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| Interconnect |
| **CORE** |
| Operational Testing Manual |
|  |
| Issue 5.0 |
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**1 Document Information**

**1.1 Index**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Section** | **1** | – | Document Information |
|  |  |  |
| **Sub-Section** | **Title** | Page |
|  |  |  |
|  | 1.1 | Index | 3 |
|  | 1.2 | Legal Notice | 4 |
|  | 1.3 | Contractual Significance Statement | 4 |
|  | 1.4 | Issue Control | 5 |
|  | 1.5 | Document History | 5 |
|  | 1.6 | Summary of Changes to Last Issue | 6 |
|  | 1.7 | Review Procedure | 7 |
|  | 1.8 | Author | 7 |
|  |  |  |  |
|  |  |  |  |
| **Section** | **2** | – | Testing |
|  |  |  |
| **Sub-Section** | **Title** | Page |
|  |  |  |
|  | 2.1 | Introduction | 9 |
|  | 2.2 | Test Description List & Test Cases  | 9 |
|  | 2.3 | Test Procedure & Results Sheets | 11 |
|  |  |  |  |
|  |  |  |  |
| **Section** | **3** | – | Reference |
|  |  |  |
| **Sub-Section** | **Title** | Page |
|  |  |  |
|  | 3.1 | Message Library | 43 |
|  | 3.2 | Message Glossary | 43 |
|  | 3.3 | Basic Service Marks | 43 |
|  |  |  |  |

**1.2 Legal Notice**

British Telecommunications PLC “BT” provides a copy of this Operational Testing Manual “OTM” to UK Communications Providers “CPs” for their own use subject to the following conditions:

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**1.3 Contractual Significance Statement**

This document does not form part of any contract between BT and the CP.

However, some parts of this document may, where a ‘[Standard Interconnect Agreement](https://www.btwholesale.com/pages/static/Pricing_and_Contracts/Reference_Offers/Telephony.html)’ exists between BT and the CP, repeat certain legally binding provisions of that interconnect agreement. If that is the case, the fact that this document is not itself legally binding shall not affect any of the rights and obligations of BT or the CP under the interconnect agreement.

BT and the CP will endeavour to confirm that the information contained in this document is correct to the best of their knowledge. However, neither party warrants that such information will be free from errors.

**1.4 Issue Control**

This document is issued and maintained by the BT Operate and is controlled in accordance with BT Quality Management System Procedures.

The issue number of the document will be identified by the ‘Issue’ on the front page.

The issue date of the document will be identified by the top entry in the table in sub-section 1.5.

The current version of this document can be located [here](https://www.btwholesale.com/pages/static/Library/Technical_Documents_and_Procedures/Interconnect_Testing_Manual/index.htm).

**This document becomes uncontrolled when printed or after being downloaded.**

**1.5 Document History**

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| **Issue** | **Date** | **Summary of Changes** |
| 5.0 | 31/07/12 | Change of ownership to BT Operate - see 1.6 for other changes |
| 4.0 | 31/12/06 | Working Document. No Changes From Draft B |
| 31/07/06 | Draft B Re-word Synchronisation Test; Correct Text Errors |
| 30/11/05 | Inclusion of Synchronisation Test |
| 3.0 | 28/02/05 | See Sub-section 1.6 for changes to draft versions | * Removal of ‘POTS’ tests to new Basic Telephony OTM
* STP Tests incorporated from Dial IP OTM
* Test Case 2b Test Incorporated
* Complete review of MTP tests
 |
| 31/09/04 | Draft A for industry comment |
| 31/07/04 | Draft A for internal comment before industry publish |
| 2.0 | 30/05/00 | Up issue to reflect control changes only |
| 1.1 | 14/10/98 | Minor amendments for industry trial & web publish |
| 1.0 | 22/06/98 | Initial Issue |
| 1.0 | 22/03/98 | Initial Issue for comment |

**1.6 Summary of Changes to Last Issue**

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| --- |
| **Section 1** |
| Reflecting changes to other sections only |

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| --- |
| **Section 2**  |
| New test 76 added for ‘Congestion Controls Activation Check’New test 77 added for ‘Additional Testing Requirements From Integration Testing’ |

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| **Section 3** |
| None |

**1.7 Review Procedure**

The document will be reviewed biennially by the author.

