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NICC Document

NGN Interconect:
PSTN Services Operational Test Manual

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Contents

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Foreword

This NICC Document (ND) has been produced by NICC TSG Testing Specification Working Group.

Introduction

This document forms an Operational Testing Manual [OTM] template that can be used by CPs as a basis for part of the testing requirements when interconnecting their Next Generation Network [NGN] to another CPs NGN.

It is one of a series of documents (ND1410-14) which form a complete testing process for NGN PSTN interconnect.

1 Scope

It has been agreed in NICC that CPs must take a responsible approach to testing. This can be achieved by ensuring that CPs who want to interconnect to other CPs follow an appropriate process of testing before that interconnect is put into service.

It is recommended that testing should consist of the following stages:

- Validation (prior to any interconnection) - ND1413 [8] *
- Integration (of model networks) - ND1414 [9] *

  * Appropriate when an unknown combination of equipment is to be connected
- Operational (of live routes) - ND1410, ND1411 [2] and ND1412 [3]

This OTM should be used at the “operational” stage when interconnecting NGNs prior to “ready for service” or as part of the “ready for service” process.

It contains the minimum testing elements needed to test the Services (call types) of an NGN interconnect between CPs (confirming correct operation of the SIP-I signalling and appropriate call treatment, announcements and terminations). It should be read in conjunction with the other OTMs, ND1410 [2] and ND1411 [3] to define a complete set of tests for that interconnect.

It should not be considered to be a complete set of tests that meet any particular CPs exact testing requirement and there may be tests which are unsuitable to particular connection. Consequently, CPs should view this OTM as a template from which their own test requirements should be designed by adding, removing or modifying tests as appropriate provided they are agreed with the other CP.

2 References

For the particular version of a document applicable to this release see ND1610 [1].

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

2.1 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1]	ND1610	Next Generation Networks, Release Definition
[2]	ND1410	UK Interconnect - PSTN Transport Operational Testing Manual
[3]	ND1411	UK Interconnect - PSTN Signalling Operational Testing Manual
[4]	ND1612	Generic IP Connectivity for PSTN/ISDN Service between UK Next Generation Networks
[5]	ND1017	Interworking between Session Initiation Protocol (SIP) and UK ISDN User Part (UK-ISUP)
[6]	ND1613	Management of NGN Interconnect: Transport Connectivity Layer
[7]	ND1701	Recommended Standard for the UK National Transmission Plan
[8]	ND1413	UK Interconnect - PSTN Validation Testing Manual
[9]	ND1414	UK Interconnect - PSTN Integration Testing Manual

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACK	Acknowledgement
APM	Application Transport Mechanism
BGW	Border Gateway
CHC	Call Handling Centre
CPS	Carrier Pre-Selection
CP	Communication Provider
CIM	Clear Indication Message
CLI	Call Line Identity
DEL	Direct Exchange Line
DPNSS	Digital Private Network Services Signalling System
EET	Equipment Engaged Tone
IA	Indirect Access
ICMP	Internet Control Message Protocol
ISDN	Integrated Services Digital Network
ISRM	Initial Service Request Message
MOB	Mobile
NGN	Next Generation Network
NN	Network Number
NTE	Network Terminating Equipment
OLI	Originating Line Identity
OTM	Operational Testing Manual
PA	Public Address
PN	Presentation Number
PPP	Point To Point Protocol
PSTN	Public Switched Telephony Network
RBWF	Ring Back When Free
RLC	Release Confirmation Message
RTCP	Real Time Control Protocol
SAM	Subsequent Address Message
TLI	Terminating Line Identity
VLAN	Virtual Local Area Network

4 Testing Requirements

4.1 Architecture

Within this document, reference is made to functions and interfaces. These functions and interfaces are described in detail in ND1612 [4]. Reference should be made to “Figure 1: Functional Architecture for PSTN / ISDN Generic Connectivity”.

Where a different architecture is used, test procedure should be adapted as appropriate.

4.2 Methodology

Each applicable test case should be completed by each CP.

Test results sheets should be retained locally in line with normal document retention guidance.

Where any test does not produce acceptable responses, the reasons should be investigated, a remedy attempted and the test repeated. The number of times the test is repeated and reasons why should be noted.

If the above process does not produce acceptable responses testing officers should follow appropriate escalation procedures to the relevant support groups and commercial teams.

If an immediate resolution can not be found, a time limited waiver should be agreed between the parties to allow the testing to continue, and the interconnect to be placed in service (provided that the issue is not service affecting).

Note that there may be significant differences between forward and backward releases depending on how networks are configured. When CPs design their own testing requirements based on these templates care should be taken when considering the forward/backward sequences detailed in End User Release sequence T1 in section 6.1.2. CPs may wish to include additional tests of their own design to look at this specific issue.

Reference should be made to ND1017 [5] for all tests.

4.3 Suggested Test Scenarios

The following table defines the test scenario definitions which may used in test operational scheduling. All of the indicated tests should be completed and passed for the given scenario.

Scen-ario		Definition
A	1	First traffic route between CPs with unknown equipment (at either end)
	2	First traffic route between CPs with known equipment (at either end)
B		All subsequent new traffic routes after either Scenario A1 or A2 has been completed
C	1	Additional service type on first existing route where either CP switch has an unknown build (for that service type)
	2	Additional service type on first existing route where either CP switch has a known build (for that service type)

5 Tests

5.1 Geographic Calls

5.1.1 Test List

Each applicable test case should be completed by each CP.

Service Type:		Geographic Calls				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1001	ISDN Data	■	■	■	■	■
1002	ISDN Data - Incompatible Destination	■	■		■	
1003	ISDN Data - Diverted Mobile	■	■		■	■
1004	ISDN Speech	■	■	■	■	■
1005	Successful Call	■	■	■	■	■
1006	Calling Line Identity Unavailable	■			■	
1007	Presentation Number	■	■		■	■
1008	Calling Line Identity Withheld	■	■	■	■	■
1009	Anonymous Call Reject	■	■		■	
1010	Incomplete Destination Number	■	■	■	■	■
1011	Hookflash, Suspend / Resume & Called Party Hold Time Out	■	■	■	■	■
1012	Called Party Answer Time Out	■			■	
1013	Fixed - Busy & Out of Order	■	■	■	■	■
1014	Mobile - Busy, Unreachable & Switched Off	■	■		■	■
1015	Fixed - Spare Number & Incoming Calls Barred	■	■	■	■	■
1016	Call Forward Unconditional	■			■	
1017	Call Forward on No Reply	■	■		■	■
1018	Malicious Call Identification	■	■	■	■	■
1019	Partial Calling Line Identity	■	■		■	
1020	No Customer Premises Equipment Connected	■			■	
1021	Ring Back When Free	■	■	■	■	■
End of Geographic Calls Tests						

5.1.2 Test Procedures

Tests procedures commence on next page.

1001	ISDN Data	GEO

Test Procedure

1 Make 9.6 / 19.2 / 64kbs data calls
2 Answer ('Auto Answer' where applicable)
3 Forward and backward release all calls
4 Confirm that the 'Presentation Number' / 'Connected Line Number' are displayed correctly

Expected Results

Message Sequence Label(s)	S6			T1	

1002	ISDN Data - Incompatible Destination	GEO

Test Procedure

1 Make a data call attempts to a DEL
2 Confirm call rejection (& called party's CPE does not ring)
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S3	U4			

1003	ISDN Data - Diverted Mobile	GEO

Test Procedure

1 Make data calls to a mobile which has all calls diverted to ISDN NTE
2 Answer (Auto Answer)
3 Forward and backward release the calls
4 Confirm that the presentation number is displayed

Expected Results

Message Sequence Label(s)	S6			T1	

1004	ISDN Speech	GEO

Test Procedure

1 From an ISDN Terminal make speech calls to an appropriate CPE
2 Confirm the call is of acceptable quality
3 Forward and backward release the calls
4 Repeat the test, but using 3.1khz mode

Expected Results

Message Sequence Label(s)	S7		P1	T1	

1005	Successful Call	GEO

Test Procedure

1 Make speech calls
2 Answer and confirm two way speech of acceptable quality
3 Forward and backward release the calls
4 Confirm that the network number is displayed to the called party

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1006	Calling Line Identity Unavailable	GEO

Test Procedure

1 Make data changes so that calls are marked ‘Unavailable’
2 Make speech calls
3 Answer
4 Forward and backward release the calls
5 Confirm that the number is shown as ‘Unavailable’ to the called party
6 Confirm that N FWD CL I A=0 (Blocking Not Available to Caller)

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1007	Presentation Number	GEO

Test Procedure

1 Set up an appropriate ‘Presentation Number’ on a DEL
2 Make speech calls
3 Answer
4 Forward and backward release the calls
5 Confirm that the presentation number is displayed

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1008	Calling Line Identity Withheld	GEO

Test Procedure

1 Make speech calls with the calling identity restricted
2 Confirm that the calling identity is restricted to the called party
3 Forward and backward release the calls

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1009	Anonymous Call Reject	GEO

Test Procedure

1 Enable the terminating line with anonymous call reject
2 Make a speech call
3 Confirm that that the called party's CPE does not ring
4 Confirm that a suitable announcement or tone is heard
5 Wait for call to backward release

Expected Results

Message Sequence Label(s)	S4			T2f	

1010	Incomplete Destination Number	GEO

Test Procedure

1 Make a speech call omitting the last digit of the called party's number
2 Confirm that an appropriate announcement is heard
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S3	U5			

1011	Hookflash, Suspend / Resume & Called Party Hold Time Out	GEO

Test Procedure

1	Make a speech call
2	Answer
3	Clear and re-answer from the called party
3	Confirm two way speech is possible
4	Clear the call from the called party
5	Wait for called party hold timer to mature (N.B., the terminating network may release the call before the called party hold timer expires)

Expected Results

Message Sequence Label(s)	S4		P1 + P2	T2d	

1012	Called Party Answer Time Out	GEO

Test Procedure

1	Make a speech call
2	Do not answer
3	Wait for the called party answer timer to mature (N.B., the terminating network may release the call before the called party answer timer expires)

Expected Results

Message Sequence Label(s)	S4			T2c	

1013	Fixed - Busy (Calls Not Forwarded) & Out of Order	GEO

Test Procedure – Busy

1 Make speech calls to a 'Busy' DEL
2 Confirm that an appropriate tone or announcement is heard by the calling party
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S3	U1			

Test Procedure – Out of Order

1 Make speech calls to an 'Out of Order' DEL
2 Confirm that an appropriate tone or announcement is heard by the calling party
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S3	U2			

1014	Mobile - Busy, Unreachable & Switched Off	GEO

Test Procedure – Busy

1 Make speech calls to a 'Busy' mobile (calls not forwarded)
2 Confirm that an appropriate tone or announcement is heard by the calling party
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S3	U1			

Test Procedure – Unreachable

1 Make a speech call to mobile that has been made "Unreachable" (calls not forwarded)
2 Confirm that an appropriate tone or announcement is heard by the calling party
3 Wait for Mobile network to release call

Expected Results

Message Sequence Label(s)	S4			T2a	

Test Procedure – Switched Off

1 Make a speech call to a mobile that has been switched off (calls not forwarded)
2 Confirm that an appropriate tone or announcement is heard by the calling party
3 Wait for Mobile network to release call

