Integration Testing Manual
UK-ISUP Signalling Protocol

Copyright

Document History

Issue	Author	Date	Notes
3	Andy Fisk	09/02/2016	Altered to reflect CSH Timer change
2	Andy Fisk	15/06/2012	Up-issued following trial period
Draft 2	Dave Johnson	05/11/2009	Review of original document. Amendment of test cases
1	Roger Felgate	23/04/2002	Initial Version

Author

This document is owned by BT TSO. The author can be contacted using the email address below:

ix.niro@bt.com

Contents

References

[1]   NICC Specification ND1007

[2]   NICC Specification ND1008

As per current versions found on the NICC Publications website.

Glossary

ACC	Automatic Congestion Control		PNI	Presentation Number Indicator
ACL	Automatic Congestion Level		PNO-ISC	Public Network Operator Interconnect Standards Committee
ACM	Address Complete Message		POTS	Plain Ordinary Telephony Service
AIS	Alarm Indication Signal		PRI	Protocol Request Indicator
ANM	ISUP Answer Message		REL	Release Message
BLO	Blocking Message		RELxx	REL with reason xx e.g. REL48
BT	British Telecom plc		RES	ISUP Restore message
BTOSS	BT Operator Services Subsystem		RLC	Release Circuit
B/W	Both way		RST	Route set test
CAT	Commissioning and Acceptance Testing		RX	Receive
CBA	Acknowledgement		SAM	Subsequent Address Message
CBD	Change Back Declaration		SASI	Send Additional Set-up Information Message
CIC	Circuit Identity Code		SCT	Subscriber Call Termination
CLI	Calling Line Identity		SHP	Service Handling Protocol
CLIP	Calling Line Identification Presentation		SIE	Status Indication Emergency Alignment
CLIR	Calling Line Identification Restriction		SIM	Service Information Message
COA	Change Over Acknowledgement		*SIM	Subscriber Information Module
COLP	Connected Line Presentation		SIN	Status Indication Normal Alignment
COLR	Connected Line identification Restriction		SLC	Signalling Link Code
COO	Change Over Order		SS7	Signalling System number 7
CP	Circuit Provider		STP	Signalling Transfer Point
CPC	Calling Party Category		SUS	ISUP Suspend message
CPE	Customer Premises Equipment		TFA	Transfer allowed
CPI	Call Path Indicator		TFP	Transfer prohibited
CSA	Called Subscriber Answer		TLID	Terminating Line Identity
CSH	Called Subscriber Held		TMR	Transmission Medium Requirement
DAS	Dial Access System		T/O	Time Out
DLE	Digital Local Exchange		TRA	Traffic Restart Allowed Signal
DMSU	Digital Main Switching Unit		TX	Transmit
DTMF	Dual Tone Multiple Frequency		UBLO	Unblock
FAM	Final Address Message		UK	United Kingdom
FCLI	Full Calling Line Identity		UK-ISUP	UK version of ISUP
IAM	Initial Address Message		UPVP	User Provided Verified and Passed
INT	International Indicator			
IP	Internet Protocol			
IRC	Information Requested Code			
ISDN	Integrated Services Digital Network			
ISUP	Integrated Services User Part			
IUP	Interconnect User Part			
I/W	Interworking			
LDLI	Last Diverted Line Identity			
NAL	Network Assurance Laboratory			
NAS	Network Access Server			
NIT	Network Integration Testing			
NTAI	Network Translated Address Indicator			
NTS	Number Translation Service			
O/G	Outgoing			
OLO	Other Licensed Operator			
OSS	Operator Services System			
PCLI	Partial Calling Line Identity			
PCM	Pulse Code Modulation			

1   Introduction

This test specification is designed to test the UK-ISUP SS7 CP signalling interface. The interconnection with BT will be a both way route of 60 circuits using 2 signalling channels as shown in the configuration diagram 1 in Appendix A. This specification also checks the operation of transmission alarms.

The interconnect route will be able to carry calls transiting through the CP equipment back to BT using one and two stage (indirect) access, calls terminating and originating in the CP network and calls to number translation facilities, such as Freephone and Premium Rate services, in the CP network.

The generic test specification is designed to check correct operation of the services available across the Interconnect, or where the CP does not support a service, that it is correctly rejected. This document is a tailored version (based on the CP service description), to omit or modify tests where the generic version has been judged not relevant or practical. The agreed tests will be completed as far as is practically possible within the agreed testing period, although unpredictable events, such as nodal failure within the test configuration network, may occur and so may preclude the completion of some of the specified testing. Similarly, the reactive nature of the testing process may prompt the test teams to execute additional tests to identify and fully understand the implications of a particular test scenario. This additional testing will be undertaken at the test team's discretion, but if significant departures from the agreed test specification are envisaged, the parties involved in the original agreement will review this. Where changes are made during the course of testing to overcome non compliance with the Interconnect requirements, an element of regression testing may be required to ensure that tests previously completed successfully have not been affected.

This interconnect testing is carried out against the UK agreed specifications [1].

2   Test Schedule - MTP and UK-ISUP Tests

2.1   Nomenclature

BT = BT NIF Model Network and associated CPE

CP = CP switch and associated CPE

2.2   General Test Procedures

1. Check all received flag settings on initial call set-ups.
2. Overall call behaviour to be checked in all tests.
3. All test results on the signalling tester to be captured.
4. Link failures to be done by manually out of servicing the signalling at the relevant end, unless the test calls for the link to be broken.
5. Details for tests NOT required have been removed.

