University of New Hampshire
InterOperability Laboratory

21 MADBURY RD, SUITE 100 DURHAM, NH 03824 +1-603-862-0090

WWW.IOL.UNH.EDU

TR-255 TEST REPORT

JOHN SMITH
COMPANY NAME
JOHN.SMITH@COMPANYNAME.COM

DEVICE AND TEST PLAN INFORMATION	
Device Under Test (DUT)	Company Name 1234XG
Test Specification/Suite	BBF TR-255 Issue 1, 2013
UNH-IOL Test Result ID	N/A
This testing is based on the Broadband Forum test plan TR-255 Issue 1.	

CONTACT INFORMATION		
GPON Consortium	+1-603-862-2911	pon@iol.unh.edu
Testing Completed by	Mike Tester	mtester@mail.com
Report Created by	Mike Tester	mtester@mail.com
Report Reviewed by	Sam Reviewer	sreviewer@mail.com
Please use Adobe Acrobat to validate the authenticity of this document.		

SUMMARY OF RESULTS

The definition of result types can be found in the Result Key.

Detailed test results including observed behaviors can be found in the Detailed Test Results.

TEST NUMBER & LABEL	RESULTS
6.1.1.1 – Untagged U-interface Test Case (Mandatory):	**PASS**
6.1.1.2 – Priority-tagged U-interface Test Case (Mandatory):	**FAIL**
6.1.1.3 – Q-tagged U-interface Test Case (Mandatory):	**FAIL**
6.1.1.4 – User Isolation Test Case (Mandatory):	**N/T**
6.1.1.5 – Configurable Value of the S-tag TPID Value Test Case (Optional):	**FAIL**
6.1.2.1 - Untagged U-interface, Single Tagged V-interface Test Case (Mandatory):	**FAIL**
6.1.2.2 - Untagged U-interface, Double Tagged V-interface Test Case (Mandatory):	**PASS**
6.1.2.3 - Tagged U-interface, Single Tagged V-interface Test Case (Mandatory):	**FAIL**
6.1.2.4 - Tagged U-interface, Double Tagged V-interface Test Case (Mandatory):	**PASS**
6.1.2.5 - Deactivate MAC learning for 1:1 VLANs Test Case (Mandatory):	**PASS**
6.1.3.1 - Untagged U-interface, Single Tagged V-interface Test Case (Mandatory):	**PASS**
6.1.3.2 - Priority-tagged U-interface, Singled Tagged V-interface Test Case (Mandatory):	**FAIL**
6.1.3.3 - Q-tagged U-interface, Double Tagged V-interface Test Case (Mandatory):	**FAIL**
6.1.3.4 - S-tagged U-interface, Singled Tagged V-interface Test Case (Mandatory):	**FAIL**
6.1.3.5 - Double Tagged U-interface, Double Tagged V-interface Test Case (Mandatory):	**N/S**

6.1.3.6 - Hairpin Turn for VBES at OLT Test Case (Mandatory):	**N/T**
6.2.1.1 - Setting of P-bit Value Based on Received VID (Mandatory):	**PASS**
6.2.1.2 - Setting of P-bit Value Based on Received P-bit (Mandatory):	**PASS**
6.2.1.3 - Setting of P-bit Value Based on Received EtherType (Mandatory):	**N/S**
6.2.1.4 - Setting of P-bit Value Based on UNI Port (Conditionally Mandatory):	**N/T**
6.2.1.5 - Setting of P-bit Value Based on Received DSCP Value (Optional):	**N/S**
6.2.2.1 - Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on P-bit Values (1:1 VLAN, Single User Port) (Mandatory):	**RTC**
6.2.2.2 - Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on VID Values (1:1 VLAN, Single User Port) (Mandatory):	**RTC**
6.2.2.3 - Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on VID & P-bit Values (1:1 VLAN, Single User Port) (Mandatory):	**RTC**
6.2.2.4 - Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on VID, P-bit & U-interface Values (1:1 VLAN, Multiple User Port) (Conditionally Mandatory):	**RTC**
6.2.2.5 - Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on P-bit Values (1:1 VLAN, Single User Port) (Mandatory):	**RTC**
6.2.2.6 - Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on VID Values (1:1 VLAN, Single User Port) (Mandatory):	**RTC**
6.2.2.7 - Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on VID & P-bit Values (1:1 VLAN, Single User Port) (Mandatory):	**RTC**
6.2.2.8 - Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on SVID, CVID & P-bit Values	**RTC**

(1:1 VLAN, Single User Port) (Mandatory):	
6.2.2.9 - Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on VID, P-bit Values & MAC DA (VBES, Single User Port) (Mandatory):	RTC
6.2.2.10 - Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on SVID, CVID & P-bit Values (1:1 VLAN, Multiple User Port) (Conditionally Mandatory):	RTC
6.2.2.11 - Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on VID, P-bit Values & MAC DA (VBES, Multiple User Port) (Conditionally Mandatory):	RTC
6.2.3.1 - Indicating Drop Precedence Using P-bit Upstream (Mandatory):	RTC
6.2.3.2 - Indicating Drop Precedence Using DEI Bit Upstream (Mandatory):	RTC
6.2.3.3 - Indicating Drop Precedence Using P-bits Downstream (Mandatory):	RTC
6.2.3.4 - Indicating Drop Precedence Using DEI Bits Downstream (Mandatory):	RTC
6.3.1 - Downstream Transport of IGMP Messages (Mandatory):	PASS
6.3.2 - Upstream Transport of IGMP Messages (Mandatory):	PASS
6.3.3 - Configurable Discard of Upstream IGMP Messages (Mandatory):	FAIL
6.3.4 - White and Black Listing of Multicast Channels (Mandatory):	FAIL
6.3.5 - Blocking of User Generated Multicast Traffic (Mandatory):	N/T
6.3.6 - Rate-Limiting of User Generated IGMP Messages (Mandatory):	N/S
6.3.7 - IGMPv3 Transparent Snooping Functions (Mandatory):	N/T
6.3.8 - IGMP Immediate Leave (Mandatory):	FAIL
6.3.9 - Discard of User Generated Proxy Query Solicitations (Mandatory):	PASS
6.3.10 – Marking of Upstream IGMP Messages with Ethernet P-bits (Mandatory):	PASS
6.3.11 – Configurable Maximum Number of Simultaneous	FAIL

Multicast Groups (Mandatory):	
6.3.12 – Silent Discard of Upstream IGMPv1 Messages (Mandatory):	**PASS**
6.4.1 – Silent Discard of Frames with Unknown MAC Addresses (Mandatory):	**PASS**
6.4.2 – Flooding of Frames with Unknown MAC Addresses (Mandatory):	**FAIL**
6.4.3 – Silent Discard of Downstream Broadcast Frames (Mandatory):	**N/T**
6.4.4 – Flooding of Downstream Broadcast Frames (Mandatory):	**N/T**
6.5.1 – Test for Providing Service to Users with Duplicate MAC Addresses (Optional):	**N/T**
6.5.2 – Test for Denying Service to Users with Duplicate MAC Addresses (Optional):	**N/T**
6.5.3 – Test for Mechanism to Prevent Broadband Network Gateway MAC Address Spoofing (Optional):	**N/T**
6.5.4 – Test for Mechanism to Handle ARP Broadcasts (Optional):	**N/T**
6.5.5 – Test for Mechanism to Prevent IP Address Spoofing (Optional):	**N/T**
6.5.6 – Test for Mechanism to Prevent MAC Flooding Attacks (Optional):	**N/T**
6.6.1 – MAC Source Address Allowing Filter (Optional):	**N/T**
6.6.2 – MAC Source Address Denying Filter (Optional):	**N/T**
6.6.3 – MAC Destination Address Allowing Filter (Optional):	**N/T**
6.6.4 – MAC Destination Address Denying Filter (Optional):	**N/T**
6.6.5 – Group MAC Destination Address Filter (Optional):	**N/T**
6.6.6 – EtherType Allowing Filter (IPoE) (Optional):	**N/T**
6.6.7 – EtherType Allowing Filter (PPPoE) (Optional):	**N/T**
6.6.8 – EtherType Denying Filter (IPoE) (Optional):	**N/T**
6.6.9 – EtherType Denying Filter (PPPOE) (Optional):	**N/T**

6.7.1 – Basic PPPoE Intermediate Function (Optional):	**N/T**
6.7.2 – PPPoE Intermediate Function Option 82 Overwriting (Optional):	**N/T**
6.7.3 – PPPoE Intermediate Function with Multiple Clients (Optional):	**N/T**
6.7.4 – PPPoE Intermediate Function with Unicast PADI Message (Optional):	**N/T**
6.7.5 – Basic DHCP Relay Agent Functions (Optional):	**N/T**
6.7.6 – DHCP Relay Agent Functions Option 82 Overwriting (Optional):	**N/T**
6.7.7 – DHCP Relay Agent Functions with Multiple Clients (Optional):	**N/T**
6.7.8 – DHCP Relay Agent Functions with Unicast DHCP Discover Message (Optional):	**N/T**
6.8.1 – ONU provisioning According to Serial Number Test Case (Mandatory):	**PASS**
6.8.2 – ONU Provisioning According to the Registration-ID Test Case (Mandatory):	**PASS**
6.9.1 – ONU Bring-up for New ONU (Mandatory):	**PASS**
6.9.2 – ONU Bring-up Method for Old ONU (Mandatory):	**PASS**
6.9.3 – ONU Bring-up Method with Encrypted OMCC (Mandatory):	**N/S**
6.9.4 – MIB Synchronization (Mandatory):	**PASS**
6.10.1 – Alarms Synchronization (Mandatory):	**FAIL**
6.11.1 – Software Download, Valid Image (Mandatory):	**N/T**
6.11.2 – Software Download, Corrupt Image (Mandatory):	**N/T**
6.11.3 – Switch Active Software Instance (Mandatory):	**N/T**
6.11.4 – Switch Committed Software Instance (Mandatory):	**N/T**

TESTING NOTES

The following table contains any notes on the testing process or on general DUT behavior.