Expected Results

Message Sequence Label(s)	S4			T2a	

1015	Fixed - Spare Number & Incoming Calls Barred	GEO

Test Procedure – Spare Number

1 Make speech calls to a DEL which has been made 'Spare'
2 Confirm that an appropriate announcement or tone is heard
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S3	U3			

Test Procedure – Incoming Calls Barred

1 Make speech calls to a DEL with 'Incoming Calls Barred' set
2 Confirm that an appropriate announcement or tone is heard
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S3	U6			

1016	Call Forwarding Unconditional	GEO

Test Procedure

1 Make speech calls to a DEL/Mob that has ALL calls forwarded to a DEL
2 Answer
3 Forward and backward release the calls

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1017	Call Forward on No Reply	GEO

Test Procedure

1 Make speech calls to a DEL/MOB that has calls forwarded on no reply to a DEL
2 Answer
3 Forward and backward release the calls

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1018	Malicious Call Identification	GEO

Test Procedure

1 Using a destination line with MCI or similar set, make a speech call
2 Confirm that the 'hold request' indicator is set in the ACM
3 Answer & invoke MCI on the called party's CPE
4 Attempt to clear the call from the calling party
5 If the call remains held, manually release the call
6 Confirm that the calling party's details have been retained by the destination CP

Expected Results

Message Sequence Label(s)	S4				M2

1019	Partial Calling Line Identity	GEO

Test Procedure

1 Make speech calls from a system CPE or similar (so a CLI is not available)
2 Answer
3 Forward and backward (let timer run) release the calls
4 Confirm that a Partial CLI is present in message but the call is marked 'Unavailable' for display purposes

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1020	No Customer Premises Equipment Connected	GEO

Test Procedure

1 Make ISDN speech call attempts to a line without any CPE connected
2 Confirm an appropriate announcement is heard
3 Forward and backward (let timer run) release the calls

Expected Results

Message Sequence Label(s)	S4			T2e	

1021	Ring Back When Free	BT

Test Procedure

1	Make the terminating line busy (1st call)
2	Make a speech call to the terminating number (2nd call)
3	When busy tone is heard, key the appropriate number to start the ring back process
4	Clear the 2nd call, then clear the 1st call
5	When the alerting tone is given to the originating number, pick up and confirm that ringing tone is heard and the destination line starts to ring
6	Answer the terminating line and confirm bothway speech is available
7	Forward release the call

Expected Results

Message Sequence Label(s)	M1

5.1.3 Test Result Sheet

Results sheet is on next page.

Results Sheet:										Geographic Calls
Test	Tested? #	Direction*	Completed			Failed			Comments / Description of Failure
			No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1001		>							
		<							
1002		>							
		<							
1003		>							
		<							
1004		>							
		<							
1005		>							
		<							
1006		>							
		<							
1007		>							
		<							
1008		>							
		<							
1009		>							
		<							
1010		>							
		<							
1011		>							
		<							
1012		>							
		<							
1013		>							
		<							

* > Denotes From CPA; < Denotes From CPB # If this test was in the scenario under test, please tick if not please put N/A.

Contd…..

Results Sheet: Geographic Calls (Contd)									
Test	Tested? #	Direction*	Completed			Failed			Comments / Description of Failure
			No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1014		>							
		<							
1015		>							
		<							
1016		>							
		<							
1017		>							
		<							
1018		>							
		<							
1019		>							
		<							
1020		>							
		<							
1021		>							
		<							
* > Denotes From CPA; < Denotes From CPB # If this test was in the scenario under test, please tick if not please put N/A.									
End Of Geographic Calls Result Sheet									

5.2 Directory Enquiries

5.2.1 Test List

Service Type:		Directory Enquiries				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1101	Successful Call	■	■	■	■	■
1102	Service Busy / Unavailable	■			■	
1103	Called Party Answer Time Out	■	■		■	■
1104	Extended Call	■	■		■	■
End of Directory Enquiries Tests						

5.2.2 Test Procedures

Tests commence on next page.

1101	Successful Call	DQ

Test Procedure

1	Make a speech call to the appropriate 118XXX service
2	If a NID is suffixed, confirm that it is of the correct content & format
3	Confirm with the assistant that appropriate information is presented for the type of service
4	Ask the assistant to confirm that the CLI and if applicable the PN are displayed
5	Ask the assistant to release the call and confirm the release sequence is acceptable

Expected Results

Message Sequence Label(s)	S5			T1	

1102	Service Busy / Unavailable	DQ

Test Procedure – Service Busy

1	Where appropriate to do so, make the CHC busy
2	Make a speech call to the appropriate 118XXX service
3	Confirm that the release sequence is acceptable

Expected Results

Message Sequence Label(s)	S3	U1			

Test Procedure – Unavailable

1	Where appropriate to do so, make the CHC unavailable
2	Make a speech call to the appropriate 118XXX Service
3	Confirm that the release sequence is acceptable

Expected Results

Message Sequence Label(s)	S3	U7			

1103	Called Party Answer Time Out	DQ

Test Procedure

1 Make a speech call to the appropriate 118XXX Service
2 Confirm that the CHC Assistants do no not answer
3 Confirm the release sequence is acceptable

Expected Results

Message Sequence Label(s)	S5			T2c	

1104	Extended Call	DQ

Test Procedure

1 Make a speech call to the appropriate 118XXX Service
2 Ask the CHC Assistants to extend the call to a Suitable test Number
3 Backward Release the call from the extended to Number

Expected Results

Message Sequence Label(s)	S5		P1	T1	

5.2.3 Test Results Sheet

Tests commence on next page.

Results Sheet:								Directory Enquiries
Test	Direction*	Completed			Failed			Comments / Description of Failure
		No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1101	>							
	<							
1102	>							
	<							
1103	>							
	<							
1104	>							
	<							
* > Denotes From CPA; < Denotes From CPB								
End Of Directory Enquiries Result Sheet								

5.3 Emergency Service

5.3.1 Test List

Service Type:		Emergency Service				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1201	Fixed – Successful Call	■	■	■	■	■
1202	Mobile – Successful Call	■	■	■	■	■
1203	Last Party Release	■	■	■	■	■
1204	Alternative Routing	■	■			
1205	Fixed – Permanent Call Barring Indicator	■	■	■	■	■
End of Emergency Service Tests						

5.3.2 Test Procedures

Results sheet is on next page.

1201	Fixed – Successful Call	ES

Test Procedure

1	Make a speech call by dialling 999/112
2	Confirm that the Calling Party Category (CPC) = 11 (Sub With Priority)
3	Confirm that the destination digits = 999/112 + II Digits
4	Confirm with the Call Handling Centre (CHC) assistant that the correct II digits are displayed
5	Confirm with the assistant that the NN and PN are displayed
6	Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	S5			T1	

1202	Mobile – Successful Call	ES

Test Procedure

1	Make a speech call by dialling 999/112
2	Confirm that the Calling Party Category (CPC) =11 (Sub With Priority)
3	Confirm that the destination digits = 999/112 + II Digits + Zone Code
4	Confirm with the assistant that the correct II digits and zone code are displayed
5	Confirm with the assistant that the NN and PN are displayed
6	Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	S5			T1	

1201	Fixed – Successful Call	ES

Test Procedure

1	Make a speech call by dialling 999/112
2	Confirm that the Calling Party Category (CPC) = 11 (Sub With Priority)
3	Confirm that the destination digits = 999/112 + II Digits
4	Confirm with the Call Handling Centre (CHC) assistant that the correct II digits are displayed
5	Confirm with the assistant that the NN and PN are displayed
6	Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	**S5**			**T1**	

1202	Mobile – Successful Call	ES

Test Procedure

1	Make a speech call by dialling 999/112
2	Confirm that the Calling Party Category (CPC) =11 (Sub With Priority)
3	Confirm that the destination digits = 999/112 + II Digits + Zone Code
4	Confirm with the assistant that the correct II digits and zone code are displayed
5	Confirm with the assistant that the NN and PN are displayed
6	Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	**S5**			**T1**	

1203	Last Party Release	ES

Test Procedure

1	Make a speech call by dialling 999/112
2	When the CHC assistant answers tell them that you will attempt to release and re-answer the call
3	Clear the call
4	Confirm that data settings in the calling party's network prevent the call from releasing
5	Re-answer the call
6	Ask the assistant to release the call
7	Confirm that the call is released normally

Expected Results

Message Sequence Label(s)	S5		P1+P2	T1	

1204	Alternative Routing	ES

Test Procedure

1	Busy all circuits on the first available emergency service traffic route
2	Make a call by dialling 999/112
3	Confirm that the calls mature via an alternative route
4	Repeat for **all** traffic routes

Expected Results

Message Sequence Label(s)	S5		P1	T1	

1206	Fixed - Permanent Call Barring Indicator	ES

Test Procedure

1 Set the line so that outgoing calls are barred (OCB)

2 Make a speech call by Dialling 999/112

3 When the assistant answers confirm that the call is marked as 'Outgoing Calls Barred'

4 Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	S5		P1	T1	

5.3.3 Test Results Sheet

Results sheet is on next page.

Results Sheet: Emergency Service							
Test	Completed			Failed			Comments / Description of Failure
	No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1201							
1202							
1203							
1204							
1205							
End Of Emergency Service Result Sheet							

5.4 Operator Services

5.4.1 Operator Services

Service Type:		Operator Services				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1301	Successful Call (100/155)	■	■	■	■	■
1302	Last Party Release (100/155)	■	■		■	■
1303	Permanent Call Barring Indicator (100/155)	■			■	
1304	Extending Call (100)	■			■	
1306	Blind & Disabled Assistance (195)	■	■	■	■	■
End of Operator Services Tests						

5.4.2 Test Procedures

Tests commence on next page.

1301	Successful Call (100/155)	OS

Test Procedure

1 Make a speech call to the 100 or 155
2 Ask the assistant to confirm that the correct II digits, NN and PN are displayed
3 Release the call

Expected Results

Message Sequence Label(s)	S5		P1	T1	

1302	Last Party Release (100/155)	OS

Test Procedure

1 Make a speech call to 100 or 155
2 Inform the assistant that you will be attempting a ‘clear and re-answer’ test
3 Clear & re-answer the call
4 Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	S5		P1	T1	

1303	Permanent Call Barring Indicator (100/155)	OS

Test Procedure

1 Set the line so that outgoing calls are barred
2 Make a speech call by dialling 100 or 155
3 When the assistant answers confirm that the call is marked as ‘Outgoing Calls Barred’
4 Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	S5		P1	T1	

1304	Extending Call (100)	OS

Test Procedure

1 Make a speech call to 100
2 Ask the assistant to extend the call to a geographic number
3 Backward release the call

Expected Results

Message Sequence Label(s)	S5		P1	T1	

1305	Blind & Disabled Assistance (195)	OS

Test Procedure

1 Make a speech call to 195
2 When the assistant answers confirm that the correct II digits, NN and PN are displayed
3 Ask the assistant to release the call

Expected Results

Message Sequence Label(s)	S5		P1	T1	

5.4.3 Test Results Sheet

Results sheet is on next page.

