

Non-Geographic Number Portability Service Establishment Test Schedule

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1. Introduction

The tests listed in this Schedule should be carried out at the end of the Databuild phase of the Service Establishment stage. For further details of Service Establishment, refer to the Non-Geographic Number Portability End-to-End Process Manual.

These tests are considered a necessary requirement to successful Service Establishment for NGNP and a sign-off sheet is included in the test schedule, which should be signed by both requesting and requested Operator upon successful conclusion of the tests.

The NGNP testing process falls into the following 2 areas:

- a) Data Build testing - is where the **Exporting** Network, data builds the **Importing** Networks prefix in its network, test calls can be made to a recorded announcement to prove the data is correct;
- b) Network Testing - comes at the end of the Data Build stage and is where test calls are passed between networks on a person to person basis.

There is a third phase of testing known as Operational Readiness Testing (ORT), which may only start after the successful completion of the testing detailed in this appendix.

2. Test Scenarios

This section illustrates a number of test scenarios. All illustrated scenarios are intended as examples and do not represent actual routing. Where necessary, diagrams are supported by explanatory text.

2.1 Terminology

All calls made in the tests are from a point A to a point B and are non-geographic calls which need number-translation services for completion. The following standard terminology is used throughout this appendix:

L	Local Exchange
T	Trunk or Tandem Exchange
NTS	Number Translation Service (this can be achieved by a variety of methods)
RH	Range Holder - the Operator which will be exporting non-geographic numbers
REC	Recipient - the Operator which will be importing non-geographic numbers
OLO	Other Licensed Operator
Exported	indicates the number has been exported and the NGNP prefix will be added at this point
Translation	indicates that a number translation event will take place in the importing network
Call Forward	a method for diverting the incoming call to another directory number

2.2 Methodology

Where practicable, tests have been adapted from the BT Generic Test Manuals (the tests detailed in Annex A are numbered in accordance with appropriate tests associated with BT's standard interconnect agreement). Operators should carry out all these tests as part of the Service Establishment stage of NGNP.

Post-dial delay should be measured only if it is perceived to be excessive.

Details of the tests are shown in Annex A of this Appendix and specimen results are given in Annex B. Actual results for a series of tests should be recorded on the results sheets shown in Annex B and the results should be summarised using the Results Summary Sheet shown in Annex D.

Where the route under test is in service, it will be necessary to produce suitable trigger programs on the signalling monitoring equipment to isolate ported numbers from other traffic on the interconnect route.

Should any test not produce an anticipated response, the reason should be investigated and resolved and the test should be repeated. Test failures and supporting information should be recorded and kept with the associated test sheets.

2.3 Monitoring

C7 Test Monitors are required for essential tests.

The tests require detailed examination of the C7 Interconnect User Part (IUP) signalling protocol in the 64kbps signalling links carried in the TS16 of the 2Mbps line systems nominated, using the C7 Monitoring Equipment.

It will be necessary to set up a monitoring point at a suitable place, from which testing can be conducted at suitable locations by bilateral agreement. The test position should provide access to test telephones suitable power supplies and easy communications with Operations and Maintenance Staff at the digital exchanges.

2.4 Answer Signals Returned by the Network

All Operators are required to supply information regarding the circumstances under which an Answer Message is returned by their network. It is expected that an Answer signal shall be returned only when a Called Customer has answered the call or the call has been delivered to a service platform.

The Operator shall not return an answer message when a call fails during set-up or is delivered to a Busy, Parked, Spare or Out of Order number.

All chargeable calls should result in a C7 Answer Message: TOA=1 (chargeable), being returned by the network and the calling customer being charged for the call. Calls to non-chargeable NTS codes, e.g. 0800, shall result in either a C7 Answer Message: TOA=1 or TOA=0 (non-chargeable) being returned by the network.

2.5 Test Scenarios and Test Numbers

The following tables show the scenarios used to test the possible routing combinations.

POTS	Terminating →	REC	RH
Originating ↓			
RH		Scenario 1A	Scenario 1B
REC		Scenario 2A	Scenario 2B

ISDN	Terminating →	REC	RH
Originating ↓			
RH			Scenario 1B
REC		Scenario 2A	

A pro forma for arranging test numbers is included in Annex C.

2.5.1 Test Scenario 1A

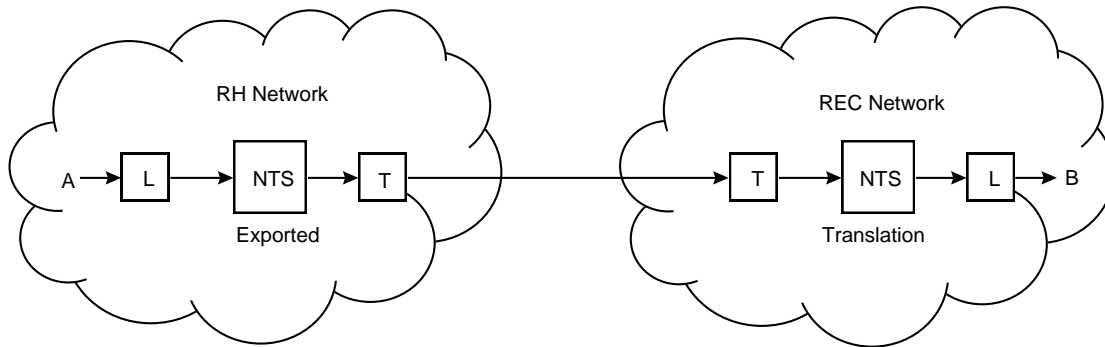
Call originates in the RH network and terminates in the REC network.

Test Number (see Note 1)	Function
18	Call to an Operator telephone with Malicious Call Identification (MCI) facility.
19	Basic call set up to Operator NTS test telephone/equipment, from an originating DEL, forward release after answer. Check for correct support of Call Number Display Service between Operators' networks (i.e. unavailable, display or withheld). (See Note 2)
21	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, Called Party releasing first after answer.
28	Call attempts to a 'BUSY', 'PARKED' and 'OUT OF ORDER' Operator NTS test telephone/equipment number.
30	Check of DTMF tones during ringing.
31	Check of DTMF tones after answer.

Note 1: Test Numbers refer to standard tests associated with BT's standard interconnect agreement.

Note 2: If the REC network is unable to support CND, then Test 19 should be performed in Scenario 1B.

