



Ethernet in the First Mile Consortium

Clause 57 OAM Conformance Test Suite v0.9.2 Report

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Report Rev. 1.0

Enclosed are the results from the Clause 57 OAM Conformance testing performed on:

Device Under Test (DUT): LMNOP module in the XYZ chassis
Hardware Version: 1.2.0.4
Firmware Version: 3.1.4.1
Software Version: 2.0.8.6
Miscellaneous: Access Port 1, 100BASE-LX10 interface tested

The test suite referenced in this report is available at the UNH-IOL website:

http://www.iol.unh.edu/testsuites/efm/conformance/Clause_57_OAM_Conformance_Test_Suite_v0.9.1.pdf

Issues Observed While Testing
57.1.2 – Invalid OAMPDU Formats: The DUT accepts OAMPDUs sent to the unicast Destination Address
57.1.5 – Maximum Advertised OAMPDU Size: The DUT could not accept OAMPDUs up to the negotiated size.
57.2.1 – Properly Encapsulated Information OAMPDUs: The DUT transmits OAMPDUs with VLAN Tags.
57.2.3 – Maximum Advertised OAMPDU: The DUT transmits OAMPDUs larger than Maximum OAMPDU Size.
57.3.6 – Remote Unstable: The DUT still receives and transmits non-Information OAMPDUs when the remote OAM device is indicating that it is unstable.
57.3.7 – Local Unsatisfied: The DUT did not indicate its dissatisfaction with the link with the proper Local Stable and Local Evaluating flags value.
57.3.10 – Unstable Non-Information OAMPDU Reception: The DUT did not interpret the remote device's unstable condition with the reception of non-Information OAMPDUs.
57.5.2 – Unidirectional Traffic: The DUT transmits MAC client data while in unidirectional mode.
57.7.1 – Properly Encapsulated Variable Request OAMPDUs: The DUT transmits OAMPDUs with VLAN Tags.
57.8.1 – Properly Encapsulated Variable Response OAMPDUs: The DUT transmits OAMPDUs with VLAN Tags.
57.9.1 – Properly Encapsulated Loopback Control OAMPDUs: The DUT transmits OAMPDUs with VLAN Tags.
57.9.3.1 – Initiation – Master Starts: The DUT did not stop all MAC client data before starting loopback operation.
57.9.3.2 – Initiation – Slave Acknowledges: The DUT sent the acknowledgement of loopback initiation OAMPDU before setting the correct state variables.
57.9.3.4 – Simultaneous Initiation: The DUT accepted a loopback from a remote device with a smaller address.
57.9.5.1 – Exiting – Master Starts: The DUT did not stop all MAC client data before exiting loopback operation.
57.9.5.2 – Exiting – Slave Acknowledges: The DUT sent the acknowledgement of loopback exiting OAMPDU before setting the correct state variables.

For specific details regarding issues please see the corresponding test result.

Testing Completed 01/21/2005

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Review Completed 01/21/2005

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Result Key

The following table contains possible results and their meanings:

Result	Interpretation
PASS	The Device Under Test (DUT) was observed to exhibit conformant behavior.
PASS with Comments	The DUT was observed to exhibit conformant behavior however an additional explanation of the situation is included, such as due to time limitations only a portion of the testing was performed.
FAIL	The DUT was observed to exhibit non-conformant behavior.
Warning	The DUT was observed to exhibit behavior that is not recommended.
Informative	Results are for informative purposes only and are not judged on a pass or fail basis.
Refer to Comments	From the observations, a valid pass or fail could not be determined. An additional explanation of the situation is included.
Not Applicable	The DUT does not support the technology required to perform these tests.
Not Available	Due to testing station or time limitations, the tests could not be performed.

GROUP 1: OAMPDU Reception

Test # and Label	Part(s)	Result(s)
57.1.1 – OAMPDUs with FCS Errors	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT detects frames with frame check sequence (FCS) errors.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should detect and discard OAMPDUs with incorrect values in the FCS field, and, if clause 30 is implemented, log a FCS error. b. The reception of OAMPDUs with FCS error should not affect the reception of valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to discard OAMPDUs with incorrect values in the FCS field. The DUT was observed to increment the “RxFCSError” counter. b. The reception of OAMPDUs with FCS errors did not affect the reception of valid frames. 		