Should amendments or additions be required, the proposed changes will be communicated to industry via interconnect notification and/or briefing via the Standard Contract Forum as appropriate.

Comments or proposed amendments to this document should be forwarded to the Author.

**1.8 Author**

The author of this document can be contacted for enquiries or comment via e-mail by clicking here.

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|  | **End of Section 1** |  |

**2 Testing**

**2.1 Introduction**

This document contains all TDM Core tests. The tests within this document validate electrical interface, MTP2 and Data settings to be used on a new interconnect route which can be used for either (or both) IUP and UK-ISUP signalling.

Testing Methodology is explained in the Guide OTM Section 2.5.

**2.2 Test Description List & Test Cases**

Commence on next page.

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| --- |
| **TDM Transmission, MTP & Data Tests** |
| Transmission and MTP tests must be performed in both directions (i.e. BT🡺CP & CP🡺BT) During the Transmission tests the E1s must be connected to both switches at all times.For routes utilising STP signalling, all tests, including Transmission, must be completed.Tests involving calls must be repeated with the calls in both directions |
| **Test** | **Type** | **TEST DESCRIPTION** | **Test Case** |
| **1** | **2** | **3** | **4** | **5** |
| **a** | **b** | **a** | **b** | **a** | **b** | **c** |
| 01 | Transmission  | Nominal Pulse Rate & Frame Structure | ◼ |  |  |  |  |  |  |  |  |
| 02 | Alarm Indication for Loss of E1 | ◼ | ◼ |  |  |  |  |  |  |  |
| 03 | Alarm Indication for Loss of Frame Alignment | ◼ | ◼ |  |  |  |  |  |  |  |
| 04 | Alarm Indication for Error Rate of 1 in 10-3  | ◼ | ◼ |  |  |  |  |  |  |  |
| 05 | Response to AIS | ◼ | ◼ |  |  |  |  |  |  |  |
| 06 | Response to False AIS | ◼ |  |  |  |  |  |  |  |  |
| 09 | Idle Channel Bit Pattern | ◼ |  |  |  |  |  |  |  |  |
| 51 | MTP | STP Primary & Secondary Path Resilience  | ◼ | ◼ |  |  |  |  |  |  |  |
| 52 | STP Transfer Prohibited | ◼ |  |  |  |  |  |  |  |  |
| 53 | New Link Set Activation | ◼ | ◼ | ◼ |  |  |  |  |  |  |
| 54 | Additional Signalling Link Activation |  |  |  |  |  |  |  |  | ◼ |
| 55 | Link Restoration after E1 Failure | ◼ | ◼ |  |  |  |  |  |  |  |
| 56 | Signalling Link Change Over Integrity | ◼ | ◼ | ◼ |  |  |  |  |  |  |
| 57 | Call Behaviour All Links Out Of Service | ◼ | ◼ |  |  |  |  |  |  |  |
| 58 | Call Behaviour Under Signalling Failure | ◼ |  |  |  |  |  |  |  |  |
| 59 | Call Treatment on Route Busy | ◼ | ◼ |  |  |  |  |  |  |  |
| 61 | Data | Circuit Alignment and Selection Order | ◼ | ◼ | ◼ |  |  |  |  |  |  |
| 62 | Dual Seizure Priority | ◼ | ◼ | ◼ |  |  |  |  |  |  |
| 63 | SRA Compliance | ◼ | ◼ | ◼ |  |  |  |  |  |  |
| 71 | Miscellaneous | Route Expansion |  |  |  |  | ◼ |  |  |  |  |
| 72 | Route Functionality for TC2b |  |  |  | ◼ |  |  |  |  |  |
| 73 | Build Confirmation | ◼ | ◼ |  |  |  |  |  |  |  |
| 74 | Service Types / Test Case Confirmation | ◼ | ◼ | ◼ | ◼ |  | ◼ | ◼ | ◼ |  |
| 75 | Synchronisation Check | ◼ | ◼ |  |  |  |  |  |  |  |
| 76 | Congestion Controls Activation Check | ◼ | ◼ |  |  |  |  |  |  |  |
| 77 | Additional Test Requirments From Integration Testing | ◼ |  |  |  |  | ◼ |  |  |  |
| End of TDM Transmission, MTP & Data Tests |

