



NIF pre-requisite information

IVT requirement

This document lists the minimum tests required to be carried out in-house by a Communications Provider (CP) requesting interconnect with the BT Wholesale national network. The requirement applies where the switch/protocol is unknown to BT and the SS7 traces must be presented prior to NIF commencing.

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Document history

Revision	Author	Date	Notes
1	R K Felgate	11/02/2003	First issue
2	R K Felgate	06/06/2003	Editorial changes to introduction
3	R K Felgate	30/07/2004	New document format; Level 4 tests (IUP) expected message flows added.
4	R K Felgate	15/10/2004	Editorial amendments
5	R K Felgate	15/04/2005	Editorial amendments
6	A Fisk	09/02/2016	

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References

- [1] ITU-T recommendation Q.781
- [2] ITU-T recommendation Q.782
- [3] ITU-T recommendation Q.784
- [4] PNO-ISC/SPEC/006

Introduction

Interface Validation Test (IVT) results are required as a pre-requisite for NIF to show that the switch has undergone testing and conforms to the appropriate signalling protocol sufficient to justify NIF testing. Testing should be performed using a suitable SS7 simulator as the adjacent node. The Level 2 and Level 3 tests listed apply to both IUP and ISUP. Where the interconnect protocol will be UK ISUP, the Level 4 tests quoted below for ISUP should be run. Where the interconnect protocol will be IUP, the Level 4 tests quoted below for IUP should be run. The following tests are the minimum required. Detailed SS7 traces should be supplied (ie **showing all parameter values**) and an explanation should be included where a test result does not comply with the expected result.

Level 2 tests

The tests should be carried out according to the ITU-T recommendation [1]

1. Link state control – Expected signal units/orders
Tests 1.1; 1.2; 1.3; 1.4; 1.9; 1.10; 1.16; 1.20; 1.21; 1.22; 1.28; 1.29;
2. Link state control – Unexpected signal units/orders
Tests 2.1; 2.7
3. Transmission failure
Tests 3.1; 3.2; 3.5
4. Processor Outage control
Test 4.1
5. SU Delimitation, Alignment, Error Detection and Correlation
Tests 5.2; 5.3
7. AERM check
Tests 7.2; 7.3
8. Transmission and Reception control (Basic)
Tests 8.1; 8.2; 8.3; 8.7

Level 3 tests

The tests should be carried out according to the ITU-T recommendation [2]

1. Signalling link management

Test 1.1

2. Signalling message handling

Test 2.4.1

3. Changeover

Tests 3.1; 3.2; 3.7; 3.10

4. Changeback

Tests 4.1; 4.4

10. Signalling point restart

An appropriate test from section 10 where the test switch undergoes a restart.

12 Signalling link test

Test 12.3; 12.4

13 Invalid messages

Test 13.1; 13.2; 13.3; 13.11

Level 4 tests (UK-ISUP)

The tests should be carried out according to the ITU-T recommendation [3]

1 Circuit supervision

Tests 1.2.1 to 1.2.7; 1.3.1.1; 1.3.1.2; 1.3.2.1; 1.3.2.2

2 Normal call setup – ordinary speech

Tests 2.2.1; 2.2.2

3 Normal release

Tests 3.3; 3.4; 3.5

4 Unsuccessful call setup

Test 4.1

5 Abnormal situation during a call

Tests 5.2.1; 5.2.3; 5.2.6; 5.2.7; 5.2.8; 5.2.11;

6 Special call setup

Tests 6.2.1; 6.2.2;

7 Bearer services (if supported)

Tests 7.1.1; 7.2.1

Level 4 tests (IUP)

There are no ITU-T tests specifying the message flow for IUP but equivalent tests to those for ISUP should be carried out as far as possible. The following tests are therefore based on the ITU requirement, which should be used to determine the test procedure with expected message flow replaced by the following (test numbers below relate to [3]):

1 Circuit supervision

Tests 1.2.1 to 1.2.7 – not applicable - no equivalent to RSC and CGR in IUP.

Tests 1.3.1.1; 1.3.1.2 – not applicable - no equivalent to CGB and CGU in IUP.

