This WP is an update to WP424 and contains Attachments presenting the proposed resolution of two of the problems originally described.

AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL

ATN Internet Working Group (WG2)

13th Meeting

27th - 30th October 1997

Redondo Beach, USA

Issues Arising from Further ICS Validation

(Presented By Brian Cardwell)

Summary

Continuing ADS-Europe work has raised a few problems that may require either clarification in the ICS SARPs or further ICS GM. This paper explains the following issues:

- Join and Leave Event Procedures;
- LREF Directory Management;
- Occurrence of Dual AMSS Circuits.

1. Introduction.

1.1 Since the ADS Europe Final Trials Report was published in December 1996 the Trials Infrastructure has been maintained, with EUROCONTROL together with French and UK national funding, and continues to generate validation information. Background information for ADS-Europe and a short summary of the Final Trials Report were presented in WG2 IP385.

1.2 The following items of note have arisen since the Final Trials Report:

- Problems have been experienced with route establishment after a circuit has failed and re-connected.
- The management of the LREF directory has been implemented incorrectly in several different ways by different manufacturers after mis-interpretation of the SARPs. It is proposed that clarification of the SARPs is considered.
- There have been situations where dual AMSS routes have existed for an aircraft when the aircraft has changed GESs, although only one of the routes is valid.

Each of these items are described in more detail in the following sections.

2. Route Establishment Problem

2.1 This problem relates to the establishment of an a/g connection and routing initiation. Both the SARPs and the Guidance Material explain the sequence of events required to establish a/g connectivity and route initiation (see, for example, GM section 5.10.3.2), but no indication is given of the timeliness required through the procedure.

2.2 It would be valid to have a SARPs compliant router with a single process that transmits ISHs over all current subnetwork connections when the 'ISH PDU period' timer expires. This does mean however that if a call is established (without Fast Select, thus requiring the separate transmission of an ISH) just after a set of ISHs have been transmitted, it is not possible to exchange NET information until the timer expires again and ISH are transmitted. Whilst this may not be a problem when ISHs are sent frequently, for a/g connections the ISH transmission period is usually long to minimise data costs.

2.3 During ADS Europe trials it has been noted that the Airborne BIS has received continual join event notifications (ARINC Label) whilst at the 8208 level the circuit has been cleared. From the Ground Router perspective a leave event has occurred while from the air perspective it is still joined. During this condition downlink TPDUs will generate a circuit which allows downlinks but the Ground Router is unable to uplink until it sees route establishment through receipt of an ISH.

2.4 Clearly it is preferable to transmit an ISH as soon as a call is established in order that the route is initiated quickly.

2.5 **Recommendation** : That WG2 consider whether it is worthwhile stating explicitly, either in SARPs or GM, that ISHs need to be sent immediately when calls are established in order that a route becomes available in a timely manner.

3. LREF Directory Management

3.1 The problem concerns the LREF Directory management actions required following the receipt of an SNDCF Error Report. The following para's are extracts from the SARPs.

> **5.7.6.3.4.5 Incoming SNDCF Error Report**
>
> 5.7.6.3.4.5.1 On receipt of an SNDCF Error Report, the virtual circuit shall be reset (see 5.7.6.3.7), unless the reason is "compressed PDU with unrecognized local reference".
>
> 5.7.6.3.4.5.2 In this case, the directory entry corresponding to the local reference returned in the SNDCF Error Report shall be reset to the unused state.
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> .
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> **5.7.6.3.7 Call Reset Provisions**
>
> 5.7.6.3.7.1 If at any time, a Reset Indication is received indicating a DCE originated reset, then this shall be confirmed and all other procedures associated with the Call Reset performed.
>
> *Note. —There is otherwise no impact on this SNDCF.*
>
> 5.7.6.3.7.2 If the Reset Indication indicates a DTE user originated reset then, additionally, the directory associated with the virtual circuit shall be cleared to its initial state.

3.2 The SARPs do not make it clear that on receipt of an SNDCF Error Report other than 'Unrecognised LREF', the term 'virtual circuit shall be reset' implies that a DTE originated Reset is generated and the actions associated with the receipt of a Reset are carried out locally i.e. clear LREF directory (Although this is partially covered by a reference to the Call Reset section (5.7.6.7.3.7)).

3.3 **Recommendation :** That WG2 consider whether there is scope for mis-interpretation in these SARPs and, if so, determine the most suitable way of resolving this problem.