Test # and Label	Part(s)	Result(s)												
57.1.2 – Invalid OAMPDU Formats	a	FAIL												
	b	PASS												
Expected Results and Procedural Comments														
<p>Purpose: To verify that the DUT detects and discards invalid OAMPDUs.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Test Frame</th> <th style="text-align: center;">Description</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>OAMPDU with an incorrect Destination Address (01-80-C2-00-00-01)</td> </tr> <tr> <td style="text-align: center;">2</td> <td>OAMPDU with the unicast Destination Address of the DUT</td> </tr> <tr> <td style="text-align: center;">3</td> <td>OAMPDU with an incorrect Length/Type value (0x8808)</td> </tr> <tr> <td style="text-align: center;">4</td> <td>OAMPDU with an incorrect Subtype value (0x02)</td> </tr> <tr> <td style="text-align: center;">5</td> <td>OAMPDU with a QTag Prefix value (0x81000001)</td> </tr> </tbody> </table> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should detect and discard all Test Frames, and, if clause 30 is implemented, log any and all appropriate errors. b. The reception of these test frames should not affect the reception of valid frames. 			Test Frame	Description	1	OAMPDU with an incorrect Destination Address (01-80-C2-00-00-01)	2	OAMPDU with the unicast Destination Address of the DUT	3	OAMPDU with an incorrect Length/Type value (0x8808)	4	OAMPDU with an incorrect Subtype value (0x02)	5	OAMPDU with a QTag Prefix value (0x81000001)
Test Frame	Description													
1	OAMPDU with an incorrect Destination Address (01-80-C2-00-00-01)													
2	OAMPDU with the unicast Destination Address of the DUT													
3	OAMPDU with an incorrect Length/Type value (0x8808)													
4	OAMPDU with an incorrect Subtype value (0x02)													
5	OAMPDU with a QTag Prefix value (0x81000001)													
Comments on Test Results														
<ol style="list-style-type: none"> a. The DUT was observed to accept OAMPDUs destined for the unicast address of the DUT. The DUT was observed to discard all other test frames. b. The reception of the test frames did not affect the reception of valid frames. 														

Test # and Label	Part(s)	Result(s)
57.1.3 – Fragments and Runts	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT detects and discards fragments and runt OAMPDUs.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should detect and discard all received fragments, and indicate this in its statistics. b. The DUT should detect and discard all received runt OAMPDUs, and indicate this in its statistics. c. The reception of fragments and runt OAMPDUs should not affect the reception of valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to accept fragments. No DUT statistic was observed to be incremented. b. The DUT was not observed to accept runt OAMPDUs. The DUT was observed to increment the “RxFrameTooShort” counter c. The reception of fragments and runt OAMPDUs did not affect the reception of valid frames. 		

Test # and Label	Part(s)	Result(s)
57.1.4 – Minimum OAMPUD Size	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT accepts OAMPDUs at least minFrameSize in length.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should accept OAMPDUs of minFrameSize in length. b. The reception of minFrameSize OAMPDUs should not affect the reception of the valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to accept OAMPDUs of minFrameSize in length. b. The reception of minFrameSize OAMPDUs did not affect the reception of valid frames. 		

Test # and Label	Part(s)	Result(s)
57.1.5 – Maximum Advertised OAMPDU Size	a	PASS
	b	FAIL
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT accepts OAMPDUs up to and including the advertised Maximum OAMPDU Size.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> The DUT should accept all received OAMPDUs up to and including the Maximum OAMPDU Size for the link. The reception of OAMPDUs up to and including the Maximum OAMPDU Size for the link should not affect the reception of valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> The DUT was observed to receive OAMPDUs up to and including the Maximum OAMPDU Size for the link, which was negotiated to the DUT's default value (512 bytes). The reception of OAMPDUs between minFrameSize and 128 bytes did not affect the reception of valid frames. However the reception of OAMPDUs between 129 and 512 bytes caused the DUT to discard the first valid frame received after the OAMPDU. 		

