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**ND1411:2006/12**

**Signalling**

**NGN OTM 2**

**Operational Test Manual**

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Issue:- 2

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# SIGNALLING OPERATIONAL TEST MANUAL

NICC

Section 2 – Testing

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## 1.0 Document Information

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## 1.2 Document History and Update Process

### 1.2.1 History

Issue	Date	TYPE*	Summary Of Changes
Issue 1	27/10/06	Issue	On TSG 28-day approval.
Issue 2	15/12/06	Issue	Approved for publication, noting there are some updates required during the formal review stage.

### 1.2.2 OTM Update Process

This OTM template will be updated at two specific times in the future. They are –

- when the Quality of Service section can be meaningfully populated,
- when the OTM is used to test IP interconnect in the live environment.

## 1.3 References

Ref no.	Document Reference	Title	Version	Publisher
[1]	ND1612:2006/06	Generic IP Connectivity for PSTN/ISDN Service between UK Next Generation Networks	1	NICC
[2]	ND1017:2006/07	Interworking between Session Initiation Protocol (SIP) and UK ISDN User Part (UK-ISUP)	1	NICC
[3]	ND1613:2006/12	Management of NGN Interconnect: Transport Connectivity Layer		NICC
[4]	ND1701:2006/03	Recommended Standard for the UK National Transmission Plan, NICC.	5	NICC
[5]	ND1610:2006/06	Multi-Service Interconnect of UK Next Generation Networks	1	NICC
[6]	ND1409:2006/12	UK NGN PSTN/ISDN IP Interconnect Pre-Operational Test Guidelines		NICC

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### 1.4 Abbreviations

BGW.....	Border Gateway
CP.....	Communication Provider
EET.....	Equipment Engaged Tone
ICMP.....	Internet Control Message Protocol
NAT.....	Network Address Translation
NGN.....	Next generation Network
NICC.....	Network Interoperability Consultative Committee
OTM.....	Operational Test Manual
PSTN.....	Public Switch Telephony Network
RTCP.....	Real Time Control Protocol
SCTP.....	Stream Control Transmission Protocol
SDP.....	Session Description Protocol
SIP.....	Session Initiation Protocol
VLAN.....	Virtual Local Area Network

## **2.0 Testing**

### **2.1 Document Introduction**

The document contains the agreed UK industry Signalling tests.

### **2.2 Testing Methodology**

#### 2.2.1 Pre-Operational testing

It has been agreed in NICC that CPs must take a responsible approach to testing. This will be achieved by CPs wishing to interconnect to other CPs completing an appropriate level of pre-operational testing before interconnecting to other CPs.

To provide a degree of commonality in the area of pre-operational testing, NICC has published a set of guidelines [6]. This document can be found on the Ofcom web site.

#### 2.2.2 Operational Testing

The Operational Test Manual should be used when interconnecting NGNs at the “ready for service” stage.

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

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

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

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Test Number	Test Description	Part
SIG 01	SCTP	1 of 1
<b>Direction of Test</b> <small>Tick As Appropriate</small> CP A → CP B      CP B → CP A		
<b><u>Test Procedure</u></b>		
1	SCTP set up via a signalling control function in order to test for signalling associations.	
2	Check for valid IP addresses.	
3	Check for NAT functionality.	
4	Activate and check associations at both CP end points.	
<b><u>Expected Results</u></b>		
<b><u>Conclusion &amp; Observation</u></b>		
Completed <input type="checkbox"/> Completed After Correction <input type="checkbox"/> Completed With Waiver <input type="checkbox"/> Not Completed <input type="checkbox"/>  Notes:	<small>Tick As Appropriate</small>	Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>  Waiver Reference <input style="width: 100%;" type="text"/>  Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>
		<small>Details Below</small>

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Test Number	Test Description	Part
SIG 02	SCTP Multi-homing	1 of 1
<b>Direction of Test</b> <small>Tick As Appropriate</small> CP A → CP B      CP B → CP A		
<b>Test Procedure</b>		
1	It is recommended that CPs test the basic IP connectivity between fC1s by “pinging” first (if pings enabled).	
2	For first connection, i.e. when there is no live traffic being carried over the signalling VLAN.	
3	Change the IPsec key at the A end on one signalling VLAN and ensure the signalling continues via the alternate VLAN.	
4	Restore IPsec key and repeat on the alternate VLAN.	
5	Repeat from the B end.	
<b>Expected Results</b>		
<b>Conclusion &amp; Observation</b>		
Completed <input type="checkbox"/> Completed After Correction <input type="checkbox"/> Completed With Waiver <input type="checkbox"/> Not Completed <input type="checkbox"/>  Notes:	<small>Tick As Appropriate</small>	Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>  Waiver Reference <input style="width: 100%;" type="text"/>  Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>
		<small>Details Below</small>