4. Dual AMSS Routes.

4.1 This situation has been known for a while and WG2/12 FL#7 addresses this problem. However there is evidence that the duration of dual circuit existence has increased from approx. 3 minutes to approx. 20 minutes. The reason for this is not yet clear, but is under investigation. It was less of a problem when it averaged 3 minutes as often there was no data to be transmitted in that time, however a 20 min period has proven a problem with the 15 minute ADS Updates being trialled in ADS Europe and being proposed for use on the North Atlantic.

4.2 The situation arises thus (see diagram on next page):

1. An aircraft has a connection via AOR(E) and GES1 to the Ground BIS Router. The BIS Route table may be represented as:

XXX_1 = route via GES1

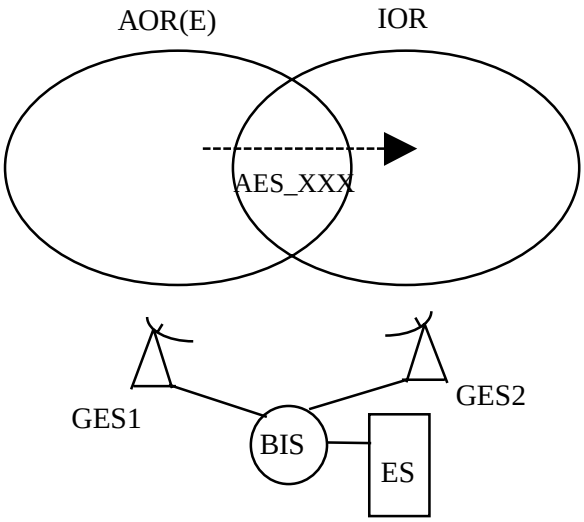
Data is sent and received on the only link available.

2. The aircraft moves into the IOR coverage and, having lost the GES1 connection, establishes a new route via IOR and GES2. The Ground BIS Route table is updated to become:

   XXX_1 = route via GES1

   XXX_2 = route via GES2

   Data is sent from the AES via link 2. Any response data sent via the first route available (i.e. via GES1) cannot be forwarded to the AES as the connection has been lost between the AES and GES1. However, the connection between GES1 and Air/Ground BIS has not been cleared and the route continues to exist.



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4.3 Appendix A to this paper contains a network and transport layer trace illustrating this occurring.

4.3.1 The network layer trace shows a dual connection to aircraft G-BNLI (id 200020100) at 22:14:19 on 07/10/97. There was an original connection (on socket no. 14) commencing 21:35:51 on AOR(E). A second connection was received at 22:14:19 (on socket no. 16) on IOR. The original connection is only cleared at 22:34:01, giving a dual connection of 20 minutes.

4.3.2 The Transport layer trace shows that during this period TPDUs received from the aircraft were on the new connection (socket 16) but replies were routed on the old connection (socket 14). The link between the GES and aircraft is broken on this connection so these TPDUs do not arrive at the aircraft. The Transport layer goes through its retry procedure, eventually losing the Transport connection.

4.3.3 A similar dual connection occurs between 09:37:54 to 09:57:24 on 08/10/97.

4.4 Recommendations: -

1. This situation needs to be raised with AMCP for information.

2. WG2 should consider whether the ATN SARPs should indicate that where two circuits exist the Ground Router should always use the most recently defined route (ISH) that was received.