1A



2.5.2 Test Scenario 1B

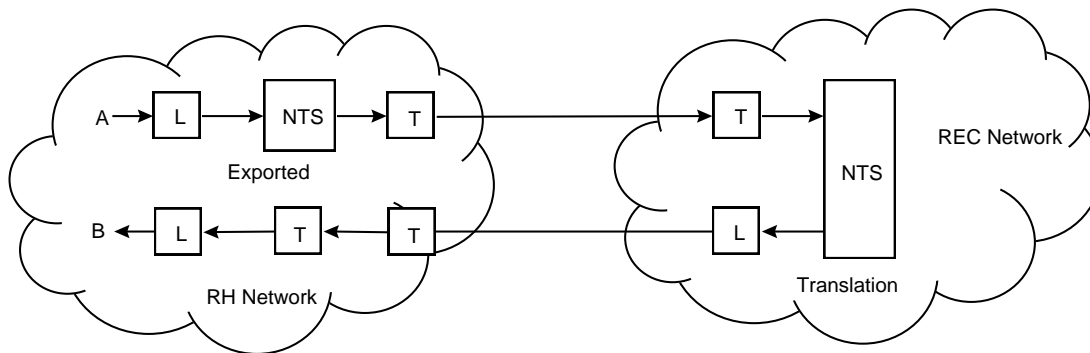
Call originates in the RH network and terminates in the RH network.

Test Number (see Note 1)	Function
17	Call to a terminating line that uses the call forwarding facility to a suitable test line with Malicious Call Identification facility on an exchange within the terminating network.
19	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, forward release after answer. Check for correct support of Call Number Display Services between Operators' networks (i.e. unavailable, display or withheld). (See Note 2)
20	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, forward release after answer.
21	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, Called Party releasing first after answer.
32 (ISDN)	Call set up from an ISDN terminal, to an Operator NTS ISDN terminal/telephone, to test call treatment on an ISDN CAT 1 attempt.

Note 1: Test Numbers refer to standard tests associated with BT's standard interconnect agreement.

Note 2: If the REC network is unable to support CND, then Test 19 should be performed in Scenario 1B.

1B



2.5.2 Test Scenario 2A

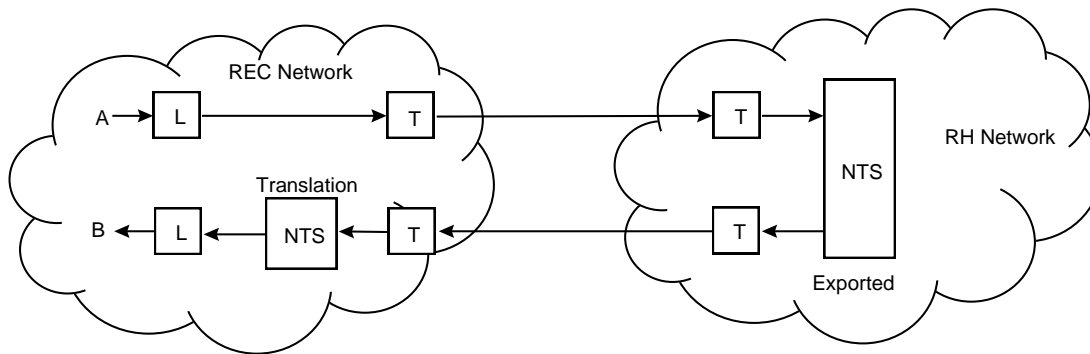
Call originates in the REC network and terminates in the REC network.

Test Number (see Note 1)	Function
17	Call to a terminating line that uses the call forwarding facility to a suitable test line with Malicious Call Identification facility on an exchange within the terminating

Test Number (see Note 1)	Function
	network.
18	Call to an Operator telephone/equipment with Malicious Call Identification (MCI) facility.
19	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, forward release after answer. Check for correct support of Call Number Display Services between Operators' networks (i.e. unavailable, display or withheld).
21	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, Called Party releasing first after answer.
28	Call attempts to a 'BUSY', 'PARKED' and 'OUT OF ORDER' Operator NTS test telephone/equipment number.
32 (ISDN)	Call set up from an ISDN terminal, to an Operator NTS ISDN terminal/telephone, to test call treatment on an ISDN CAT 1 attempt.

Note 1: Test Numbers refer to standard tests associated with BT's standard interconnect agreement.

2A



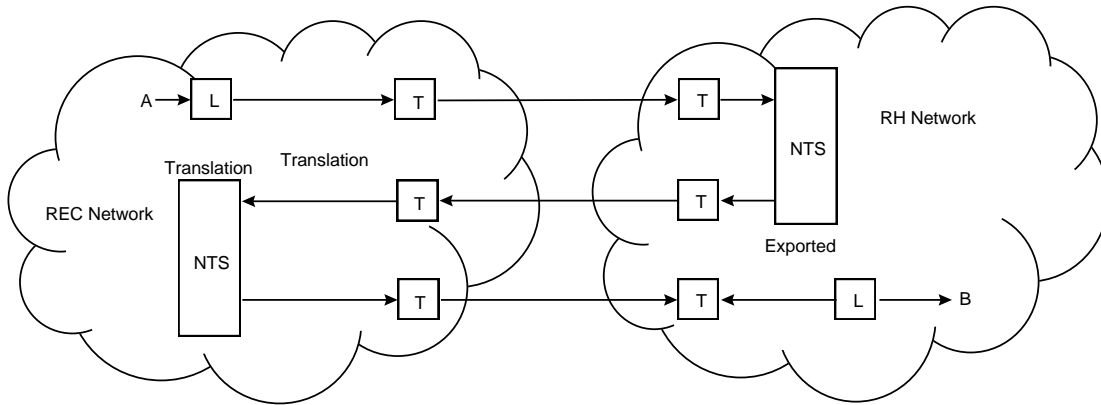
2.5.3 Test Scenario 2B

Call originates in the REC network and terminates in the RH network.

Test Number (see Note 1)	Function
20	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, forward release after answer.
21	Basic call set up to Operator NTS test telephone/equipment from an originating DEL, Called Party releasing first after answer.

Note 1: Test Numbers refer to standard tests associated with BT's standard interconnect agreement.

2B



Annex A - Functional Tests

Test Number 17 - Call Forward to a Line Requesting Network CLI for Trace Purposes

Description:

Set up call forwarding from the terminating line to a suitable test line with Malicious Call Identification facility on an exchange within the Terminating Network. Make a call from a Non-ISDN telephone to the terminating line accessed by a Non-Geographic Ported Number so that it uses the call forwarding facility to divert to the new terminating telephone.