Test # and Label	Part(s)	Result(s)
57.1.6 – Reserved Flags with Values	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT ignores values within the reserved portion of the Flags field.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> The DUT should accept OAMPDUs with values in the reserved portion of the Flags field. The DUT should not respond differently to these OAMPDUs. The reception of OAMPDUs with values in the reserved portion of the Flags field should not affect the reception of valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> The DUT was observed to accept OAMPDUs with values in the reserved portion of the Flags field. The DUT was observed to respond normally to these OAMPDUs. The reception of OAMPDUs with values in the reserved portion of the Flags field did not affect the reception of valid frames. 		

Test # and Label	Part(s)	Result(s)
57.1.7 – Invalid Local Stable and Evaluating Flags	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly handles the reception of invalid Local Stable and Evaluating flags.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should accept all OAMPDUs with both the Local Stable and Evaluating flags set high. The reception of these OAMPDUs should not affect the current status of the OAM Discovery process. b. The DUT should transmit all OAMPDUs with both the Remote Stable and Evaluating flags set high. c. The reception of OAMPDUs with both the Local Stable and Evaluating flags set high should not affect the reception of valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to accept OAMPDUs with both the Local Stable and Local Evaluating flags set high. The reception of these OAMPDUs did not affect the current status of the OAM Discovery process. b. The DUT was observed to transmit all following OAMPDU with the Remote Stable and Evaluating flags set high. c. The reception of OAMPDUs with both the Local Stable and Local Evaluating flags set high did not affect the reception of valid frames. 		

Test # and Label	Part(s)	Result(s)
57.1.8 – End of TLV and Variable Markers	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly handles a number of different end of TLV and Variable markers.</p> <p>Test Procedure: See test suite for exact procedure.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should accept each test frame and ignore any content after the end of TLV marker. b. The DUT should accept each test frame and ignore any content after the end of Variable marker. c. The reception of test frames should not affect the reception of the valid request frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to accept each test frame and ignore all content after the end of TLV marker. b. The DUT was observed to accept each test frame and ignore all content after the end of Variable marker. c. The reception of test frames did not affect the reception of valid frames. 		

Test # and Label	Part(s)	Result(s)
57.1.9 – TLVs with Incorrect Lengths	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT discards OAMPDUs containing TLVs with incorrect Length fields.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should accept all OAMPDUs containing TLVs with incorrect Length fields, however the TLV with an incorrect length should be ignored. All following TLVs may be ignored or acted upon. b. The reception of OAMPDUs containing TLVs with incorrect Length fields should not affect the reception of valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to accept all OAMPDUs containing TLVs with incorrect Length fields. TLVs with incorrect lengths and all those that followed were ignored. b. The reception of TLVs with incorrect Length fields did not affect the reception of valid frame. 		

Test # and Label	Part(s)	Result(s)
57.1.10 – Truncated TLVs and Variable Containers	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT discards truncated TLVs and Variable Containers.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should accept all but the last TLV from OAMPDUs with truncated TLVs. b. The DUT should accept all but the last Variable Container from Variable Response OAMPDUs with truncated Variable Containers. c. The reception of OAMPDUs with truncated TLVs or Variable Containers should not affect the reception of valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to accept all but the last TLV from OAMPDUs with truncated TLVs. b. The DUT was observed to accept all but the last Variable Container from Variable Response OAMPDUs with truncated Variable Containers. c. The reception of OAMPDUs with truncated TLVs or Variable Containers were not observed to affect the reception of valid frames. 		