Results Sheet:							Operator Services
Test	Completed			Failed			Comments / Description of Failure
	No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1301							
1302							
1303							
1304							
1305							
End Of Operator Services Result Sheet							

5.5 Number Translation Service

5.5.1 Test List

Service Type:		Number Translation Service				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1401	ISDN Data	■	■	■	■	■
1402	ISDN Speech	■	■		■	■
1403	Successful Call (Charge Indicator Check)	■	■	■	■	■
1404	Calling Line Identity Unavailable	■			■	
1405	Calling Line Identity Withheld	■	■	■	■	■
1406	Presentation Number	■	■		■	■
1407	Hookflash, Suspend / Resume & Called Party Hold Time Out	■			■	
1408	Called Party Answer Time Out	■	■		■	■
1409	Busy & Out of Order	■	■	■	■	■
1410	Spare Number & Incoming Calls Barred	■	■		■	■
1411	Malicious Call Identification	■	■	■	■	■
1412	Incomplete Destination Number	■			■	
End of Number Translation Service Tests						

5.5.2 Test Procedures

Tests commence on next page.

1401	ISDN Data	NTS

Test Procedure

1 Make a data call via the CPs NTS service
2 Confirm that the presentation number is displayed
3 Confirm that the connected line number is displayed
4 Answer (Auto Answer)
5 Forward release the call

Expected Results

Message Sequence Label(s)	S6			T1	

1402	ISDN Speech	NTS

Test Procedure

1 Make an ISDN Speech Call via the CPs NTS service
2 Answer
3 Forward release the call

Expected Results

Message Sequence Label(s)	S7		P1	T1	

1403	Successful Call (Charge Indicator Check)	NTS

Test Procedure

Free To Caller Service (where supported)

1 Make a speech call via the CPs 'Free to Caller' NTS service
2 Confirm that the address complete message BCI charge indicator is set to "charge"
3 Confirm that the network number is displayed to the called party
4 Answer the call
5 Confirm that when the answer message contains BCI, that the charge indicator is set to "charge"
6 Forward release the call

Chargeable To Caller Service

1 Make a speech call via the CPs 'Chargeable to Caller' NTS service
2 Confirm that the address complete message BCI charge indicator is set to "charge"
3 Confirm that the network number is displayed to the called party
4 Answer the call
5 Confirm that when the answer message contains BCI, that the charge indicator is set to "charge"
6 Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1404	Calling Line Identity Unavailable	NTS

Test Procedure

1 Make data changes so that call will be marked as "Unavailable"
2 Make a speech call via the CPs NTS service
3 Confirm correct transit of the "Blocking Not Available" field
4 Confirm that the calling number is shown as "Unavailable" to the called party
5 Answer
6 Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1405	Calling Line Identity Withheld	NTS

Test Procedure

1 Make a speech call via the CPs NTS service, but restrict the calling identity
2 Confirm that the calling identity is restricted to the called party
3 Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1406	Presentation Number	NTS

Test Procedure

1 Make data changes to provide a presentation number on the calling line
2 Make a speech call via the CPs NTS service
3 Confirm that the presentation number is available to the called party
4 Answer
5 Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1407	Hookflash, Suspend / Resume & Called Party Hold Time Out	NTS

Test Procedure

1 Make a speech call via the CPs NTS service
2 Answer
3 Clear and re-answer (This action may not be possible with some ISDN NTEs)
4 Clear the call from the called party
5 Wait for called party hold timer to mature. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4		P1 P2	T2d	

1408	Called Party Answer Time Out	NTS

Test Procedure

1 Make a speech call via the CPs NTS service
2 Do not answer
3 Wait for the called party answer timer to mature. Cause indicator = 19

Expected Results

Message Sequence Label(s)	S4			T2c	

1409	Busy (Calls Not Forwarded) & Out of Order	NTS

Test Procedure - Busy

1 Make a speech call to a busy line via the CPs NTS service
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S3	U1			

Test Procedure - Out Of Order

1 Make a speech call to an out of order line via the CPs NTS service
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S3	U2			

1410	Spare Number & Incoming Calls Barred	NTS

Test Procedure - Spare Number

1 Using a destination line marked ‘spare’, make a speech call via the CP NTS service
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S3	U3			

Test Procedure - Incoming Calls Barred

1 Using a destination line with ‘Incoming Calls Barred’, make a speech call via the CP NTS service
2 Make a speech call
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S3	U6			

1411	Malicious Call Identification	NTS

Test Procedure

1	Using a destination line with MCI or similar set, make a speech call via the CPs NTS service
2	Confirm that the 'hold request' indicator is set in the ACM
3	Answer & invoke MCI (or equivalent) on the called party's CPE
4	Attempt to clear the call from the calling party
5	If the call remains held, manually release the call
6	Confirm that the calling party's details have been stored by the terminating CP

Expected Results

Message Sequence Label(s)	S4				M2

1412	Incomplete Destination Number	NTS

Test Procedure

1	Make a speech call via the CPs NTS service but omitting the last digit of the called party's number
2	Confirm call releases to correct announcement
3	Forward release the call

Expected Results

Message Sequence Label(s)	S3	U5			

5.5.3 Test Results Sheet

Results sheet is on next page.

Results Sheet: Number Translation Service									
Test	Direction*	Completed			Failed				Comments / Description of Failure
		No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	Waiver Ref	
1401	>								
	<								
1402	>								
	<								
1403	>								
	<								
1404	>								
	<								
1405	>								
	<								
1406	>								
	<								
1407	>								
	<								
1408	>								
	<								
1409	>								
	<								
1410	>								
	<								
1411	>								
	<								
1412	>								
	<								
* > Denotes From CPA; < Denotes From CPB									
End Of Number Translation Service Result Sheet									

5.6 Personal Number & Assistant Services

5.6.1 Test List

Service Type:		Personal Number Service Personal Assistant Service				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1501	ISDN Data - Fixed	■	■	■	■	■
1502	ISDN Data - Mobile	■	■	■	■	■
1503	Successful Call	■	■	■	■	■
1504	Calling Line Identity Unavailable	■			■	
1505	Presentation Number	■	■		■	■
1506	Calling Line Identity Withheld	■	■	■	■	■
1507	Backward & Forward Release To Voicemail	■	■		■	■
1508	Incomplete Destination Number	■	■	■	■	■
1509	Hookflash, Suspend / Resume & Called Party Hold Time Out	■			■	
1510	Called Party Answer Time Out & Subsequent Call Treatment	■	■		■	■
1511	Fixed - Busy & Out of Order	■	■	■	■	■
1512	Mobile - Busy / Unreachable / Switched Off	■	■	■	■	■
1513	Spare Number & Incoming Calls Barred	■	■		■	■
1514	Malicious Call Identification	■	■	■	■	■
1515	Personal Assistance Service - Answer Timing	■	■	■	■	■
1516	Personal Assistant Service - Called Party Answer Time Out	■	■		■	■
						End of Personal Numbering / Personal Assistant Tests

5.6.2 Test Procedures

Tests commence on next page.

1501	ISDN Data - Fixed	PN/PA

Test Procedure

1 Make a data call via the CPs PN/PA service
2 Confirm that the presentation number is displayed
3 Confirm that the connected line number is displayed
4 Answer (Auto Answer)
5 Forward release the call

Expected Results

Message Sequence Label(s)	S6			T1	

1502	ISDN Data - Mobile	PN/PA

Test Procedure

1 Make data calls via the CPs PN/PA service to a mobile at the following bit rates: 9.6/19.2/64kbs
2 Answer (Auto Answer)
3 Confirm that the presentation number is displayed to the called party
4 Forward release the call

Expected Results

Message Sequence Label(s)	S6			T1	

1503	Successful Call	PN/PA

Test Procedure

1	Make a speech call via the CPs PN/PA service
2	Answer
3	Confirm that the Network Number is displayed to the called party
4	Forward release the call. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1504	Calling Line Identity Unavailable	PN/PA

Test Procedure

1	Make Data changes so that the call is marked “Unavailable” (Blocking Not Available to Caller)
2	Make a speech call via the CPs PN/PA service to a DEL
3	Confirm that the identity is shown as ‘Unavailable’ to the called party
4	Answer
5	Forward release the call. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1505	Presentation Number	PN/PA

Test Procedure

1	Make data changes to provide a presentation number on the calling line
2	Make a speech call via the CPs PN/PA service to a DEL
3	Confirm that the presentation number is displayed
4	Answer
5	Forward release the call. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1506	Calling Line Identity Withheld	PN/PA

Test Procedure

1	Make a speech call via the CPs PN/PAS service to a DEL, but restrict the calling identity
2	Confirm that the calling identity is restricted to the called party
3	Forward release the call. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1507	Backward & Forward Release To Voicemail	PN/PA

Test Procedure - Backward Release

1	Make a speech call via the CPs PN/PA service which is transferred to automated voicemail
2	Leave a brief message
3	Forward release the call. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4		P1	T1	

Test Procedure - Forward Release

1	Make a speech call via the CPs PN/PA service which is transferred to automated voicemail
2	Leave a brief message
3	Leave the connection open until the voicemail system or PN/PA service releases the call. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1508	Incomplete Destination Number	PN/PA

Test Procedure

1	Make a speech call via the CPs PN/PA service to a DEL omitting last digit of called party number
2	Confirm call releases to an appropriate tone or announcement
3	Forward release the call

Expected Results

Message Sequence Label(s)	S1/S3	U5			

1509	Hookflash, Suspend / Resume & Called Party Hold Time Out	PN/PA

Test Procedure

1	Make a speech call via the CPs PN/PA service to a DEL
2	Answer
3	Clear and re-answer
4	Clear the call from the called party
5	Wait for called party hold timer to mature. Cause indicator = 16

Expected Results

Message Sequence Label(s)	S4	P1	P2	T2d	

1510	Called Party Answer Time Out & Subsequent Call Treatment	PN/PA

Test Procedure

1	Make a speech call via the CPs PN/PA service to a DEL (without answer service)
2	Do not answer
3	Wait for the called party answer time out to mature, or the PN/PA service voicemail system to connect
4	Forward release the call. Cause indicator = 19

Expected Results

Message Sequence Label(s)	S4			T2c	

1511	Fixed - Busy & Out of Order	PN/PA

Test Procedure - Busy

1 Make a speech call via the CPs PN/PA service to a busy DEL (calls not forwarded)

2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4	U1			

Test Procedure - Out of Order

1 Make a speech call via the CPs PN/PA service to an “Out of Order” DEL

2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4	U2			

1512	Mobile - Busy, Unreachable & Switched Off	PN/PA

Test Procedure - Busy

1	Make a speech call via the CPs PN/PA service to a busy mobile (calls not forwarded)
2	Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S3	U1			

Test Procedure - Unreachable

1	Make a speech call via the CPs PN/PA service to an “Unreachable” mobile (calls not forwarded)
2	Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4			T1	

Test Procedure - Switched Off

1	Make a speech call via the CPs PN/PA service to a switched off mobile (calls not forwarded)
2	Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4			T1	

1513	Spare Number & Incoming Calls Barred	PN/PA

Test Procedure - Spare

1 Set the terminating DEL as 'Spare'
2 Make a speech call via the CPs PN/PA service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S3	U3			