Test Equipment:

Terminating EL via NTS with MCI facility, Originating DEL, C7 Monitoring Equipment

- Record the difference in time between the operator switches.
- Ensure your timing device is synchronised to the RH switch.
- If the RH Operator offers network services, e.g. BT's 'star services' are these should be invoked on the test telephone prior to starting the tests (if applicable).

Message Sequence:

A Specimen Test Result Sheet is shown in Annex B.

Method:

For a given route, connect the C7 monitor(s) to all 2Mbps systems containing signalling. If the route under test is in service it will be necessary to produce suitable trigger programs on the signalling monitoring equipment to isolate ported numbers from other traffic on the interconnect route and start recording.

Test Steps:

- (1) From the originating DEL, dial the Non Geographic test number, and record the time the FIRST message is passed across the interface.
- (2) Verify that the Operator switch returns an Additional Call Information (ACI) or Send Additional Set Up Information (SASUI) message requesting Full Calling Line Identity (FCLI). Check that the RH switch responds with an ACI or Additional Set Up Information (ASUI) response message containing FCLI.
- (3) When the Operator test telephone rings, answer the call and ensure an ANSWER message is returned coincident with answering the call. Verify speech is of a satisfactory quality.
- (4) Have the Operator testing staff invoke MCI. Ask the Operator testing staff to confirm that an unsolicited output is given. Verify that speech is still of a satisfactory quality.
- (5) Replace the calling party's telephone; verify that a Clear Forward (CLR) message is passed across the interface. Pick up the calling party's handset and verify that speech is still possible.
- (6) Replace BOTH handsets, called party first. Check and record whether a subsequent call can be made from either telephone. If so record which network sent the FIRST Release (REL) message. If not have the call cleared by the Operator testing staff. (Record this fact in the remarks section of the result sheet for this test).

Carefully log the time and number dialled for the call, and record these details, together with any other relevant information on the results sheet for this test. Include circuit and route details of failures.

The Operator testing staff should enclose a copy of all the MCI printout with the call duration records for this test, when required.

Test Number: 18

Description:

Make a call from a Non-ISDN telephone to a telephone accessed by a Non-Geographic Ported Number connected on an Operator exchange with Malicious Call Identification facility.

Test Equipment:

Terminating EL via NTS with MCI facility, Originating DEL, C7 Monitoring Equipment

- Record the difference in time between the operator switches.
- Ensure your timing device is synchronised to the RH switch.
- If the RH Operator offers network services, e.g. BT's 'star services', these should be invoked on the other Operator's test telephone prior to starting the tests (if applicable).

Message Sequence:

A Specimen Test Result Sheet is shown in Annex B.

Method:

For a given route connect the C7 monitor(s) to all 2Mbps systems containing signalling. If the route under test is in service it will be necessary to produce suitable trigger programs on the signalling monitoring equipment to isolate ported numbers from other traffic on the interconnect route and start recording.

Test Steps:

- (1) From the originating DEL, dial the Non Geographic test number, and record the time the FIRST message is passed across the interface.
- (2) Verify that the Operator switch returns an Additional Call Information (ACI) or Send Additional Set Up Information (SASUI) message requesting Full Calling Line Identity (FCLI). Check that the RH switch responds with an ACI or Additional Set Up Information (ASUI) response message containing FCLI.
- (3) When the Operator test telephone rings, answer the call and ensure an ANSWER message is returned coincident with answering the call. Verify speech is of a satisfactory quality.
- (4) Have the Operator testing staff invoke MCI. Ask the Operator testing staff to confirm that an unsolicited output is given. Verify that speech is still at a satisfactory level.
- (5) Replace the calling party's telephone; verify that a Clear Forward (CLR) message is passed across the interface. Pick up the calling party's handset and verify if speech is still possible.
- (6) Replace BOTH handsets, called party first. Record if a subsequent call can be made from either telephone. If so record which network sent the FIRST Release (REL) message. If not have the call cleared by the Operator testing staff. (Record this fact in the remarks section of the result sheet for this test).

Carefully log the time and number dialled for the call, and record these details, together with any other relevant information on the results sheet for this test. Include circuit and route details of failures.

The Operator testing staff should enclose a copy of all the MCI printout with the call duration records for this test, when required.

Test Number: 19 - Basic call to a Non-Geographic Ported Number - Caller Releasing

Part 1 - To Operator NTS Networks not supporting the CND Service

Parts 2 and 3 - To Operator NTS Networks supporting the CND Service

Description:

Basic call set-up from an originating DEL, to test generation of an Answer message and call duration record, (if required), to an Operator NTS test telephone/equipment, Forward Release after Answer and Speech. In addition, observation that the correct protocol is invoked whether or not the Calling Number Display (CND) Service is supported by the Operator NTS Network.

Test Equipment:

Terminating NTS test telephone/equipment (with CND facility if possible), Originating DEL, C7 Monitoring Equipment

Record the difference in time between Operator switches. Ensure your timing device is synchronised to the other Operator's switch. Prior to starting the tests, ensure 'star services' are invoked, where appropriate on the other Operator's test telephone.

Message Sequence:

A Specimen Test Result Sheet is shown in Annex B.

Method:

Part 1 - Carry out only Part 1 if the CND Service is not supported between Operators' NTS Networks.

For a given route connect the C7 monitor(s) to all 2Mbps systems containing signalling. Busy all but one circuit on the route and start recording.

Test Steps:

- (1) Dial the Non Geographic Test Number from the originating DEL, record the time the FIRST message is sent across the interface. Record what type of message sequence is used to send the called party's number across the interface.
- (2) Check that the CBI (CLI Blocking Indicator) message indicator 'B' in the IFAM, is set to a '0' = CND unavailable. On a normal call this should prevent generation of an ACI request by the terminating Operator's switch to obtain the DEL CLI (Calling Line Identity).
- (3) However, if an Operator ACI request does occur, check that the ACI response from the RH Operator switch has the Identity Qualifier (IQ) = '1' (parameter D in the CLI message indicator field); this means that the line identity may not be released to terminal for display purposes. (Where the RH Operator's switch is not set IQ = 1, then the process will be carried out by policing function at the interconnect switch by default.)
- (4) Verify that ring tone is returned at a satisfactory level on receipt of Address Complete (ACM) message and where an Operator display facility telephone or unit is provided, that the calling number is shown as 'Number Unavailable'.
- (5) Operator testing staff should answer the Terminating telephone/equipment after 2 or 3 rings. Verify and record the time that an Answer (ANS) message is transferred across the interface coincident with answering the call. Verify speech is of a satisfactory quality.
- (6) Clear the call from the Originating telephone and verify the Release sequence is as expected.
- (7) If an Operator display phone or unit is not available, use the Operator Call Return facility if the Network supports it, by dialling the service code on the Operator NTS test telephone/equipment, to receive an announcement confirming that the Calling Number of the test telephone has not been stored.