2.3   Signalling Link Management   Level 2 Operation

2.3.1	Check signalling link "Emergency" alignment (SIE messages) by initiating alignment from both BT and CP ends. Both links need to be out of service at the start of this test.		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP (SLC0)		
(b)	BT > CP (SLC1)		
(c)	CP > BT (SLC0)		
(d)	CP > BT (SLC1)		

2.3.2	Check signalling link "Normal" alignment by initiating alignment (SIN messages) from both BT and CP ends.		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP (SLC0)		
(b)	CP > BT (SLC1)		

2.4   Signalling Link Management   Level 3 Operation

2.4.1	Check the correct activation of the first link of the linkset (SLC=0) from both CP and BT ends. Ensure changeback declarations and changeback acknowledgements are correctly exchanged. NB Link SLC=1 should be in-service for this test.		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP		
(b)	CP > BT		

2.4.2	Check the correct activation of the second link of the linkset (SLC=1) from both CP and BT ends. Ensure changeback declarations and changeback acknowledgements are correctly exchanged. NB Link SLC=0 should be in-service for this test.		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP		
(b)	CP > BT		

2.4.3	Check the correct de-activation of the first link of the linkset (SLC=0) from both CP and BT ends. Ensure changeover orders (COO messages) and changeover acknowledgements (COA messages) are correctly exchanged. NB Link SLC=1 should be in-service for this test.		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP		
(b)	CP > BT		

2.4.4	Check the correct de-activation of the second link of the linkset (SLC=1) from both CP and BT ends. Ensure changeover orders (COO messages) and changeover acknowledgements (COA messages) are correctly exchanged. NB Link SLC=0 should be in-service for this test.		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP		
(b)	CP > BT		

2.4.5	Check signalling link changeover (COO/COA messages) under fault conditions, i.e. disconnection of the 2Mbit/s bearer		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP		
(b)	CP > BT		

2.5   Link Failures During Calls

2.5.1	Main link failure, prior to Address Complete		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP (Failure initiated by BT)		
(b)	BT > CP (Failure initiated by CP)		

2.5.2	Main link failure during ringing phase.		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP (Failure initiated by BT)		
(b)	BT > CP (Failure initiated by CP)		

2.5.3	Main link failure during data transmission phase (call answered)		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP (Failure initiated by BT)		
(b)	BT > CP (Failure initiated by CP)		

2.5.4	Both link failure during speech phase. Clear call before restoring links.

Test	Parameters	Comments	Results
(a)	BT > CP (Failure initiated by BT)		
(b)	BT > CP (Failure initiated by CP)		

2.5.5	OTM MTP Tests (Call Behaviour with Signalling Link Failures)		
Test	Parameters	Comments	Results
(a)	OTM MTP 57		
(b)	OTM MTP 58		

2.6   Call Set-up Variants
2.6.1 Single-stage access, overlap signalling
Check call parameters. If transit working is not supported, the first table of tests will be used for BT to CP tests.

BT > CP > BT (transit calls)

Test 2.6.1	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)		POTS	POTS		Withheld	
(b)		POTS	POTS		Release	
(c)		POTS	POTS		Unavailable	
(d)		ISDN2e	POTS	3.1kHz	Withheld	
(e)		ISDN2e	POTS	3.1kHz	Release	
(f)		ISDN2e	POTS	3.1kHz	Unavailable	
(g)		ISDN2e	ISDN2e	Speech	Withheld	
(h)		ISDN2e	ISDN2e	Speech	Release	
(i)		ISDN2e	ISDN2e	Speech	Unavailable	
(j)		ISDN2e	ISDN2e	64kHz	Withheld	
(k)		ISDN2e	ISDN2e	64kHz	Release	
(l)		ISDN2e	ISDN2e	64kHz	Unavailable	
(m)		ISDN2e	ISDN2e	9.6kHz	Withheld	
(n)		ISDN2e	ISDN2e	9.6kHz	Release	
(o)		ISDN2e	ISDN2e	9.6kHz	Unavailable	

CP > BT

Test 2.6.1	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(p)		POTS	POTS		Withheld	
(q)		POTS	POTS		Release	
(r)		POTS	POTS		Unavailable	
(s)		ISDN2e	POTS	3.1kHz	Withheld	
(t)		ISDN2e	ISDN2e	64kHz	Release	
(u)		ISDN2e	ISDN2e	9.6kHz	Unavailable	

BT > CP

Test 2.6.1	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(v)		POTS	ISDN2e		Release	
(w)		POTS	ISDN2e		Unavailable	
(x)		ISDN2e	ISDN2e	9.6Kbit	Withheld	
(y)		ISDN2e	POTS	64Kbits	Release	
(z)		ISDN2e	ISDN2e	Speech	Unavailable	

2.6.2 Single-stage access, 'en bloc' signalling
Check call parameters. If transit working is not supported the first table of tests will be used for BT to CP tests.

BT > CP > BT (transit calls)

Test 2.6.2	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)		POTS	ISDN2e		Withheld	
(b)		POTS	ISDN2e		Released	
(c)		POTS	ISDN2e		Unavailable	
(d)		ISDN2e	ISDN2e	3.1kHz	Withheld	
(e)		ISDN2e	ISDN2e	3.1kHz	Released	
(f)		ISDN2e	ISDN2e	3.1kHz	Unavailable	
(g)		ISDN2e	POTS	Speech	Withheld	
(h)		ISDN2e	POTS	Speech	Released	
(i)		ISDN2e	POTS	Speech	Unavailable	
(j)		ISDN2e	ISDN2e	64kHz	Withheld	
(k)		ISDN2e	ISDN2e	64kHz	Released	
(l)		ISDN2e	ISDN2e	64kHz	Unavailable	
(m)		ISDN2e	ISDN2e	9.6kHz	Withheld	
(n)		ISDN2e	ISDN2e	9.6kHz	Release	
(o)		ISDN2e	ISDN2e	9.6kHz	Unavailable	

BT > CP > BT (forwarded calls)

Test 2.6.2	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(aa)		POTS	POTS		Withheld	
(bb)		POTS	POTS		Release	
(cc)		POTS	POTS		Unavailable	
(dd)		ISDN2e	POTS	3.1KHz	Withheld	
(ee)		ISDN2e	POTS	3.1KHz	Release	
(ff)		ISDN2e	POTS	3.1KHz	Unavailable PN Allowed.	
(gg)		ISDN2e	ISDN2e	Speech	Withheld	
(hh)		ISDN2e	ISDN2e	Speech	Release	
(ii)		ISDN2e	ISDN2e	Speech	Unavailable PN Withheld	
(jj)		ISDN2e	ISDN2e	64Kbits	Withheld	
(kk)		ISDN2e	ISDN2e	64Kbits	Release	
(ll)		ISDN2e	ISDN2e	64Kbits	Unavailable PN Withheld	
(mm)		ISDN2e	ISDN2e	9.6Kbit	Withheld	
(nn)		ISDN2e	ISDN2e	9.6Kbit	Release	
(oo)		ISDN2e	ISDN2e	9.6Kbit	Unavailable PN Allowed.	