Test Procedure - Incoming Calls Barred

1 Set the terminating DEL as 'Incoming Calls Barred'
2 Make a speech call via the CPs PN/PA service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S3	U6			

1514	Malicious Call Identification	PN/PA

Test Procedure

1 Using a destination line with MCI or similar set, make a speech call via the CPs PN/PA service
2 Confirm that the 'hold request' indicator is set in the ACM
3 Answer & invoke MCI (or equivalent) on the called party's CPE
4 Attempt to clear the call from the calling party
5 If the call remains held, manually release the call
6 Confirm that the calling party's details have been stored by the terminating CP

Expected Results

Message Sequence Label(s)	S4				M2

1515	Personal Assistant Service - Answer Timing	PN/PA

Test Procedure

1 Make a speech call to the CPs PA service which has been set up to poll a DEL, Mob and ISDN simultaneously (ensure the polling messages are sent back to BT via the test route)

2 Confirm that: Call set up messages are sent to all of the destinations simultaneously & that these are **new** calls and not 'Call Forwards'
The DEL, Mob and ISDN all ring
An immediate answer message is returned and ringing is returned to caller
That the answer message is chargeable

3 Answer from the Mob

4 Confirm the calls to the DEL & ISDN are immediately forward released by the PA service controller

5 Confirm that ringing stops to caller & bothway speech is then possible

6 Backward clear the call confirm both legs of the call clear normally

Expected Results

Message Sequence Label(s)					
A Leg to PA Service	S4		P1	T1	
B leg to ISDN Speech	S4			T1	
B Leg to DEL	S4			T1	
B Leg to Mob	S4		P1	T1	

1516	Personal Assistant Service - Called Party Answer Time Out	PN/PA

Test Procedure

1 Make a speech call to the CPs PA service which has been set up to poll a DEL, Mob and ISDN simultaneously (ensure the polling messages are sent back to BT via the test route)

2 Confirm that: Call set up messages are sent to all of the destinations simultaneously & that these are **new** calls and not 'Call Forwards'
The DEL, Mob and ISDN all ring
An immediate answer message is returned and ringing is returned to caller
That the answer message is chargeable

3 Do not answer the calls and allow the service called party answer time out mature

4 Confirm that ringing tone stops to the caller and that the DEL, Mob and ISDN all stop ringing

5 Forward release the call and Confirm the call clears normally

Expected Results

Message Sequence Label(s)	**S4**		**P1**	**T1**	
B leg to ISDN Speech	**S4**			**T1**	
B leg to DEL	**S4**			**T1**	
B leg to Mobile	**S4**			**T1**	

5.6.3 Test Result Sheet

Results sheet is on next page.

Results Sheet:							Personal Number Service Personal Assistant Service
Test	Completed			Failed			Comments / Description of Failure
	No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1501							
1502							
1503							
1504							
1505							
1506							
1507							
1508							
1509							
1510							
1511							
1512							
1513							
1514							
1515							
1516							
End Of Personal Number & Assistant Services Result Sheet							

5.7 Indirect Access Single Stage

5.7.1 Test List

Service Type:		Indirect Access Single Stage				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1601	ISDN Data	■	■	■	■	■
1602	ISDN Data - Incompatible Destination	■	■		■	■
1603	ISDN Speech	■	■	■	■	■
1604	Successful Call	■	■	■	■	■
1605	Calling Line Identity Unavailable	■			■	
1606	Calling Line Identity Withheld	■	■	■	■	■
1607	Presentation Number	■	■		■	■
1608	Hookflash, Suspend / Resume & Called Party Hold Time Out	■			■	
1609	Called Party Answer Time Out	■	■		■	■
1610	Busy & Out of Order	■	■	■	■	■
1611	Spare Number & Incoming Calls Barred	■	■		■	■
1612	Malicious Call Identification	■	■	■	■	■
1613	999/112 & 100 Call Treatment	■	■	■	■	■
1614	Incomplete Destination Number	■			■	
1615	Unregistered Line	■	■		■	■
End of Indirect Access Single Stage Tests						

5.7.2 Test Procedure

Tests commence on next page.

1601	ISDN Data	IA1

Test Procedure

1 Make a data call via the CPs IA1 service
2 Confirm that the presentation number is displayed
3 Confirm that the connected line number is displayed
4 Answer (Auto Answer)
5 Forward release the call

Expected Results

Message Sequence Label(s)	S6			T1	

1602	ISDN Data - Incompatible Destination	IA1

Test Procedure

1 Make a data call via the CPs IA1 service
2 Confirm that call is rejected (CPE does not ring)
3 Forward release the call

Expected Results

Message Sequence Label(s)	S1	U4			

1603	ISDN Speech	IA1

Test Procedure

1 Make an ISDN Speech Call via the CPs IA1 service
2 Answer
3 Forward release the call

Expected Results

Message Sequence Label(s)	S7		P1	T1	

1604	Successful Call	IA1

Test Procedure

1 Make a call using the CPs IA1 service
2 Answer
3 Forward release the call
4 Confirm that the network number is displayed to the called party

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1605	Calling Line Identity Unavailable	IA1

Test Procedure

1 Make data changes so that the call is marked as ‘Unavailable’
2 Make a speech call via the CPs IA1 service
3 Answer
4 Forward release the call
5 Confirm that number is shown as ‘Unavailable’ to the called party

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1606	Calling Line Identity Withheld	IA1

Test Procedure

1 Make a speech call via the CPs IA1 service to a DEL, but restrict the calling identity
2 Confirm that the calling identity is restricted to the called party
3 Forward release the call

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1607	Presentation Number	IA1

Test Procedure

1 Make data changes to provide a presentation number on the calling line
2 Make a speech call via the CPs IA1 service to a DEL
3 Confirm that the presentation number is displayed
4 Answer
5 Forward release the call

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1608	Hookflash, Suspend / Resume & Called Party Hold Time Out	IA1

Test Procedure

1 Make a speech call via the CPs IA1 service to a DEL
2 Answer
3 Clear and re-answer
4 Clear the call from the called party
5 Wait for called party hold timer to mature

Expected Results

Message Sequence Label(s)	S1	P1	P2	T1	

1609	Called Party Answer Time Out	IA1

Test Procedure

1 Make a speech call via the CPs IA1 service
2 Do not answer
3 Wait for the called party answer timer to mature. Cause indicator = 19

Expected Results

Message Sequence Label(s)	S2			T2c	

1610	Busy & Out of Order	IA1

Test Procedure - Busy

1 Make a speech call via the CPs IA1 service to a busy DEL (calls not forwarded)
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U1			

Test Procedure - Out of Order

1 Make a speech call via the CPs IA1 service to an “Out of Order” DEL
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U2			

1611	Spare Number & Incoming Calls Barred	IA1

Test Procedure - Spare

1 Set the terminating DEL as ‘Spare’
2 Make a speech call via the CPs IA1 service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U3			

Test Procedure - Incoming Calls Barred

1 Set the terminating DEL as ‘Incoming Calls Barred’
2 Make a speech call via the CPs IA1 service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U6			

1612	Malicious Call Identification	IA1

Test Procedure

1	Using a destination line with MCI or similar set, make a speech call via the CPs IA1 service
2	Confirm that the 'hold request' indicator is set in the ACM
3	Answer & invoke MCI (or equivalent) on the called party's CPE
4	Attempt to clear the call from the calling party
5	If the call remains held, manually release the call
6	Confirm that the calling party's details have been stored by the terminating CP

Expected Results

Message Sequence Label(s)	S2				M2

1613	999/112 & 100 Call Treatment	IA1

Test Procedure - 999/112

1 Make a call using the CPs IA1 service, with the destination number = 999

2 Confirm that one of the following occurs:

- i) An ACM is returned followed by a suitable in band announcement clearly stating “Please redial without using the IA Code” or similar
- ii) The call completes successfully to either a BT **OR** CP Emergency Service Call Handling Centre

3 For ii) confirm that on the ongoing section of the call that the Protection Indicator is set and that the page information is appropriate

4 Confirm either:
- a The Non BT Emergency CHC Assistant can see the CLI, or
- b The BT Emergency CHC Assistant can see the II digits appropriate for the CP

5 Attempt to forward release the call (this should not be possible), then ask the Emergency Service Call Centre Assistant to release the call and confirm that the call releases appropriately

6 Repeat with the destination number = 112, confirming that if the CP sends the call to BT, that the destination digits are changed to 999.

Expected Results

i) Message Sequence Label(s)	**S2**			**T1**
Ii) Message Sequence Label(s)	**S2**		**P1**	**T1**

Test Procedure - 100

1 Make a call using the CPs IA1 service, with the destination number = 100

2 Confirm that one of the following occurs:

- i) An ACM is returned followed by a suitable in band announcement clearly stating “Please redial without using the IA Code” or similar
- ii) The call completes successfully to either a BT **OR** CP Operator Service Call Handling Centre

3 Forward release the call

Expected Results

i) Message Sequence Label(s)	**S4**			**T1**
ii) Message Sequence Label(s)	**S4**		**P1**	**T1**

1614	Incomplete Destination Number	IA1

Test Procedure

1	Make a speech call via the CPs IA1 service omitting last digit of the called party number
2	Confirm call releases to suitable announcement or tone
3	Forward release the call

Expected Results

Message Sequence Label(s)	S3	U5			

1615	Unregistered Line	IA1

Test Procedure

1	Using an unregistered line make a call using the CPs IA1 service
2	Confirm that the called party's CPE does not ring
3	Listen to the in-band announcement (if provided) ad confirm that no advertising takes place (including contact numbers / websites / e-mail addresses being quoted etc), *unless an answer message is sent first
4	Confirm suitable call rejection occurs
5	Confirm that the call clears normally
6	If calls drops back to voice prompts for IA2, follow the IA2 procedure

Expected Results

Message Sequence Label(s)	S2		P1*	T1	

5.7.3 Test Results Sheet

Results sheet is on next page.

Results Sheet: Indirect Access Single Stage							
Test	Completed			Failed			Comments / Description of Failure
	No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1601							
1602							
1603							
1604							
1605							
1606							
1607							
1608							
1609							
1610							
1611							
1612							
1613							
1614							
1615							
End Of Indirect Access Single Stage Result Sheet							

5.8 Indirect Access Two Stage

5.8.1 Test List

Service Type:		Indirect Access Two Stage				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1701	ISDN Data - Service Incompatible	■	■		■	■
1702	ISDN Speech	■	■	■	■	■
1703	Successful Call	■	■	■	■	■
1704	Calling Line Identity Unavailable	■			■	
1705	Calling Line Identity Withheld	■	■	■	■	■
1706	Presentation Number	■	■		■	■
1707	Hookflash, Suspend / Resume & Called Party Hold Time Out	■			■	
1708	Called Party Answer Time Out	■	■		■	■
1709	Busy & Out of Order	■	■	■	■	■
1710	Spare Number & Incoming Calls Barred	■	■		■	■
1711	Malicious Call Identification	■	■	■	■	■
1712	999/112 & 100 Call Treatment	■	■	■	■	■
1713	Incomplete Destination Number	■			■	
1714	Invalid Authorisation Code	■	■		■	■
End of Indirect Access Two Stage Tests						

5.8.2 Test Procdures

Tests commence on next page.