Test # and Label	Part(s)	Result(s)
57.1.11 – Values in Reserved Bits of Information OAMPDU	a	PASS
	b	PASS
	c	PASS
	d	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly accepts Information OAMPDUs with Local Information TLVs with values in the reserved portions of the State, OAM Configuration, and OAMPDU Configuration fields.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should ignore values in the reserved portion of the State field and process these Local Information TLVs like any other valid Information TLV. The DUT should be observed to respond with an Information OAMPDU with a Remote Information TLV containing the same reserved bit value set. b. The DUT should ignore values in the reserved portion of the OAM Configuration field and process these Local Information TLVs like any other valid Information TLV. The DUT should be observed to respond with an Information OAMPDU with a Remote Information TLV containing the same reserved bit value set. c. The DUT should ignore values in the reserved portion of the OAMPDU Configuration field and process these Local Information TLVs like any other valid Information TLV. The DUT should be observed to respond with an Information OAMPDU with a Remote Information TLV containing the same reserved bit value set. d. The reception of Information OAMPDUs with values in the reserved portion of the State, OAM Configuration, and OAMPDU Configuration fields should not affect the reception of the valid frames. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to ignore values in the reserved portion of the State field and the value was copied into the Remote Information TLV. b. The DUT was observed to ignore values in the reserved portion of the OAM Configuration field and the value was copied into the Remote Information TLV. c. The DUT was observed to ignore values in the reserved portion of the OAMPDU Configuration field and the value was copied into the Remote Information TLV. d. The reception of these frames was not observed to affect the reception of valid frames. 		

GROUP 2: OAMPDU Transmission

Test # and Label	Part(s)	Result(s)
57.2.1 – Properly Encapsulated Information OAMPDU	a	FAIL
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly encapsulates Information OAMPDU.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit Information OAMPDU with: <ul style="list-style-type: none"> • Tags including but not limited to the QTag Prefix • A value in the Reserved Flags portion of the Flags field • The value of 0x3 in the Local Stable and Local Evaluating Flags portion of the Flags field • Code values within the range of 0x01 – 0xFF • Information TLV type values within the range of 0x03 – 0xFD inclusive or 0xFF • A value in the Reserved portion of the Local Information TLV State field • A value in the Reserved portion of the Local Information TLV OAM Configuration field • A value in the Reserved portion of the Local Information TLV OAMPDU Configuration field 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit Information OAMPDU with QTag Prefixes; otherwise all Information OAMPDU transmission appeared to be valid. 		

Test # and Label	Part(s)	Result(s)
57.2.2 – Information TLVs with Proper Revision Value	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly starts and increments the Local Information TLV Revision field value and copies the remote Revision field value into Remote Information TLVs in all Information OAMPDU.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should transmit the first Information OAMPDU with a Local Information TLV Revision field value of zero. b. The DUT should increment the Local Information TLV Revision field after all local configuration changes. c. The DUT should transmit Information OAMPDU with the Remote Information TLV Revision field set to the last received Local Information TLV Revision Field value. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit the first OAMPDU with a Revision field value of zero. b. The DUT was observed to increment the Revision field value properly. c. The DUT was observed to copy the last received Revision field value properly into the Remote Information TLV Revision field. 		

Test # and Label	Part(s)	Result(s)
57.2.3 – Maximum Advertised OAMPDU Size	a	FAIL
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT does not transmit OAMPDUs greater than Maximum OAMPDU Size.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit OAMPDUs greater than the negotiated Maximum OAMPDU Size for the link. b. The DUT should not transmit truncated OAMPDUs to meet the negotiated Maximum OAMPDU Size for the link. c. The DUT should not stop the transmission of OAMPDUs to the testing station, rather than properly conveying dissatisfaction with the remote OAM device’s capabilities. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. When the Maximum OAMPDU Size was negotiated to minFrameSize, the DUT was observed to transmit Information OAMPDUs and Variable Response OAMPDUs larger than minFrameSize. b. The DUT was not observed to transmit truncated OAMPDUs to meet the negotiated Maximum OAMPDU Size for the link. c. The DUT was not observed to stop the transmission of OAMPDUs to the testing station, rather than properly conveying dissatisfaction with the remote OAM device’s capabilities. 		