Appendix A

A1 Transport Layer Trace

TP_ACK	S	07/10/1997	22:07:44	G-BNLI	UK_ES	0	C	M	14	3	-1
TP_ACK	R	07/10/1997	22:07:48	UK_ES	G-BNLI	0	C	M	14	1	-1
TP_ACK	S	07/10/1997	22:07:48	UK_ES	G-BNLI	-1	U	L	13	1	-1
TP_DATA	R	07/10/1997	22:07:54	UK_ES	G-BNLI	0	C	M	14	1	-1
TP_DATA	S	07/10/1997	22:07:54	UK_ES	G-BNLI	-1	U	L	13	1	-1
TP_ACK	R	07/10/1997	22:07:54	G-BNLI	UK_ES	-1	U	L	13	3	-1
TP_ACK	S	07/10/1997	22:07:54	G-BNLI	UK_ES	0	C	M	14	3	-1
TP_DATA	R	07/10/1997	22:14:39	UK_ES	G-BNLI	0	U	M	16	1	-1
TP_DATA	S	07/10/1997	22:14:39	UK_ES	G-BNLI	-1	U	L	13	1	-1
TP_ACK	R	07/10/1997	22:14:39	G-BNLI	UK_ES	-1	U	L	13	3	-1
TP_ACK	S	07/10/1997	22:14:40	G-BNLI	UK_ES	0	C	M	14	3	-1
TP_ACK	R	07/10/1997	22:14:40	UK_ES	G-BNLI	0	C	M	16	1	-1
TP_ACK	S	07/10/1997	22:14:40	UK_ES	G-BNLI	-1	U	L	13	1	-1
TP_ACK	R	07/10/1997	22:14:40	G-BNLI	UK_ES	-1	U	L	13	3	-1
TP_ACK	S	07/10/1997	22:14:40	G-BNLI	UK_ES	0	C	M	14	3	-1
TP_DATA	R	07/10/1997	22:16:03	UK_ES	G-BNLI	0	C	M	16	1	-1
TP_DATA	S	07/10/1997	22:16:03	UK_ES	G-BNLI	-1	U	L	13	1	-1
TP_ACK	R	07/10/1997	22:16:04	G-BNLI	UK_ES	-1	U	L	13	3	-1
TP_ACK	S	07/10/1997	22:16:04	G-BNLI	UK_ES	0	C	M	14	3	-1
TP_DISCON	R	07/10/1997	22:17:38	UK_ES	G-BNLI	0	C	M	16	1	3
TP_DISCON	S	07/10/1997	22:17:38	UK_ES	G-BNLI	-1	U	L	13	1	3
TP_DISCONF	R	07/10/1997	22:17:38	G-BNLI	UK_ES	-1	U	L	13	3	1
TP_DISCONF	S	07/10/1997	22:17:38	G-BNLI	UK_ES	0	C	M	14	3	1
TP_DISCON	R	07/10/1997	22:19:18	UK_ES	G-BNLI	0	C	M	16	1	3
TP_DISCON	S	07/10/1997	22:19:18	UK_ES	G-BNLI	-1	U	L	13	1	3
TP_DISCONF	R	07/10/1997	22:19:18	G-BNLI	UK_ES	-1	U	L	13	3	1
TP_DISCONF	S	07/10/1997	22:19:18	G-BNLI	UK_ES	0	C	M	14	3	1
TP_DISCON	R	07/10/1997	22:20:58	UK_ES	G-BNLI	0	C	M	16	1	3
TP_DISCON	S	07/10/1997	22:20:58	UK_ES	G-BNLI	-1	U	L	13	1	3
TP_DISCONF	R	07/10/1997	22:20:58	G-BNLI	UK_ES	-1	U	L	13	3	1
TP_DISCONF	S	07/10/1997	22:20:58	G-BNLI	UK_ES	0	C	M	14	3	1
TP_ACK	R	07/10/1997	22:21:37	UK_ES	G-BNLI	0	C	M	16	1	-1
TP_ACK	S	07/10/1997	22:21:37	UK_ES	G-BNLI	-1	U	L	13	1	-1
TP_CONNECT	R	07/10/1997	22:22:50	UK_ES	G-BNLI	0	C	M	16	0	1
TP_CONNECT	S	07/10/1997	22:22:50	UK_ES	G-BNLI	-1	U	L	13	0	1
TP_CONCONF	R	07/10/1997	22:22:50	G-BNLI	UK_ES	-1	U	L	13	1	1
TP_CONCONF	S	07/10/1997	22:22:50	G-BNLI	UK_ES	64	U	M	14	1	1
TP_CONNECT	R	07/10/1997	22:24:18	UK_ES	G-BNLI	0	C	M	16	0	1
TP_CONNECT	S	07/10/1997	22:24:18	UK_ES	G-BNLI	-1	U	L	13	0	1
TP_CONCONF	R	07/10/1997	22:24:19	G-BNLI	UK_ES	-1	U	L	13	1	1
TP_CONCONF	S	07/10/1997	22:24:19	G-BNLI	UK_ES	64	C	M	14	1	1
TP_CONCONF	R	07/10/1997	22:24:30	G-BNLI	UK_ES	-1	U	L	13	1	1
TP_CONCONF	S	07/10/1997	22:24:30	G-BNLI	UK_ES	64	C	M	14	1	1
TP_CONNECT	R	07/10/1997	22:26:08	UK_ES	G-BNLI	0	C	M	16	0	1
TP_CONNECT	S	07/10/1997	22:26:08	UK_ES	G-BNLI	-1	U	L	13	0	1
TP_CONCONF	R	07/10/1997	22:26:09	G-BNLI	UK_ES	-1	U	L	13	1	1
TP_CONCONF	S	07/10/1997	22:26:09	G-BNLI	UK_ES	64	C	M	14	1	1
TP_CONCONF	R	07/10/1997	22:26:10	G-BNLI	UK_ES	-1	U	L	13	1	1
TP_CONCONF	S	07/10/1997	22:26:10	G-BNLI	UK_ES	64	C	M	14	1	1
TP_DISCON	R	07/10/1997	22:27:38	UK_ES	G-BNLI	0	C	M	16	0	1
TP_DISCON	S	07/10/1997	22:27:38	UK_ES	G-BNLI	-1	U	L	13	0	1
TP_DISCONF	R	07/10/1997	22:27:38	G-BNLI	UK_ES	-1	U	L	13	1	1
TP_DISCONF	S	07/10/1997	22:27:38	G-BNLI	UK_ES	64	C	M	14	1	1
TP_DISCON	R	07/10/1997	22:29:18	UK_ES	G-BNLI	0	C	M	16	0	1
TP_DISCON	S	07/10/1997	22:29:18	UK_ES	G-BNLI	-1	U	L	13	0	1
TP_DISCONF	R	07/10/1997	22:29:18	G-BNLI	UK_ES	-1	U	L	13	1	0
TP_DISCONF	S	07/10/1997	22:29:18	G-BNLI	UK_ES	64	C	M	14	1	0
TP_DISCON	R	07/10/1997	22:30:58	UK_ES	G-BNLI	0	C	M	16	0	1
TP_DISCON	S	07/10/1997	22:30:58	UK_ES	G-BNLI	-1	U	L	13	0	1
TP_DISCONF	R	07/10/1997	22:30:58	G-BNLI	UK_ES	-1	U	L	13	1	0
TP_DISCONF	S	07/10/1997	22:30:58	G-BNLI	UK_ES	64	C	M	14	1	0
TP_CONNECT	R	07/10/1997	22:37:38	UK_ES	G-BNLI	0	C	M	16	0	1
TP_CONNECT	S	07/10/1997	22:37:39	UK_ES	G-BNLI	-1	U	L	13	0	1
TP_CONCONF	R	07/10/1997	22:37:39	G-BNLI	UK_ES	-1	U	L	13	1	1
TP_CONCONF	S	07/10/1997	22:37:39	G-BNLI	UK_ES	0	C	M	16	1	1
TP_ACK	R	07/10/1997	22:37:43	UK_ES	G-BNLI	0	C	M	16	1	-1
TP_ACK	S	07/10/1997	22:37:43	UK_ES	G-BNLI	-1	U	L	13	1	-1