1701	ISDN Data - Incompatible Service	IA2

Test Procedure

1 Make a data call via the CPs IA2 service
2 Confirm that call is rejected
3 Forward release the call

Expected Results

Message Sequence Label(s)	S3	U8			

1702	ISDN Speech	IA2

Test Procedure

1 Make an ISDN Speech Call via the CPs IA1 service
2 Answer
3 Forward release the call

Expected Results

Message Sequence Label(s)	S7		P1	T1	

1703	Successful Call	IA2

Test Procedure

1 Make a call using the CPs IA2 service
2 Answer
3 Forward release the call
4 Confirm that the network number is displayed to the called party

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1704	Calling Line Identity Unavailable	IA2

Test Procedure

1	Make data changes so that the call is marked as 'Unavailable'
2	Make a speech call via the CPs IA2 service
3	Answer
4	Forward release the call
5	Confirm that number is shown as 'Unavailable' to the called party

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1705	Calling Line Identity Withheld	IA2

Test Procedure

1	Make a speech call via the CPs IA2 service to a DEL, but restrict the calling identity
2	Confirm that the calling identity is restricted to the called party
3	Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1706	Presentation Number	IA2

Test Procedure

1 Make data changes to provide a presentation number on the calling line
2 Make a speech call via the CPs IA2 service to a DEL
3 Confirm that the presentation number is displayed
4 Answer
5 Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1707	Hookflash, Suspend / Resume & Called Party Hold Time Out	IA2

Test Procedure

1 Make a speech call via the CPs IA2 service to a DEL
2 Answer
3 Clear and re-answer
4 Clear the call from the called party
5 Wait for called party hold timer to mature

Expected Results

Message Sequence Label(s)	S4	P1	P2	T2c	

1708	Called Party Answer Time Out	IA2

Test Procedure

1 Make a speech call via the CPs IA2 service
2 Do not answer
3 Wait for the called party answer timer to mature

Expected Results

Ingress Message Sequence	S4		P1	T1	
Egress Message Sequence	S4			T2c	

1709	Busy & Out of Order	IA2

Test Procedure - Busy

1 Make a speech call via the CPs IA2 service to a busy DEL (calls not forwarded)
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4		P1	T1	

Test Procedure - Out of Order

1 Make a speech call via the CPs IA2 service to an “Out of Order” DEL
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1710	Spare Number & Incoming Calls Barred	IA2

Test Procedure - Spare

1 Set the terminating DEL as 'Spare'
2 Make a speech call via the CPs IA2 service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4		P1	T1	

Test Procedure - Incoming Calls Barred

1 Set the terminating DEL as 'Incoming Calls Barred'
2 Make a speech call via the CPs IA2 service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1711	Malicious Call Identification	IA2

Test Procedure

1	Using a destination line with MCI or similar set, make a speech call via the CPs IA2 service
2	Confirm that the 'hold request' indicator is set in the ACM
3	Answer & invoke MCI (or equivalent) on the called party's CPE
4	Attempt to clear the call from the calling party
5	If the call remains held, manually release the call
6	Confirm that the calling party's details have been stored by the terminating CP

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1712	999/112 & 100 Call Treatment	IA2

Test Procedure - 999/112

1 Make a call using the CPs IA2 service, with the destination number = 999

2 Confirm that one of the following occurs:

iii) An ACM is returned followed by a suitable in band announcement clearly stating “Please redial without using the IA Code” or similar

iv) The call completes successfully to either a BT **OR** CP Emergency Service Call Handling Centre

3 For ii) confirm that on the ongoing section of the call that the Protection Indicator is set and that the page information is appropriate

4 Confirm either:
a The Non BT Emergency CHC Assistant can see the CLI, or
b The BT Emergency CHC Assistant can see the II digits appropriate for the CP

5 Attempt to forward release the call (this should not be possible), then ask the Emergency Service Call Centre Assistant to release the call and confirm that the call releases appropriately

6 Repeat with the destination number = 112, confirming that if the CP sends the call to BT, that the destination digits are changed to 999.

Expected Results

Message Sequence Label(s)	S4		P1	T1	

Test Procedure - 100

1 Make a call using the CPs IA2 service, with the destination number = 100

2 Confirm that one of the following occurs:

iii) An ACM is returned followed by a suitable in band announcement clearly stating “Please redial without using the IA Code” or similar

iv) The call completes successfully to either a BT **OR** CP Operator Service Call Handling Centre

3 Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1713	Incomplete Destination Number	IA2

Test Procedure

1	Make a speech call via the CPs IA2 service omitting last digit of the called party number
2	Confirm call releases to suitable announcement or tone
3	Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1714	Invalid Authorisation Code	IA2

Test Procedure

1	Make a speech call via the CPs IA2 service using an **Invalid** Authorisation Code
2	Confirm that an appropriate announcement or tone is heard
3	Forward release the call

Expected Results

Message Sequence Label(s)	S4		P1	T1	

5.8.3 Test Results Sheet

Results sheet is on next page.

Results Sheet: Indirect Access Two Stage							
Test	Completed			Failed			Comments / Description of Failure
	No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1701							
1702							
1703							
1704							
1705							
1706							
1707							
1708							
1709							
1710							
1711							
1712							
1713							
1714							
End Of Indirect Access Two Stage Result Sheet							

5.9 Carrier Pre-Select

5.9.1 Test List

Service Type:	Carrier Pre-Select

The expected testing method will be Originating Network (Originating NTE) via the CPS Number Range Owners switch back to the Originating Network (Terminating NTE). Where this is not possible test procedure and results should be adjusted as necessary. Calls must be repeated for each CPS service that the CP provides e.g. Local, National & International

Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1801	ISDN Data	■	■	■	■	■
1802	ISDN Data - Incompatible Destination	■	■		■	■
1803	ISDN Speech	■	■	■	■	■
1804	Successful Call	■	■	■	■	■
1805	Calling Line Identity Unavailable	■			■	
1806	Calling Line Identity Withheld	■	■	■	■	■
1807	Presentation Number	■	■		■	■
1808	Hookflash, Suspend / Resume & Called Party Hold Time Out	■			■	
1809	Called Party Answer Time Out	■	■		■	■
1810	Busy & Out of Order	■	■	■	■	■
1811	Spare Number & Incoming Calls Barred	■	■		■	■
1812	Malicious Call Identification	■	■	■	■	■
1813	999/112 & 100 Call Treatment	■	■	■	■	■
1814	Incomplete Destination Number	■			■	
1815	Unregistered Line	■	■		■	■
1816	Last Diverting Line Identity (For CPs Supporting Call Divert)	■	■		■	■
1817	Unsupported Destination Service	■	■	■	■	■

End of Carrier Pre-Select Tests

5.9.2 Test Procedures

Tests commence on next page.

1801	ISDN Data	CPS

Test Procedure

1 Make a data call via the CPs CPS service
2 Confirm that the presentation number is displayed
3 Confirm that the connected line number is displayed
4 Answer (Auto Answer)
5 Forward release the call

Expected Results

Message Sequence Label(s)	S6			T1	

1802	ISDN Data - Incompatible Destination	CPS

Test Procedure

1 Make a data call via the CPs CPS service
2 Confirm that call is rejected (CPE does not ring)
3 Forward release the call

Expected Results

Message Sequence Label(s)	S1	U4			

1803	ISDN Speech	CPS

Test Procedure

1 Make an ISDN Speech Call via the CPs CPS service
2 Answer
3 Forward release the call

Expected Results

Message Sequence Label(s)	S7		P1	T1	

1804	Successful Call	CPS

Test Procedure

1 Make a call using the CPs CPS service
2 Answer
3 Forward release the call
4 Confirm that the network number is displayed to the called party

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1805	Calling Line Identity Unavailable	CPS

Test Procedure

1 Make data changes so that the call is marked as ‘Unavailable’
2 Make a speech call via the CPs CPS service
3 Answer
4 Forward release the call
5 Confirm that number is shown as ‘Unavailable’ to the called party

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1806	Calling Line Identity Withheld	CPS

Test Procedure

1 Make a speech call via the CPs CPS service to a DEL, but restrict the calling identity
2 Confirm that the calling identity is restricted to the called party
3 Forward release the call

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1807	Presentation Number	CPS

Test Procedure

1 Make data changes to provide a presentation number on the calling line
2 Make a speech call via the CPs CPS service to a DEL
3 Confirm that the presentation number is displayed
4 Answer
5 Forward release the call

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1808	Hookflash, Suspend / Resume & Called Party Hold Time Out	CPS

Test Procedure

1 Make a speech call via the CPs CPS service to a DEL
2 Answer
3 Clear and re-answer
4 Clear the call from the called party
5 Wait for called party hold timer to mature

Expected Results

Message Sequence Label(s)	S2	P1	P2	T1	

1809	Called Party Answer Time Out	CPS

Test Procedure

1 Make a speech call via the CPs CPS service
2 Do not answer
3 Wait for the called party answer timer to mature

Expected Results

Message Sequence Label(s)	S2			T2c	

1810	Busy & Out of Order	CPS

Test Procedure - Busy

1 Make a speech call via the CPs CPS service to a busy DEL (calls not forwarded)
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U1			

Test Procedure - Out of Order

1 Make a speech call via the CPs CPS service to an “Out of Order” DEL
2 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U2			

1811	Spare Number & Incoming Calls Barred	CPS

Test Procedure - Spare

1 Set the terminating DEL as ‘Spare’
2 Make a speech call via the CPs CPS service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U1			

Test Procedure - Incoming Calls Barred

1 Set the terminating DEL as ‘Incoming Calls Barred’
2 Make a speech call via the CPs CPS service
3 Confirm that an appropriate tone or announcement is heard by the calling party

Expected Results

Message Sequence Label(s)	S1	U6			

1812	Malicious Call Identification	CPS

Test Procedure

1	Using a destination line with MCI or similar set, make a speech call via the CPs CPS service
2	Confirm that the 'hold request' indicator is set in the ACM
3	Answer & invoke MCI (or equivalent) on the called party's CPE
4	Attempt to clear the call from the calling party
5	If the call remains held, manually release the call
6	Confirm that the calling party's details have been stored by the terminating CP

Expected Results

Message Sequence Label(s)	S2		P1		M2

1813	999/112 & 100 Call Treatment	CPS

Test Procedure - 999/112

1 Make a call using the CPs CPS service, with the destination number = 999

2 Confirm that one of the following occurs:

i) The call completes successfully to either a BT
ii) Or CP Emergency Service Call Handling Centre

3 For i) confirm that on the ongoing section of the call that the Protection Indicator is set and that the page information is appropriate

4 Confirm either:
a The Non BT Emergency CHC Assistant can see the CLI, or
b The BT Emergency CHC Assistant can see the II digits appropriate for the CP

5 Attempt to forward release the call (this should not be possible), then ask the Emergency Service Call Centre Assistant to release the call and confirm that the call releases appropriately

6 Repeat with the destination number = 112, confirming that if the CP sends the call to BT, that the destination digits are changed to 999.