GROUP 3: OAM Discovery Process

Test # and Label	Part(s)	Result(s)
57.3.1 – Active Mode Selection	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT follows the defined transmit and receive rules when operating in Active mode.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should transmit all Information OAMPDUs with: <ul style="list-style-type: none"> • A rate of no fewer than once a second, but no more then ten a second • Local Stable flag set low and Local Evaluating flag set high • Remote Stable and Remote Evaluation flags set low • A Local Information TLV as the first and only Information TLV • A length of minFrameSize b. The DUT should not respond to non-Information OAMPDUs. c. The DUT should not transmit requested non-Information OAMPDUs. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit properly formed Information OAMPDU while in Active Mode. b. The DUT was not observed to respond to non-Information OAMPDUs. c. The DUT was not observed to transmit requested non-Information OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.3.2 – Passive Mode Selection	a	Not Applicable
	b	Not Applicable
	c	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT follows the defined transmit and receive rules when operating in Passive mode.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit any Information OAMPDUs. b. The DUT should not respond to non-Information OAMPDUs. c. The DUT should not transmit requested non-Information OAMPDUs. 		
Comments on Test Results		
<p>a. – c. Despite selecting Passive Mode operation in the DUT’s User Interface, the DUT was not observed to operate any differently. As a result these tests were not performed.</p>		

Test # and Label	Part(s)	Result(s)
57.3.3 – Remote State Valid	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly interprets state information from the remote OAM device.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. After receiving information from the remote OAM device, the DUT should transmit all Information OAMPDUs with: <ul style="list-style-type: none"> • A rate of no fewer than once a second, but no more then ten a second • The Local Stable flag set low and the Local Evaluating flag set high • Exact copies of last received Local Stable and Local Evaluating flags in the Remote Stable and Remote Evaluating flags • A Local Information TLV followed by a Remote Information TLV that is an exact copy of last received Local Information TLV (with the exception of Information Type field) • A length of minFrameSize b. The DUT should not respond to non-Information OAMPDUs. c. The DUT should not transmit non-Information OAMPDUs. <p>Procedural Comments:</p> <p>The unacceptable OAM configuration used to direct the DUT to the proper state required by this test can be found in Annex B: OAM Configuration Information.</p>		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit properly formed Information OAMPDUs. b. The DUT was not observed to respond to non-Information OAMPDUs. c. The DUT was not observed to transmit non-Information OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.3.4 – Local Satisfied	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly indicates satisfaction with the remote OAM device configuration.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. After the reception of an Information OAMPDU with a Local Information TLV containing a configuration that DUT considers acceptable, the DUT should transmit all Information OAMPDUs with: <ul style="list-style-type: none"> • A rate of no fewer than once a second, but no more then ten a second • The Local Stable flag set high and the Local Evaluating flag set low • Exact copies of last received Local Stable and Local Evaluating flags in the Remote Stable and Remote Evaluation flags • A Local Information TLV followed by a Remote Information TLV that is an exact copy of last received Local Information TLV (with the exception of Information Type field) b. The DUT should not respond to non-Information OAMPDUs. c. The DUT should not transmit non-Information OAMPDUs. <p>Procedural Comments:</p> <p>The acceptable OAM configuration used to direct the DUT to the proper state required by this test can be found in Annex B: OAM Configuration Information.</p>		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit properly formed Information OAMPDUs. b. The DUT was not observed to respond to non-Information OAMPDUs. c. The DUT was not observed to transmit non-Information OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.3.5 – Remote Stable	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly interprets remote OAM satisfaction with the local OAM configuration.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. After the remote OAM device is satisfied, the DUT should transmit all Information OAMPDUs with: <ul style="list-style-type: none"> • A rate of no fewer than once a second, but no more then ten a second • The Local Stable flag set high and the Local Evaluating flag set low • Exact copies of last received Local Stable and Local Evaluating flags in the Remote Stable and Remote Evaluation flags • A Local Information TLV followed by a Remote Information TLV that is an exact copy of last received Local Information TLV (with the exception of Information Type field) b. The DUT should respond to non-Information OAMPDUs. c. The DUT should transmit non-Information OAMPDUs. <p>Procedural Comments:</p> <p>The acceptable OAM configuration used to direct the DUT to the proper state required by this test can be found in Annex B: OAM Configuration Information.</p>		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit properly formed Information OAMPDUs. b. The DUT was not observed to respond to non-Information OAMPDUs. c. The DUT was not observed to transmit non-Information OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.3.6 – Remote Unstable	a	PASS
	b	FAIL
	c	FAIL
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly interprets the remote OAM device’s dissatisfaction with the local OAM device configuration.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. After the reception of the remote OAM device’s dissatisfaction, the DUT should transmit all Information OAMPDUs with: <ul style="list-style-type: none"> • A rate of no fewer than once a second, but no more than ten a second • The Local Stable flag set high and the Local Evaluating flag set low • Exact copies of last received Local Stable and Local Evaluating flags in the Remote Stable and Remote Evaluation flags • A Local Information TLV followed by a Remote Information TLV that is an exact copy of last received Local Information TLV (with the exception of Information Type field) b. The DUT should not respond to non-Information OAMPDUs. c. The DUT should not transmit non-Information OAMPDUs. <p>Procedural Comments:</p> <p>The acceptable and unacceptable OAM configurations used to direct the DUT to the proper states required by this test can be found in Annex B: OAM Configuration Information.</p>		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit properly formed Information OAMPDUs. b. After reaching the SEND_ANY state and receiving a remote unstable indication, the DUT was still observed to respond to non-Information OAMPDUs in particular Loopback Control and Variable Request OAMPDUs. c. After reaching the SEND_ANY state and receiving a remote unstable indication, the DUT was still observed to transmit non-Information OAMPDUs in particular Loopback Control OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.3.7 – Local Unsatisfied	a	FAIL
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly indicates dissatisfaction with the link to the remote OAM device.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. After becoming dissatisfied with the link, the DUT should transmit all Information OAMPDUs with: <ul style="list-style-type: none"> • A rate of no fewer than once a second, but no more then ten a second • Both the Local Stable and Local Evaluating flags set low • Exact copies of last received Local Stable and Local Evaluating flags in the Remote Stable and Remote Evaluation flags • A Local Information TLV followed by a Remote Information TLV that is an exact copy of last received Local Information TLV (with the exception of Information Type field) • A length of minFrameSize b. The DUT should not respond to non-Information OAMPDUs. c. The DUT should not transmit non-Information OAMPDUs. <p>Procedural Comments:</p> <p>The acceptable and unacceptable OAM configurations used to direct the DUT to the proper states required by this test can be found in Annex B: OAM Configuration Information.</p>		
Comments on Test Results		
<ol style="list-style-type: none"> a. After becoming dissatisfied with the link, the DUT was not observed to transmit all Information OAMPDUs with the Local Stable and Evaluating flags low but rather with the Local Stable flag set low and the Local Evaluating flag set high. b. The DUT was not observed to respond to non-Information OAMPDUs. c. The DUT was observed to respond to non-Information OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.3.9 – Non-Information OAMPDU Keep Alive	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT can keep the OAM Discovery process alive without receiving Information OAMPDUs.</p> <p>Expected Results:</p> <p><i>Case 1: Supported Non-Information OAMPDUs</i></p> <p>a. The DUT should keep the OAM Discovery process alive with the reception of supported non-Information OAMPDUs.</p> <p><i>Case 2: Unsupported Non-Information OAMPDUs</i></p> <p>b. The DUT should keep the OAM Discovery process alive with the reception of unsupported non-Information OAMPDUs.</p>		
Comments on Test Results		
<p>a. The DUT was observed to keep the OAM Discovery process alive with the reception of supported non-Information OAMPDUs.</p> <p>b. The DUT was observed to keep the OAM Discovery process alive with the reception of unsupported non-Information OAMPDUs.</p>		