A2 Network Layer Trace

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MOB_CON ********** 20:59:18 15 M 11115200020100   0   0
CLEAR   ********** 21:03:36 15 M 11115200020100 133   0
MOB_CON ********** 21:04:11 15 M 11145200020100   0   0
CLEAR   ********** 21:33:12 14 M 11115170623548 133   0
MOB_REJ ********** 21:33:29 14 L                   0   0
CLEAR   ********** 21:35:27 15 M 11145200020100 133   0
MOB_CON ********** 21:35:51 14 M 11115200020100   0   0
MOB_REJ ********** 21:36:47 15 L                   0   0
MOB_CON ********** 21:37:25 15 M 11145170623548   0   0
RESET   ********** 22:00:56 14 M 11115200020100 135   0
MOB_CON ********** 22:14:19 16 M 11135200020100   0   0
RESET   ********** 22:20:59 14 M 11115200020100 135   0
CLEAR-G ********** 22:25:16  6 M 11145170623548  -1  -1
CLEAR   ********** 22:34:01 14 M 11115200020100 133 144
MOB_CON ********** 22:35:25  6 M 11145170623518   0   0
CLEAR   ********** 22:44:17 16 M 11135200020100 133   0
MOB_CON ********** 22:45:16 14 M 11115200020100   0   0
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IN_CON  08/10/1997 00:15:59 12 L         c2sita   0   0
MOB_CON ********** 00:17:19 14 M 11145170623548   0   0
CLEAR   ********** 00:26:36 11 M 11135200020100 133   0
MOB_CON ********** 00:29:29 11 M 11135200020100   0   0
CLEAR   ********** 01:11:12 14 M 11145170623548 133   0
CLEAR   ********** 01:50:21 11 M 11135200020100 133   0
MOB_CON ********** 01:52:23 11 M 11135200020100   0   0
RESET   ********** 02:49:26 11 M 11135200020100 135   0
MOB_CON ********** 07:10:12 14 M 11145170623518   0   0
CLEAR   ********** 07:27:41 14 M 11145170623518   9 179
MOB_CON ********** 07:30:12 14 M 11145170623518   0   0
CLEAR   ********** 08:10:09 14 M 11145170623518 133   0
MOB_REJ ********** 08:12:51 14 L                   0   0
MOB_REJ ********** 08:16:06 14 L                   0   0
MOB_REJ ********** 08:19:27 14 L                   0   0
MOB_CON ********** 08:30:10 14 M 11115170623518   0   0
RESET   ********** 08:56:16 11 M 11135200020100 135   0
RESET   ********** 09:04:47 11 M 11135200020100 135   0
CLEAR-G ********** 09:20:00 14 M 11115170623518  -1  -1
MOB_CON ********** 09:30:08 14 M 11115170623518   0   0
CLEAR   ********** 09:33:36 14 M 11115170623518   9 179
MOB_CON ********** 09:37:54 14 M 11125200020100   0   0
MOB_CON ********** 09:40:08 15 M 11115170623518   0   0
RESET   ********** 09:44:22 11 M 11135200020100 135   0
CLEAR   ********** 09:48:50  6 M 11145170623518   9 179
OUT_CON ********** 09:48:56  6 L 20803108059216   0   0
CLEAR   ********** 09:57:24 11 M 11135200020100 133 144
CLEAR   ********** 10:08:18 14 M 11125200020100 133   0
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THIS ATTACHMENT TO WP424 SHOWS THE CHANGES PROPOSED TO THE ICS GM TO RESOLVE THE PROBLEM DESCRIBED IN SECTION 2 - ROUTE INITIATION PROBLEM.