CP > BT

Test 2.6.2	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(p)		POTS	POTS		Withheld	
(q)		POTS	POTS		Release	
(r)		POTS	POTS		Unavailable	
(s)		ISDN2e	POTS	3.1kHz	Withheld	
(t)		ISDN2e	ISDN2e	64kHz	Release	
(u)		ISDN2e	ISDN2e	9.6kHz	Unavailable	

BT > CP

Test 2.6.2	Access code	Orig. Line	Term. Line	Bearer Cap.	CL	Results
(v)		POTS	POTS		Release	
(w)		POTS	ISDN2e		Unavailable	
(x)		ISDN2e	ISDN2e	9.6Kbit	Withheld	

| (y) | | ISDN2e | ISDN2e | 64Kbits | Release | |
| (z) | | ISDN2e | ISDN2e | Speech | Unavailable | |

2.6.3 CLI checks. Two-stage access, 'en bloc' signalling
The caller is prompted to enter authentication information.

BT > CP > BT (transit call)

Test 2.6.3	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)	1xxx +11digits + authentication	POTS	POTS		Withheld	
(b)	1xxx + 11digits + authentication	POTS	POTS		Released	
(c)	1xxx + 11digits + authentication	POTS	POTS		Unavailable	
(d)	1xxx + 11digits + authentication	ISDN2e	ISDN2e	3.1KHz	Withheld	
(e)	1xxx + 11digits + authentication	ISDN2e	ISDN2e	3.1KHz	Released	
(f)	1xxx + 11digits + authentication	ISDN2e	ISDN2e	3.1KHz	Unavailable	

2.6.4 CLI checks, single stage access, 08xx access, 'en bloc' signalling
As for Test 2.6.2, but access is via an 08xx number which undergoes number translation in the CP network before the call is delivered to a CP termination.

BT > CP

Test 2.6.4	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)	08xx + 7digits	POTS	ISDN2e		Withheld	
(b)	08xx + 7digits	POTS	ISDN2e		Release	
(c)	08xx + 7digits	POTS	ISDN2e		Unavailable	
(d)	08xx + 7digits	ISDN2e	ISDN2e	3.1kHz	Withheld	
(e)	08xx + 7digits	ISDN2e	ISDN2e	3.1kHz	Release	
(f)	08xx + 7digits	ISDN2e	ISDN2e	3.1kHz	Unavailable	

2.6.5 CLI checks. 08xx 2-stage access, 'en bloc' signalling
As for Test 2.6.4, but the CLI is unrecognised in the CP network and so the caller is prompted to enter authentication information before the call is delivered to the termination.

BT > CP

Test 2.6.5	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)	08xx + 7digits + PIN	POTS	ISDN2e		Withheld	
(b)	08xx + 7digits + PIN	POTS	ISDN2e		Released	
(c)	08xx + 7digits + PIN	POTS	ISDN2e		Unavailable	
(d)	08xx + 7digits + PIN	ISDN2e	ISDN2e	3.1KHz	Withheld	
(e)	08xx + 7digits + PIN	ISDN2e	ISDN2e	3.1KHz	Released	
(f)	08xx + 7digits + PIN	ISDN2e	ISDN2e	3.1KHz	Unavailable	

2.6.6 CLI checks. 08xx 2-stage access, overlap signalling

As Test 2.6.5 but with overlap signalling. The CLI is unrecognised in the CP network and so the caller is prompted to enter authentication information before the call is delivered to the termination.

BT > CP

Test 2.6.6	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)	08xx + 7digits + PIN	POTS	ISDN2e		Withheld	
(b)	08xx + 7digits + PIN	POTS	ISDN2e		Released	
(c)	08xx + 7digits + PIN	POTS	ISDN2e		Unavailable	
(d)	08xx + 7digits + PIN	ISDN2e	ISDN2e	3.1KHz	Withheld	
(e)	08xx + 7digits + PIN	ISDN2e	ISDN2e	3.1KHz	Released	
(f)	08xx + 7digits + PIN	ISDN2e	ISDN2e	3.1KHz	Unavailable	

2.6.7 Two-stage access - invalid authentication, 'en bloc' signalling

Originate calls from lines where the CLI is _NOT_ registered on the CP switch. Ensure the caller is prompted to enter authentication information as DTMF tones. Enter an invalid authentication code and ensure the call is correctly rejected.

BT > CP > BT (transit call)

Test 2.6.7	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)	IDA+ invalid authentication	POTS	POTS		Withheld	
(b)	IDA+ invalid authentication	POTS	POTS		Released	
(c)	IDA+ invalid authentication	POTS	POTS		Unavailable	

2.6.8 Presentation Number - UPVP

Check screening indicator (01), and number presented.

BT > CP transit calls (use NTS service)

Test 2.6.8	Orig. Line	Term. Line	Bearer Cap.	CLI		Results
(a)	POTS	POTS		CLI withheld	PN released	
(b)	POTS	POTS		CLI Withheld	PN withheld	
(c)	ISDN	ISDN2e	Speech	CLI Withheld	PN released	
(d)	ISDN	ISDN2e	Speech	CLI Withheld	PN withheld	

BT > CP

Test 2.6.8	Orig. Line	Term. Line	Bearer Cap.	CLI		Results
(e)	POTS	POTS		CLI withheld	PN released	
(f)	POTS	ISDN2e		CLI Withheld	PN withheld	
(g)	ISDN2e	POTS	Speech	CLI withheld	PN released	
(h)	ISDN2e	ISDN2e	64 Kbits	CLI Withheld	PN withheld	

2.6.9 Malicious Call Interception

For each test case set up the call and ensure the "holding indicator" flag in the "backward call indicators" parameter in the ACM is transited as received. Confirm that a meaningful CLI is received - preferably the "A" party CLI.