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- (8) The results should be recorded on the test results sheet. Include circuit and route details of failures and note any unusual occurrences.

-End of Part 1-

Method:

Part 2 - Check other Operator support of 'Display' capability for the CND Service.

Test Steps:

- (1) Dial the Operator NTS test telephone/equipment from the DEL, record the time the FIRST message is sent across the interface. Record what type of message sequence is used to send the called party's number across the interface.
- (2) Check that the CBI (CLI Blocking Indicator) message indicator 'B' in the IFAM, is set to '1' = CND service supported.
- (3) On a normal call this should cause generation of an ACI request by the terminating Operator switch to obtain CLI from the other Operator.
- (4) Check that the ACI response from the other Operator's switch has the Identity Qualifier (IQ) (parameter D in the CLI message indicator field), set to '0' = line identity may be released to terminal for display purposes.
- (5) Verify that ring tone is returned at a satisfactory level and where an Operator display facility phone or unit is provided, that the calling number is displayed.
- (6) Answer the Operator NTS test phone / equipment after 2 or 3 rings. Record the time the Answer message is transferred across the interface, (coincident with answering the call). Verify speech is of a satisfactory quality.
- (7) Clear the call from the DEL. Verify that the release sequence is as expected for the type of route under test (Unidirectional or bi-directional), and record the time of the Release message.
- (8) If an Operator display phone or unit is not available, use the Operator Call Return facility if the Network supports it, by dialling the service code on the Operator test NTS telephone/equipment, to confirm that the Calling Number of the test phone has been stored and is replayed as an announcement.

- End of Part 2-

Method:

Part 3 - Check other Operator support of 'Display withheld' capability for the CND Service.

Test Steps:

- (1) Busy all but one of the circuits on the route, start recording.
- (2) From the DEL, dial the code (141) to withhold the Calling Number from being sent forward to the Operator NTS test phone/equipment, followed by the Operator test telephone number. Record the time the FIRST message is passed across the interface also record what type of message sequence is used to send the called party's number across the interface.
- (3) Check that the CBI (CLI Blocking Indicator) message indicator 'B' in the IAM/IFAM, is set to '1' = CND service supported. On a normal call this should cause generation of an ACI request by the terminating Operator switch to obtain CLI from the calling party.
- (4) Check that the ACI response from the appropriate switch has the Identity Qualifier (IQ) (parameter D in the CLI message indicator field), set to a '1' = line identity may not be released to terminal for display purposes.

- (5) Verify that ring tone is returned at a satisfactory level and where an Operator display facility phone or unit is provided, that the Calling Number is shown as 'Number Withheld'.
- (6) Answer the Operator NTS test phone/equipment after 2 or 3 rings. Record the time the Answer message is transferred across the interface, (coincident with answering the call). Verify speech is of a satisfactory quality.
- (7) Clear the call from the DEL. Verify that the release sequence is as expected for the type of route under test (Unidirectional or bi-directional), and record the time of the Release message.
- (8) If an Operator display phone or unit is not available, use the Operator Call Return facility if the Network supports it, by dialling the service code on the Operator NTS test telephone/equipment to confirm that an announcement is returned saying "Sorry, no telephone number is stored".

For these tests, carefully log the time, and numbers dialled for the calls, and record these details, together with any other relevant information on the test results sheets. Include circuit and route details of failures.

- End of Part 3-

Test Number: 20 - Basic call - Originating Line Releasing First

Description:

Basic call set-up from an originating DEL, to test generation of an Answer message and call duration record, (if required), to an Operator NTS test telephone/equipment. Forward Release after Answer and Speech.

Test Equipment:

Terminating NTS test telephone/equipment (with CND facility if possible), Originating DEL, C7 Monitoring Equipment

- Record the difference in time between the Operator switches.
- Ensure your timing device is synchronised to the RH switch.
- Ensure 'star services' are invoked on the other Operator's test telephone prior to starting the tests, if applicable.

Message Sequence:

A Specimen Test Result Sheet is shown in Annex B.

Method :

For a given route connect the C7 monitor(s) to all 2048 kbit/s systems containing signalling. If the route under test is in service it will be necessary to produce suitable trigger programs on the signalling monitoring equipment to isolate ported numbers from other traffic on the interconnect route and start recording.

Test Steps:

- (1) Dial the Non Geographic Test Number from the originating DEL, record the time the FIRST message is sent across the interface. Record what type of message sequence is used to send the called party's number across the interface.

- (2) Measure Post Dialling Delay with a watch. Write the time down and forward to the NGNP Test Co-Ordinator.
- (3) Verify that ring tone is returned at a satisfactory level on receipt of Address Complete (ACM) message.
- (4) Operator testing staff should answer the Terminating telephone / equipment after 2 or 3 rings. Verify and record the time that an Answer (ANS) message is transferred across the interface coincident with answering the call. Verify speech is of a satisfactory quality.
- (5) Clear the call from the Originating telephone and verify the Release sequence is as expected.

The results should be recorded on the test results sheet. Include circuit and route details of failures. Also, note any unusual occurrences.

Test Number: 21 - Basic call - Terminating Line Releasing First

Description:

Basic call set-up from an originating DEL, to test generation of an Answer message and call duration record, (if required), to an Operator NTS test telephone/equipment. Forward Release after Answer and Speech.

Test Equipment:

Terminating NTS test telephone/equipment (with CND facility if possible), Originating DEL, C7 Monitoring Equipment

- Record the difference in time between the operator switches.
- Ensure your timing device is synchronised to the RH switch.
- Ensure 'star services' are invoked on the other Operator's test telephone prior to starting the tests, if applicable.

Message Sequence:

A Specimen Test Result Sheet is shown in Annex B.

Method:

For a given route connect the C7 monitor(s) to all 2Mbps systems containing signalling. If the route under test is in service it will be necessary to produce suitable trigger programs on the signalling monitoring equipment to isolate ported numbers from other traffic on the interconnect route and start recording.

Test Steps:

- (1) Dial the Non Geographic Test Number from the originating DEL, record the time the FIRST message is sent across the interface. Record what type of message sequence is used to send the called party's number across the interface.
- (2) Verify that ring tone is returned at a satisfactory level on receipt of Address Complete (ACM) message
- (3) Operator testing staff should answer the Terminating telephone / equipment after 2 or 3 rings. Verify and record the time that an Answer (ANS) message is transferred across the interface coincident with answering the call. Verify speech is of a satisfactory quality.