Test # and Label	Part(s)	Result(s)
57.3.10 – Unstable Non-Information OAMPDU Reception	a	FAIL
	b	FAIL
	c	FAIL
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly reacts to non-Information OAMPDUs from an unstable remote OAM device.</p> <p>Expected Results:</p> <p>a. After the reception of the remote OAM device’s dissatisfaction, the DUT should transmit all Information OAMPDUs with:</p> <ul style="list-style-type: none"> • A rate of no fewer than once a second, but no more then ten a second • The Local Stable flag set high and the Local Evaluating flag set low • Exact copies of last received Local Stable and Local Evaluating flags in the Remote Stable and Remote Evaluation flags • A Local Information TLV followed by a Remote Information TLV that is an exact copy of last received Local Information TLV (with the exception of Information Type field) <p>b. The DUT should not respond to non-Information OAMPDUs.</p> <p>c. The DUT should not transmit non-Information OAMPDUs.</p>		
Comments on Test Results		
<p>a. The DUT was observed to interpret that the remote OAM device had become unstable with the reception of supported non-Information OAMPDUs in particular Variable Request OAMPDUs.</p> <p>b. The DUT was observed to respond to non-Information OAMPDUs in particular Variable Request OAMPDUs.</p> <p>c. The DUT was observed to transmit a Loopback Control OAMPDU upon request.</p>		