**2.3 Test Procedure & Results Sheets**

2.3.1 Transmission

Core Transmission tests 01-09 commence on next page.

|  |  |  |
| --- | --- | --- |
| Test Number | Test Description | Part |
|  XM 01 | Nominal Pulse Rate and Frame Structure  | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | On an E1 system carrying signalling, connect a PCM monitor to a suitable DDF as near to the Point of Interconnect as possible (If STP signalling is used perform on the first E1 system only) |
| **2** | Confirm that the nominal pulse rate is 2048kbits/s +/- 50ppm |
| **3** | Ensure that the number of “Frame Alignment Signal Errors” does not exceed 1 during any 15 minute period |
| **4** | Repeat for each E1 system which carries signalling |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
|  |
|  | Notes: |  |
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|  |  |  |
| --- | --- | --- |
| Test Number | Test Description | Part |
|  XM 02 | Alarm Indication for Loss of E1  | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | On an E1 system carrying signalling, connect a PCM monitor to a suitable DDF as near to the Point of Interconnect as possible (If STP signalling is used perform on the first E1 system only) |
| **2** | Using MML OOS the E1 at both ends & disconnect then reconnect the transmit leg |
| **3** | Confirm that a “Distant Alarm” indication is given on the monitor within a reasonable time period & ensure an indication of system failure is given at the distant end switch |
| **4** | Reconnect the transmit direction of the E1 confirm that the “Distant Alarm” indication ceases on the monitor and the distant switch. |
| **5** | Repeat for each E1 system which carries signalling |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
|  |
|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  XM 03 | Alarm Indication for Loss of Frame Alignment | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | On an E1 system carrying signalling, connect a PCM monitor to a suitable DDF as near to the Point of Interconnect as possible (If STP signalling is used perform on the first E1 system only) |
| **2** | Disconnect the transmit leg of the E1, and connect the PCM Signal Generator so as to send a signal into the input port of the distant switch |
| **3** | Confirm on the monitor that a valid signal at the correct bit rate and amplitude is present |
| **4** | Using the Signal Generator, violate the frame alignment signal by generating a bit pattern 10000011 in time slot 0 |
| **5** | On the monitor, confirm that a “Distant Alarm” indication appears within a reasonable time on the receive leg of the E1  |
| **6** | Confirm that a “Loss of Incoming Frame Alignment” indication is seen at the distant switch |
| **7** | Set the bit pattern simulation to 10011011, and confirm that the “Distant Alarm” indication ceases |
| **8** | Repeat for each E1 system which carries signalling |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  XM 04 | Alarm Indication For Error Rate of 1 in 10-3 | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | On an E1 system carrying signalling, connect a PCM monitor to a suitable DDF as near to the Point of Interconnect as possible (If STP signalling is used perform on the first E1 system only) |
| **2** | Disconnect the transmit leg of the E1, and connect the PCM Signal Generator so as to send a signal into the input port of the distant switch |
| **3** | Using the Signal Generator, inject a 1 in 10-3 error rate into the bit stream of time slot 0 |
| **4** | Confirm that a “10-3 Errors” indication is seen at the distant switch |
| **5** | On the monitor, confirm that a “Distant Alarm” indication appears within a reasonable time on the receive leg of the E1 |
| **7** | Send an error free signal and confirm that the errors indication at the distant switch and that the “Distant Alarm” indication on the monitor ceases within a reasonable time |
| **8** | Repeat for each E1 system which carries signalling |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
| XM 05 | Response to AIS | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | On an E1 system carrying signalling, connect a PCM monitor to a suitable DDF as near to the Point of Interconnect as possible (If STP signalling is used perform on the first E1 system only) |
| **2** | Disconnect the transmit leg of the E1, and connect the PCM Signal Generator so as to send a signal into the input port of the distant switch |
| **3** | Using the Signal Generator, simulate an AIS alarm by sending a bit pattern of 11111111 to time slot 0 |
| **4** | Confirm that an “AIS” indication is seen at the distant switch |
| **5** | On the monitor, confirm that a “Distant Alarm” indication appears within a reasonable time on the receive leg of the E1 |
| **7** | Reset the pattern on the Signal Generator to 10011011 and confirm that the AIS indication at the distant switch and that the “Distant Alarm” indication on the monitor cease within a reasonable time |
| **8** | Repeat for each E1 system which carries signalling |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  XM 06 | Response to False AIS | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | On an E1 system carrying signalling, connect a PCM monitor to a suitable DDF as near to the Point of Interconnect as possible (If STP signalling is used perform on the first E1 system only) |
| **2** | Disconnect the transmit leg of the E1, and connect the PCM Signal Generator so as to send a signal into the input port of the distant switch |
| **3** | Using the Signal Generator, change the bit pattern for the Alternative Frame Not Word from 1101 to 1111 in bits 1-4 |
| **4** | Confirm that the Monitor does not indicate a transmit AIS alarm but does indicate a receive AIS alarm |
| **5** | Repeat for each E1 system which carries signalling |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  XM 09 | Idle Channel Bit Pattern  | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | On an E1 system carrying signalling, connect a PCM monitor to a suitable DDF as near to the Point of Interconnect as possible (If STP signalling is used perform on the first E1 system only) |
| **2** | Using the PCM Signal Monitor, with all speech channels idle, but busied out, check the bit pattern for the Receive and Transmit directions |
| **3** | Confirm there is a constant bit pattern over all the channels in each direction. |
| **4** | Repeat for each E1 system which carries signalling, checking the first and last channels in each network band |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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**2.3 Test Procedure & Results Sheets (Contd)**