NOTES
Test cases requiring 2 ONTs are not tested.
Test section 6.1.3.5 is unsupported because the OLT does not support handling double tagged frames received at the U interface.
Test section 6.2.1.3 is unsupported because the OLT does not support setting P-bit based on the received EtherType.
Test section 6.2.1.5 is unsupported because the OLT does not support setting P-bits based on received DSCP value.
Test sections 6.2.2.2-6.2.2.4, 6.2.2.6-6.2.2.11, and 6.2.3.x are not known to function properly on the OLT. This behavior is currently being investigated by the OLT development team.
Test section 6.3.6 is unsupported because the OLT does not explicitly support rate limiting only IGMP frames.
Test section 6.3.10 is unsupported because the OLT does not support the selective manipulation of IGMP frames.
Test sections 6.4.3 and 6.4.4 are untested because this functionality is currently being investigated by the OLT support team.
Test sections 6.5.x, 6.6.x, and 6.7.x are untested at the request of the ONT vendor.
Test section 6.9.3 is unsupported because the OLT card does not support Advanced Encryption Standard.
Test sections 6.11.x are untested at the request of the ONT vendor.

REVISION HISTORY

The following table contains a revision history for this report.

REVISION	DATE	AUTHOR	EXPLANATION
1.0	05/27/2023	Mike Tester	Initial version

DEVICE UNDER TEST AND INITIALIZATION INFORMATION

The following table contains the state of the DUT during testing.

COMPONENT	DESCRIPTION
Manufacturer and Name	Company Name 1234XG
UNH-IOL Device Identification Number	12345
Speed and Media Type	GPON
Hardware Version	N/A
Firmware Version	1.2.3.001
Software Version	32.1
Serial Number	ABC12345D
Product Category	ONU
Additional Information	None
Additional Commands	None used on DUT during testing

TEST TOOL AND ENVIRONMENT INFORMATION

The following table contains the test tool and test suite versions used during testing.

TOOL	VERSION
Wireshark Version	10.0.0
Spirent Test Center	4.75.1256.0000

ENVIRONMENT	CONDITION
Relative Humidity	53%
Temperature	72 degrees

TARGET DEVICE / INTEROP PARTNER INFORMATION

DEVICE	DESCRIPTION
Chassis	GPON Chassis
Line-Card	ZY4321
Line-Card Software Version	1.2.103.104
Line-Card Serial Number	456789123
Line-Card IOL ID	54321

TEST SETUP

All tests were completed using one of three test setups.

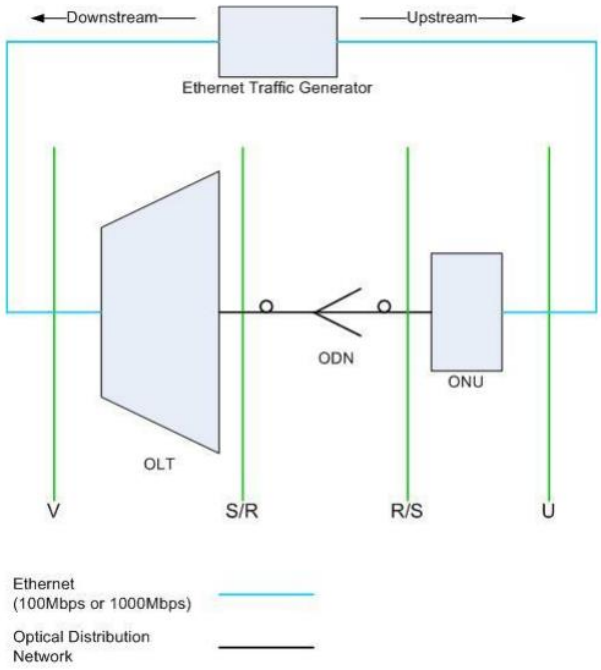

Figure 1 – Setup for tests requiring a single ONU

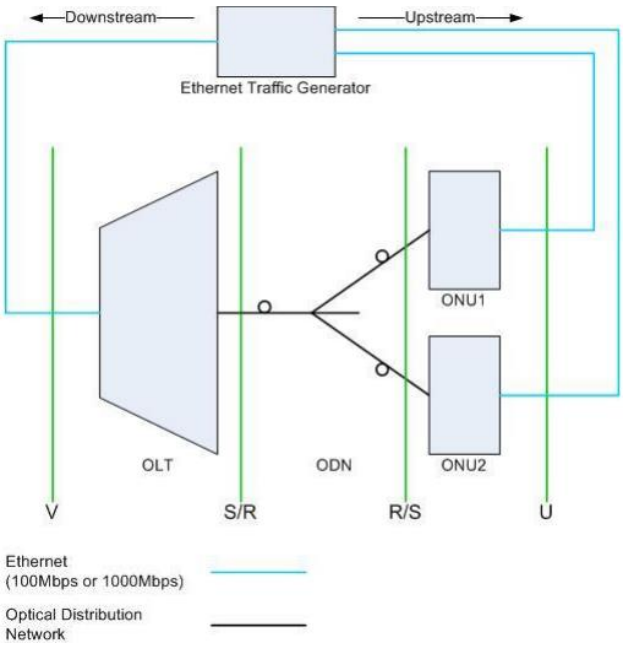

Figure 2 – Setup for tests requiring multiple ONUs

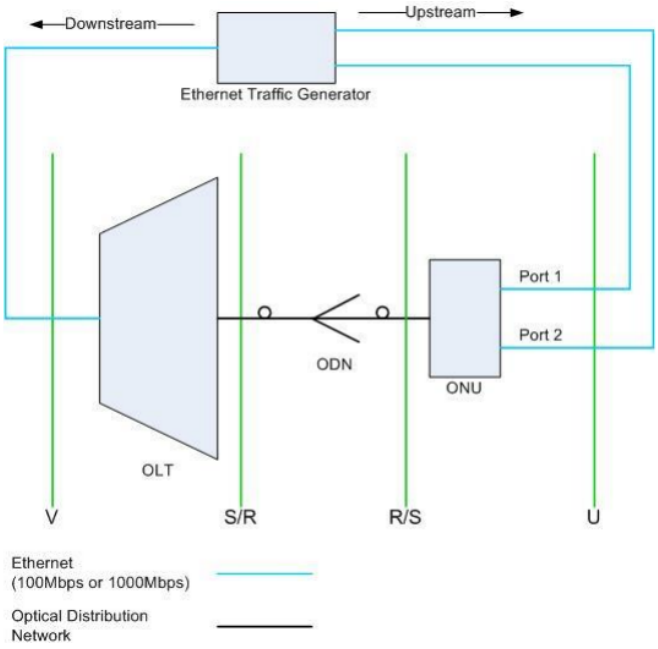

Figure 3 – Setup for tests requiring ONUs supporting multiple U-interfaces

DETAILED TEST RESULTS

6.1 – VLAN MANIPULATION

6.1.1 – N:1 Architecture

6.1.1.1 – Untagged U-interface Test Case

6.1.1.1 – UNTAGGED U-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the N:1 VLAN architecture when the U-interface of the ONU is configured as an untagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID1 and TPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us, C-us, and D-us must be silently discarded (e.g. not received from the V-interface)	**PASS**
Downstream frames from Frame-set A-ds must be received from the U-interface as untagged frames	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.1.1.2 – Priority-tagged U-interface Test Case

6.1.1.2 – PRIORITY-TAGGED U-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the N:1 VLAN architecture when the U-interface of the ONU is configured as a priority-tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID1 and TPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us, C-us, and D-us must be silently discarded (e.g. not received from the V-interface)	**FAIL** ERROR! REFERENCE SOURCE NOT FOUND.
Downstream frames from Frame-set A-ds must be received from the U-interface as priority-tagged frames	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT/ONT combination allowed frames from stream C-us to pass.	