GROUP 4: Transmitter Operation

Test # and Label	Part(s)	Result(s)
57.4.1 – Expiration of Pdu_timer	a	PASS
	b	PASS
	c	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT follows the proper procedures after a second without a request to transmit an OAMPDU.</p> <p>Expected Results:</p> <p><i>Case 1: Pdu_timer Resets Normally</i></p> <p>a. The DUT should transmit Information OAMPDUs at a rate of no fewer than once a second in the absence of any other OAMPDU requests.</p> <p><i>Case 2: Pdu_timer Reset After Transmission</i></p> <p>b. The DUT should wait between one and two seconds before transmitting the first Information OAMPDU immediately following the transmission of a requested OAMPDU. The DUT should be observed to transmit all subsequent Information OAMPDUs at a rate of no fewer than once a second.</p> <p><i>Case 3: Passive Mode Request</i></p> <p>c. The DUT should not transmit any OAMPDUs while in Passive mode.</p>		
Comments on Test Results		
<p>a. The DUT was observed to transmit Information OAMPDUs at a rate of no fewer than once a second in the absence of any other OAMPDU requests.</p> <p>b. The DUT was observed to less than two seconds before transmitting the first Information OAMPDU immediately following the transmission of a requested OAMPDU.</p> <p>c. Despite selecting Passive Mode operation in the DUT's User Interface, the DUT was not observed to operate any differently. As a result these tests were not performed.</p>		

Test # and Label	Part(s)	Result(s)
57.4.2 – Valid OAMPDU Requests	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT transmits OAMPDUs as a result of valid requests.</p> <p>Expected Results:</p> <p><i>Case 1: Valid OAMPDU Request</i></p> <p>a. The DUT should transmit all OAMPDUs at a rate of no more than ten frames a second.</p> <p><i>Case 2: Valid Critical Link Event Request</i></p> <p>b. The DUT should transmit OAMPDUs at any desired rate.</p> <p><i>Case 3: Valid Link Fault Requests</i></p> <p>c. The DUT should transmit Information OAMPDUs only and at a rate of once a second.</p>		
Comments on Test Results		
<p>a. The DUT was observed to transmit all OAMPDU at a rate of no more than ten frames a second.</p> <p>b. Although the DUT can transmit Information OAMPDUs at any rate the DUT was observed to transmit OAMPDUs with critical link events at a rate of once a second.</p> <p>c. The DUT was observed to only transmit properly formed Information OAMPDUs at a rate of no fewer than once a second.</p>		

Test # and Label	Part(s)	Result(s)
57.4.3 – Invalid OAMPDU Request Ignored	a	PASS
	b	PASS
	c	PASS
	d	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT does not transmit OAMPDUs as a result of invalid requests.</p> <p>Expected Results:</p> <p><i>Case 1: Invalid Local_lost_link_timer Request</i></p> <p>a. The DUT should transmit only Information OAMPDUs after local_lost_link_timer expires.</p> <p><i>Case 2: Invalid Critical Link Event Request</i></p> <p>b. The DUT should not transmit OAMPDUs with critical link event flags set when the OAM Discovery process has not completed.</p> <p><i>Case 3: Invalid Link Fault Request</i></p> <p>c. The DUT should not transmit any non-Information OAMPDUs when a link fault condition exists.</p> <p><i>Case 4: Invalid Passive Mode Request</i></p> <p>d. The DUT should not transmit any OAMPDUs while in the PASSIVE_WAIT state.</p>		
Comments on Test Results		
<p>a. The DUT was observed to only transmit Information OAMPDUs after local_lost_link_timer expires.</p> <p>b. The DUT was not observed to transmit OAMPDU with critical link event flags before OAM Discover had completed.</p> <p>c. The DUT was not observed to transmit non-Information OAMPDUs when a link fault condition occurred.</p> <p>d. Despite selecting Passive Mode operation in the DUT’s User Interface, the DUT was not observed to operate any differently. As a result these tests were not performed.</p>		