Test 1.3.2.1 – BLO received; reference [3] test applies;

Test 1.3.2.2 – BLO sent; reference [3] test applies

2 Normal call setup – ordinary release

Test 2.2.1 – En bloc operation – reference [3] test procedure; expected message flow:

IFAM (SHP=0,CPI=0) →;
ACI(7¹) ←
ACI(1¹) →
ACM ←
ANS ←
REL →
REL ←
CCTF ←
CCTF →

Test 2.2.2 – Overlap operation with SAM – reference [3] test procedure; expected message flow:

IAM (SHP=0,CPI=0) →;
SAD ←
SAM →
ACI(7¹) ←
ACI(1¹) →
ACM ←
ANS ←
REL →

¹ The number refers to the message type – reference [4] §2.2.2

REL ←
CCTF ←
CCTF →

3 Normal release

Test 3.3 – Calling party clears after answer – reference [3] test procedure; expected message flow:

IFAM (SHP=0,CPI=0) →;
ACM ←
ANS ←
REL →
REL ←
CCTF ←
CCTF →

Test 3.4 – Called party clears after answer – reference [3] test procedure; expected message flow:

IFAM (SHP=0,CPI=0) →;
ACM ←
ANS ←
CLR ←
REL →
REL ←
CCTF ←
CCTF →

Test 3.5 – Clear and re-answer at called party – reference [3] test procedure; expected message flow:

IFAM (SHP=0,CPI=0) →;
ACM ←
ANS ←
CLR ←
RAN ←
REL →
REL ←
CCTF ←
CCTF →

4 Unsuccessful call setup

Test 4.1 – Unsuccessful call set up – reference [3] test procedure; expected message flow:

(a) IFAM (SHP=0,CPI=0) →;

CNA ←
REL →
REL ←
CCTF ←
CCTF →
(b) IFAM (SHP=0,CPI=0) ←;
CNA →
REL ←
REL →
CCTF →
CCTF ←

5 Abnormal situation during a call

Test 5.2.1 – Timers: waiting for ACM – reference [3] test procedure; expected message flow:

IFAM →
timeout
REL →
REL ←
CCTF ←
CCTF →

Test 5.2.3 – Timers: failure to receive a REL – reference [3] test procedure; expected message flow:

IFAM →
timeout
REL →
|¹
timeout
REL →
CCTF →
CCTF ←

Test 5.2.6 – Failure to receive a BLA – reference [3] test applies

Test 5.2.7 – Failure to receive a UBA – reference [3] test applies

Test 5.2.8 – no equivalent of RSC, therefore test not applicable

Test 5.2.11 – no equivalent of GRS, therefore test not applicable

6 Special call setup

¹ timeout+REL may repeat more than once

Test 6.2.1 – Dual seizure for non-controlling SP – reference [3] test procedure; expected message flow:

IFAM(cic=x) → ← IFAM(cic=x)
ACM (cic=x)→
ANS (cic=x)→
IFAM(cic=y) →
ACM (cic=y)←
ANS (cic=y) ←
REL(cic=y) →
REL(cic=y) ←
CCTF(cic=y) ←
CCTF(cic=y) →
REL(cic=x) ←
REL(cic=x) →
CCTF(cic=x) →
CCTF(cic=x) ←

Test 6.2.2 – Automatic repeat attempt on receipt of BLO – reference [3] test procedure; expected message flow:

IFAM(cic=x) →
BLO(cic=x) ←
BLA(cic=x) →
IFAM(cic=y) →
ACM(cic=y) ←
ANS(cic=y) ←
REL(cic=y) →
REL(cic=y) ←
CCTF(cic=y) ←
CCTF(cic=y) →

7 Bearer services (if supported)

Test 7.1.1 – 64kbit/s unrestricted call – reference [3] test procedure; expected message flow:

IFAM(SHP=1,CPI=1) →
SIM(7¹) ←
SIM(2¹) →
SIM(4¹) ←
ACM ←
ANS ←
REL →

¹ The number refers to the message type – reference [4] §2.2.2

REL ←
CCTF ←
CCTF →

Test 7.2.1 – 3.1kHz audio call – reference [3] test procedure; expected message flow:

IFAM(SHP=1,CPI=2) →
SIM(7¹) ←
SIM(2¹) →
SIM(4¹) ←
ACM ←
ANS ←
REL →
REL ←
CCTF ←
CCTF →

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¹ The number refers to the message type – reference [4] §2.2.2