6.1.1.3 – Q-tagged U-interface Test Case

6.1.1.3 – Q-TAGGED U-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the N:1 VLAN architecture when the U-interface of the ONU is configured as a Q-tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID2 and TPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us, C-us, D-us, and E-us must be silently discarded (e.g. not received from the V-interface)	**FAIL**
Downstream frames from Frame-set A-ds must be received from the U-interface as Q-tagged frames, with QVID=VID1 and TPID=0x8100	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT/ONT combination allowed frames from stream D-us to pass.	

6.1.1.4 – User Isolation Test Case

6.1.1.4 – USER ISOLATION TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly implement the user isolation functions required by the N:1 architecture, and that this functionality is configurable.	
PASS/FAIL CRITERIA	RESULTS
After procedure step 6, frames from frame-sets A-us or B-us must not be received from the U-interface	**N/T**
After procedure step 8, frames from frame-sets A-us and B-us must be received from the appropriate U-interface	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested because it requires 2 ONTs.	

6.1.1.5 – Configurable Value of the S-tag TPID Value Test Case

6.1.1.5 – CONFIGURABLE VALUE OF THE S-TAG TPID VALUE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination can configure the TPID value used within an S-tag.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID1 and TPID=0x8100	**PASS**
Upstream frames from Frame-sets B-us, C-us, and D-us must be silently discarded (e.g. not received from the V-interface)	**FAIL**
Downstream frames from Frame-set A-ds must be received from the U-interface as untagged frames	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT/ONT combination allowed frames from stream C-us to pass.	

6.1.2 – 1:1 Architecture

6.1.2.1 – Untagged U-interface, Single Tagged V-interface Test Case

6.1.2.1 – UNTAGGED U-INTERFACE, SINGLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the 1:1 VLAN architecture listed as configuration 4 in Table 6-1, when the U-interface of the ONU is configured as an untagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID1 and TPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us, C-us, and D-us must be silently discarded (e.g. not received from the V-interface)	**FAIL**
Downstream frames from Frame-set A-ds must be received from the U-interface as untagged frames	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT/ONT combination allowed frames from stream C-us to pass.	

6.1.2.2 – Untagged U-interface, Double Tagged V-interface Test Case

6.1.2.2 – UNTAGGED U-INTERFACE, DOUBLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the 1:1 VLAN architecture listed as configuration 5 in Table 6-1, when the U-interface of the ONU is configured as an untagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as double tagged frames, with SVID=VID2, STPID=0x88a8, CVID=VID1, and C-TPID=0x8100	**PASS**
Upstream frames from Frame-sets B-us, C-us, and D-us must be silently discarded (e.g. not received from the V-interface)	**PASS**
Downstream frames from Frame-set A-ds must be received from the U-interface as untagged frames	**PASS**
Downstream frames from Frame-sets B-ds, C-ds, D-ds, E-ds, and F-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.1.2.3 – Tagged U-interface, Single Tagged V-interface Test Case

6.1.2.3 – TAGGED U-INTERFACE, SINGLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the 1:1 VLAN architecture listed as configuration 6 in Table 6-1, when the U-interface of the ONU is configured as a tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID2 and TPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us, C-us, D-us, and E-us must be silently discarded (e.g. not received from the V-interface)	**FAIL**
Downstream frames from Frame-set A-ds must be received from the U-interface as Q-tagged frames, with QVID=VID1 and TPID=0x8100	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT/ONT combination did not silently drop frames from stream D-us with a TPID of 0x88a8.	

6.1.2.4 – Tagged U-interface, Double Tagged V-interface Test Case

6.1.2.4 – TAGGED U-INTERFACE, DOUBLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the 1:1 VLAN architecture listed as configuration 7 in Table 6-1, when the U-interface of the ONU is configured as a tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as double tagged frames, with SVID=VID3, STPID=0x88a8, CVID=VID2, and C-TPID=0x8100	**PASS**
Upstream frames from Frame-sets B-us, C-us, D-us, and E-us must be silently discarded (e.g. not received from the V-interface)	**PASS**
Downstream frames from Frame-set A-ds must be received from the U-interface as Q-tagged frames, with QVID=VID1 and TPID=0x8100	**PASS**
Downstream frames from Frame-sets B-ds, C-ds, D-ds, E-ds, and F-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.1.2.5 – Deactivate MAC Learning for 1:1 VLANs Test Case

6.1.2.5 – DEACTIVATE MAC LEARNING FOR 1:1 VLANS TEST CASE	
PURPOSE	
To verify the OLT can disable MAC learning on VLANs configured for the 1:1 architecture.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us through D-us must be received from the V-interface as S-tagged frames, with SVID=VID1 and TPID=0x88a8	**PASS**
Downstream frames from Frame-set A-ds through D-ds must be received from the U-interface as untagged frames	**PASS**
The bridge forwarding table displayed in step 9 MUST not include any of the MAC addressed used in Frame-sets	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.1.3 – VLANs for Business Ethernet Services

6.1.3.1 – Untagged U-interface, Single Tagged V-interface Test Case

6.1.3.1 – UNTAGGED U-INTERFACE, SINGLE TAGGED V-ITNERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the VBES VLAN architecture listed as configuration 8 in Table 6-1, when the U-interface of the ONU is configured as an untagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID1 and TPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us, C-us, and D-us must be silently discarded (e.g. not received from the V-interface)	**PASS**
Downstream frames from Frame-set A-ds must be received from the U-interface as untagged frames	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.1.3.2 – Priority-tagged U-interface, Single Tagged V-interface Test Case

6.1.3.2 – PRIORITY-TAGGED U-INTERFACE, SINGLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the VBES VLAN architecture listed as configuration 9 in Table 6-1, when the U-interface of the ONU is configured as a priority-tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as S-tagged frames, with SVID=VID1 and TPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us, C-us, and D-us must be silently discarded (e.g. not received from the V-interface)	**FAIL**
Downstream frames from Frame-set A-ds must be received from the U-interface as priority-tagged frames	**PASS**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT/ONT combination allowed frames from stream C-us to pass.	

6.1.3.3 – Q-tagged U-interface, Double Tagged V-interface Test Case

6.1.3.3 – Q-TAGGED U-INTERFACE, DOUBLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the VBES VLAN architecture listed as configuration 10 in Table 6-1, when the U-interface of the ONU is configured as a tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us through D-us must be received from the V-interface as double tagged frames, with SVID=VID1, S-TPID=0x88a8, and CVID=VID2 through VID5, respectively, and TPID=0x8100	**PASS**
Upstream frames from Frame-sets E-us, and F-us must be silently discarded (e.g. not received from the V-interface)	**PASS**
Downstream frames from Frame-set A-ds through D-ds must be received from the U-interface as Q-tagged frames, with QVID=VID2 through VID5, respectively, and TPID=0x8100	**FAIL**
Downstream frames from Frame-sets E-ds, F-ds, G-ds, and H-ds must be silently discarded (e.g. not received from the U-interface)	**FAIL**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
Downstream frames from frame sets A-ds, B-ds, C-ds, and D-ds were all received with QVID=VID2 instead of VID2 through VID5 respectively.	

6.1.3.4 – S-tagged U-interface, Single Tagged V-interface Test Case

6.1.3.4 – S-TAGGED U-INTERFACE, SINGLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the VBES VLAN architecture listed as configuration 11 in Table 6-1, when the U-interface of the ONU is configured as an S-tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the V-interface as single tagged frames, with SVID=VID2, STPID=0x88a8	**PASS**
Upstream frames from Frame-sets B-us through D-us must be silently discarded (e.g. not received from the V-interface)	**FAIL**
Downstream frames from Frame-set A-ds must be received from the U-interface as S-tagged frames, with SVID=VID1 and TPID=0x88a8	**FAIL**
Downstream frames from Frame-sets B-ds and C-ds must be silently discarded (e.g. not received from the U-interface)	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT/ONT combination did not silently drop frames from stream B-us with a TPID of 0x8100. Downstream frames from frame set A-ds were received with a TPID of 0x8100 instead of 0x88a8.	

6.1.3.5 – Double Tagged U-interface, Double Tagged V-interface Test Case

6.1.3.5 – DOUBLE TAGGED U-INTERFACE, DOUBLE TAGGED V-INTERFACE TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the VBES VLAN architecture listed as configuration 12 in Table 6-1, when the U-interface of the ONU is configured as a double-tagged interface.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us through D-us must be received from the V-interface as double tagged frames, with SVID=VID2, S-TPID=0x88a8, and C-VID = VID3 through VID6, respectively, and C-TPID=0x8100	**N/S**
Upstream frames from Frame-sets E-us through H-us must be silently discarded (e.g. not received from the V-interface)	**N/S**
Downstream frames from Frame-set A-ds through D-ds must be received from the U-interface as double-tagged frames, with SVID=VID1, S-TPID=0x88a8, and C-VID = VID3 through VID6, respectively, and C-TPID=0x8100	**N/S**
Downstream frames from Frame-sets E-ds, F-ds, and G-ds must be silently discarded (e.g. not received from the U-interface)	**N/S**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section is unsupported because the OLT does not support handling double tagged frames received at the U interface.	