-
- (4) Clear the call from the Terminating telephone and verify the Release sequence is as expected.

The results should be recorded on the test results sheet. Include circuit and route details of failures. Also, note any unusual occurrences.

Test Number: 28

Description:

Call attempt to a (i) 'BUSY', (ii) 'PARKED', and (iii) 'OUT OF SERVICE' Operator NTS test telephone/equipment.

Test Equipment:

Terminating NTS telephone/equipment, Originating DEL, C7 Monitoring Equipment

- Record the difference in time between the operator switches.
- Ensure your timing device is synchronised to the RH switch.
- Ensure 'star services' are invoked on the other Operator's test telephone prior to starting the tests, if applicable.

Message Sequence:

A Specimen Test Result Sheet is shown in Annex B.

Method:

For a given route connect the C7 monitor(s) to all 2Mbps systems containing signalling.

Test Steps (i):

- (1) If the route under test is in service it will be necessary to produce suitable trigger programs on the signalling monitoring equipment to isolate ported numbers from other traffic on the interconnect route and start recording.
- (2) From the Originating DEL, dial the BUSY Terminating NTS test telephone/equipment, and record the time the FIRST message is passed across the interface.
- (3) Verify that either a Subscriber Engaged Message (SEM), Connection Not Admitted (CNA) message with the reason parameter field set to 8, or an ACM and Busy Tone are returned across the interface. An Answer (ANS) message should NOT be returned.

Test Steps (ii):

Repeat Step (1) and (2) above but for an Operator NTS test telephone/equipment that is PARKED i.e. has been left Off-Hook.

- (4) Verify that either a Subscriber Engaged Message (SEM), Connection Not Admitted (CNA) message with the reason parameter field set to 8, or an ACM and Busy Tone are returned across the interface. An Answer (ANS) message should NOT be returned.

Test Steps (iii):

Repeat step (1) and (2) above but for an Operator NTS test phone/equipment that is OUT OF ORDER.

-
- (5) Verify that either a Subscriber Out Of Order (SOO) message, CNA message with the reason parameter field set to 9/33, or an ACM and NU tone or an appropriate Announcement are returned across the interface. An Answer (ANS) message should NOT be returned.

For all of these tests, carefully log the time and number dialled for the call, and record these details, together with any other relevant information on the test results sheet. Include circuit and route details of failures.

Test Number: 30

Description:

To prove that NTS platforms do not invoke services when DTMF tones are sent while ringing.

Test Equipment:

Terminating NTS telephone/equipment, Originating DEL

Method:

Records results as shown in the example shown in Annex B.

Test Steps:

- (1) Originate a call to the recipient Network.
- (2) While ringing tone is audible at the originating end press DTMF keys *, # and 1 to 0 one at a time and check that ringing tone is still audible after each press
- (3) Clear down the call.

Test Number: 31

Description:

To prove that NTS platforms do not invoke services when DTMF tones are sent after answer.

Test Equipment:

Terminating NTS telephone/equipment, Originating DEL

Method:

Records results as shown in the example shown in Annex B.

Test Steps:

- (1) Originate a call to the REC Network.
- (2) Answer call at the REC Network
- (3) While in the answered state, at the originating end press DTMF keys *, # and 1 to 0 one at a time and check that no disturbance is invoked after each press
- (4) Clear down the call.

Test Number: 32**Description:**

Call set up from an ISDN Terminal, to an Operator NTS ISDN terminal/telephone, to test call treatment on an ISDN CAT 1 attempt.

Test Equipment:

Operator NTS ISDN terminal/test telephone, Originating ISDN Terminal, C7 Monitoring Equipment

- Record the difference in time between the operator switches.
- Ensure your timing device is synchronised to the RH switch.
- Ensure 'star services' are invoked on the other Operator's test telephone prior to starting the tests, if applicable.

Message Sequence:

Records results as shown in the example shown in Annex B.

Method:

For a given route connect the C7 monitor(s) to all 2Mbps systems containing signalling. If the route under test is in service it will be necessary to produce suitable trigger programs on the signalling monitoring equipment to isolate ported numbers from other traffic on the interconnect route and start recording.

Test Steps:

- (1) Make a CAT 1 (DATA) call from the ISDN Terminal to the Operator NTS ISDN terminal/test telephone and record the time the FIRST message is passed across the interface.
- (2) Record the contents of any CNA message and / or the RELEASE message returned where CAT 1 service is not supported. (Check against Specimen Test Result sheet)
- (3) If the call set-up continues, record the SIM types and contents if exchanged. Where a CNA message is returned after SIM B, check against Specimen Test Result sheet
- (4) If call set-up continues, verify that an Address Complete message (ACM) is returned.
- (5) Verify that an Answer (ANS) message is returned on the call being answered.
- (6) Clear the call from the Operator ISDN TERMINAL and note if a CLEAR or RELEASE message is passed across the interface. Record the time of the first RELEASE message.

Carefully log the time and numbers dialled for each call, and record these details, together with any other relevant information on the results sheet for this test. Include circuit and route details of failures.

Annex B - Specimen Results

TEST 17/18: DATE TESTED:.....
Call to a Non Geographic Ported Number with MCI facility phone:

TEST	
CHANNEL NUMBER	
TERMINATING NUMBER	
ORIGINATING NUMBER	
TIME OF IAM / IFAM	
ACI OR SASUI EXCHANGED?	YES
TIME OF ACM	
RING TONE RETURNED OK?	YES
TIME OF ANS	
SPEECH LEVEL OK ON ANSWER?	YES
SPEECH LEVEL OK AFTER INVOKING MCI?	YES
ALARM INITIATED IN THE OMC WHEN MCI INVOKED?	YES
OMC PRINTOUT OK? - SHOWS CALLED & CALLING PARTIES IDENTITY - PLUS WHETHER THE CALL IS HELD? (Attach a copy of the Printout).	YES (Call may not be held on some switch types)
TIME CALLING HANDSET REPLACED	
CAN THE CALLING PARTY RELEASE THE CALL?	YES or NO - depends on called switch
CAN THE CALLED PARTY RELEASE THE CALL?	YES
CALL & ALARM CLEARED AT OMC BY MML OK?	YES
TIME OF REL	
RELEASE SEQUENCE AS EXPECTED?	YES