Expected Results

Message Sequence Label(s)	S2	P1	P2	T1	

Test Procedure - 100

1 Make a call using the CPs CPS service, with the destination number = 100

2 Confirm that one of the following occurs:

i) The call completes successfully to either a BT
ii) or CP Operator Service Call Handling Centre

3 Forward release the call

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1814	Incomplete Destination Number	CPS

Test Procedure

1	Make a speech call via the CPs CPS service omitting last digit of the called party number
2	Confirm call releases to suitable announcement or tone
3	Forward release the call

Expected Results

Message Sequence Label(s)	S1	U5			

1815	Unregistered Line	CPS

Test Procedure

1	Using an unregistered line make a call using the CPs CPS service
2	Confirm that the called party's CPE does not ring
3	Listen to the in-band announcement (if provided) and confirm that no advertising takes place (including contact numbers / websites / e-mail addresses being quoted etc), unless an answer message is sent first
4	Confirm suitable call rejection occurs
5	Confirm that the call clears normally
6	If calls drops back to voice prompts for IA2, follow the IA2 procedure

Expected Results

Message Sequence Label(s)	S2		(P1)	T1	

1816	Last Diverting Line Identity (For CPs Supporting Call Divert)	CPS

Test Procedure

Use 3 lines on the **Originating** network, A B & C. Line B has been set with 'call divert on no answer' to line C, but has also been enabled with National Call Type CPS for this CP

1 From line A call line B

2 Confirm call is diverted to line C **Via** the CPs CPS service

3 Answer

4 Clear the call from the originating party

5 Confirm that the network number of **Line A** is displayed on line C

6 For Scenario A1 only, confirm that the CP has used the LDLI to charge line B

Expected Results

Message Sequence Label(s)	S2		P1	T1	

1817	Unsupported Destination Service	CPS

Test Procedure

1 Make a call using the CPs CPS service to a type of call which is not supported by the CP, e.g. PRS

2 Confirm that one of the following occurs:

i) The call is released with an appropriate CNA message followed by a BT announcement or tone

ii) An ACM is returned followed by a suitable in band 'Number Unobtainable' tone

iii) An ACM is returned followed by a suitable CPs in band announcement

Note: If the announcement contains any advertising* the CP is contractually obliged to provide an ANM message before the announcement is played

*** Advertising means any form of information identifying the CP**

3 For iii), do not hang up, confirm that the call is appropriately released by the CP within a suitable duration.

4 Confirm any ANM message returned is chargeable

Expected Results

i) Message Sequence Labels	**S1**	**U3**			
ii) Message Sequence Labels	**S2**			**T1**	
iii) Message Sequence Labels	**S2**		**(P1)**	**T1**	

5.9.3 Test Results Sheet

Results sheet is on next page.

Results Sheet:							Carrier Pre-Select
Test	Completed			Failed			Comments / Description of Failure
	No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	
1801							
1802							
1803							
1804							
1805							
1806							
1807							
1808							
1809							
1810							
1811							
1812							
1813							
1814							
1815							
1816							
1817							
End Of Carrier Pre-Select Result Sheet							

5.10 Video Calls

5.10.1 Test List

Service Type:		Video Calls				
Test	Test Description	Scenario				
		A		B	C	
		1	2		1	2
1901	Successful Call	■	■	■	■	■
1902	Calling Line Identity Withheld	■	■		■	
1903	Diverted Call	■	■	■	■	■
1904	Suspend / Resume & Called Party Hold Time Out	■	■		■	■
1905	Called Party Answer Time Out	■			■	
1906	Busy	■	■		■	■
1907	Spare Number	■			■	
1908	Incompatible Destination	■	■	■	■	■
End of Video Call Tests						

5.10.3 Test Procedures

Tests commence on next page.

1901	Successful Call	VID

Test Procedure

1 Make a 64kbs video call
2 Answer
3 Confirm that the presentation number is displayed to calling party
4 Clear the call from the originating party

Expected Results

Message Sequence Label(s)	S6			T1	

1902	Calling Line Identity Withheld	VID

Test Procedure

1 Make a 64kbs video call, but restrict the calling identity
2 Confirm that the calling identity is restricted to the called party
3 Forward release the call

Expected Results

Message Sequence Label(s)	S6			T1	

1903	Diverted Call	VID

Test Procedure

1 Make a 64kbs video call which is diverted to an ISDN NTE
2 Answer (Auto Answer)
3 Clear the call from the originating party
4 Confirm that the presentation number is displayed

Expected Results

Message Sequence Label(s)	S6			T1	

1904	Suspend / Resume & Called Party Hold Time Out	VID

Test Procedure

1 Make a 64kbs video call
2 Answer
3 Clear and re-answer (note this may not be possible with some ISDN NTEs)
4 Clear the call from the called party
5 Wait for called party hold timer to mature

Expected Results

Message Sequence Label(s)	S6		P2	T2c/d	

1905	Called Party Answer Time Out	VID

Test Procedure

1 Make a 64kbs video call
2 Do not answer
3 Wait for the called party answer time out to mature

Expected Results

Message Sequence Label(s)	S4			T2c	

1906	Busy	VID

Test Procedure - No Answering Service

1 Make a 64kbs video call to a busy line
2 Confirm that suitable display/voice announcement is seen/heard by the caller
2 Confirm that an appropriate release sequence occurs

Expected Results

Message Sequence Label(s)	S3	U1			

Test Procedure - With Answering Service

1 Make a 64kbs video call to a busy line
2 Confirm that an answer message is sent
3 Wait for the message service to terminate the call
4 Confirm that the video message has recorded properly

Expected Results

Message Sequence Label(s)	S4		P1	T1	

1907	Spare Number	VID

Test Procedure

1 Set the terminating line as ‘spare’
2 Make a 64kbs video call
3 Confirm that an appropriate clearing cause is returned

Expected Results

Message Sequence Label(s)	S3	U3			

1908	Incompatible Destination	VID

Test Procedure

1 Make a 64kbs video call to a DEL
2 Confirm that an appropriate release sequence occurs

Expected Results

Message Sequence Label(s)	S3	U4			

5.10.3 Test Result Sheet

Results sheet is on next page.

Results Sheet:									Video Calls
Test	Direction*	Completed			Failed				Comments / Description of Failure
		No Issues	CPA Issue	CPB Issue	CPA Issue	CPB Issue	Other	Waiver Ref	
1901	>								
	<								
1902	>								
	<								
1903	>								
	<								
1904	>								
	<								
1905	>								
	<								
1906	>								
	<								
1907	>								
	<								
1908	>								
	<								
* > Denotes From CPA; < Denotes From CPB									
End Of Video Calls Result Sheet									

6 Resources

6.1 Standard Message Sequences

6.1.1 Message Sequence Categories

Category	Label	Type
Successful Call Set-Up	S1	Overlap (Pre ACM)
	S2	Overlap (Post ACM)
	S3	Enbloc (Pre ACM)
	S4	Enbloc (Post ACM)
	S5	Call with Basic Service Marks
	S6	ISDN Data Enbloc
	S7	ISDN Speech Enbloc
Unsuccessful Call Set-Up	U1	Busy
	U2	Out Of Order
	U3	Unallocated Number
	U4	Incompatible Destination
	U5	Address Incomplete
	U6	Normal Unspecified
	U7	Service Not Available
	U8	Bearer Capability Not Implemented
Call Progression	P1	Answered Call
	P2	Suspend Resume
Call Termination	T1	End User Release
	T2	Network Release
Miscellaneous Sequences	M1	RBWF
	M2	Malicious Call Intercept

6.1.2 Message Sequences

Commence on next page.

Label	Successful Call Set-Up	Part
S1	Overlap Signalling (Pre ACM)	1 of 1

Sequence			Exceptions
Invite (IAM + SDP)	>		All fields as per reference IAM
	<	100 Trying	
	<	183 SDP	
PRACK	>		
	<	200 OK (Prack)	
Invite 2 (IAM + SDP)	>		
	<	100 Trying	
	<	484	Address Incomplete Invite 1
ACK	>		
	<	183 SDP	
PRACK	>		
	<	200 OK (Prack)	
Invite 3 (IAM + SDP)	>		
	<	100 Trying	
	<	484	Address Incomplete Invite 2
ACK	>		
	<	183 SDP	
PRACK	>		
	<	200 OK (Prack)	
Invite sequence repeated for additional digits			

Label	Successful Call Set-Up	Part
S2	Overlap Signalling (Post ACM)	1 of 1

Sequence			Exceptions
Invite (IAM + SDP)	>		All fields as per reference IAM
	<	100 Trying	
	<	183 SDP	
PRACK	>		
	<	200 OK (Prack)	
Invite 2 (IAM + SDP)	>		
	<	100 Trying	
	<	484	Address Incomplete Invite 1
ACK	>		
	<	183 SDP	
PRACK	>		
	<	200 OK (Prack)	
Invite 3 (IAM + SDP)	>		
	<	100 Trying	
	<	484	Address Incomplete Invite 2
ACK	>		
	<	183 SDP	
PRACK	>		
	<	200 OK (Prack)	
Sequence repeated for additional digits			
	<	200 OK	
	<	180 Ringing (ACM)	All fields as per reference ACM
PRACK	>		
	<	200 OK (Prack)	

Label	Successful Call Set-Up	Part
S3	Enbloc (Pre ACM)	1 of 1

Sequence			Exceptions
Invite (IAM + SDP)	>		All fields as per reference IAM
	<	100 Trying	
	<	183 SDP	
PRACK	>		
	<	200 OK(Prack)	

Label	Successful Call Set-Up	Part
S4	Enbloc (Post ACM)	1 of 1

Sequence			Exceptions
Invite (IAM + SDP)	>		All fields as per reference IAM
	<	100 Trying	
	<	183 SDP	
PRACK	>		
	<	200 OK(Prack)	
	<	180 Ringing (ACM)	All fields as per reference ACM
PRACK	>		
	<	200 OK (Prack)	
- - - - - In-Band Tone or Announcement - - - - -			

Label	Successful Call Set-Up	Part
S5	Call With Basic Service Marks	1 of 1

Sequence			Exceptions
Invite (IAM + SDP)	>		All fields as per reference IAM (CPC=11 For calls with priority)
	<	100 Trying	
	<	183 SDP	
PRACK	>		
	<	200 OK(Prack)	
	<	183 (INR)	Basic Service Marks Request
PRACK	>		
	<	200 OK(Prack)	
INFO(INF)	>		Basic Service Marks
	<	200 OK(info)	
	<	180 Ringing (ACM)	All fields as per reference ACM
PRACK	>		
	<	200 OK (Prack)	
- - - - - In-Band Ring Tone - - - - -			

Label	Successful Call Set-Up	Part
S6	ISDN Data Enbloc	1 of 1

Sequence			Exceptions
Invite (IAM + SDP)	>		All fields as per reference IAM (CPC=11 For calls with priority)
	<	100 Trying	
	<	183 SDP	
PRACK	>		
	<	200 OK(Prack)	
	<	183 (ACM)	All fields as per reference ACM
PRACK	>		
	<	200 OK(Prack)	
	<	200 OK (ANM)	All fields as per reference ANM
ACK	>		
- - - - - Data Transmission - - - - -			