6.1.3.6 – Hairpin Turn for VBES at OLT Test Case

6.1.3.6 – HAIRPIN TURN FOR VBES AT OLT TEST CASE	
PURPOSE	
To verify the ONU/OLT combination correctly supports/implements the VBES VLAN architecture when the OLT is required to “hairpin turn” upstream traffic received from one ONU, sending the traffic back down the same PON to a second ONU.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us must be received from the U-interface of ONU 2 as untagged Ethernet Frames	**N/T**
Upstream frames from Frame-set B-us must be received from the U-interface of ONU 1 as untagged Ethernet Frames	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested because it requires two ONTs.	

6.2 – QUALITY OF SERVICE FUNCTIONS

6.2.1 – Frame Classification (Derivation and Manipulation of P-bits)

6.2.1.1 – Setting of P-bit Value Based on Received VID

6.2.1.1 – SETTING OF P-BIT VALUE BASED ON RECEIVED VID	
PURPOSE	
Verify the OLT and ONU support setting a fixed P-bit value based on the received VLAN VID values. The behavior is expected to be symmetric in the upstream/downstream directions.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us MUST be received with the P-bit value set to P-bit3	**PASS**
Upstream frames from Frame-set B-us MUST be received with the P-bit value set to P-bit4	**PASS**
Downstream frames from Frame-set A-ds MUST be received with the P-bit value set to P-bit1	**N/A**
Downstream frames from Frame-set B-ds MUST be received with the P-bit value set to P-bit2	**N/A**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
Pass/Fail criteria #3 and #4 are incorrect in the TR-255 test plan. Downstream frames cannot be expected to revert to the original P-bits without also matching on P-bits. Downstream frames are received from the U interface with the P-bits they started with at the traffic generator.	

6.2.1.2 – Setting of P-bit Value Based on Received P-bit

6.2.1.2 – SETTING OF P-BIT VALUE BASED ON RECEIVED P-BIT	
PURPOSE	
Verify the OLT and ONU support setting a fixed P-bit value based on the received p-bit values. The behavior is expected to be symmetric in the upstream/downstream directions.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us MUST be received with the P-bit value set to P-bit4	**PASS**
Upstream frames from Frame-set B-us MUST be received with the P-bit value set to P-bit5	**PASS**
Upstream frames from Frame-set C-us MUST be received with the P-bit value set to P-bit6	**PASS**
Downstream frames from Frame-set A-ds MUST be received with the P-bit value set to P-bit1	**PASS**
Downstream frames from Frame-set B-ds MUST be received with the P-bit value set to P-bit2	**PASS**
Downstream frames from Frame-set C-ds MUST be received with the P-bit value set to P-bit3	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.2.1.3 – Setting or P-bit Value Based on Received EtherType

6.2.1.3 – SETTING OF P-BIT VALUE BASED ON RECEIVED ETHERTYPE	
PURPOSE	
Verify the OLT and ONU support setting a fixed P-bit value based on the received EtherType. The behavior is expected to be symmetric in the upstream/downstream directions.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us MUST be received with the P-bit value set to P-bit3	**N/S**
Upstream frames from Frame-set B-us MUST be received with the P-bit value set to P-bit4	**N/S**
Upstream frames from Frame-set C-us MUST be received with the P-bit value set to P-bit5	**N/S**
Downstream frames from Frame-set A-ds MUST be received with the P-bit value set to P-bit1	**N/S**
Downstream frames from Frame-set B-ds MUST be received with the P-bit value set to P-bit1	**N/S**
Downstream frames from Frame-set C-ds MUST be received with the P-bit value set to P-bit2	**N/S**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This test section is unsupported because the OLT does not support setting P-bit based on the received ethertype.	

6.2.1.4 – Setting of P-bit Value Based on UNI Port

6.2.1.4 – SETTING OF P-BIT VALUE BASED ON UNI PORT	
PURPOSE	
Verify the OLT and ONU support setting a fixed P-bit value based on the UNI port where the frame was received. The behavior is expected to be symmetric in the upstream/downstream directions.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us MUST be received with the P-bit value set to P-bit3	**N/T**
Upstream frames from Frame-set B-us MUST be received with the P-bit value set to P-bit4	**N/T**
Upstream frames from Frame-set C-us MUST be received with the P-bit value set to P-bit5	**N/T**
Downstream frames from Frame-set A-ds MUST be received with the P-bit value set to P-bit1	**N/T**
Downstream frames from Frame-set B-ds MUST be received with the P-bit value set to P-bit2	**N/T**
Downstream frames from Frame-set C-ds MUST be received with the P-bit value set to P-bit1	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.2.1.5 – Setting of P-bit Value Based on Received DSCP Value

6.2.1.5 – SETTING OF P-BIT VALUE BASED ON RECEIVED DSCP VALUE	
PURPOSE	
Verify the OLT and ONU support setting a fixed P-bit value based on the received DSCP value. The behavior is expected to be symmetric in the upstream/downstream directions.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-set A-us MUST be received with the P-bit value set to P-bit3	**N/S**
Upstream frames from Frame-set B-us MUST be received with the P-bit value set to P-bit4	**N/S**
Upstream frames from Frame-set C-us MUST be received with the P-bit value set to P-bit5	**N/S**
Downstream frames from Frame-set A-ds MUST be received with the P-bit value set to P-bit1	**N/S**
Downstream frames from Frame-set B-ds MUST be received with the P-bit value set to P-bit2	**N/S**
Downstream frames from Frame-set C-ds MUST be received with the P-bit value set to P-bit1	**N/S**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT does not support setting P-bits based on received DSCP value.	

6.2.2 – Frame Mapping

6.2.2.1 – Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on P-bit Values (1:1 VLAN, Single User Port)

6.2.2.1 – STRICT PRIORITY UPSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON P-BIT VALUES (1:1 VLAN, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the upstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**PASS**
At step 7: All frames from traffic streams A, B & C are received error free	**FAIL**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**PASS**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**FAIL**
At step 8: All frames from traffic stream A are received error free	**FAIL**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**PASS**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**FAIL**
At step 9: At least some of the frames from traffic stream A are received	**PASS**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**FAIL**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This test was run with P-bits 0-7 on the outer VLAN tag of traffic streams H-A respectively because the OLT cannot prioritize traffic based on inner P-bit. No prioritization behavior was witnessed in the upstream direction.	

6.2.2.2 – Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on VID Values (1:1 VLAN, Single User Port)

6.2.2.2 STRICT PRIORITY UPSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON VID VALUES (1:1 VLAN, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the upstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**FAIL**
At step 7: All frames from traffic streams A, B & C are received error free	**FAIL**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**FAIL**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**FAIL**
At step 8: All frames from traffic stream A are received error free	**FAIL**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**FAIL**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**FAIL**
At step 9: At least some of the frames from traffic stream A are received	**FAIL**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**FAIL**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This test section was run by setting outer P-bits depending on the VLAN ID of the received frame because the OLT cannot prioritize based on VLAN ID alone. The ONT did not allow any frames to pass through traffic streams A-F at any point in the test. The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.3 – Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on VID & P-bit Values (1:1 VLAN, Single User Port)

6.2.2.3 – STRICT PRIORITY UPSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON VID & P-BIT VALUES (1:1 VLAN, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the upstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**N/T**
At step 7: All frames from traffic streams A, B & C are received error free	**N/T**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**N/T**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
At step 8: All frames from traffic stream A are received error free	**N/T**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**N/T**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
At step 9: At least some of the frames from traffic stream A are received	**N/T**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.4 – Strict Priority Upstream Scheduling Among 4 Queues on ONU and OLT Based on VID, P-bit & U-interface Values (1:1 VLAN, Multiple User Port)

6.2.2.4 – STRICT PRIORITY UPSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON VID, P-BIT & U-INTERFACE VALUES (1:1 VLAN, MULTIPLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the upstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**N/T**
At step 7: All frames from traffic streams A, B & C are received error free	**N/T**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**N/T**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
At step 8: All frames from traffic stream A are received error free	**N/T**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**N/T**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
At step 9: At least some of the frames from traffic stream A are received	**N/T**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.5 – Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on P-bit Values (1:1 VLAN, Single User Port)

6.2.2.5 – STRICT PRIORITY DOWNSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON P-BIT VALUES (1:1 VLAN, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the downstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**PASS**
At step 7: All frames from traffic streams A, B & C are received error free	**PASS**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**PASS**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**PASS**
At step 8: All frames from traffic stream A are received error free	**PASS**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**PASS**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**PASS**
At step 9: At least some of the frames from traffic stream A are received	**PASS**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This test was run with P-bits 0-7 on the outer VLAN tag of traffic streams H-A respectively because the OLT cannot prioritize traffic based on inner P-bit.	

