UPPER LAYERS)**

**Rio de Janeiro, Brazil, 16 - 20 March 1998**

**SME 4 (ATN Upper Layers) Status Report**

Presented by: Tony Kerr (Sub-Volume 4 SME)

**SUMMARY**

This paper provides a summary status of PDRs raised against the Sub-Volume 4 (Upper Layer Communications Service) ATN SARPs.

The Working Group is invited to approve this report.

## 1. INTRODUCTION

The goal of this paper is to provide WG3 with the current status of the Proposed Defect Reports (PDRs) raised against Sub-Volume 4 (Upper Layer Communications Service) of the ATN SARPs.

## 2. SUMMARY OF PDRs

The following table lists all PDRs raised against the ULCS SARPs (Sub-Volume 4) since their approval at the Phuket ATNP WG/1 meeting.

The PDRs referenced in this WP are available on the CENA server by ftp.

PDR No.	Title	ASN.1 affected ?	Status (CCB/4)	Comments
97060025	ULCS D-ABORT	n/a	REJECTED	
97060026	ULCS ACSE Abort	no	Resolved	Incl. in ICAO V2.2
97060027	ULCS 1.1	no	Resolved	Incl. in ICAO V2.2
97100030	ULCS ISO ULEFF Renumbering	no	Resolved	Incl. in ICAO V2.2
97100031	ULCS Negative Session Response	no	Resolved	Incl. in ICAO V2.2
97100035	ULCS CF State Table	no	Resolved	Incl. in ICAO V2.2
97100041	ULCS D-Start Version Number	no	Resolved	Incl. in ICAO V2.2
97110002	PER encodings should use full-encoding OCTET STRING choice	yes	PROPOSED	attached
97120001	Naming of multiple AEs		PROPOSED	attached

Statistics:

ACCEPTED	REJECTED	PROPOSED	RESOLVED	TOTAL
0	1	2	6	9

There are also some editorial PDRs which apply to multiple Sub-Volumes, including Sub-Volume 4. These are summarised in the following table:

PDR No.	Title	ASN.1 affected ?	Status (CCB/4)	Comments
97060001 (part)	Corrections to ICAO V2.0 produced by ICAO secretariat (see also UL-DR 106)	no	Resolved	Incl. in ICAO V2.2
97110001 (part)	Corrections to ICAO V2.1 produced by ICAO secretariat	no	Resolved	Incl. in ICAO V2.2

### **3. SUMMARY OF IMPACT ON SARPs**

None of these PDR resolutions affect the ability of ULCS implementations to interwork. Thus, all versions of the ULCS SARPs produced since the Ninth meeting of WG3 in Phuket in March 1997 are compatible at the protocol level.

### **4. CONCLUSION**

The Working group is invited to note the information provided, in particular the fact that there are no compatibility problems to date since the ULCS SARPs were placed under configuration control in March 1997.

**Title:** PER encodings should use full-encoding OCTET STRING choice  
**PDR Reference:** 97110002  
**Originator Reference:** UL-DR 125  
**SARPs Document Reference:** ULCS SARPs, 4.3.2.6.4  
**Status:** PROPOSED  
**PDR Revision Date:** 25-Feb-98  
**PDR Submission Date:** 13-Nov-97  
**Submitting State/Organisation:** Logica  
**Submitting Author Name:** FIELDHOUSE, D  
**Submitting Author E-mail Address:** fieldhouse@logica.com  
**Submitting Author Supplemental** Tel +44 171 637 9111  
**Contact Information:** Fax: +44 1932 869107  
**SARPs Date:** Proposed ICAO Version 2.0  
(WG3 Thailand, Mar 97)  
**SARPs Language:** English

**Summary of Defect:**

- 1) ISO/IEC 8825-2 section 7.9 states that PER encoded data sent across the presentation boundary shall use full encoding with the OCTET STRING choice. The ULCS SARPs specify use of full encoding with the BIT STRING choice.
- 2) The SARPs text quotes full encoding with a different SIZE constraint from the ISO presentation efficiency Amd.
- 3) Elsewhere ULCS allows P-CONNECT user data to be directly encoded ACSE PDUs without full encoding.

**Assigned SME:** Sub-Volume 4 SME

**SME Comment:**

There are three distinct issues:

- 1) This was originally an oversight by WG3/SG3, who didn't spot that sentence in the PER standard when deciding to use full encoding. (The original intention was to specify simple encoding with a separate context id). So there is a discrepancy between the PER standard and the ULCS SARPs.

The ULCS SARPs also go beyond the ISO standards in pre-defining the p-ctx ids, and in wrapping ACSE apdus sent via P-DATA in fully-encoded-data.

- 2) The difference is that the ULCS SARPs specify:

```
Fully-encoded-data ::= SEQUENCE SIZE (1, ...) OF PDV-list
```

whereas 8823-1 Amd 1 specifies (in 8.2)

```
Fully-encoded-data ::= SEQUENCE SIZE (1, ..., 2..MAX) OF PDV-list
```

The ULCS SARPs specify a simplified, but compatible, efficiency constraint as there will never be more than one element in the SEQUENCE OF for the foreseeable future. This simplifies matters for some compilers. The same is true for Presentation-context-identifier.