Label	Successful Call Set-Up	Part
S7	ISDN Speech Enbloc	1 of 1

Sequence			Exceptions
Invite (IAM + SDP)	>		All fields as per reference IAM (CPC=11 For calls with priority)
	<	100 Trying	
	<	183 SDP	
PRACK	>		
	<	200 OK(Prack)	
	<	183 (ACM)	All fields as per reference ACM
PRACK	>		
	<	200 OK(Prack)	
	<	180 Ringing (CPG)	All fields as per reference CPG
PRACK	>		
	<	200 OK (Prack)	
- - - - - In-Band Tone or Announcement - - - - -			

Label	Unsuccessful Call Set-Up		Part
U1	User Busy		1 of 1
	Sequence		**Exceptions**
	<	600 (REL)	Cause Indicator = 17 (Busy)
ACK	>		

Label	Unsuccessful Call Set-Up		Part
U2	Destination Out Of Order		1 of 1
	Sequence		**Exceptions**
	<	480 (REL)	Cause Indicator = 27 (Destination Out of Order)
ACK	>		

Label	Unsuccessful Call Set-Up		Part
U3	Unallocated Number		1 of 1
	Sequence		**Exceptions**
	<	404 (REL)	Cause Indicator = 1 (Unallocated Number)
ACK	>		

Label	Unsuccessful Call Set-Up		Part
U4	Incompatible Destination		1 of 1
	Sequence		**Exceptions**
	<	488 (REL)	Cause Indicator = 88 (Incompatible Destination)
ACK	>		

Label	Unsuccessful Call Set-Up	Part
U5	Address Incomplete	1 of 1

	Sequence		Exceptions
	<	484 (REL)	Cause Indicator = 28 (Address Incomplete)
ACK	>		

Label	Unsuccessful Call Set-Up	Part
U6	Normal Unspecified	1 of 1

	Sequence		Exceptions
	<	480 (REL)	Cause Indicator = 31 (Normal, Unspecified)
ACK	>		

Label	Unsuccessful Call Set-Up	Part
U7	Service Not Available	1 of 1

	Sequence		Exceptions
	<	403 (REL)	Cause Indicator = 63 (Service / Option Not Available)
ACK	>		

Label	Unsuccessful Call Set-Up	Part
U8	Bearer Capability Not Implemented	1 of 1

	Sequence		Exceptions
	<	501 (REL)	Cause Indicator = 65 (Bearer Capability not implemented)
ACK	>		

Label	Call Progression	Part
P1	Answered Call	1 of 1

Sequence			Exceptions
	<	200 OK Invite (ANM)	All fields as per reference ANM
ACK	>		
In-Band Communication			

Label	Call Progression	Part
P2	Suspend / Resume	1 of 1

Sequence			Exceptions
- - - - - In-Band Communication - - - - -			
		1st Party release	
	<	INFO (SUS)	Called party goes on hook
200 OK (INFO)	>		
	<	INFO (RES)	Called party goes off hook
200 OK (INFO)	>		
	<	INFO (SUS)	Called party goes on hook
200 OK (INFO)	>		
		Last Party release	
INFO (SUS)	>		
	<	200 OK (INFO)	
INFO (RES)	>		
	<	200 OK (INFO)	

Label	Call Termination	Part
T1	End User Release	1 of 1

Sequence			Exceptions
- - - - - In-Band Communication - - - - -			
		1st Party release	
Bye (REL)	>		Cause Indicator = 16 (Normal Call Clearing)
	<	200 OK Bye (RLC)	

Sequence			Exceptions
		2nd Party release	
- - - - - In-Band Communication - - - - -			
	<	Bye (REL)	Cause Indicator = 16 (Normal Call Clearing)
200 OK Bye (RLC)	>		

Label	Call Termination	Part
T2	Network Release	1 of 1

Sequence			Exceptions
- - - - - In-Band Communication - - - - -			
		(T2a) Backward release by Network	
	<	Bye (REL)	Cause Indicator = 31 (Normal, Unspecified)
200 OK Bye (RLC)	>		
		(T2a) Forward release by Network	
Bye (REL)	>		Cause Indicator = 31 (Normal, Unspecified)
	<	200 OK Bye (RLC)	
		(T2b) Backward release by Network	
	<	Bye (REL)	Cause Indicator = 41 (Temporary Failure)
200 OK Bye (RLC)	>		
		(T2b) Forward release by Network	
Bye (REL)	>		Cause Indicator = 41 (Temporary Failure)
	<	200 OK Bye (RLC)	
		(T2c) Backward release by Network	
	<	Bye (REL)	Cause Indicator = 19 (No answer from user)
200 OK Bye (RLC)	>		
		(T2c) Forward release by Network	
Bye (REL)	>		Cause Indicator = 19 (No answer from user)
	<	200 OK Bye (RLC)	
		(T2d) Backward release by Network	
	<	Bye (REL)	Cause Indicator = 16 (Normal Call Clearing)
200 OK Bye (RLC)	>		
		(T2d) Forward release by Network	
Bye (REL)	>		Cause Indicator = 16 (Normal Call Clearing)
	<	200 OK Bye (RLC)	
		(T2e) Backward release by Network	
	<	Bye (REL)	Cause Indicator = 18 (No user responding)
200 OK Bye (RLC)	>		
		(T2f) Backward release by Network	
	<	480	Cause Indicator = 31 (Normal, Unspecified)
ACK	>		

Label	Miscellaneous Sequences	Part
M1	Ring Back When Free	1 of 3

Sequence			Exceptions
		Initial Call	
Invite (IAM + SDP)	>		All fields as per reference IAM
	<	100 Trying	
	<	183 (SDP)	
PRACK	>		
	<	200 OK (Prack)	
	<	600 (REL)	Reason 17 (User busy)
ACK	>		
		Invoking the Service	
Invite (IAM + SDP)	>		Encapsulated Application Information = DPNSS Call
	<	100 Trying	
	<	183 (SDP)	
PRACK	>		
	<	200 OK (Prack)	
	<	183 (APM)	Encapsulated Application Information = Legacy Data Transfer Available
PRACK	>		
	<	200 OK (Prack)	
INFO (APM)	>		(ISRM OLI, CBWF Request)
	<	200 OK (Info)	
	<	183 (APM)	(CIM: ACK, TLI, Destination Busy)
PRACK	>		
	<	200 OK (Prack)	
	<	480 (REL)	Reason 16 (Normal Call Clearing)
ACK	>		

Contd .....

Label	Miscellaneous Sequences	Part
M1	Ring Back When Free (Contd)	2 of 3

Sequence			Exceptions
		Called Customer Clears down	
	<	Invite (IAM + SDP)	Encapsulated Application Information = DPNSS call
100 Trying	>		
183 (APM)	>		Encapsulated Application Information = Legacy Data Transfer Available
	<	PRACK	
200 OK (Prack)	>		
	<	INFO (APM)	(ISRM, OLI, CBWF Notification)
200 OK (Info)	>		
183 (APM)	>		(CIM:ACK)
	<	PRACK	
200 OK (Prack)	>		
480 (REL)	>		Reason 16 (Normal Call Clearing)
	<	ACK	

Contd .....

Label	Miscellaneous Sequences	Part
M1	Ring Back When Free (Contd)	3 of 3

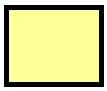
Sequence			Exceptions
Ring Back from Originating Call Server			
Invite (IAM + SDP)	>		Encapsulated Application Information = DPNSS call
	<	100 Trying	
	<	183 (SDP)	
PRACK	>		
	<	200 OK (Prack)	
	<	183 (APM)	Encapsulated Application Information = DPNSS call
PRACK	>		
	<	200 OK (Prack)	
INFO (APM)	>		Encapsulated Application Information = Legacy Data Transfer Available
	<	200 OK (Info)	
	<	183 (APM)	(ISRM OLI, CBWF Setup)
PRACK	>		
	<	200 OK (Prack)	
	<	180 (ACM)	
PRACK	>		
	<	200 OK (Prack)	
Calling Customer Answers			
- - - - - Ring Tone - - - - -			
INFO (APM)	>		(EEM: Ring out)
	<	200 OK	
	<	183 (APM)	(EEM: CBC - Call Back Complete)
PRACK	>		
	<	200 OK (Prack)	
	<	200 OK Invite (ANM)	
ACK	>		
- - - - - Conversation - - - - -			
Bye (REL)	>		Reason 16 (Normal Call Clearing)
	<	200 OK Bye (RLC)	

Label	Miscellaneous Sequences	Part
M2	Malicious Call Intercept	1 of 1

Sequence			Exceptions
With Auto Release			
	<	200 OK Invite (ANM)	All fields as per reference ANM
ACK	>		
In-Band Communication			
Bye (REL)	>		Cause Indicator = 16 (Normal Call Clearing)
	<	200 OK Bye (RLC)	
Without Auto Release Disabled			
	<	200 OK Invite (ANM)	All fields as per reference ANM
ACK	>		
In-Band Communication			
INFO (SUS)	>		
	<	Bye (REL)	Cause Indicator = 16 (Normal Call Clearing)
200 OK Bye (RLC)			

6.2 UK-ISUP Message Library

6.2.1 Message Library Key

Bold	Parameter Name
	Mandatory Fixed Parameters
	Mandatory Variable Parameters
	Optional Parameters

6.2.2 Message Library

Commences on next page.

IAM			
Field Name	***Value Binary***	***Hex***	***Meaning***
Message Type	00000001	01	0x1
Nature of Connection Indicators (NCI)			
Satellite Indicator	- - - - - 0 0	00	No satellite circuit
Continuity Check Indicator	- - - 0 0 - -		Cont Check Not reqd
Echo Control Device Ind	- - - 0- - - -		O/G half echo ctrl Not reqd
Spare	0 0 0- - - - -		
Forward Call Indicators (FCI)			
National/International Ind	- - - - - - - 0	20	Treat as national Call
End-to-End Method Ind	- - - - - 0 0 -		No e-to-e method Available
Interworking Indicator	- - - - 0 - - -		No I/W encountered
End-to-End Information Ind	- - - 0 - - - -		No end-to-end info Available
ISDN User Part Indicator	- - 1 - - - - -		ISDN-UP used all the way
ISDN-UP Preference Ind	0 0 - - - - - -		ISDN-UP preferred all the way
ISDN Access Indicator	- - - - - - - 1	01	Originating access ISDN
SCCP Method Indicator	- - - - - 0 0 -		No indication
Spare	00 0 0 0- - -		
Calling Party Category	00001010	0A	Ordinary Calling Subscriber
Transmission Medium Requirement	00000000	00	Speech
Pointer to Called Party Number	00000010	02	2
Pointer to Optional Parameters	00001010	0A	10
Called Party Number			
Parameter Length	00001000	08	8
Nature of Address	-0000011	03	National (Significant) Number
Odd/Even Indicator	0- - - - - - -		Even Number of address signals
Spare	- - - - 0000	10	
Numbering Plan Indicator	- 001- - - -		ISDN Number plan (E.164)
Internal Network No. Ind	0- - - - - - -		Routing to INN allowed
Called Address Signals	********		XXXXXXXXXXX