6.2.2.6 – Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on VID Values (1:1 VLAN, Single User Port)

6.2.2.6 – STRICT PRIORITY DOWNSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON VID VALUES (1:1 VLAN, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the downstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**N/T**
At step 7: All frames from traffic streams A, B & C are received error free	**N/T**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**N/T**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
At step 8: All frames from traffic stream A are received error free	**N/T**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**N/T**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
At step 9: At least some of the frames from traffic stream A are received	**N/T**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.7 – Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on VID & P-bit Values (1:1 VLAN, Single User Port)

6.2.2.7 – STRICT PRIORITY DOWNSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON VID & P-BIT VALUES (1:1 VLAN, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the downstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**N/T**
At step 7: All frames from traffic streams A, B & C are received error free	**N/T**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**N/T**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
At step 8: All frames from traffic stream A are received error free	**N/T**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**N/T**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
At step 9: At least some of the frames from traffic stream A are received	**N/T**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.8 – Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on SVID, CVID & P-bit Values (1:1 VLAN, Single User Port)

6.2.2.8 – STRICT PRIORITY DOWNSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON SVID, CVID & P-BIT VALUES (1:1 VLAN, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the downstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**N/T**
At step 7: All frames from traffic streams A, B & C are received error free	**N/T**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**N/T**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
At step 8: All frames from traffic stream A are received error free	**N/T**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**N/T**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
At step 9: At least some of the frames from traffic stream A are received	**N/T**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.9 – Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on VID, P-bit Values & MAC DA (VBES, Single User Port)

6.2.2.9 – STRICT PRIORITY DOWNSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON VID, P-BIT VALUES & MAC DA (VBES, SINGLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the downstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent upstream frames of traffic streams from A to H are received at the Ethernet traffic generator, error free	**N/T**
At step 7: All frames from traffic streams A, B & C are received error free	**N/T**
At step 7: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received	**N/T**
At step 7: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
At step 8: All frames from traffic stream A are received error free	**N/T**
At step 8: At least some of the frames from traffic streams B & C (i.e. Traffic Class 2) are received	**N/T**
At step 8: No frame from traffic streams D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
At step 9: At least some of the frames from traffic stream A are received	**N/T**
At step 9: No frame from traffic streams B & C (i.e. Traffic Class 2), D, E & F (i.e. Traffic Class 3) and G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.10 – Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based on SVID, CVID & P-bit Values (1:1 VLAN, Multiple User Port)

6.2.2.10 – STRICT PRIORITY DOWNSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON SVID, CVID & P-BIT VALUES (1:1 VLAN, MULTIPLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the downstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class. To verify that a traffic class can be mapped to a specific U-interface.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent downstream frames of traffic streams from A to C are received at the Ethernet traffic generator, error free at U-interface 1, only U-interface 1 and traffic streams from D to H are received at the Ethernet traffic generator, error free at U-interface 2, only U-interface 2	**N/T**
At step 7: At least some of the frames from traffic stream A (i.e. Traffic Class 1) are received at U-interface 1, only U-interface 1	**N/T**
At step 7: No frame from traffic streams B & C (i.e. Traffic Class 2) is received	**N/T**
At step 8: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received at U-interface 2, only U-interface 2	**N/T**
At step 8: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.2.11 – Strict Priority Downstream Scheduling Among 4 Queues on ONU and OLT Based On VID, P-bit Values & MAC DA (VBES, Multiple User Port)

6.2.2.11 – STRICT PRIORITY DOWNSTREAM SCHEDULING AMONG 4 QUEUES ON ONU AND OLT BASED ON VID, P-BIT VALUES & MAC DA (VBES, MULTIPLE USER PORT)	
PURPOSE	
To verify that the OLT and ONU can support four queues on the downstream direction, that each queue can be assigned to one specific traffic class and that they support strict priority scheduling among those four traffic classes. To verify that multiple traffic streams can be mapped into a specific traffic class. To verify that a traffic class can be mapped to a specific U-interface.	
PASS/FAIL CRITERIA	RESULTS
At step 6: All the sent downstream frames of traffic streams from A to C are received at the Ethernet traffic generator, error free at U-interface 1, only at U-interface 1 and traffic streams from D to H are received at the Ethernet traffic generator, error free at U-interface 2, only at U-interface 2	**N/T**
At step 7: At least some of the frames from traffic stream A (i.e. Traffic Class 1) are received at U-interface 1, only at U-interface 1	**N/T**
At step 7: No frame from traffic streams B & C (i.e. Traffic Class 2) is received	**N/T**
At step 8: At least some of the frames from traffic streams D, E & F (i.e. Traffic Class 3) are received at U-interface 2, only at U-interface 2	**N/T**
At step 8: No frame from traffic streams G & H (i.e. Traffic Class 4) is received	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.3 – Drop Precedence

6.2.3.1 – Indicating Drop Precedence Using P-bit Upstream

6.2.3.1 – INDICATING DROP PRECEDENCE USING P-BIT UPSTREAM	
PURPOSE	
To verify that the OLT and ONU can implement drop precedence using p-bits upstream.	
PASS/FAIL CRITERIA	RESULTS
Verify at the V-interface, that the only packets dropped are from streams marked with drop precedence	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.3.2 – Indicating Drop Precedence Using DEI Bit Upstream

6.2.3.2 – INDICATING DROP PRECEDENCE USING DEI BIT UPSTREAM	
PURPOSE	
To verify that the OLT and ONU can implement drop precedence using DEI bit upstream.	
PASS/FAIL CRITERIA	RESULTS
Verify at the V-interface that the only packets dropped are from streams marked with drop precedence	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.3.3 – Indicating Drop Precedence Using P-bits Downstream

6.2.3.3 – INDICATING DROP PRECEDENCE USING P-BITS DOWNSTREAM	
PURPOSE	
To verify that the OLT and ONU can implement drop precedence using p-bits downstream.	
PASS/FAIL CRITERIA	RESULTS
Verify at the-U-interface, that the only packets dropped are from streams marked with drop precedence	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.2.3.4 – Indicating Drop Precedence Using DEI Bits Downstream

6.2.3.4 – INDICATING DROP PRECEDENCE USING DEI BITS DOWNSTREAM	
PURPOSE	
To verify that the OLT and ONU can implement drop precedence using DEI bit downstream.	
PASS/FAIL CRITERIA	RESULTS
Verify at the-U-interface, that the only packets dropped are from streams marked with drop precedence.	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT is not confirmed to function as per the test plans expectations during this section. This behavior is currently being investigated by the OLT development team.	

6.3 – IGMP CONTROLLED MULTICAST

6.3.1 – Downstream Transport of IGMP Messages

6.3.1 – DOWNSTREAM TRANSPORT OF IGMP MESSAGES	
PURPOSE	
To verify the OLT and ONT combination can deliver and receive downstream IGMP messages.	
PASS/FAIL CRITERIA	RESULTS
The downstream global query message must be received from the U-interface, tagged with VLAN VID 121 and TPID 0x8100	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.3.2 – Upstream Transport of IGMP Messages

6.3.2 – UPSTREAM TRANSPORT OF IGMP MESSAGES	
PURPOSE	
To verify the OLT and ONT combination can deliver and receive upstream IGMP messages.	
PASS/FAIL CRITERIA	RESULTS
The upstream membership report message must be received from the V-interface, tagged with VLAN VID 2121 and TPID 0x88a8	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.3.3 – Configurable Discard of Upstream IGMP Messages

6.3.3 – CONFIGURABLE DISCARD OF UPSTREAM IGMP MESSAGES	
PURPOSE	
To verify the OLT and ONT combination can configure the silent discard of upstream IGMP messages received by the ONU.	
PASS/FAIL CRITERIA	RESULTS
The upstream membership report message must not be received from the V-interface	**FAIL**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The upstream membership report message was received from the V interface.	

6.3.4 – White and Black Listing of Multicast Channels

6.3.4 – WHITE AND BLACK LISTING OF MULTICAST CHANNELS	
PURPOSE	
To verify the OLT and ONT combination can configure both allowed and not-allowed multicast groups.	
PASS/FAIL CRITERIA	RESULTS
The upstream membership report message including Multicast Channel A must be received from the V-interface, tagged with VLAN VID 2121 and TPID 0x88a8	**PASS**
The upstream membership report message including Multicast Channel B must not be received from the V-interface	**FAIL**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The upstream membership report message from channel B was received from the V interface.	

6.3.5 – Blocking of User Generated Multicast Traffic

6.3.5 – BLOCKING OF USER GENERATED MULTICAST TRAFFIC	
PURPOSE	
To verify the OLT and ONT combination can block user generated (received by the UNI port) multicast traffic.	
PASS/FAIL CRITERIA	RESULTS
The upstream multicast frames must not be received from the V-interface	**N/T**
The upstream Multicast frames are not received from the U-interface of ONU2	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section is not tested because it requires 2 ONTs.	

