
ND1410:2006/12

Service Transport VLAN

NGN OTM 1

Operational Test Manual

Issue:- 2

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SERVICE TRANSPORT VLAN OPERATIONAL TEST MANUAL

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Section 1 – Document Information

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Normative 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
[1]	ND1017:2006/07	Interworking between Session Initiation Protocol (SIP) and UK ISDN User Part (UK-ISUP)	1	NICC
[2]	ND1613:2006/12	Management of NGN Interconnect: Transport Connectivity Layer		NICC
[3]	ND1701:2006/03	Recommended Standard for the UK National Transmission Plan, NICC.	5	NICC
[6]	ND1610:2006/06	Multi-Service Interconnect of UK Next Generation Networks	1	NICC
[7]	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
NGN.....	Next generation Network
NICC.....	Network Interoperability Consultative Committee
OTM.....	Operational Test Manual
PSTN.....	Public Switch Telephony Network
RTCP.....	Real Time Control Protocol
VLAN.....	Virtual Local Area Network

End of Section 1

2.0 Testing

2.1 Document Introduction

The document contains the agreed UK industry Service Transport VLAN 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 [7]. 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
VLAN 01	Data in the Transmission Cross Connects	1 of 1
Direction of Test <small>Tick As Appropriate</small> CP A → CP B CP B → CP A		
<u>Test Requirement and Procedure</u>		
1	Testing of data in the transmission cross connects to ensure BGW connectivity, typically checking for end to end packet delivery, connectivity ICMP ping tests, send and receive checks, trail connectivity tests and disconnect alarm tests. Additionally checking media resilience, path-disconnect and re-route.	
2	The following preconditions are assumed before testing commences, that: <ul style="list-style-type: none"> The BGWs have been connected to the common transport function. The BGWs have been configured for service. The common transport function has been configured for service. 	
3	Also before testing begins, check: <ul style="list-style-type: none"> Optical/electrical signal on iT4b on the BGWs. Automatic media ping tests/BFD link tests shows “link up”. Perform manual ping tests (if enabled), at least 1000 pings. Verify packet/byte received, sent, dropped, errored counters on iT4b interfaces on peer BGWs. 	
4	i) Ensure no traffic is on the VLAN. ii) Disable VLAN at the CP A end. iii) Ensure an indication is raised at the CP B end in line with the timings shown in Purple Release ND1612 [1] section 8. iv) Restore and apply test in the opposite direction. v) Repeat tests in 3 above.	
<u>Expected Results</u>		
<u>Conclusion & Observation</u>		
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> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Due to Problem With: CP A <input type="checkbox"/> CP <input type="checkbox"/> Waiver Reference <input style="width: 100%;" type="text"/> Due to Problem With: CP A <input type="checkbox"/> CP <input type="checkbox"/> <small>Details Below</small>

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Test Number	Test Description	Part
VLAN 02	Signalling Security	1 of 1
Direction of Test <small>Tick As Appropriate</small> CP A → CP B CP B → CP A		
<u>Test Procedure</u>		
1	Testing authentication, encryption and data integrity - IPsec tunnel set up – part of call set-up, monitor IPsec protocol at the signalling control function for correct function. Note - these tests are a pre-cursor to anything beyond Ethernet level connectivity.	
2	The following preconditions are assumed before testing commences, that: <ul style="list-style-type: none"> The Signalling Border Functions have been connected to the common transport function. The Signalling Border Functions have been configured for service. The common transport function has been configured for service. 	
3	Also before testing begins, check: <ul style="list-style-type: none"> Optical/electrical signal on iT4a on the Signalling Border Functions. The IPsec tunnel is “up”. Perform a sufficient level of manual ping tests to provide confidence that the VLAN is stable. Verify packet/byte received, sent, dropped, errored counters on iT4a interfaces on peer Signalling Border Functions. Ensure IPsec counters are incremented accordingly. 	
4	Confirm whether IPsec is running.	
5	Ensure the signalling path fails when the network key at the A end is changed.	
6	Restore the key at the A end and ensure restoration takes place.	
7	Change the key at the B end, and check that the signalling path fails. Restore if successful.	
<u>Expected Results</u>		
<u>Conclusion & Observation</u>		
Completed	<input type="checkbox"/>	Tick As Appropriate Details Below
Completed After Correction	<input type="checkbox"/>	
Completed With Waiver	<input type="checkbox"/>	
Not Completed	<input type="checkbox"/>	
Notes:		
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"/>		

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Test Number	Test Description	Part
VLAN 03	Quality and resilience of the media stream	1 of 1
Direction of Test <small>Tick As Appropriate</small> CP A → CP B CP B → CP A		
<u>Test Requirement and Procedure</u>		
1	To verify the quality of the media stream using measurements conveyed in the RTCP reports.	
2	Set up voice call lasting a minimum of 60 seconds over the VLAN.	
3	Review the RTCP report, where available, to check quality of call.	
4	Send a succession of long pings over the interface and check packet loss.	
5	Ensure no other traffic is on the VLAN. Disable VLAN at the CP A end.	
6	Ensure an alarm or indication is raised at the CP B end in line with the timings shown in Purple Release ND1612 [1] section 8.	
7	Ensure the voice call is terminated appropriately.	
8	Ensure subsequent calls are handled appropriately.	
9	Ensure a subsequent voice call is completed for multi-path scenarios and EET is returned for single path.	
10	Restore and apply test in the opposite direction.	
<u>Expected Results</u>		
<u>Conclusion & Observation</u>		
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 <input type="checkbox"/> Waiver Reference <input style="width: 100%;" type="text"/> Due to Problem With: CP A <input type="checkbox"/> CP <input type="checkbox"/>
		<small>Details Below</small>

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Test Number	Test Description	Part
VLAN 04	Bandwidth Management Function	1 of 1
Direction of Test <small>Tick As Appropriate</small> CP A → CP B CP B → CP A		
<u>Test Procedure</u>		
1	Bandwidth management functionality – to limit the number of simultaneous calls. Note – this test is valid only after the call testing has been completed.	
2	Check for correct configuration.	
3	At the sending CP, restrict the bandwidth on the PSTN route using the media VLAN (using the bandwidth management function) to only allow a small number of PSTN calls (e.g. 3).	
4	Ensure the next (e.g. 4 th), and any subsequent, call attempts fails with the appropriate message, taking into account any restrictions for emergency calls.	
5	At the receiving CP, repeat the tests detailed in 1, above.	
<u>Expected Results</u>		
<u>Conclusion & Observation</u>		
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
VLAN 05	Quality of Service	1 of 1
Direction of Test <small>Tick As Appropriate</small> CP A → CP B CP B → CP A		
<u>Test Procedure</u>		
1	To be determined	
2		
3		
4		
5		
<u>Expected Results</u>		
<u>Conclusion & Observation</u>		
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 SERVICE
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