IAM / IFAM :	
CPC= 0-2,11 ; EDI= 0/1 ; SHP= 0 ;	
ISI= 0 ; RCI= 2 ; CPI= 0 ; PNI= 0 ;	
MESSAGE INDICATORS:-	
H G F E D C B A	
0 : 0/1 : 0 : 0 : 0 : 0 : 0/1* : 0 :	
PI MDG RES PA IW INT CBI CLI	
P O NML K J I	
0/1 : 0 : 000 : 0 : 0 : 0 :	
NTA ECD CTI LPD RES RPI	

*CBI = 1 if Operator network supports CND

(SND / SAD, SAM / FAM INTERCHANGE POSSIBLE)
1st ACI / SASUI INTERCHANGE

ACI / SASUI:	
(ACI) ICC= 0 ; IRC= 1 (CLI) ;	
(SASUI) INF.INDICATOR= 1 (CLI) ;	

1st ACI / ASUI INTERCHANGE

ACI: Type 1; or ASUI: Type 1 / 2 ;
(ACI) ICC= 1 (CLI) / 3 (PCLI) ; IRC= 0 ;
or
(ASUI) INF. CONTAINED= 1 (CLI) / 2 (PCLI);
(line ID parameters): D ; C ; B & A ;
IQ= 1 ; IAI= 0 ; NAI= 2 ;
NOA = e.g. 10 ; (number of address digits)
CLI (address) = _____ ;
(If PCLI returned check why not CLI)
OU= ___ ; T/D= ___ ; UNI= ___ ;

(A 2nd ACI interchange possible if CND supported)

ACM :	
CPC= 0-2,11 ; CHI= 1 ; LPRI= 0/1 τ ;	
IWI= 2 ; ECD= 0 ;	

τ LPRI = 1 - should cause forward CLR

ANS :	
TOA = 1 - valid for Chargeable or Non-Chargeable calls	
TOA = 0 - only valid for Non-Chargeable calls	

(MCI activated on called phone)

REL : (Operator)	RSN= 48 / 47 ;
-------------------------	----------------

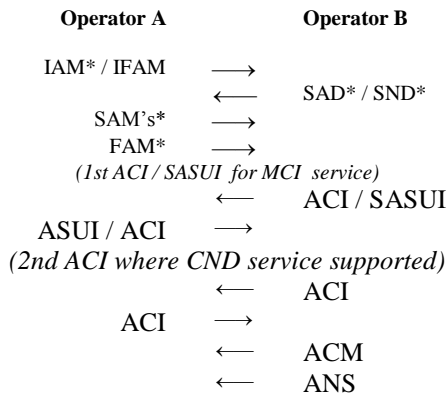
REL : (Operator)	RSN= 48 / 47 ;
-------------------------	----------------

**CALL RELEASE SEQUENCE
(Bothway Route)**

τ CLR →
 if ACM - LPRI = 1
 ← REL =
 = REL →
 CCTF →
 ← CCTF =
 (if U/D route then = only)

CALL SET-UP SEQUENCE

(* used with overlap working)



Please record any observations or

TEST 19 : DATE TESTED:.....

Basic call to a Non Geographic Ported Number - check CND

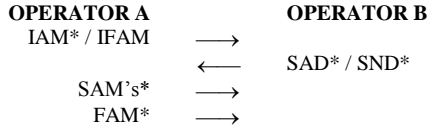
(Expected Results for Test 2.11 as for Test 1.11 (a or b) with possible ACI ♠ interchange for NTS, however, if different refer to Operator Service Description)

TEST 19 - Part	1	2	3
CHANNEL NUMBER			
TERMINATING NUMBER			
ORIGINATING NUMBER			
DOES OPERATOR SUPPORT CND ?	N	Y	Y
TIME OF IAM / IFAM			
DID ACI INTERCHANGE OCCUR ?	N Y ♠	Y	Y
TIME OF ACM			
RING TONE RETURNED OK?	Y	Y	Y
WAS AN OPERATOR DISPLAY PHONE / UNIT USED ?	if YES see ? if NO see τ		
? Was the Calling no. DISPLAYED ?	N	Y	N
? Was the Calling no. shown as "WITHELD" ?	N	N	Y
? Was the Calling no. shown as "UNAVAILABLE" ?	Y	N	N
ANSWER MESSAGE COINCIDENT WITH ANSWERING CALL	Y	Y	Y
SPEECH LEVEL OK ON ANSWER?	Y	Y	Y
TIME OF ANS			
TIME OF 1st REL			
RELEASE SEQUENCE AS EXPECTED	Y	Y	Y
τ Can the Calling no. be obtained by using CALL RETURN SERVICE.	N	Y	N

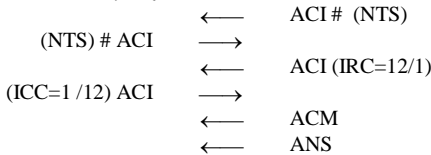
\$ Depends whether Call Return Service supported by Operator.

CALL SET-UP SEQUENCE

(* used with overlap working)

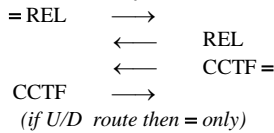


For test 2.11 if 2 ACI interchanges are seen, the 1st may be for NTS, the 2nd CND.



CALL RELEASE SEQUENCE

(Bothway Route)



IAM / IFAM ; CPC= 0-2,11; EDI= 0/1 ; SHP= 0; ISI=0/1 RCI= 2; CPI= 0; PNI= 0 ; MESSAGE INDICATORS:- H G F E D C B A 0 : 0/1 : 0 : 0 : 0 : 0 : 0/1* : 0: PI MDG RES PA IW INT CBI CLI
 P O NML K J I : 0/1 : 0 : 000 : 0 : 0 : 0 : 0 :
NTA ECD CTI LPD RES RPI

* CBI=0 - CND service not supported
* CBI=1 - CND service supported
(SND / SAD, SAM / FAM INTERCHANGE POSSIBLE)

SASUI : INF. INDICATOR = 1 (Send CLI)

or

ACI : Type 7 ; ICC= 0 ; IRC= 1 or 12 ;
--

ASUI : Type 1 (CLI) ; INF. CONTAINED = 1 (CLI) (line ID D ; C ; B & A ; parameters) IQ*= 0/1; IAI= 0 ; NAI= 2 ; NOA= e.g.10 ;(no. of address digits) CLI (address) = _____ ;
--

or

ACI : Type 1 ; ICC= 1 or 12 ; IRC= 0 ; (line ID D ; C ; B & A ; parameters) IQ*= 0/1; IAI= 0 ; NAI= 2 ; NOA= e.g.10 ;(no. of address digits) CLI (address) = _____ ;
--

* IQ = 0 - CLI for display, 1 - CLI withheld

ACM : CPC=0-2,11 ; CHI= 1 ; LPRI= 0 ; IWI= 2 ; ECD= 0 ;
--

ANS : TOA= 1 - valid for Chargeable or Non-Chargeable calls TOA= 0 - only valid for Non-Chargeable calls

REL (Operator) : RSN= 48 ;

REL (Operator): RSN= 47 ;

TESTS 20 and 21: DATE TESTED:. 20.....