BT > CP > BT transit calls (use NTS)

Test 2.6.9	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)	08xx +7 digits	POTS	POTS		Unavailable	
(b)		ISDN2e	POTS	Speech	Withheld	
(c)		POTS	ISDN2e	Speech	Withheld	

BT > CP > BT (forwarded calls)

Test 2.6.9	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(aa)		POTS	POTS		Unavailable	
(bb)		ISDN2e	POTS	Speech	Withheld	
(cc)		POTS	ISDN2e	Speech	Withheld	
(dd)		POTS	POTS		Release	

BT > CP

(d)	11digits	POTS	ISDN2e		Withheld	

CP > BT

Test 2.6.9	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(e)	11digits	ISDN2e	ISDN2e	3.1kHz	Withheld	

2.6.10   Calls to Emergency Services.

Check that the CP identification code - ii and the 4 digit zone code - zzzz (mobiles only) is added to the called address (which should therefore be of the format 999iizzzz). Check also that CLI & service marks are supplied where the call is passed to BT, or that the call is rejected with a suitable announcement if the CP does not support the service. Ensure that the call is released correctly after announcement.

BT > CP > BT

Test 2.6.10	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(a)	Xxxx + 999 (single-stage IDA)	POTS	OSS			
(b)	Xxxx + 112 (2-stage IDA)	POTS	OSS			

CP > BT

Test 2.6.10	Access code	Orig. Line	Term. Line	Bearer Cap.	CLI	Results
(c)	999	ISDN2e	OSS			
(d)	112	ISDN2e	OSS			

2.7   Call Release Variants

Expected Release Cause value and meaning are shown in brackets.

2.7.1 Forward Release of a B/W circuit prior to ACM.

Check Release reasons for different call types (16-normal). Overlap signalling to be used.
(prior to ACM on the "A" leg of the call)

BT > CP > BT (transit calls)

Test 2.7.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	POTS	Speech	

(c)		ISDN2e	ISDN2e	3.1kHz	

BT > CP > BT (forwarded calls)

Test 2.7.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		
(bb)		ISDN2e	POTS	Speech	
(cc)		ISDN2e	ISDN2e	3.1kHz	

CP > BT

Test 2.7.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)			ISDN2e	3.1kHz	
(e)		POTS	POTS		

2.7.2 Forward Release of a B/W circuit prior to Answer
Check Release reasons for different call types (16-normal). 'En bloc' signalling to be used.
(Release prior to ANM on the "B" leg of the call).

BT > CP > BT

Test 2.7.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx +7 digits	POTS	POTS		
(b)		ISDN2e	POTS	Speech	
(c)		ISDN2e	ISDN2e	3.1 kHz	

BT > CP > BT (forwarded calls)

Test 2.7.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		
(bb)		ISDN2e	POTS	Speech	
(cc)		ISDN2e	ISDN2e	3.1kHz	

BT > CP

Test 2.7.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)	11 digits	POTS	ISDN2e		

CP > BT

Test 2.7.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	ISDN2e	POTS		
(f)		POTS	POTS		

2.7.3 Forward Release of a B/W circuit after ANM.
Check Release reasons (on both legs for transit calls) for different call types (16-normal).

BT > CP > BT (transit calls)

Test 2.7.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx + 11 digits	POTS	POTS		
(b)		ISDN2e	POTS	Speech	
(c)		ISDN2e	ISDN2e	3.1 kHz	

BT > CP > BT (forwarded calls)

Test 2.7.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		

(bb)		ISDN2e	POTS	Speech	
(cc)		ISDN2e	ISDN2e	3.1kHz	
(dd)		ISDN2e	ISDN2e	64kbit	
(ee)		ISDN2e	ISDN2e	9.6kbit	

BT > CP

Test 2.7.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)	11 digits	POTS			

CP > BT

Test 2.7.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	ISDN2e	ISDN2e	Speech	
(f)		POTS	POTS		

2.7.4 Called party clears (B/W circuit) after Answer.
SUS or REL message expected from CP. If Release is received, check reason (16-normal).

BT > CP > BT (transit calls)

Test 2.7.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx + 7 digits	POTS	POTS		

BT > CP > BT (forwarded calls)

Test 2.7.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		
(bb)		ISDN2e	ISDN2e	3.1kHz	
(cc)		ISDN2e	ISDN2e	64kbits	

BT > CP

Test 2.7.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	POTS	ISDN2e		

CP > BT

Test 2.7.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(f)	11 digits	ISDN2e	POTS		
(g)		POTS	POTS		

2.7.5 Resume and CSH timeout
On receipt of a SUS message from Called party, wait less than 2 secs then resume the call at the "B" end. Check RES message seen and transmission path re-established. Clear the call at the "B" end again and wait until a REL is passed before clearing the "A" party. Check REL direction, timing (Anti-fraud change required by Ofcom) and reason (16-normal).

BT > CP > BT transit calls)

Test 2.7.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	POTS		

BT > CP > BT (call forward)

Test 2.7.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		

(bb)		ISDN2e	POTS		

BT > CP

Test 2.7.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(c)	11 digits	POTS	POTS		

CP > BT

Test 2.7.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)	11 digits	ISDN2e	POTS		

2.8   Call Failure Variants
Expected Release Cause value and meaning are shown in brackets.

2.8.1 Ringing Tone No Reply - CSA Time-out.
In each case record the following:
- The release reason value (19-No answer from alerted user),
- Which end sent the initial release,
- The elapsed time between ACM and the initial release.