2.3.2 MTP

Core MTP tests 51-59 commence on next page.

|  |  |  |
| --- | --- | --- |
| Test Number | **Test Description** | Part |
| MTP 51 | STP Primary & Secondary Path Resilience | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| Any | Any | N/A | N/A |
| **Test Procedure** |
| **1** | Initiate a test call over the Primary STP signalling route |
| **2** | Confirm that both BT and CP signalling is on primary STP route |
| **3** | Swap the routing priority at both the BT originating switch and terminating CP switch |
| **4** | Confirm that the secondary STP route is now the 1st choice signalling route (for both BT and CP) |
| **5** | Initiate a second call over the now new 1st choice signalling route |
| **7** | Confirm that call is successful and both BT and CP signalling is on secondary STP route |
| **8** | Change the STP routing priority back to its original status at both BT and CP switches |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | **Test Description** | Part |
| MTP 52 | STP Transfer Prohibited | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Confirm linksets from LE and secondary are both fully in service |
| **2** | Out of service the primary linkset  |
| **3** | Confirm Transfer Prohibited protocol (TFP/RST) operates between primary STP and CP Node |
| **4** | Restore the primary linkset  |
| **5** | Confirm LE to primary BT linkset returns to busy in **both** directions |
| **Expected Results** |
| **Message Sequence** | **Message Exceptions** |
|  | **BT STP** | **CP Node** |
| TFP | **>** |  |  |  |
|  | **<** | RST |  | And will subsequently be repeated every 30-60 seconds until: |
| TFA | **>** |  |  |  |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | **Test Description** | Part |
| MTP 53 | New Link Set Activation | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **Note** | For routes where STP signalling is used, repeat the following procedures for both primary and secondary link-sets and ensure the secondary link-set is not in use whilst working on the primary link-set and vice-versa |
| **1** | Individually activate each link in the link-set in turn and confirm that an emergency link alignment occurs |
| **2** | With one link left in service, activate the other links in turn and confirm that normal alignment occurs in each case |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | **Test Description** | Part |
| MTP 54 | Additional Signalling Link Activation | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Activate the additional links in turn and confirm that normal alignment messages are exchanged |
| **2** | Out of Service all of the old links in the link set and confirm that the new links maintain the signalling for the route |
| **3** | Return all links in the link-set to in-use |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  MTP 55 | Link Restoration after E1 Failure  | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Out of service all but one of the signalling links in the link-set |
| **2** | Disconnect the E1 system relating to the in service signalling link for 10 seconds |
| **3** | Restore the E1 and ensure the signalling link fully restores to service without any need for MMI intervention at either end |
| **4** | Repeat but with a duration of between 2 and 3minutes |
| **5** | Repeat but with a duration of greater than 5 minutes  |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  MTP 56 | Signalling Link Change Over Integrity | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| Any | Any | N/A | N/A |
| **Test Procedure** |
| **Note** | Not required if there is only one link in the link-set |
| **1** | If there are more than two links in the link-set deactivate all but two of the links |
| **2** | Set up a call across the route but do not answer it |
| **3** | Determine which signalling link is being used to convey the call set up messages |