6.3.6 – Rate-Limiting of User Generated IGMP Messages

6.3.6 – RATE-LIMITING OF USER GENERATED IGMP MESSAGES	
PURPOSE	
To verify the OLT and ONT combination can rate-limit IGMP messages received from user-facing ports.	
PASS/FAIL CRITERIA	RESULTS
The upstream IGMP messages must be received from the V-interface and must not be received at a rate higher than 10 messages per second	**N/S**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section is unsupported because the OLT does not explicitly support rate limiting only IGMP frames.	

6.3.7 – IGMPv3 Transparent Snooping Functions

6.3.7 – IGMPV3 TRANSPARENT SNOOPING FUNCTIONS	
PURPOSE	
To verify the OLT and ONT combination implement the IGMPv3 transparent snooping and multicast filtering functions.	
PASS/FAIL CRITERIA	RESULTS
At Step 4, the Ethernet Traffic Generator connected to the U-interface of ONU1 must receive downstream multicast frames from Multicast Channel A	**N/T**
At Step 5, the Ethernet Traffic Generator connected to the U-interface of ONU2 must not receive downstream multicast frames from Multicast Channel A	**N/T**
At Step 7, the Ethernet Traffic Generator connected to the U-interface of ONU2 must receive downstream multicast frames from Multicast Channel B	**N/T**
At Step 8, the Ethernet Traffic Generator connected to the U-interface of ONU1 must not receive downstream multicast frames from Multicast Channel B	**N/T**
Downstream multicast frames from Multicast Channel C must not be received from the U-interface of either ONU	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section is not tested because it requires 2 ONTs.	

6.3.8 – IGMP Immediate Leave

6.3.8 – IGMP IMMEDIATE LEAVE	
PURPOSE	
To verify the OLT and ONT combination implement the IGMP immediate leave functionality.	
PASS/FAIL CRITERIA	RESULTS
At Step 4, the Ethernet Traffic Generator connected to the U-interface of the ONU must receive downstream multicast frames from Multicast Channel A	**FAIL**
At Step 6, the Ethernet Traffic Generator connected to the U-interface of the ONU stops receiving downstream multicast frames from Multicast Channel A within 5 seconds of sending the IGMP leave message	**N/A**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The ONT is able to join the multicast group, but does not receive downstream multicast frames.	

6.3.9 – Discard of User Generated Proxy Query Solicitations

6.3.9 – DISCARD OF USER GENERATED PROXY QUERY SOLICITATIONS	
PURPOSE	
To verify the OLT and ONT combination silently discard user generated IGMPv2 proxy query solicitations.	
PASS/FAIL CRITERIA	RESULTS
The Ethernet Traffic Generator connected to the V-interface of the OLT must not receive the IGMPv2 proxy query solicitation message	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.3.10 – Marking of Upstream IGMP Messages with Ethernet P-bits

6.3.10 – MARKING OF UPSTREAM IGMP MESSAGES WITH ETHERNET P-BITS	
PURPOSE	
To verify the OLT and ONT combination can mark upstream IGMP messages with specific P-bit values.	
PASS/FAIL CRITERIA	RESULTS
The Ethernet Traffic Generator connected to the V-interface of the OLT must receive the IGMP membership report and the Ethernet frame must contain an outer VLAN P-bit value of 0x5	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.3.11 – Configurable Maximum Number of Simultaneous Multicast Groups

6.3.11 – CONFIGURABLE MAXIMUM NUMBER OF SIMULTANEOUS MULTICAST GROUPS	
PURPOSE	
To verify the OLT and ONT combination are able to limit the maximum number of multicast groups a U-interface may join at one time.	
PASS/FAIL CRITERIA	RESULTS
At step 4, the Ethernet Traffic Generator connected to the U-interface begins receiving downstream multicast frames belonging to Multicast Channel A	**FAIL**
At step 6, the Ethernet Traffic Generator connected to the U-interface begins receiving downstream multicast frames belonging to Multicast Channel B	**FAIL**
At step 8, the Ethernet Traffic Generator connected to the U-interface does not begin receiving downstream multicast frames belonging to Multicast Channel C	**FAIL**
At step 10, the Ethernet Traffic Generator connected to the U-interface stops receiving downstream multicast frames belonging to Multicast Channel A	**N/A**
At step 12, the Ethernet Traffic Generator connected to the U-interface begins receiving downstream multicast frames belonging to Multicast Channel C	**N/A**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
ONT does not receive downstream multicast frames after joining a multicast group.	

6.3.12 – Silent Discard of Upstream IGMPv1 Messages

6.3.12 – SILENT DISCARD OF UPSTREAM IGMPV1 MESSAGES	
PURPOSE	
To verify the OLT and ONT combination silently discard upstream IGMPv1 messages.	
PASS/FAIL CRITERIA	RESULTS
The Ethernet Traffic Generator connected to the V-interface of the OLT must not receive the IGMPv1 message	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.4 – NON-IGMP CONTROLLED MULTICAST AND BROADCAST

6.4.1 – Silent Discard of Frames with Unknown MAC Addresses

6.4.1 – SILENT DISCARD OF FRAMES WITH UNKNOWN MAC ADDRESSES	
PURPOSE	
To verify the OLT and ONT combination silently discard downstream frames with destination MAC addresses not currently present in the AN forwarding table, when configured to do so.	
PASS/FAIL CRITERIA	RESULTS
At step 3, the Ethernet Traffic Generator connected to the U-interface of the ONU must receive the downstream frame directed to LAN_Host_1	**PASS**
At step 5, the Ethernet Traffic Generator connected to the U-interface of the ONU must not receive the downstream frame	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.4.2 – Flooding of Frames with Unknown MAC Addresses

6.4.2 – FLOODING OF FRAMES WITH UNKNOWN MAC ADDRESSES	
PURPOSE	
To verify the OLT and ONT combination flood downstream frames with destination MAC addresses not currently present in the AN forwarding table to all ONUs, when configured to do so.	
PASS/FAIL CRITERIA	RESULTS
The Ethernet Traffic Generator connected to the U-interface of the ONU must receive the downstream frame	**FAIL**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
Unknown MAC flooding behavior was confirmed by a known working device under the identical configuration.	

6.4.3 – Silent Discard of Downstream Broadcast Frames

6.4.3 – SILENT DISCARD OF DOWNSTREAM BROADCAST FRAMES	
PURPOSE	
To verify the OLT and ONT combination silently discard downstream broadcast frames, when configured to do so.	
PASS/FAIL CRITERIA	RESULTS
The Ethernet Traffic Generator connected to the U-interface of the ONU must not receive the downstream broadcast frame	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section is untested because this functionality is currently being reviewed by the OLT support team.	

6.4.4 – Flooding of Downstream Broadcast Frames

6.4.4 – FLOODING OF DOWNSTREAM BROADCAST FRAMES	
PURPOSE	
To verify the OLT and ONT combination flood downstream broadcast frames to all ONUs, when configured to do so.	
PASS/FAIL CRITERIA	RESULTS
The Ethernet Traffic Generator connected to the U-interface of the ONU must receive the downstream broadcast frame	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section is untested because this functionality is currently being reviewed by the OLT support team.	

6.5 – SECURITY

6.5.1 – Test for Providing Service to Users with Duplicate MAC Addresses

6.5.1 – TEST FOR PROVIDING SERVICE TO USERS WITH DUPLICATE MAC ADDRESSES	
PURPOSE	
To verify in IOP context that the OLT can provide service to users with duplicate MAC addresses.	
PASS/FAIL CRITERIA	RESULTS
At step 4 the upstream frames are received at the V-interface	**N/T**
At step 6 the downstream frames are received at the proper U-interfaces (as verified by checking the payload marking), with destination MAC addresses equals to MAC2	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.5.2 – Test for Denying Service to Users with Duplicate MAC Addresses

6.5.2 – TEST FOR DENYING SERVICE TO USERS WITH DUPLICATE MAC ADDRESSES	
PURPOSE	
To verify in IOP context that the OLT can deny service to users with duplicate MAC addresses.	
PASS/FAIL CRITERIA	RESULTS
At step 5 the upstream frames are received from one user at the V-interface, but are not received from the other user	**N/T**
At step 7 the downstream frames are received at the user's U-interface, whose upstream frames were received at the V-interface and not at the other user's U-interface	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.5.3 – Test for Mechanism to Prevent Broadband Network Gateway MAC Address Spoofing

6.5.3 – TEST FOR MECHANISM TO PREVENT BROADBAND NETWORK GATEWAY MAC ADDRESS SPOOFING	
PURPOSE	
To verify in IOP context that the OLT can provide a Mechanism to prevent Broadband Network Gateway MAC address spoofing.	
PASS/FAIL CRITERIA	RESULTS
At step 5, all upstream frames are received at the V-interface from U1 interface but not from U2 interface	**N/T**
At step 5, all downstream frames are received at the U1 interface from V-interface	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.5.4 – Test for Mechanism to Handle ARP Broadcasts