BT > CP > BT

Test 2.8.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	POTS	Speech	
(c)		ISDN2e	ISDN2e	3.1kHz	

BT > CP > BT (forwarded calls)

Test 2.8.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		
(bb)		ISDN2e	POTS	Speech	
(cc)		ISDN2e	ISDN2e	3.1kHz	

BT > CP

Test 2.8.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)	11 digits	POTS	ISDN2e		

CP > BT

Test 2.8.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	ISDN2e	POTS	Speech	
(f)		POTS	POTS		

2.8.2 Calls to TOS lines.
Check Release value (27-destination out of order).

BT > CP > BT

Test 2.8.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx + 7digits	POTS	POTS		
(b)		ISDN2e	ISDN2e	64kHz	
(c)		ISDN2e	ISDN2e	3.1kHz	
(d)		ISDN2e	ISDN2e	9.6kHz	

BT > CP > BT (forwarded calls)

Test 2.8.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		
(bb)		ISDN2e	ISDN2e	64kHz	
(cc)		ISDN2e	ISDN2e	3.1kHz	

BT > CP

Test 2.8.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	ISDN2e	ISDN2e	Speech	

CP > BT

Test 2.8.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(f)	11 digits	ISDN2e	POTS		

2.8.3 Calls to spare codes.
Need to dial the spare code followed by the required number of digits to give the correct digit length. Check Release value (1-unallocated number).

BT > CP > BT

Test 2.8.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	ISDN2e	3.1kHz	
(c)		ISDN2e	ISDN2e	64Kbits	
(d)		ISDN2e	ISDN2e	9.6Kbit	

BT > CP > BT (call forward)

Test 2.8.3	Access code	Orig. Line	Comment	Results
(aa)		POTS	"Translated to" number is spare	
(bb)		POTS	08xx number dialled is spare	

BT > CP

Test 2.8.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	ISDN2e	ISDN2e	Speech	

CP > BT

Test 2.8.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(f)	11 digits	ISDN2e	POTS		

2.8.4 Calls to engaged subscribers.
Check Release value (17-user busy)

BT > CP > BT

Test 2.8.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx + 7 digits	POTS	POTS		
(b)		ISDN2e	POTS	3.1kHz	
(c)		ISDN2e	ISDN2e	64kHz	
(d)		ISDN2e	ISDN2e	9.6kHz	

BT > CP > BT (call forward)

Test 2.8.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results

(aa)		POTS	POTS		
(bb)		ISDN2e	POTS	3.1kHz	
(cc)		ISDN2e	ISDN2e	64kHz	
(dd)		ISDN2e	ISDN2e	9.6kHz	

BT > CP

Test 2.8.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	ISDN2e	ISDN2e	Speech	

CP > BT

Test 2.8.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(f)	11 digits	ISDN2e	POTS		

2.8.5 Incomplete address dialled.
Check Release value (28-address incomplete). Overlap signalling is needed.

BT > CP > BT

Test 2.8.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		POTS	ISDN2e		
(c)		ISDN2e	ISDN2e	Speech	

BT > CP > BT (forwarded calls)

Test 2.8.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		
(bb)		ISDN2e	ISDN2e	3.1kHz	
(cc)		ISDN2e	ISDN2e	64kbit	

BT > CP

Test 2.8.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)	10 digits	POTS	ISDN2e		

CP > BT

Test 2.8.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	10 digits	ISDN2e	POTS		

2.8.6 Call Attempt with no terminating equipment.
Check Release value (18-no user responding)

BT > CP > BT

Test 2.8.6	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx + 7digits	ISDN2e	ISDN2e	3.1kHz	
(b)		POTS	ISDN2e		
(c)		ISDN2e	ISDN2e	64kHz	
(d)		ISDN2e	ISDN2e	9.6kHz	

BT > CP > BT (forwarded calls)

Test 2.8.6	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		ISDN2e	ISDN2e	3.1kHz	
(bb)		POTS	ISDN2e		

		ISDN2e	ISDN2e	64kHz	
(cc)		ISDN2e	ISDN2e	64kHz	
(dd)		ISDN2e	ISDN2e	9.6kHz	

BT > CP

Test 2.8.6	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(e)	11 digits	POTS	ISDN2e		

2.8.7 Call Attempt to an incompatible destination.
Check release value (88-incompatible destination), e.g. call originated as ISDN data to a POTS termination.

BT > CP > BT

Test 2.8.7	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx+7 digits	ISDN2e	POTS	64Kbits	

BT > CP > BT (forwarded calls)

Test 2.8.7	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		ISDN2e	POTS	64Kbits	

BT > CP

Test 2.8.7	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(b)	11 digits	ISDN2e	POTS	64Kbits	

CP > BT

Test 2.8.7	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(c)		ISDN2e	POTS	64Kbits	

2.8.8 Call Attempt to a line with Permanent (Admin) Incoming Call Barring
Check Release value (21 Call rejected/31-normal, unspecified).

BT > CP > BT

Test 2.8.8	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	ISDN	Speech	

BT>CP > BT (forwarded calls)

Test 2.8.8	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(aa)		POTS	POTS		
(bb)		ISDN2e	ISDN2e	Speech	

BT > CP

Test 2.8.8	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(c)	11 digits	POTS	ISDN2e		

CP > BT

Test 2.8.8	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)	11 digits	ISDN2e	ISDN2e	64kHz	

2.9   Call Diversion
2.9.1 Unconditional Diversion
Check: The B leg originating CLI parameter values are the same as the A leg values;
The diverting node CLI has been added in both the Redirecting Number and LDLI parameters.

BT > CP diverted back to BT

Test 2.9.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	ISDN2e	Speech	

CP > BT diverted back to CP

Test 2.9.1	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(c)		POTS	POTS		
(d)		ISDN2e	ISDN2e	Speech	

2.9.2 Divert on No Reply
Check: The B leg originating CLI parameter values are the same as the A leg values;
The diverting node CLI has been added in both the Redirecting Number and LDLI parameters.

BT > CP diverted back to BT

Test 2.9.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	ISDN2e	Speech	

CP > BT diverted back to CP

Test 2.9.2	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(c)		POTS	POTS		
(d)		ISDN2e	ISDN2e	Speech	

2.9.3 Divert on Busy
Check: The B leg originating CLI parameter values are the same as the A leg values;
The diverting node CLI has been added in both the Redirecting Number and LDLI parameters.