| **4** | When a ringing tone is heard deactivate that link using MMI |
| **5** | When the link is fully out of service answer the call |
| **6** | Confirm that the Answer message is transferred via remaining signalling link |
| **7** | Clear the call |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  MTP 57 | Call Behaviour All Links Out Of Service | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| Any | Any | N/A | N/A |
| **Test Procedure** |
| **Note** | For routes where STP signalling is used, repeat the following procedures for both primary and secondary link-sets and ensure the secondary link-set is not in use whilst working on the primary link-set and vice-versa. |
| **1** | Out of service all but one link in the link-set |
| **2** | Set up a call, do not answer |
| **3** | When a ringing tone is heard deactivate the link using MMI, forcing out if required. |
| **4** | Confirm that ringing tone to the caller and the ringing of the called line continues |
| **5** | Answer the call, confirm conversation possible for 2 minutes |
| **6** | Clear down and confirm that both lines can make and receive calls |
| **7** | Return the link to service and confirm that it works normally  |
| **8** | Repeat but this time answer the call before deactivating the link |
| **9** | Confirm that the call remains intact until is released |
| **10** | Return the link to service and confirm that it works normally  |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  MTP 58 | Call Behaviour Under Signalling Failure | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| Any | Any | N/A | N/A |
| **Test Procedure** |
| **Note** | For routes where STP signalling is used, repeat the following procedures for both primary and secondary link-sets and ensure the secondary link-set is not in use whilst working on the primary link-set and vice-versa. |
| **1** | Out of service all but one link in the link-set |
| **2** | Set up a call ensuring it uses a different E1 to that which contains the link |
| **3** | Wait until ringing tone is heard and the called line rings but do not answer |
| **4** | Physically fail the E1 containing the link |
| **5** | Confirm that ringing tone to the caller and the ringing of the called line continue |
| **6** | Clear down the originating phone and confirm that new calls can be made |
| **7** | When the CSA timer on the called line operates confirm that new calls can be made |
| **8** | Return the link to service and confirm that it works normally and all speech circuits are free |
| **9** | Set up a new call, again ensuring it uses a different E1 to that which contains the link |
| **10** | Physically fail the E1 containing the speech path for 10 seconds |
| **11** | After restoration confirm that bothway conversation is still possible |
| **12** | Physically fail the E1 containing the link |
| **13** | Confirm that conversation still possible for at least 2 minutes |
| **14** | Clear the call and confirm that new calls can be made |
| **15** | Return the link to service and confirm that it works normally and all speech circuits are free |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  MTP 59 | Call Treatment on Route Busy | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Back busy all channels on the route |
| **2** | Confirm that all the channels receive and acknowledge a blocking message |
| **3** | From the test telephone dial an appropriate number to gain access to the busied route |
| **4** | Confirm that the call is not passed over this busied route |
| **5** | Confirm that either the call matures via an alternative route or an appropriate tone / announcement is returned to the caller |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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**2.3 Test Procedure & Results Sheets (Contd)**

2.3.3 Data

Core Data tests 61-63 commence on next page.