6.5.4 – TEST FOR MECHANISM TO HANDLE ARP BROADCASTS	
PURPOSE	
To verify in IOP context that the OLT can discover IP address mappings and ensure that downstream broadcast ARP requests are not sent on U-interfaces that do not have the requested IP address.	
PASS/FAIL CRITERIA	RESULTS
At step 3, no downstream ARP message targeting IP1 is received at interface U2	**N/T**
Following step 3, and step 4 if applicable, an upstream ARP response related to IP1 is received from the V-interface	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.5.5 – Test for Mechanism to Prevent IP Address Spoofing

6.5.5 – TEST FOR MECHANISM TO PREVENT IP ADDRESS SPOOFING	
PURPOSE	
To verify in IOP context that the OLT can discover IP address mappings and ensure that upstream IP packets received from U-interfaces that do not match the configured or DHCP-discovered source IP address are discarded.	
PASS/FAIL CRITERIA	RESULTS
At step 3, packets with source IP address IP1 are received at the V-interface	**N/T**
At step 4, no packet with source IP address IP2 or IP3 is received at the V-interface	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.5.6 – Test for Mechanism to Prevent MAC Flooding Attacks

6.5.6 – TEST FOR MECHANISM TO PREVENT MAC FLOODING ATTACKS	
PURPOSE	
To verify in IOP context that the OLT can limit the number of source MAC addresses learned and forwarded from each user port and that this limit is configurable.	
PASS/FAIL CRITERIA	RESULTS
Ethernet traffic with source MAC addresses 1 to N is received at the V-interface	**N/T**
No Ethernet traffic with source MAC address N+1 is received at the V-interface	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6 – FILTERING

6.6.1 – MAC Source Address Allowing Filter

6.6.1 – MAC SOURCE ADDRESS ALLOWING FILTER	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure ONU to allow access of Ethernet frames with a specified MAC source address, by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-Set A shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream frames shall be silently discarded	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.2 – MAC Source Address Denying Filter

6.6.2 – MAC SOURCE ADDRESS DENYING FILTER	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure ONU to deny access of Ethernet frames with a specified MAC source address, by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
If Test Setup1 is in use, upstream frames from Frame-Set A shall be silently discarded. All other upstream frames shall be received at V-Interface by the Ethernet Traffic Generator	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.3 – MAC Destination Address Allowing Filter

6.6.3 – MAC DESTINATION ADDRESS ALLOWING FILTER	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure ONU to allow access for Ethernet frames with the specified MAC destination address, by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
If Test Setup1 is in use, upstream frames from Frame-Set A shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream shall be silently discarded	**N/T**
If Test Setup2 is in use, upstream frames from Frame-Set A and B shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream shall be silently discarded	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.4 – MAC Destination Address Denying Filter

6.6.4 – MAC DESTINATION ADDRESS DENYING FILTER	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure ONU to deny access for Ethernet frames with the specified MAC destination address, by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
If Test Setup1 is in use, upstream frames from Frame-Set A shall be silently discarded. All other upstream frames shall be received at V-Interface by the Ethernet Traffic Generator	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.5 – Group MAC Destination Address Filter

6.6.5 – GROUP MAC DESTINATION ADDRESS FILTER	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure ONU to filter Ethernet frames with the reserved group MAC destination addresses, by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
If Test Setup1 is in use, upstream frames from Frame-Set A shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream shall be silently discarded	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.6 – EtherType Allowing Filter (IPoE)

6.6.6 – ETHERTYPE ALLOWING FILTER (IPOE)	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure a single U-interface on an ONU to access a specific EtherType frame (e.g. IPoE), by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-Set A shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream frames shall be silently discarded	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.7 – EtherType Allowing Filter (PPPoE)

6.6.7 – ETHERTYPE ALLOWING FILTER (PPPOE)	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure a single U-interface on an ONU to allow access for specific EtherType frames (e.g. PPPoE), by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-Set B & C shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream frames shall be silently discarded	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.8 – EtherType Denying Filter (IPoE)

6.6.8 – ETHERTYPE DENYING FILTER (IPOE)	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure a single U-interface on an ONU to deny a specified EtherType frame access (e.g. IPoE), by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-Set B & C shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream frames shall be silently discarded	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.6.9 – EtherType Denying Filter (PPPoE)

6.6.9 – ETHERTYPE DENYING FILTER (PPPOE)	
PURPOSE	
Verify the OMCI interoperability between OLT and ONU, that OLT can configure a single U-interface on an ONU to deny a specified EtherType frame access (e.g. PPPoE), by sending Ethernet traffic in upstream direction using Ethernet Traffic Generator and checking at the Ethernet Traffic Generator that all received Ethernet traffic is filtered.	
PASS/FAIL CRITERIA	RESULTS
Upstream frames from Frame-Set A shall be received at V-Interface by the Ethernet Traffic Generator. All other upstream frames shall be silently discarded	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7 – PORT IDENTIFICATION AND CHARACTERIZATION

6.7.1 – Basic PPPoE Intermediate Function

6.7.1 – BASIC PPPOE INTERMEDIATE FUNCTION	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for the PPPoE discovery phase.	
PASS/FAIL CRITERIA	RESULTS
The PADI message captured at the PPPoE server interface must include the Option 82 data, including the correct Circuit ID and Remote ID previously provisioned	**N/T**
The PADO message captured at the LAN Host interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7.2 – PPPoE Intermediate Function Option82 Overwriting

6.7.2 – PPPOE INTERMEDIATE FUNCTION OPTION 82 OVERWRITING	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for the PPPoE discovery phase. If the upstream PPPoE discovery messages already contain the Option 82 data, this data is overwritten with the appropriate value.	
PASS/FAIL CRITERIA	RESULTS
The PADI message captured at the PPPoE server interface must include the Option 82 data, including the correct Circuit ID and Remote ID previously provisioned	**N/T**
The PADO message captured at the LAN Host interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7.3 – PPPoE Intermediate Function with Multiple Clients

6.7.3 – PPPOE INTERMEDIATE FUNCTION WITH MULTIPLE CLIENTS	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for the PPPoE discovery phase for multiple clients.	
PASS/FAIL CRITERIA	RESULTS
The PADI message captured at the PPPoE server interface must include the Option 82 data, including the correct Circuit ID previously provisioned	**N/T**
The PADI message captured at the PPPoE server interface must include the Option 82 data, including the correct Remote ID as an empty string	**N/T**
The PADO message captured at the LAN Hosts interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7.4 – PPPoE Intermediate Function with Unicast PADI Message

6.7.4 – PPPOE INTERMEDIATE FUNCTION WITH UNICAST PADI MESSAGE	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for the PPPoE discovery phase when the PADI message is unicast to the PPPoE Server.	
PASS/FAIL CRITERIA	RESULTS
The PADI message captured at the PPPoE server interface must include the Option 82 data, including the correct Circuit ID and Remote ID previously provisioned	**N/T**
The PADO message captured at the LAN Hosts interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7.5 – Basic DHCP Relay Agent Functions

6.7.5 – BASIC DHCP RELAY AGENT FUNCTIONS	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for DHCP messages.	
PASS/FAIL CRITERIA	RESULTS
The Discover message captured at the DHCP server interface must include the Option 82 data, including the correct Circuit ID and Remote ID previously provisioned	**N/T**
The Offer message captured at the LAN Host interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7.6 – DHCP RELAY AGENT FUNCTIONS OPTION 82 OVERWRITING	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for DHCP messages. If the upstream DHCP discovery messages already contain the Option 82 data, this data is overwritten with the appropriate value.	
PASS/FAIL CRITERIA	RESULTS
The Discover message captured at the DHCP server interface must include the Option 82 data, including the correct Circuit ID and Remote ID previously provisioned in step 1	**N/T**
The Offer message captured at the LAN Host interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7.7 – DHCP Relay Agent Functions with Multiple Clients

6.7.7 – DHCP RELAY AGENT FUNCTIONS WITH MULTIPLE CLIENTS	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for DHCP messages for multiple clients.	
PASS/FAIL CRITERIA	RESULTS
The Discover message captured at the DHCP server interface must include the Option 82 data, including the correct Circuit ID previously provisioned in step 1	**N/T**
The Discover message captured at the DHCP server interface must include the Option 82 data, including the correct Remote ID of an empty string (no value)	**N/T**
The Offer message captured at the LAN Hosts interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.7.8 – DHCP Relay Agent Functions with Unicast DHCP Discover Message

6.7.8 – DHCP RELAY AGENT FUNCTINOS WITH UNICAST DHCP DISCOVER MESSAGE	
PURPOSE	
To verify the OLT/ONT combination supports the insertion and removal of the Agent Circuit ID and Agent Remote ID as described in TR-156 and TR-101 for unicast DHCP messages.	
PASS/FAIL CRITERIA	RESULTS
The Discover message captured at the DHCP server interface must include the Option 82 data, including the correct Circuit ID and Remote ID previously provisioned	**N/T**
The Offer message captured at the LAN Hosts interface must not include the Option 82 data	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.8 – INITIAL PROVISIONING OF ONU