BT > CP diverted back to BT

Test 2.9.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)		POTS	POTS		
(b)		ISDN2e	ISDN2e	Speech	

CP > BT diverted back to CP

Test 2.9.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(c)		POTS	POTS		
(d)		ISDN2e	ISDN2e	Speech	

2.9.4 Divert Unreachable – mobiles only.
This is to simulate the base station unable to locate the mobile – removal of the *SIM card
would simulate this.
Check: The B leg originating CLI parameter values are the same as the A leg values;
The diverting node CLI has been added in both the Redirecting Number and LDLI parameters.

BT > CP diverted back to BT

Test 2.9.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results

(a)		POTS	POTS		

2.10   ISDN Additional Services
2.10.1 Teleservices

BT > CP

Test 2.10.1	Service	Response	Results
(a)	Telefax Group 2/3		
(b)	Telefax Group 4		
(c)	Mixed Mode		
(d)	Teletex (Basic mode)		
(e)	International Videotex		
(f)	Telex		

2.10.2 CLIP, CLIR, COLP, COLR
Set up calls using the combinations of CLIP, CLIR, COLP, and COLR shown in Table. Check whether the CLI and TLID are displayed in each case as indicated by the table.

Originating Line				*Terminating Line*				*Terminating line ID shown on caller's display?*	*Caller's line ID shown at called party's display?*
CLIP	**CLIR**	**COLP (TLID)**	**COLR**	**CLIP**	**CLIR**	**COLP (TLID)**	**COLR**		
(a)	OFF	ON		ON			ON	NO	YES
(b)	OFF	ON		OFF			OFF	YES	NO
(c)	ON	ON		ON			OFF	YES	NO
(d)	ON	ON		OFF			ON	NO	NO

BT > CP

Test 2.10.2	Bearer Cap	Result
(a)	3.1kHz	
(b)	3.1kHz	
(c)	Speech	
(d)	Speech	

CP > BT

Test 2.10.2	Bearer Cap	Result
(a)	Speech	
(b)	Speech	
(c)	3.1kHz	
(d)	3.1kHz	

2.11   Call Simulator Based Additional Tests
The purpose of these tests is to apply parameter values that are not easily produced using the BT model network. Calls are generated by an call simulator. The resulting message parameters are mapped to UK-ISUP in accordance with the PNO-ISC recommendations [2].

2.11.1 CP response to valid/invalid TMR values
On completion of the run-file, check message sequence for acceptance or valid rejection.

Test 2.11.1	IUP Combination	ISUP TMR	Response	Results
(a)	SHP=0, CPI=0 POTS	3		
(b)	SHP=0, CPI=1 Invalid	3		

(c)	SHP=0, CPI=2 Invalid	3		
(d)	SHP=1, CPI=0 ISDN Speech	0		
(e)	SHP=1, CPI=1 ISDN 64kHz	2		
(f)	SHP=1, CPI=2 ISDN 3.1kHz	3		

2.11.2 CP response to valid/invalid CPC values.

On completion of the run-file, check message sequence for acceptance or valid rejection.

Test 2.11.2	IUP Combination	ISUP Value	Comments	Results
(a)	CPC=0 Unknown	0		
(b)	CPC=1 Ord residential	10		
(c)	CPC=4 Admin diverted	254 (11111110)		
(d)	CPC=7 ISDN business	10		
(e)	CPC=8 Public payphone	15		
(f)	CPC=11 Service line	10		
(g)	CPC=13 Operator call	252 (11111100)		
(h)	CPC=17 Spare – reserved value	10		
(i)	CPC=45 Spare – reserved value	10		

2.11.3 CP response to partial CLI.

Neither interworking nor international indicators set.

BT > CP > BT

Test 2.11.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx + 7 digits	POTS	POTS	Speech	
(b)		POTS	ISDN	Speech	

BT > CP

Test 2.11.3	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(c)	11 digits	POTS	IP		

2.11.4 CP response to an incomplete CLI

Neither interworking nor international indicators set.

BT > CP > BT

Test 2.11.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(a)	08xx + 7 digits	POTS	POTS		
(b)		ISDN2e	ISDN	64kHz	
(c)		ISDN2e	ISDN	9.6kHz	

BT > CP

Test 2.11.4	Access code	Orig. Line	Term. Line	Bearer Cap.	Results
(d)	11 digits	POTS	IP		

2.11.5 CP response to a partial CLI sent instead of a full CLI

Both international and interworking bits set.

BT > CP > BT

Test 2.11.5	Access code	Orig. Line	Term. Line	Bearer Cap.	Results

| (a) | 08xx + 7 digits | POTS | POTS | | |
| (b) | | POTS | ISDN | | |

BT > CP

Test 2.11.5	*Access code*	*Orig. Line*	*Term. Line*	*Bearer Cap.*	*Results*
(c)	11 digits	POTS	IP		

2.11.6 CP response to a partial CLI sent instead of a full CLI
Interworking indicator set but not international indicator.

BT > CP > BT

Test 2.11.6	*Access code*	*Orig. Line*	*Term. Line*	*Bearer Cap.*	*Results*
(a)	08xx + 7digits	POTS	POTS		
(b)		POTS	ISDN2e		

BT > CP

Test 2.11.6	*Access code*	*Orig. Line*	*Term. Line*	*Bearer Cap.*	*Results*
(c)	11 digits	POTS	ISDN2e		

2.11.7 CP Switch Call Handling Capability

Test runs	*Call sending programmes*	*Total calls*	*Calls failed*	*Success rate*	*Results*

2.11.8 CP response to priority calls.
Check CPC values reflect the priority of the call.

BT > CP

Test 2.11.8	*Access code*	*Orig. Line*	*Term Line*	*Bearer Cap.*	*Results*
(a)	08xx + 7 digits	ISDN2e	POTS	3.1kHz	
(b)		ISDN2e	ISDN2e	64kHz	
(c)		ISDN2e	ISDN2e	9.6kHz	

BT > CP

Test 2.11.8	*Access code*	*Orig. Line*	*Term. Line*	*Bearer Cap.*	*Results*
(d)	11 digits	POTS	ISDN2e		

2.11.9 CP response to an IAM containing ACL parameters.

BT > CP

On completion of the run-file, check message sequence for acceptance or valid rejection.