5.10.3 Air-Ground Route Initiation

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5.10.3.1 Communications Environment

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5.10.3.2 Summary of Procedures

The Air-Ground Route Initiation procedures are illustrated in Figure Error! **No text of specified style in document.-1**, and summarised below. They are described in greater depth in the following sections. ....
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The Route Initiation Procedures are:

1) When an aircraft attaches to an air-ground subnetwork, a Join Event is generated, potentially to both Airborne and Ground Routers. If received by System "B", the Join Event is ignored; System "B is ready to receive incoming calls as soon as it attaches to the Mobile Subnetwork.
2) System "A" acts on a Join Event by initiating the establishment of a virtual circuit to the address given by the Join Event, provided such a connection is permitted by local policy, or
3) if polling, System "A" issues a Call Request to the next address on its poll list.
4) When an incoming call is received by System "B", it accepts the call if permitted to do so by local policy, and immediately generates and sends an ISH PDU to System "A" over the newly established virtual circuit. This ISH PDU includes the NET of the System "B" Network Entity.
5) When System "A" receives a Call Accept, it too immediately generates an ISH PDU, and sends it to System "B" over the newly established virtual circuit. This ISH PDU includes the NET of the System "A" Network Entity.
6) On receipt of the ISH PDU, both systems update their local FIB to include the routing information received on the PDU, and
7) .
8) .
9) .

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Figure Error! No text of specified style in document.**-1 Air-Ground Route Initiation Procedures**

5.10.3.3 Initial Route Initiation

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5.10.3.3.1 The Join Event

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5.10.3.3.2 The Join Event for Subnetworks that do not support ATN Systems Management

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5.10.3.3.3 Procedures for Air-Ground Subnetworks that do not Provide a Join Event

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Table Error! No text of specified style in document.**-1 Join Event Format**

5.10.3.4 Route Initiation in CLNP

As a result of the handling of the Join Event or the "polling" procedure described above, a virtual circuit will have been established between Airborne and Ground Routers. The Mobile SNDCF specified in the ATN ICS SARPs should also have been assigned to support the use of this virtual circuit by CLNP. As with ground-ground Route Initiation, it is now necessary for the IS-SME to add to each Router's FIB, a route to the NET of the remote Router's Network Entity, using the newly established virtual Circuit. However, all each Router knows at this point is the DTE Address of the other Router. In order to avoid the maintenance problem inherent in managing lookup tables that would enable a correspondence to be made between a DTE Address and a NET, a dynamic procedure has been specified by the ATN ICS SARPs. An ISO/IEC 9542 IS Hello (ISH) PDU is used for this purpose. This is sent either as data, ~~once~~ immediately the connection has been established, or as part of the Call Request/Call Confirm dialogue when "Fast Select" is supported by the air-ground subnetwork. Both Airborne and Ground Routers generate an ISH PDU that reports their NET to the other Router. On receipt of an ISH PDU, each Router updates its FIB with a route to the remote Router, using the NET supplied by the ISH PDU and associating this NET with the subnetwork connection over which the ISH was received, as the forwarding path.