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Test Number	Test Description	Part
SIG 03	Stream Management	1 of 1
<b>Direction of Test</b> <small>Tick As Appropriate</small> CP A → CP B      CP B → CP A		
<b><u>Test Procedure</u></b>		
1	Disable the stream and check for re-routing, checking call clear down	
2	Disable the primary association.	
3	Ensure the SCTP uses the secondary association.	
<b><u>Expected Results</u></b>		
<b><u>Conclusion &amp; Observation</u></b>		
Completed <input type="checkbox"/> Completed After Correction <input type="checkbox"/> Completed With Waiver <input type="checkbox"/> Not Completed <input type="checkbox"/>  Notes:	<small>Tick As Appropriate</small>	Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>  Waiver Reference <input style="width: 100%;" type="text"/>  Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>
		<small>Details Below</small>

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Test Number	Test Description	Part		
SIG 04	SIP Headers	1 of 1		
<b>Direction of Test</b> <small>Tick As Appropriate</small> CP A → CP B      CP B → CP A				
<b><u>Test Procedure</u></b>				
Refer to ND1017 [2] for references to P headers.				
1	SIP Headers – to ensure the correct version of SIP (v2.0), using signalling monitors.			
2	Generate an incoming PSTN call			
3	Check the correct address format.			
4	Check for the specified transport protocol (SCTP).			
5	Check for the correct Max Fwds figure.			
6	Check for the correct P Charging Vector format.			
7	Check the SIP 'from' header field.			
8	Check the 'SIP P-Asserted-Identity.			
9	Check the 'priority headers.			
10	Check for SIP(I) Profile C only.			
<b><u>Expected Results</u></b>				
<b><u>Conclusion &amp; Observation</u></b>				
Completed	<input type="checkbox"/>	<small>Tick As Appropriate</small>		
Completed After Correction	<input type="checkbox"/>			
Completed With Waiver	<input type="checkbox"/>			
Not Completed	<input type="checkbox"/>			
Due to Problem With:		CP A <input type="checkbox"/>	CP B <input type="checkbox"/>	<small>Details Below</small>
Waiver Reference		<input style="width: 100%;" type="text"/>		
Due to Problem With:		CP A <input type="checkbox"/>	CP B <input type="checkbox"/>	
Notes:				

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Test Number	Test Description	Part
SIG 05	SDP	1 of 1
<b>Direction of Test</b> <small>Tick As Appropriate</small> CP A → CP B      CP B → CP A		
<b><u>Test Procedure</u></b>		
1	Generate an incoming PSTN voice call.	
2	Using a Signalling Monitor, check in SDP for – <ul style="list-style-type: none"> <li>The valid codec types signalled (G.711).</li> <li>The correct packetisation (10ms)</li> <li>The absence of non conformant media streams.</li> </ul>	
3	Generate an incoming ISDN voice and an incoming data call.	
4	Using a Signalling Monitor, check in SDP for – <ul style="list-style-type: none"> <li>The valid codec types signalled (G.711, 64kbit A-law and 64kbit Clear mode).</li> <li>The correct packetisation (10ms)</li> <li>The absence of non conformant media streams.</li> </ul>	
<b><u>Expected Results</u></b>		
<b><u>Conclusion &amp; Observation</u></b>		
Completed	<input type="checkbox"/>	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <small>Tick As Appropriate</small> </div> <div style="text-align: center;">                     Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>                      Waiver Reference <input style="width: 100%;" type="text"/>                      Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/> </div> <div style="text-align: right; font-size: small;"> <small>Details Below</small> </div> </div>
Completed After Correction	<input type="checkbox"/>	
Completed With Waiver	<input type="checkbox"/>	
Not Completed	<input type="checkbox"/>	
Notes:		

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Test Number	Test Description	Part
SIG 06	Echo Control	1 of 1
<b>Direction of Test</b> <small>Tick As Appropriate</small> CP A → CP B      CP B → CP A		
<b>Test Procedure</b>		
Refer to ND1017 [2] for Echo Control information.		
<ol style="list-style-type: none"> <li>1 To check the Echo Control flags settings.</li> <li>2 Check the IAM and the ACM to ensure the Echo Control flag is set to 'on'.</li> </ol>		
<b>Expected Results</b>		
<b>Conclusion &amp; Observation</b>		
Completed <input type="checkbox"/> Completed After Correction <input type="checkbox"/> Completed With Waiver <input type="checkbox"/> Not Completed <input type="checkbox"/>  Notes:	Tick As Appropriate	Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>  Waiver Reference <input style="width: 100%;" type="text"/>  Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>
		<small>Details Below</small>

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Test Number	Test Description	Part
SIG 07	Quality of Service	1 of 1
<b>Direction of Test</b> <small>Tick As Appropriate</small> CP A → CP B      CP B → CP A		
<b><u>Test Procedure</u></b>		
1	To be determined	
2		
3		
4		
5		
<b><u>Expected Results</u></b>		
<b><u>Conclusion &amp; Observation</u></b>		
Completed <input type="checkbox"/> Completed After Correction <input type="checkbox"/> Completed With Waiver <input type="checkbox"/> Not Completed <input type="checkbox"/> Notes:	<small>Tick As Appropriate</small>	Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/> Waiver Reference <input style="width: 100%;" type="text"/> Due to Problem With: CP A <input type="checkbox"/> CP B <input type="checkbox"/>
		<small>Details Below</small>

## End of Section 2

**END OF SIGNALLING OTM**