2.11.9	CP response to ACL valid and invalid values		
Test	*Parameters*	*Comments*	*Results*
(a)	ACL=0 (invalid)		
(b)	ACL=1 (valid)		
(c)	ACL=2 (valid)		
(d)	ACL=3 (invalid)		

2.12 Alarming of Blocked Circuits after Timeout (3 min timer IUP Test, N/A)

2.12.1	Blocking B/W circuits prior to Timer expiry		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP		
(b)	CP > BT		

2.12.2	Blocking B/W circuits after Timer expiry		
Test	*Parameters*	*Comments*	*Results*
(a)	BT > CP		
(b)	CP > BT		

2.13 Provocative Tests - Normal Conditions

2.13.1a	At BT, with both links in service and with calls in progress, out of service a SS7 signalling card associated with the CP signalling route. Check for satisfactory interworking behaviour. Clear the calls. Return to service and check for satisfactory interworking behaviour.	
	Comments	*Results*

2.13.1b	At BT, with only one link in service and with calls in progress, out of service the working SS7 signalling card associated with the CP signalling route. Check for satisfactory interworking behaviour. Clear the calls. Return to service and check for satisfactory interworking behaviour.	
	Comments	*Results*

2.13.2a	At CP, with both links in service and with calls in progress, out of service a SS7 signalling card associated with the BT signalling route. Check for satisfactory interworking behaviour. Clear the calls. Return the affected hardware to service and check for satisfactory interworking behaviour	
	Comments	*Results*

2.13.2b	At CP, with only one link in service and with calls in progress, out of service the working SS7 signalling card associated with the BT signalling route. Check for satisfactory interworking behaviour. Clear the calls. Return the affected hardware to service and check for satisfactory interworking behaviour	
	Comments	*Results*

2.13.3	2 Megabit bearer line breaks. Only one PCM system to be broken - the other remains intact throughout the test.		
Test	*Combination*	*Comment*	*Results*
(a)	BT 2sec break TX		
(b)	BT 20sec break TX		
(c)	BT 2sec break RX		
(d)	BT 20sec break RX		
(e)	BT 2sec break TX and RX		
(f)	BT 20sec break TX and RX		
(g)	BT 6mins break TX and RX		
(h)	CP 2sec break TX		
(i)	CP 20sec break TX		
(j)	CP 2sec break RX		
(k)	CP 20sec break RX		

(l)	CP 2sec break TX and RX		
(m)	CP 20sec break TX and RX		

2.14 Restart and Restoration Tests

2.14.1	*BT Restart. (Small)*
	Call to be set up in each direction, ccts blocked from each end, some before Timer expiry (3 mins), some after Timer expiry. Check calls survive the restart and that the ccts are in correct states after the restart.

Comments	*Results*

2.14.2	*BT Restoration (Large restart)*
	Call to be set up in each direction, ccts blocked from each end, some before Timer expiry (3 mins), some after Timer expiry Check calls do not survive the restart and that the ccts are in correct states after the restoration.

Comments	*Results*

2.14.3	*CP Small Restart*
	Call to be set up in each direction, ccts blocked from each end, some before Timer expiry (x mins), some after Timer expiry. Check calls survive the restart and that the ccts are in correct states after the restart.

Comments	*Results*

2.14.4	*CP Restoration (Large Restart)*
	Call to be set up in each direction, ccts blocked from each end some before Timer expiry (x mins), some after Timer expiry. Check call survivability over the restoration, and check that the ccts are in correct states after the restoration.

Comments	*Results*

2.15 STP functionality
The purpose of these tests is to check the action of the CP switch on receipt of TFP/TFA messages from the STP node (DMSU).

2.15.1	*Out of service the signalling links between Local Unit 2 and the DMSU. Ensure that on receipt of TFP the OLO sends RST messages every 30-60 seconds about Local Unit 2. Make a call from Local Unit 1 and ensure that the call sets up correctly*

Comments	*Results*

2.15.2	*Out of service the signalling links between the OLO and the DMSU. Ensure that no messages related to call setup/cleardown are sent on the OLO route*

Comments	*Results*

2.15.3	*Return to service the signalling links between the OLO and the DMSU. Ensure that the OLO sends RST messages every 30-60 seconds about Local Unit 2. Make*

	a call from Local Unit 1 and ensure the call sets up correctly
Comments	*Results*

2.15.4	*Return to service the signalling links between Local Unit 2 and the DMSU. Ensure that on receipt of TFA the OLO stops sending RST messages. Make a call from Local Unit 2 and Local Unit 1 and ensure both set up correctly*
Comments	*Results*

2.16 Transmission Alarm tests

2.16.1	Check that the nominal pulse rate is 2048kbits/s +/- 50ppm
Comments	*Results*

2.16.2	Check that the frame alignment signal errors does not exceed 1 in a 15 minute period
Comments	*Results*

2.16.3	Check that an alarm indication is generated for a loss of the outgoing signal
Comments	*Results*

2.16.4	Check that an alarm indication is generated for a loss of outgoing frame alignment
Comments	*Results*

2.16.5	Check that an alarm indication is generated if the error rate in the frame alignment signal is 1 in 10^{-3}
Comments	*Results*

2.16.6	Check response to AIS (alarm indication signal)
Comments	*Results*

2.16.7	Check for false AIS
Comments	*Results*

2.16.8	Check of IDLE Channel BIT Pattern.
Comments	*Results*

2.17   ACC checks

Connect the Martinet directly to the CP switch. Send an IAM to the CP switch, which is returned to the Martinet. Respond to the IAM with a Release message with Cause value=42, location=transit and include the ACL parameter. Ensure the CP sends an RLC on the B leg and a REL (without the ACL element) on the A leg. Respond to the A leg REL with RLC.

2.17.01	Clean run for 2 minutes (21701_files.txt)	
Comments		*Results*

2.17.02	2 minute run with ACL value=1 and some 999 calls (21702_files.txt)	
Comments		*Results*

2.17.03	2 minute run with ACL value=2 and some 999 calls (21703_files.txt)	
Comments		*Results*

2.17.04	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 5% ACL1's and 3mins calls without ACL's *(21704_files.txt)*	
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.	
Comments		*Results*

2.17.05	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 10% ACL1's and 3mins calls without ACL's *(21705_files.txt)*	
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch.	