6.8.1 – ONU Provisioning According to Serial Number Test Case

6.8.1 – ONU PROVISIONING ACCORDING TO SERIAL NUMBER TEST CASE	
PURPOSE	
To verify that the ONU can reach the state O5 using the serial number method, and that the OMCC is established and activated.	
PASS/FAIL CRITERIA	RESULTS
The OLT and ONU are synchronized (O5 state) following serial number method (at step 3)	**PASS**
The ONU reboots at step 4	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.8.2 – ONU Provisioning According to the Registration-ID Test Case

6.8.2 – ONU PROVISIONING ACCORDING TO THE REGISTRATION-ID TEST CASE	
PURPOSE	
To verify that the ONU can reach the state O5 using the registration-ID mechanism, and that the OMCC is established and activated.	
PASS/FAIL CRITERIA	RESULTS
The OLT and ONU are synchronized (O5 state) following serial number method (at step 3)	**PASS**
The ONU reboots at step 4	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.9 – ONU BRING-UP

6.9.1 – ONU Bring-up For New ONU

6.9.1 – ONU BRING-UP FOR NEW ONU	
PURPOSE	
To verify that the OLT and ONU correctly complete the ONU Bring-up method as described in ITU-T G.988. A new ONU is defined as an ONU that has never completed the OLT's MIB synchronization process.	
PASS/FAIL CRITERIA	RESULTS
Once ONU activation is completed, the ONU's serial number and status MUST be reported as active by the OLT's management interface	**PASS**
After step 4, the OMCC has been established and the ONU MIB upload has been completed, the ONU MIB MUST be available from the OLT management interface	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.9.2 – ONU Bring-up Method for Old ONU

6.9.2 – ONU BRING-UP METHOD FOR OLD ONU	
PURPOSE	
To verify the OLT and ONU can perform the methods necessary to bring up an ONU that was previously connected to the OLT.	
PASS/FAIL CRITERIA	RESULTS
Once ONU activation is completed, the ONU's serial number and status MUST be reported as active by the OLT's management interface	**PASS**
After step 4, the OMCC has been established and the ONU MIB upload has been completed, the ONU MIB MUST be available from the OLT management interface	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.9.3 – ONU Bring-up Method with Encrypted OMCC

6.9.3 – ONU BRING-UP METHOD WITH ENCRYPTED OMCC	
PURPOSE	
To verify that the OLT and ONU correctly complete the ONU Bring-up method as described in ITU-T G.988, when the OLT has been configured to use encrypted OMCC channels. A new ONU is defined as an ONU that has never completed the OLT's MIB synchronization process.	
PASS/FAIL CRITERIA	RESULTS
Once ONU activation is completed, the ONU's serial number and status MUST be reported as active by the OLT's management interface	**N/S**
After step 4, the OMCC has been established and the ONU MIB upload has been completed, the ONU MIB MUST be available from the OLT management interface	**N/S**
If the optional GPON Analyzer is being used, it MUST report the OLT and ONU are using an AES encrypted OMCC channel	**N/S**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The OLT does not support AES.	

6.9.4 – MIB Synchronization

6.9.4 – MIB SYNCHRONIZATION	
PURPOSE	
The purpose of this test is to verify that the ONU and the OLT can synchronize their MIB in case of MIB desynchronization.	
PASS/FAIL CRITERIA	RESULTS
The frames between V and U-interface are passing in both direction at step 3	**PASS**
The frames between V and U-interface are passing in both direction at step 6	**PASS**
The frames between V and U-interface are blocked in both direction at step 10	**PASS**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
None.	

6.10 - ALARMS

6.10.1 – Alarms Synchronization

6.10.1 – ALARMS SYNCHRONIZATION	
PURPOSE	
The purpose of this test is to verify firstly that the ONU can send an alarm to the OLT in case of trouble and that the OLT is detecting it. Then the second part of the test case will verify that after a fiber disconnection and reconnection or an electrical power-off of the ONU, alarms synchronization between OLT and ONU is performed.	
PASS/FAIL CRITERIA	RESULTS
The OLT detects the alarm (at step 2)	**FAIL**
The OLT detects the alarm recovery (at step 4)	**N/A**
The OLT detects the alarm after a fiber re-connection (at step 8)	**N/A**
The OLT detects the alarm recovery after an electrical reboot (at step 12)	**N/A**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
The alarm at step 2 (ethernet disconnect) was not detected by the OLT.	

6.11 SOFTWARE DOWNLOAD

6.11.1 – Software Download, Valid Image

6.11.1 – SOFTWARE DOWNLOAD, VALID IMAGE	
PURPOSE	
The purpose of this test is to verify that the OLT can upgrade ONU software.	
PASS/FAIL CRITERIA	RESULTS
OLT reports successful software download (at step 1)	**N/T**
OLT can send active software and the ONU activates software (at step 3)	**N/T**
OLT can send commit software and the ONU committed software (at step 5)	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.11.2 – Software Download, Corrupt Image

6.11.2 – SOFTWARE DOWNLOAD, CORRUPT IMAGE	
PURPOSE	
The purpose of this test is to verify an OLT and ONT will continue to operate in the event a corrupt software image is loaded to the ONT (the ONT should fall back to the alternate software image).	
PASS/FAIL CRITERIA	RESULTS
If supported by the OLT, at least one software instance must be listed as committed, active, and valid (step 2)	**N/T**
The ONU must be able to re-range with the OLT once requested to activate the corrupted software image, without human interaction. This process may require the ONU to autonomously reboot multiple times to attempt to boot the new software image (step 6)	**N/T**
If supported by the OLT, verify the newly downloaded software image is listed as invalid (step 8)	**N/T**
The ONU must reboot in the original software version automatically (step 10)	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.11.3 – Switch Active Software Instance

6.11.3 – SWITCH ACTIVE SOFTWARE INSTANCE	
PURPOSE	
The purpose of this test is to verify an OLT can cause the ONT to switch its active software instance when two valid images are present.	
PASS/FAIL CRITERIA	RESULTS
If supported by the OLT, at least one software instance must be listed as committed, active, and valid (step 2)	**N/T**
The ONU must be able to re-range with the OLT once the activate software image has completed, without human interaction. This process may require the ONU to autonomously reboot to attempt to boot the new software image (step 4)	**N/T**
If supported by the OLT, verify the second software image is listed as active and the first software image is listed as committed (first and second do not imply specific instance numbers) (step 5)	**N/T**
The ONU must reboot in the original software version automatically (step 7)	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

6.11.4 – Switch Committed Software Instance

6.11.4 – SWITCH COMMITTED SOFTWARE INSTANCE	
PURPOSE	
The purpose of this test is to verify an OLT can cause the ONT to switch its committed software instance when two valid images are present.	
PASS/FAIL CRITERIA	RESULTS
If supported by the OLT, at least one software instance must be listed as committed, active, and valid (step 2)	**N/T**
The ONU must be able to re-range with the OLT once the activate software image has completed, without human interaction. This process may require the ONU to autonomously reboot to attempt to boot the new software image (step 4)	**N/T**
If supported by the OLT, verify the second software image is listed as active and the first software image is listed as committed (first and second do not imply specific instance numbers) (step 5)	**N/T**
The ONU must reboot in the original software version automatically (step 8)	**N/T**
If supported by the OLT, verify the second software image is listed as active and committed	**N/T**
OBSERVED BEHAVIOR & ADDITIONAL COMMENTS	
This section was not tested at the request of the ONT vendor.	

APPENDICES

APPENDIX 1: RESULT KEY

The following table contains possible results and their meanings.

RESULT	MEANING	INTERPRETATION
PASS	Pass	The Device Under Test (DUT) was observed to exhibit conformant behavior.
PWC	Pass with Comments	The Device Under Test (DUT) was observed to exhibit conformant behavior, however changes were made to the normal test procedure or the behavior observed requires additional comments.
FAIL	Fail	The Device Under Test (DUT) was observed to exhibit non-conformant behavior.
RTC	Refer to Comments	From the observations, a valid pass or fail was not determined. An additional explanation of the situation is included.
INFO	Informative	Test is designed for informational purposes only. The results may help ensure the interoperability of the DUT but are not standards requirements.
WARN	Warning	The DUT was observed to exhibit behavior that is not recommended.
N/A	Not Applicable	This test does not apply to the device type or is not applicable to the testing program selected.
N/S	Not Supported	The Device Under Test (DUT) was not observed to support the necessary functionality required to perform these tests or the requirement is optional and not supported by this device.
N/T	Not Tested	This test was not performed and therefore this is not a complete test report. Please see the comments for additional reasons.
UA	Unavailable	The test was not performed due to limitation of the test tool(s) or interoperable systems, or the test methodology is still under development.

APPENDIX 2: DIGITAL SIGNATURE INFORMATION

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