Basic Call DATE TESTED:. 21.....

TEST DETAILS:	
TERMINATING NUMBER	
ORIGINATING NUMBER	
TIME OF IAM / IFAM	
RING TONE RETURNED OK?	YES
TIME OF ACM	
TIME ANS RETURNED	
SPEECH LEVEL OK ON ANSWER?	YES
TIME OF 1st RELEASE MESSAGE	
CALL SEQUENCE'S AS SHOWN?	YES

IAM / IFAM:
CPC= 1/2/11; EDI= 0 ; SHP= 0 ; ISI= 0 ; RCI= 2/3 ; CPI= 0 ; PNI= 0 ;
Message Indicators:- H G F E D C B A 0 : 0/1 : 0 : 0 : 0 : 0 : 0/1* : 0 : PI MDG RES PA IW INT CBI CLI P O NML K J I 0/1 : 0 : 000 : 0 : 0 : 0 : NTA ECD CTI LPD RES RPI

* CBI = 1 Originating network supports CND

(Possible SND / SAD & SAM / FAM interchange)

(If 2 ACI interchanges occur, NTS switch would normally request CLI i.e.IRC=1,however, CND service may request CLI or PNI i.e.IRC= 1 or12)

ACI:
ICC= 0 ; IRC= 1/12 ;

ACI:
ICC= 1/12 (CLI / PNI) ; IRC= 0 ; line ID parameters: D ; C ; B & A ; *CLI not for display IQ= 1* ; IAI= 0 ; NAI= 2 ; *CLI display IQ= 0* ; IAI= 0 ; NAI= 2 ; NOA = e.g. 10 ; (number of address digits) CLI (address) =

ACM:
CPC= 0-2,11 ; CHI= 1 ; LPRI= 0 ; IWI= 2 ; ECD = 0 ;

ANS:
TOA= 1 - valid for Chargeable or Non-Chargeable calls TOA= 0 - only valid for Non-Chargeable calls

REL: (Operator)
RSN= 48 ;

REL: (Operator)
RSN= 47 ;

CALL SET-UP SEQUENCE

(* used with overlap working)

OPERATOR A OPERATOR B
IAM* / IFAM →
 ← SAD* / SND*
SAM's* →
FAM* →
if 2 ACI interchanges are seen, the 1st may be for NTS, the 2nd CND.
 ← ACI # (NTS)
(NTS) # ACI →
 ← ACI (IRC=12/1)
(ICC=1 /12) ACI →
 ← ACM
 ← ANS

**CALL RELEASE SEQUENCE
(Bothway Route)**

= REL →
 ← REL
 ← CCTF =
CCTF →
(if U/D route then = only)

Please record any observations or departures from test script :

TEST 28 : DATE TESTED:.....

	Calls to :	BUSY	PARKED	OUT OF ORDER
TEST		(i)	(ii)	(iii)
CHANNEL NO.				
TERMINATING NUMBER				
ORIGINATING NUMBER				
TIME OF IAM OR IFAM				
TIME OF BACKWARD SET-UP INFORMATION MESSAGE i.e. ACM , SEM , SOO , CNA.				
ANSWER MESSAGE RETURNED ACROSS THE INTERFACE ?		NO	NO	NO
ACM RETURNED ?		YES - if no SEM / CNA sent	YES - if no SEM / CNA sent	YES - if no SOO / CNA sent
SEM RETURNED ?		YES - if no ACM / CNA sent	YES - if no ACM / CNA sent	
SOO MESSAGE RETURNED ?				YES - if no ACM / CNA sent
CNA MESSAGE RETURNED ?		YES - if no ACM / SEM sent	YES - if no ACM / SEM sent	YES - if no ACM / SOO sent
REASON FIELD OF CNA		8	8	9 / 33
APPROPRIATE TONE OR RECORDED ANNOUNCEMENT RETURNED ?		YES, BUSY TONE	YES, BUSY TONE	YES, NU TONE or Announcement
TIME OF 1ST REL				
RELEASE SEQUENCE AS EXPECTED ?		YES	YES	YES

DEPENDING ON BI-LATERAL AGREEMENTS OR THE OPERATOR SWITCH TYPE, EITHER OF THE FOLLOWING CALL FAILURE TREATMENTS MAY OCCUR :

a) **ACM WITH APPROPRIATE TONE OR ANNOUNCEMENT**

b) **DISCRETE MESSAGES (SEM , SOO)**

SEM (Subscriber Engaged Message) - Maps to BUSY TONE

SOO (Subscriber Out of Order Message) - Maps to message with wording such as:
 “ Sorry. This number is temporarily out of order. We’re sorry for any inconvenience ”

c) **CNA MESSAGE WITH APPROPRIATE FAILURE REASON**

- CNA Reason 0 (Number Unobtainable) - Maps to NU TONE
- CNA Reason 8 (Subscriber Engaged) - Maps to BUSY TONE
- CNA Reason 9 (Subscriber Out of Order) Maps to message with wording such as:
 “ Sorry. This number is temporarily out of order. We’re sorry for any inconvenience ”
- CNA Reason 33 (Temporary Out of Service) - Maps to message with wording such as:
 “ Sorry. The number you have called is not available ”
- CNA Reason 57 (Spare Number / Spare Code) - Maps to message with wording such as:
 “ The number you have dialled has not been recognised. Please check and try again ”

TEST 30 & 31 : DATE TESTED:.....