	4) Check REL value being returned by CP switch when throttling back traffic.
Comments	*Results*

2.17.06	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 20% ACL's and 3mins calls without ACL's *(21706_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.
Comments	*Results*

2.17.07	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 30% ACL's and 3mins calls without ACL's *(21707_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.
Comments	*Results*

2.17.08	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 50% ACL's and 3mins calls without ACL's *(21708_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are

	passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.

Comments	*Results*

2.17.09	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 5% ACL2's and 3mins calls without ACL's *(21709_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.
	As test 2.17.04 but for ACL 2's

Comments	*Results*

2.17.10	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 10% ACL2's and 3mins calls without ACL's *(21710_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.
	As test 2.17.05 but for ACL 2's

Comments	*Results*

2.17.11	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 20% ACL2's and 3mins calls without ACL's *(21711_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect).

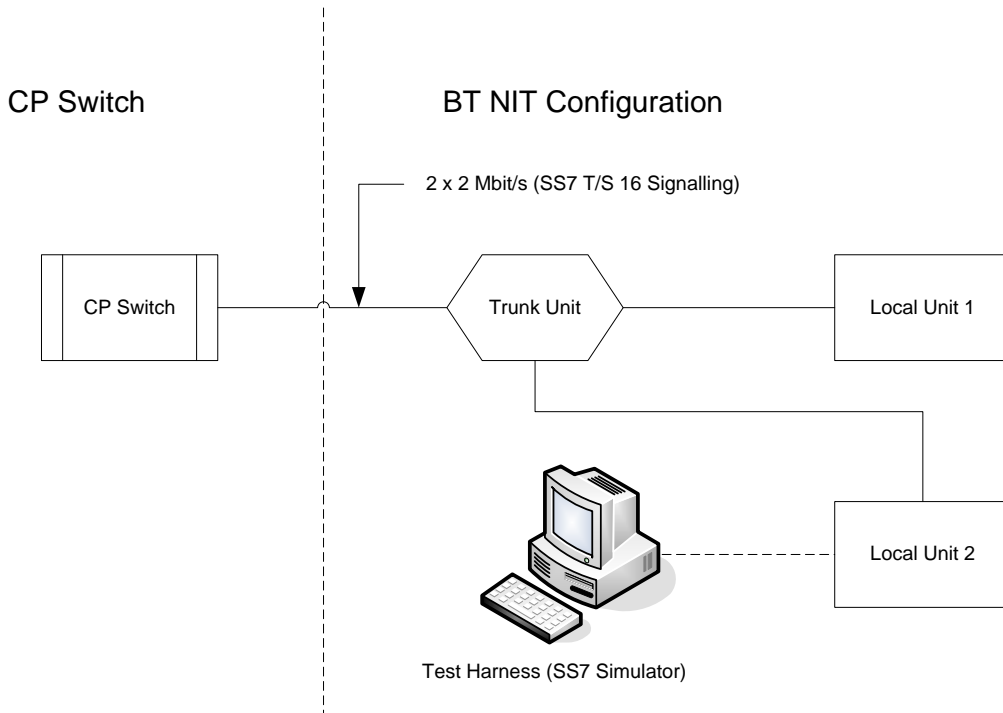|	
	3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.
	As test 2.17.06 but for ACL 2's

Comments	Results

2.17.12	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 30% ACL2's and 3mins calls without ACL's *(21712_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.
	As test 2.17.07 but for ACL 2's

Comments	Results

2.17.13	This test applies if the CP switch supports ACC. 1min normal calls, 8mins of 50% ACL2's and 3mins calls without ACL's *(21713_files.txt)*
	Generate a steady stream of calls to the CP switch - including some emergency calls if appropriate. 1) Ensure that all calls are successfully passed by the CP switch (ACM and ANM from the B end Martinet). 2) At the B end Martinet, return REL42+acl (instead of ACM and ANM) on all calls. Ensure that the number of IAM's passed to the B end Martinet is less than the number of IAM's passed from the A end to the CP switch, but all emergency calls are passed. (Note: It may be necessary to reduce the CP switch Threshold at which the ACC takes effect). 3) At the B end Martinet, stop sending REL+ACL and send ACM and ANM in response to all IAM's. Ensure that all calls sent from the A end Martinet to the CP switch are passed by the CP switch. 4) Check REL value being returned by CP switch when throttling back traffic.
	As test 2.17.08 but for ACL 2's

Comments	Results

END OF MAIN TEXT

APPENDIX A - TEST CONFIGURATION
1. Direct Interconnect tests

CP Switch   BT NIT Configuration

2 x 2 Mbit/s (SS7 T/S 16 Signalling)

CP Switch

Trunk Unit

Local Unit 1

Local Unit 2

Test Harness (SS7 Simulator)

CP Point Code =	yyy(hex)

BT Point Code =	xxx (hex)

CP Number Plan

BT Number Plan
0191 2 + 6 digits (Local System X)
02920 + 6 digits (Local System X)
0207 3+ 6 digits (Local AXE10)
01333/4 + 6 digits (Local AXE10)

2. ACC tests

CP Switch

2 x 2 Mbit/s (SS7 T/S 16 Signalling)

Test Harness Point code #1

Test Harness Point code #2
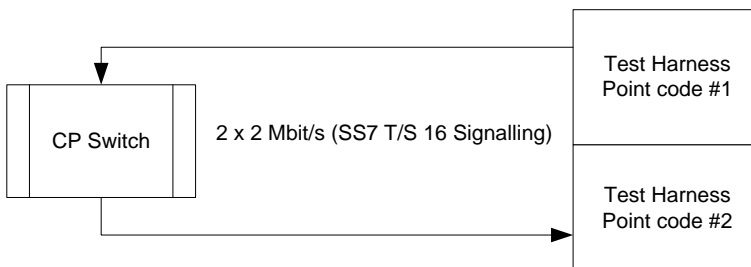
END OF APPENDIX A

< END OF DOCUMENT >