IAM (Contd)			
Field Name	***Value***		***Meaning***
	Binary	***Hex***	
User Service Information			
Parameter Name	00011101	1D	User Service Information
Parameter Length	00000011	03	3
Info Transfer Capability	- - -00000	80	Speech
Coding Standard	-00- - - - -		CCITT standardised coding
Extension Indicator 1	1 - - - - - - -		Last octet
Information Transfer Rate	- - - 10000	90	64Kbs
Transfer Mode	- 00 - - - - -		Circuit mode
Extension Indicator 2	1 - - - - - - -		Last octet
User Info Layer 1 Protocol	- - - 00011	A3	G.711 A-law
Layer Identification	- 01- - - - -		User info layer 1 protocol
Extension Indicator 3	1- - - - - - -		Last octet
Calling Party Number			
Parameter Name	00001010	0A	Calling Party Number
Parameter Length	00000111	07	7
Nature of Address	-0000011	03	National (Significant) Number
Odd/Even Indicator	0- - - - - - -		Even Number of address signals
Screening Indicator	- - - - - - 11	13	Network provided
Presentation Restriction Ind	- - - - 00 - -		Presentation allowed
Numbering Plan Ind	- 001 - - - -		ISDN Number plan (E.164)
Calling Number Incomplete Ind	0- - - - - - -		Complete
Calling Address Signals	* * * * * * * *		XXXXXXXXXXX
Access Transport			
Parameter Name	00000011	03	Access transport
Parameter Length	00000100	04	4
High Layer Compatibility			
IE Name	01111101	7D	High layer compatibility
IE Length	00000010	02	2
Presentation Method	- - - - - - 01	91	High layer protocol profile
Interpretation	- - - 100 - -		First HL character to be used
Coding Standard	- 00 - - - - -		CCITT
Extension Bit (Octet 3)	1 - - - - - - -		Octet is Not continued
High Layer Characteristics	- 0000001	81	Telephony
Extension Bit (Octet 4)	1- - - - - - -		Octet is Not continued

IAM (Contd)			
Field Name	***Value*** ***Binary***	***Hex***	***Meaning***
National Forward Call Indicators			
Parameter Name	11111110	FE	National forward Call indicators
Parameter Length	00000010	02	2
CLI Blocking Indicator	- - - - - - -1	01	CLI blocking ‘Available’
Network translated Address Indicator	- - - - - -0 -		No Information
Spare	000000- -		
Spare	00000000	00	
Parameter Compatibility Information			
Parameter Name	00111001	39	Parameter compatibility
Parameter Length	00000010	02	2
1st Upgraded Parameter	11111110	FE	254
Transit Intermediate Exchange	- - - - - - -0	C0	Transit interpretation
Release Call Indicator	- - - - - -0 -		Do Not Release Call
Send Notification Indicator	- - - - - 0 - -		Do Not send Notification
Discard Message Indicator	- - - - 0 - - -		Do Not discard Message
Discard Parameter Indicator	- - - 0 - - - -		Do Not discard parameter
Pass On Not Possible Indicator	- 10 - - - - -		Discard parameter
Extension Indicator	1 - - - - - - -		Last octet
End of Optional Parameters			
Parameter Name	00000000	00	End of optional parameters

ACM			
Field Name	***Value***		***Meaning***
	Binary	***Hex***	
Message Type	00000110	06	0x6
Backward Call Indicators (BCI)			
Charge Indicator	- - - - - -1 0	16	Charge
Called Party Status Indicator	- - - - 0 1 - -		Subscriber Free
Called Party Category	- - 01 - - - -		Ordinary subscriber
End-to-End Method Indicator	00 - - - - - -		No e-to-e method Available
Interworking Indicator	- - - - - - - 0	14	No interworking encountered
End-to-End Information Indicator	- - - - - - 0 -		No end-to-end info. Available
ISDN User Part Indicator	- - - - - 1 - -		ISDN-UP used all the way
Holding Indicator	- - - - 0 - - -		Holding Not requested
ISDN Access Indicator	- - - 1 - - - -		Terminating access ISDN
Echo Control Device Indicator	- - 0 - - - - -		I/C half echo ctrl Not reqd
SCCP Method Indicator	00 - - - - - -		No indication
Pointer to Optional Parameters	00000000	00	0

CPG			
Field Name	***Value***		***Meaning***
	Binary	***Hex***	
Message Type	00101100	2C	0x2C
Event Information			
Event Indicator	-0000001	01	Alerting
Event Presentation Indicator	0-------		No indication
Pointer to Optional Parameters	000000000	00	0

ANM			
Field Name	***Value***		***Meaning***
	Binary	***Hex***	
Message Type	00001001	09	0x9
Pointer to Optional Parameters	00000001	01	1
Backward Call Indicators (BCI)			
Parameter Name	00010001	11	Backward Call Indicators
Parameter Length	00000010	02	2
Charge Indicator	- - - - - -10	02	Charge
Called Party Status Indicator	- - - - 00 - -		No indication
Called Party Category	- - 0 0 - - - -		No indication
End-to-End Method Indicator	0 0 - - - - - -		No e-to-e method Available
Interworking Indicator	- - - - - - - 0	14	No interworking encountered
End-to-End Information Indicator	- - - - - - 0 -		No end-to-end info. Available
ISDN User Part Indicator	- - - - - 1 - -		ISDN-UP used all the way
Holding Indicator	- - - - 0 - - -		Holding Not requested
ISDN Access Indicator	- - - 1 - - - -		Terminating access ISDN
Echo Control Device Indicator	- - 0 - - - - -		I/C half echo ctrl Not reqd
SCCP Method Indicator	00 - - - - - -		No indication
End of Optional Parameters			
Parameter Name	00000000	00	End of optional parameters

6.3 SCTP Message Format

SCTP			
Field Name	***Value***		***Meaning***
	Binary	***Hex***	
Source port	0001 0011 0110 0100	13 C4	5060
Destination port	0001 0011 0110 0100	13 C4	5060
Verification tag	- - - - - - - -		0x0001fd99
DATA chunk			
Chunk type: Data	0- - - - - - -	00 03	Bit: Stop processing of the packet
	-0- - - - - -		Bit: Do not report
Chunk flags	- - - - - - - 1		E-bit: Last segment
	- - - - - - 1 -		E-bit: First segment
	- - - - - 0 - -		U-bit: Ordered delivery
Chunk length	0000 0100 1100 0010	04 E2	1250
TSN	- - - - - - - -	F5 A5	Transaction Sequence Number
Stream Idebtifier	- - - - - - -- -		0x0000
SSN	---- - - -	45 C6	Stream sequence Number
Payload protocol identifier	----------		Not Specified

6.4 SIP Message Formats

SIP	
Field Name	***Example of contents***
Request-Line:	INVITE sip:+441508550299@cs555.pstn.bt.uktel.org.uk;user=phone SIP/2.0
Method:	INVITE
Message Header	
To:	<sip:+441508550299@cs555.pstn.bt.uktel.org.uk;user=phone>
SIP to address:	sip:+441508550299@cs555.pstn.bt.uktel.org.uk
From:	<sip:+448003289393@cs554.pstn.bt.uktel.org.uk;user=phone>;tag=35ri6bzvn3x
SIP from address:	sip:+448003289393@cs554.pstn.bt.uktel.org.uk
SIP tag:	35ri6bzn3x
Contact:	<sip:+448003289393@10.92.150.2;transport=sctp>
Contact Binding:	<sip:+448003289393@10.92.150.2;transport=sctp>
URI:	<sip:+448003289393@10.92.150.2;transport=sctp>
SIP contact address:	sip:+448003289393@10.92.150.2
Max-Forwards:	29
Call-ID:	tlbuzl2rw1941k@10.92.150.2
CSeq:	31772 INVITE
Via:	
Transport:	SCTP
Sent-by Address:	cs554.pstn.bt.uktel.org.uk
Sent-by port:	5060
Branch:	z9hG4bKp2v5761rmj9t4dchmw4
Allow:	INVITE,ACK,CANCEL,BYE,OPTIONS,PRACK,UPDATE,INFO
Require:	100rel
P-Asserted-Identity:	<sip:+441473640000@cs554.pstn.bt.uktel.org.uk;user=phone>
P-Charging-Vector:	icid-value=000000MfSN;icid-generated-at=10.92.140.0;orig-ioi=pstn.bt.uktel.org.uk
Content-Type:	multipart/mixed;boundary=hrcfvlrb-1507920182
Content-Length:	454
MIME-Version:	1.0
Message Body	
MIME Multipart Media Encapsulation	
Type:	multipart/mixed
First boundary:	--hrcfvlrb-1507920182\r\n
Encapsulated multipart part:	
Content-Type:	application/sdp\r\n\r\n
	Contd……

SIP (Contd)	
Session Description Protocol	
SDP Version (v):	0
Owner/Creator, Session Id (o):	
Owner Username:	-
Session ID:	287473284892629225
Session Version:	1
Owner Network Type:	IN
Owner Address Type:	IP4
Owner Address:	cs554.pstn.bt.uktel.org.uk
Session Name (s):	-
Connection Information (c):	IN IP4 10.92.202.202
Connection Network Type:	IN
Connection Address Type:	IP4
Connection Address:	10.92.202.202
Time Description, active time (t):	
Session Start Time:	0
Session Stop Time:	0
Media Description, name and address (m):	
Media Type:	audio
Media Port:	43814
Media Proto:	RTP/AVP
Media Format:	ITU-T G.711 PCMA
Bandwidth Information (b):	
Bandwidth Modifier:	AS [Application Specific (RTP session bandwidth)]
Bandwidth Value:	64 kb/s
Media Attribute (a):	
Media Attribute Fieldname:	rtpmap
Media Format:	8
MIME Type:	PCMA
Media Attribute (a):	
Media Attribute Fieldname:	ptime
Media Attribute Value:	10
Boundary:	\r\n--hrcfvlrb-1507920182\r\n

6.5 SIP CLI Formats

CLI Display	
From:	+441508550299@cs554.pstn.bt.uktel.org.uk;user=phone>
P-Asserted Identity	+441508550299@cs554.pstn.bt.uktel.org.uk;user=phone>
CLI Withheld	
From:	anonymous@anonymous.invalid
Privacy: Id	
P-Asserted Identity	+441508550299@cs554.pstn.bt.uktel.org.uk;user=phone>
CLI Unavailable	
From:	unavailable@cs554.pstn.bt.uktel.org.uk
P-Asserted Identity	
CLI Presentation Number Display	
From:	+44800328393@cs554.pstn.bt.uktel.org.uk;user=phone>
P-Asserted Identity	+441508550299@cs554.pstn.bt.uktel.org.uk;user=phone>

6.6 UK-ISUP Basic Service Marks

The Basic Service Marks will be used by the OSS Assistant to display the facilities not enabled for the calling party. Mnemonics will be displayed for the line facility and hint text will be available for further help. Below is a list of acceptable mnemonics:

INB	International Calls are Barred
NCB	National Calls are Barred
LCB	Local Calls are Barred
STS	Temporarily out of Service
COB	Calls to Operator are Barred
SFB	Supplementary Facilities are Barred
IBO	Incoming Operator Calls only
CIB	(Customer Controlled) Incoming Calls Barred
SOB	Outgoing Calls are permanently Barred
PIB	(Network Controlled) Incoming Calls are Barred

History

Document History		
Version	**Date**	**Milestone**
1.4.2	29/10/09	TSG/CA Approved