Note. — this procedure is also used to negotiate the interim procedures used when IDRP is not supported by the Airborne Router.

5.10.3.5 Route Initiation in IDRP

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5.10.4 Air-Ground Route Initiation without IDRP

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5.10.4.1 Summary of Procedures

The procedures for Air-Ground Route Initiation without IDRP are illustrated in **Error! Reference source not found.**, and summarised below. They are described in greater depth in the following sections. The figure illustrates the case where Air-Ground Routing is ground-initiated. The Route Initiation Procedures are:

1) When an aircraft attaches to an air-ground subnetwork, a Join Event is generated, potentially to both Airborne and Ground Routers. If received by System "B" (the Airborne Router), the Join Event is ignored. System "B is ready to receive incoming calls as soon as it attaches to the Mobile Subnetwork.
2) System "A" (the Ground Router) acts on a Join Event by initiating the establishment of a virtual circuit to the address given by the Join Event, provided such a connection is permitted by local policy, or
3) When an incoming call is received by System "B", it accepts the call if permitted to do so by local policy, and immediately generates and sends an ISH PDU to System "A" over the newly established virtual circuit. This ISH PDU includes the NET of the System "B" Network Entity, with the NSEL set to the conventional value of hexadecimal **FE**.
4) When System "A" receives a Call Accept, it too immediately generates an ISH PDU, and sends it to System "B" over the newly established virtual circuit. This ISH PDU includes the NET of the System "A" Network Entity.
5) .
6) .
7) .

THIS ATTACHMENT TO WP424 CONTAINS THE PDR RAISED TO RESOLVE THE PROBLEM DESCRIBED IN SECTION 3 - LREF DIRECTORY MANAGEMENT.

NB: The Proposed SARPsamendment below has revision marks for ease of use in WG2, the original PDR has no revision marks.

Title:	LREF Directory Management
PDR Reference:	97100048
Originator Reference:	UK-SV5-01
SARPs Document Reference:	ICS SARPs, Section 5.7.6.3.4.5
Status:	SUBMITTED
PDR Revision Date:	< >
PDR Submission Date:	29/10/97
Submitting State/Organisation:	NATS, UK
Submitting Author Name:	Cardwell, B
Submitting Author E-mail Address:	cardwellb@natsgcs.co.uk
Submitting Author Supplemental Contact Information:	Tel: +44-1293-576 401 Fax: +44-1293-576 399
SARPs Date:	ICAO V2.1, Oct. 97
SARPs Language:	English

Summary of Defect:

There is scope for non-interoperability in Section 5.7.6.3.4.5 of the ICS SARPs (Incoming SNDCF Error Report). The relevant SARPs are reproduced below.

Para 5.7.6.3.4.5.1 On receipt of an SNDCF Error Report, the virtual circuit shall be reset (see 5.7.6.3.7), unless the reason is "compressed PDU with unrecognized local reference".

Para 5.7.6.3.4.5.2 In this case, the directory entry corresponding to the local reference returned in the SNDCF Error Report shall be reset to the ununsed state.

Note: Section 5.7.6.3.7 (Call Reset Provisions) states the actions required on RECEIPT of a Reset Indication.

1) When para 5.7.6.3.4.5.1 applies it not clear that it is also necessary to clear the local LREF directory associated with that virtual circuit as well as initiating the Reset procedure.

2) Para 5.7.6.3.4.5.2 can be mis-read, it could mean "when 5.7.6.3.4.5.1 applies" or "when the SNDCF Error Report gives the reason 'compressed PDU with unrecognized local reference'". [It means the latter]

Assigned SME: Sub-Volume V SME

Proposed SARPs amendment:

To resolve point 1)

Change para 5.7.6.3.4.5.1 to
On receipt of an SNDCF Error Report, the virtual circuit shall be reset (see 5.7.6.3.7) and the directory associated with the virtual circuit cleared to its initial state, unless the reason is "compressed PDU with unrecognized local reference".

To resolve point 2)
Change Para 5.7.6.3.4.5.2 to
~~In this case~~On receipt of an SNDCF Error Report with reason "compressed PDU with unrecognized local reference", the directory entry corresponding to the local reference returned in the SNDCF Error Report shall be reset to the ununsed state.

SME Recommendation to CCB: < >

CCB Decision: < >