This is not a problem, but perhaps should be explained in the Guidance Material.

- 3) ULCS requires P-CONNECT user data to consist of directly encoded ACSE PDUs without a full encoding wrapper. The reason for this is that anything on P-CONNECT can only be an ACSE apdu, so the "top level choice" offered by full encoding is redundant, and a few bits (20 or more) of overhead are saved.

**Discussion:**

Is ISO/IEC 8825-2 justified in imposing such blanket restrictions on users of the presentation protocol?

There are several known areas where the SARPs do not conform exactly to base standards, so these discrepancies are not necessarily defects that need to be fixed.

Strictly speaking, the ULCS should conform to the requirement in 8825-2 and make everything which crosses the presentation service boundary fully-encoded using the OCTET STRING choice. However, it might be better to live with the non-compliance rather than disrupt the ATN upper layers.

There is also a gap in the ULCS SARPs, as it is only implicitly stated how P-CONNECT User-Data shall be encoded.

Following discussions in the SME team (Email exchanges and WG3/SG3 meeting on 18.02.98) it is proposed that this PDR should be REJECTED, since no SARPs changes are required, but that appropriate Guidance Material should be generated to explain the apparent discrepancy with ISO standards and to explain how P-CONNECT User-Data is encoded.

**Proposed SARPs amendment:**

None. It is proposed to generate appropriate Guidance Material for inclusion in the CAMAL.

**SME Recommendation to CCB:** REJECTED

**CCB Decision:** ACCEPTED (by default after 3 week comment period)

**Title:** Naming of Multiple AEs  
**PDR Reference:** 97120001  
**Originator Reference:** UL-DR 126  
**SARPs Document Reference:** ULCS SARPs  
**Status:** PROPOSED  
**PDR Revision Date:** 25-Feb-98  
**PDR Submission Date:** 16-Dec-97  
**Submitting State/Organisation:** STNA  
**Submitting Author Name:** PICARD, F  
**Submitting Author E-mail Address:** PICARD\_Frederic@stna.dgac.fr  
**Submitting Author Supplemental** Tel +33 5 62 14 55 33  
**Contact Information:** Fax: +33 5 62 14 54 01  
**SARPs Date:** Proposed ICAO Version 2.2  
(WG3 Redondo Beach, Oct 97)  
**SARPs Language:** English

**Summary of Defect:**

AE titles defined for the ATN AE contain as a variable element the system identifier (i.e. the 24-bit address for air AEs and the ICAO ground facility designation for ground AEs). That means that in an aircraft, only one AE of one type can be addressed, not necessarily in the same system. This principle works a priori for all air-ground applications.

The problem comes with applications which may have different instances simultaneously on different systems. This is obviously the case of the System Management Application which may have one Agent per machine. So for example, in an aircraft installed with one BIS and one ES, the AET used by the ground manager should allow the identification of each airborne agent. With the current AET format, it is not possible. The problem is similar for ground systems (several SM AEs may co-exist with a ICAO Ground Facility).

**Assigned SME:** Sub-Volume 4 SME

**SME Comment:**

The AE Title (AET) is defined as:

{iso.identified-organisation.icao.atn-end-system-air[or ground].<end-system-id>.operational.<ae-qualifier>}

In general, if there were different instances of the same application on the same end system, then this could be catered for by using Invocation Identifiers in the addressing. However, if there are multiple system management agents in an ATN end system, with each responsible for a different set of MOs, then arguably they are not 'the same application' and would need distinguished addresses. But we should not expect the ground system to know the systems management configuration of the aircraft. There could for example be a single Agent acting as a proxy for ALL airborne management information.

It would be possible to extend the ATN UL naming for systems management by allocating additional AE qualifiers for SMA (currently only the single value 5 is allocated). But is this really a requirement?

Following discussions in the SME team (Email exchanges and WG3/SG3 meeting on 18.02.98) it is proposed that this PDR should be FORWARDED for consideration in WG3 for Package 2, for the following reasons:

This PDR exposes a more general problem, in that it is not possible to address explicitly multiple instances of ANY CNS/ATM-1 application in an ATN end system. There may be requirements in Package 2 for multiple CM applications (say) to exist in an aircraft.

Also, it is inherent in the CM protocol that there is only one address per application type, and that sub-arcs below AEQualifier in the naming hierarchy are not catered for. If a CM-Logon is performed to exchange further addresses, then previous addresses are overwritten.

Further, ATN Routers may have identifiers taken from alternative name spaces. In such cases the name-address mapping specified in the ULCS SARPs will break down when trying to communicate with SM Agents in Routers.

To summarise, WG3 needs to resolve the following Package 2 issues:

- Package 1 ATN naming and addressing does not handle multiple instances of the same application type
- CM does not allow for naming arcs below AEQualifier
- Routers can have names from different naming trees

**Proposed SARPs amendment:**

**SME Recommendation to CCB:**      FORWARDED

**CCB Decision:**                      ACCEPTED (by default after 3 week comment period)