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| --- | --- | --- |
| Test Number | Test Description | Part |
|  Data 61 | Circuit Alignment and Selection Order | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| Any | Any | N/A | N/A |
| **Test Procedure** |
| **1** | Interrogate Route Data for the route under test |
| **2** | Confirm that circuit selection is sequential at both ends |
| **3** | Open all circuits on the E1’s containing signalling (for STP signalled routes the first E1 will be sufficient) |
| **4** | Make at least 3 concurrent calls in each direction, using any Service Type  |
| **5** | Confirm that in the BT 🡺 CP direction, Circuit Selection is Forward Sequential (i.e. lowest CIC first) |
| **6** | Confirm that in the CP 🡺 BT direction, Circuit Selection is Reverse Sequential (i.e. highest CIC first) |
| **7** | Make at least one further call in each NWB to ensure call quality & circuit alignment |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  Data 62 | Dual Seizure Priority | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Interrogate Route Data for the route under test.  |
| **2** | Confirm that:for routes with IUP signalling:Both switches have appropriate Dual Seizure Priority settings such that BT calls have priority in all circumstances;Or, for UK-ISUP:The exchange with the higher signalling point code will have priority on all even-numbered circuits and the other exchange will have priority on all the odd-numbered circuits |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| --- | --- | --- |
| Test Number | Test Description | Part |
|  Data 63 | SRA Compliance | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Confirm that route data corresponds to the latest issue of the Signalling Routing Advice both ends |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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**2.3 Test Procedure & Results Sheets (Contd)**

2.3.4 Miscellaneous

Core Miscellaneous tests 71-77 commence on next page.

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| --- | --- | --- |
| Test Number | Test Description | Part |
|  Misc 71 | Route Expansion | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Confirm the following data settings |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Dual seizure priority:**  | IUP: | BT - Priority; CP - non priority |
|  | UK-ISUP: | Lower Point Code - Priority Odd circuits |
|  | Higher Point Code - Priority Even circuits |
| **Circuit selection type:** | BT & CP - Selection allowed at both ends |
| **Circuit selection order:** | BT - forward sequential, CP reverse sequential |
| **Line supervision & link-set:** | BT - SS7 link-set alarm PRI 1, standard |
| **E1 allocation & alarm reporting:** | BT - Loss of sig and distant alarm signal |

|  |  |
| --- | --- |
| **2** | Ensure that the circuits for the additional E1 are in the Manually Blocked state at both exchanges |
| **3** | Activate the Digital Line Termination hardware and alarm supervision resources at both exchanges |
| **4** | For each additional E1 disconnect the BT transmit leg at a convenient point in the network of the CP which placed the order for the additional capacity |
|  | Confirm:1. that both exchanges report an alarm
2. the alarms clear at both exchanges after reconnection.
 |
| **5** | Repeat 4 for the BT receive leg of each additional at a convenient point in the network of the CP which placed the order for the additional capacity |
| **6** | At the BT exchange put the first and last circuit of each additional network band into the TTA state |
| **7** | Make T-Calls over each of these circuits to confirm circuit alignment & transmission quality in both directions |
| **8** | Put the circuits into service, where possible monitoring the new E1s to ensure they are receiving calls successfully |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  Misc 72 | Route Functionality | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Activate, de-activate and re-activate all signalling links, ensuring appropriate alignment |
| **2** | Confirm the following data settings |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Dual seizure priority:**  | IUP: | BT - Priority; CP - non priority |
|  | UK-ISUP: | Lower Point Code - Priority Odd circuits |
|  | Higher Point Code - Priority Even circuits |
| **Circuit selection type:** | BT & CP - Selection allowed at both ends |
| **Circuit selection order:** | BT - forward sequential, CP reverse sequential |
| **Line supervision & link-set:** | BT - SS7 link-set alarm PRI 1, standard |
| **E1 allocation & alarm reporting:** | BT - Loss of sig and distant alarm signal |

|  |  |
| --- | --- |
| **3** | At the BT exchange put the first and last circuit of each network band into the TTA state |
| **4** | Make T-Calls over each of these circuits to confirm circuit alignment & transmission quality in both directions |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  Misc 73 | Build Confirmation | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Confirm that Switch Builds are appropriate for the proposed Test Cases  |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  Misc 74 | Service Types / Test Case Confirmation | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | Confirm that Service Types to be tested are appropriate and comprehensive for the route under test |
| **2** | Confirm that test case is appropriate for the route under test |
| **Conclusion & Observation** |
|  |
|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  Misc 75 | Synchronisation Check | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | N/A |
| N/A | N/A | N/A | N/A |
| **Abstract** |
|  | **The CP Switch takes Synchronisation from the BT Switch**If the CP Switch is to derive synchronisation from the BT Switch it shall take its timing from BT nominated synchronisation feeds in a master/slave relationship. BT employs a central master clock to maintain a co-operatively synchronised system within ITU-T recommended frequency limits. The synchronisation utilities that co-operate to establish the synchronous clock rate are geographically located to ensure that any point in the BT System is contained within an 18-microsecond phase deviation (wander).Where suitable, the synchronisation feeds may be taken from E1s carrying traffic between the BT and CP Switch Connections.If the CP Switch is taking timing information from the BT Switch an E1 which fails (i.e. AIS is detected) then it must meet the following requirements:Switching synchronisation to an alternative E1 where available. If no such alternative is available, entering holdover mode and keeping within the limits of holdover operation specified in section 2.2.3 of ITU-T Recommendation G.812 (Holdover Operation) until the synchronisation restores. |  |
| Contd… |