Test 30	
DTMF Key	Ringing OK
*	yes
#	yes
1	yes
2	yes
3	yes
4	yes
5	yes
6	yes
7	yes
8	yes
9	yes
0	yes

Test 31	
DTMF Key	No disturbance
*	no
#	no
1	no
2	no
3	no
4	no
5	no
6	no
7	no
8	no
9	no
0	no

TEST 32 : DATE TESTED:.....
CAT 1 TO CAT 1

TEST	
CHANNEL NUMBER	
TERMINATING NUMBER	
ORIGINATING NUMBER	
TIME OF IAM OR IFAM SENT	
SIM INTERCHANGE OCCURS?	YES
TIME OF ACM	
CALLING INDICATION RETURNED OK?	YES if not #
CALL FORCE RELEASED ?	YES if #
SPEECH LEVEL / DATA OK ON ANSWER?	YES (DATA)
TIME OF ANS	
RELEASE SEQUENCE AS EXPECTED	YES
TIME OF FIRST REL	

CALL SET-UP SEQUENCE

(* used if overlap working)

OPERATOR		OPERATOR
IAM */ IFAM	→	
(If to ord. phone)	←	CNA 3 #
	←	SAD / SND*
SAM's*	→	
FAM*	→	
<i>(ACI interchange for CND not expected on CAT 1 calls, but possible for NTS)</i>		
	←	SIM A
SIM B	→	
(If incompatible)	←	CNA 19 #
	←	SIM C
	←	ACM
	←	ANS

CALL RELEASE SEQUENCE

(Bothway Route)

	←	CLR
= REL	→	
	←	REL
	←	CCTF =
CCTF	→	

(if U/D route then = only)

Please record any observations or departures from test script :

IAM / IFAM	H0=0 ; H1=0/1 ;
CPC= 6/7/11 ; EDI= 0 ; SHP= 1 ;	ISI= 0 ; RCI= 2/3 ; CPI= 1 ; PNI= 0 ;
Message Indicators:-	
H G F E D C B A	
0 : 0/1 : 0 : 0 : 0 : 0 : 0/1* : 0 :	
PI MDG RES PA IW INT CBI CLI	
P O NML K J I	
: 0/1 : 0 : 000 : 0 : 0 : 0 :	
NTA ECD CTI LPD RES RPI	

* **CBI= 1** if Call Number Display service supported

SIM A : Type= 7 ;	H0= 7 ; H1= 1 ;
ICC= 6 ; IRC= 3 ; FIC= 0 ;	

SIM B : Type= 2 ;	H0= 7 ; H1= 1 ;
ICC= 3 ; IRC= 7 ; FIC= 0 ;	SIC= 0000 0100 1010 0000 ;
	0, 4, 10, 0,
line ID parameters: D ; C ; B & A;	
* CLI (R) not for display IQ= 1* ; IAI= 0 ; NAI= 2 ;	
* CLI (P) display IQ= 0* ; IAI= 0 ; NAI= 2 ;	
NOA = e.g.10 ; (number of address digits)	
CLI (address) = -----	

CLI agreements may vary, refer to Technical Master Plan for Operator concerned

SIM C : Type= 8 ;	H0= 7 ; H1= 1 ;
ICC= 7 ; IRC= 0 ; FIC= 0 ;	
line ID parameters: D ; C ; B & A;	
* CLI (R) not for display IQ= 1* ; IAI= 0 ; NAI= 2 ;	
* CLI (P) display IQ= 0* ; IAI= 0 ; NAI= 2 ;	
NOA = e.g.10 ; (number of address digits)	
CLI (address) = -----	

ACM :	H0= 3 ; H1= 0 ;
CPC= 0, 6,7,11,12 ; CHI= 1 ; LPRI= 0 ;	IWI= 1 ; ECD= 0 ;

ANS :	H0= 4 ; H1= 0 ;
TOA = 1 - valid for Chargeable or Non-Chargeable calls	TOA = 0 - only valid for Non-Chargeable calls

REL: (Operator)	H0= 4 ; H1= 3 ;
RSN= 48 ;	

REL: (Operator)	H0= 4 ; H1= 3 ;
RSN= 47 ;	

Annex C - Test Number Arrangements Pro-Forma

Operator A/Operator B - Test Number Arrangements Information

Contact Names and Numbers	Operator A	Operator B
Arrangements made by		
Telephone Number		
Test Contact		
Telephone Number		

Test Information	Operator A	Operator B
Portability Prefix		
Databuild Test Number		
Service Establishment Tests 1A number		
Terminating Number for Test 1A		
Service Establishment Test 1B numbers		
Terminating Number for Test 1B		
Service Establishment Tests 2A number		
Terminating Number for Test 2A		
Service Establishment Tests 2B number		
Terminating Number for Test 2B		
Databuild Announcement		

Agreed: Operator A

Agreed: Operator B

Annex D - Test Results Summary Sheet

Person carrying out tests:		Date Testing Completed:	
Location:		RH Network:	
		REC Network:	

Test Scenarios	Test Numbers		
1A	18	MCI	
	19	Basic Call - CND	
	21	Basic Call - Terminating Rel First	
	28	Busy	
		Parked	
		Out Of Service	
	30	DTMF - Ringing	
	31	DTMF - Answer	
1B	17	Call Forward to line with MCI	
	19	Basic Call - CND	
	20	Basic Call - Originating Rel First	
	21	Basic Call - Terminating Rel First	
	32	ISDN Cat 1 call	
2A	17	Call Forward to line with MCI	
	18	MCI	
	19	Basic Call - CND	
	21	Basic Call - Terminating Rel First	
	28	Busy	
		Parked	
		Out Of Service	
		Spare	
	30	DTMF - Ringing	
	31	DTMF - Answer	
	32	ISDN Cat 1 call	
2B	20	Basic Call - Originating Rel First	
	21	Basic Call - Terminating Rel First	

Annex E - NGNP Test Certificates

1. Once Databuild and Network testing has been successfully completed the certificate shown in example 1 should be sign by both parties. Certificates should be signed for each direction, i.e. for import and export. It is recommended that two copies are produced and signed for each direction, allowing each operator to hold an original.

Example 1



**NUMBER PORTABILITY
CERTIFICATION**

NON-GEOGRAPHIC NUMBER PORTABILITY CERTIFICATE

Importing Operator (IO)		
Exporting Operator (EO)		
	End date of testing.	Signatures.
Exported from		For IO
NTS Platform 1		Name:
to Prefix 504____		For EO
		Name:
Exported from		For IO
NTS Platform _		Name:
to Prefix 504____		For EO
		Name:

Exceptions - Items in the Interconnect Test Specification not successfully tested during Service Establishment: 1)

This certificate confirms that Network Databuild Testing of Non-Geographic Number Portability Service Establishment arrangements has been satisfactorily concluded between the Operators. It does not imply that orders can now be placed, this is subject to satisfactory completion of Operational Readiness Testing.

A separate certificate should be issued for each direction of porting.