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| Test Number | **Test Description** | Part |
| Misc 75 Contd | Synchronisation Check | 1 of 1 |
| **Test Procedure** |
|  The CP Switch does **not** take synchronisation from the BT switch |
| **1** | Monitor the signalling links for a period of 12 hours and ensure that they remain stable and that any errors are within acceptable tolerances |
|  The CP Switch does take synchronisation from the BT switch |
| **1** | Identify which E1 is currently providing the synchronisation |
| **2** | Physically fail the E1 |
| **3** | Confirm that either:Synchronisation switches to an alternative E1 where available;Or:Holdover Operation Mode is established as specified in section 2.2.3 of ITU-T Recommendation G812 |
| **4** | Restore the E1 to service and confirm that direct synchronisation resumes |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  Misc 76 | Congestion Controls Activation Check | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **1** | For routes with UK-ISUP signalling, confirm that congestion control settings (either static or dynamic) correspond to those specified in the relevant Interconnect Provisioning Manual “Appendix 30” agreementN.B. you may wish to confirm these settings with your IRO and/or Data team. |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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| Test Number | Test Description | Part |
|  Misc 77 | Additional Test Requirements From Integration Testing | 1 of 1 |
| NTE Type | NTE Conditions | Direction |
| Originating | Terminating | Originating | Terminating | CP 🡺 BTBT 🡺 CP |
| N/A | N/A | N/A | N/A |
| **Test Procedure** |
| **Note** | This test is designed as a placeholder to record the result of any additional tests which may have been specified during Integration Testing and detailed in Section 8 of the relevant “Interconnect CP Switch Test Report”N.B. you may wish to discuss this test with your IRO or Integration Testing Team. |
| **1** | Obtain a copy of the “Interconnect CP Switch Test Report” for the switch under test |
| **2** | Refer to Section 8 of the report, and if additional testing is required complete parts 3 + 4 below |
| **3** | Unless already specified in the Test Report, agree a suitable test procedure(s) with the other CP and the IRO / Integration Testing Team |
| **4** | Perform testing as per usual practice, and record test results against this test (each individual test result may need to be recorded as 77a, 77b etc.) |
| **Conclusion & Observation** |
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|  |  |  |  | Tick As Appropriate |  |
|  | Completed |  |  |  |
|  |  |  |  |  |
|  | Completed after correction |  |  |  | Due to problem with: | BT |  |  | CP |  |  | Details Below |
|  |  |  |  |  |
|  | Completed with waiver |  |  |  | Waiver Reference |  |
|  |  |  |  |  |
|  | Not Completed  |  |  |  | Due to problem with: | BT |  |  | CP |  |  |
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|  | Notes: |  |
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|  | **End of Section 2** |  |

**3 Reference**

**3.1 Message Library**

Please refer to either the IUP or UK-ISUP Services OTM as appropriate, both of which can be found [here](https://www.btwholesale.com/pages/static/Library/Technical_Documents_and_Procedures/Interconnect_Testing_Manual/index.htm).

**3.2 Glossary**

Please refer to either the IUP or UK-ISUP Services OTM as appropriate (for Message Glossary) or to the Guide OTM (for a General Glossary), all of which can be found [here](https://www.btwholesale.com/pages/static/Library/Technical_Documents_and_Procedures/Interconnect_Testing_Manual/index.htm).

**3.3 Basic Service Marks**

Please refer to the UK-ISUP Services OTM, which can be found [here](https://www.btwholesale.com/pages/static/Library/Technical_Documents_and_Procedures/Interconnect_Testing_Manual/index.htm).

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