GROUP 5: Multiplexer Operation

Test # and Label	Part(s)	Result(s)
57.5.1 – Traffic Priority	a	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT places priority on the transmission of OAMPDUs above MAC client traffic.</p> <p>Expected Results:</p> <ul style="list-style-type: none"> a. The DUT should transmit OAMPDUs at a rate of no less than once a second, despite a flood of MAC client traffic. 		
Comments on Test Results		
<ul style="list-style-type: none"> a. The DUT was observed to transmit OAMPDUs at a rate of no less than once a second, despite the flood of MAC client frames. 		

Test # and Label	Part(s)	Result(s)
57.5.2 – Unidirectional Traffic	a	FAIL
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT does not transmit MAC client data while in unidirectional mode.</p> <p>Expected Results:</p> <ul style="list-style-type: none"> a. The DUT should not transmit MAC client data while operating in a unidirectional mode. b. The DUT should transmit only Information OAMPDUs with the Link Fault critical link event flag set high and containing no Information TLVs. 		
Comments on Test Results		
<ul style="list-style-type: none"> a. The DUT was observed to transmit MAC client data frames while operating in unidirectional mode. b. The DUT was observed to transmit only properly formed Information OAMPDUs. 		

GROUP 6: Event Notification Operation

Test # and Label	Part(s)	Result(s)
57.6.1 – Properly encapsulated Event Notification OAMPDUs	a	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly encapsulates Event Notification OAMPDUs.</p> <p>Expected Results:</p> <p>a. The DUT should not transmit Event Notification OAMPDUs with:</p> <ul style="list-style-type: none"> • Tags including but not limited to the QTag Prefix • A value in the Reserved Flags portion of the Flags field • The value of 0x3 in the Local Stable and Local Evaluating Flags portion of the Flags field • No Link Event TLVs present • Link Event TLV type values within the range of 0x05 – 0xFD inclusive or 0xFF 		
Comments on Test Results		
<p>a. The DUT was not observed to support Event Notification OAMPDUs.</p>		

Test # and Label	Part(s)	Result(s)
57.6.2 – Sequence Number Increments Correctly	a	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT increments the sequence number on all unique Event Notification OAMPDUs transmitted.</p> <p>Expected Results:</p> <p>a. The DUT should increment the sequence number in all unique Event Notification OAMPDUs regardless of the initial value.</p>		
Comments on Test Results		
<p>a. The DUT was not observed to support Event Notification OAMPDUs.</p>		

Test # and Label	Part(s)	Result(s)
57.6.3 – Duplicate Event Notification OAMPDUs	a	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT transmits all duplicate Event Notification OAMPDUs in succession.</p> <p>Expected Results:</p> <p>a. The DUT should transmit duplicate Event Notification OAMPDUs with the same sequence number and without any different intervening Event Notification OAMPDUs between them.</p>		
Comments on Test Results		
<p>a. The DUT was not observed to support Event Notification OAMPDUs.</p>		

Test # and Label	Part(s)	Result(s)
57.6.4 – Identical Event TLVs	a	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT does not transmit the same Event TLV within different Event Notification OAMPDUs.</p> <p>Expected Results:</p> <ol style="list-style-type: none">a. The DUT should transmit all Event Notification OAMPDUs with different sequence numbers and none should contain the same Link Event TLV.		
Comments on Test Results		
<ol style="list-style-type: none">a. The DUT was not observed to support Event Notification OAMPDUs.		

GROUP 7: Variable Request Operation

Test # and Label	Part(s)	Result(s)
57.7.1 – Properly Encapsulated Variable Request OAMPDUs	a	FAIL
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly encapsulates Variable Request OAMPDUs.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit Variable Request OAMPDUs with: <ul style="list-style-type: none"> • Tags including but not limited to the QTag Prefix • A value in the Reserved Flags portion of the Flags field • The value of 0x3 in the Local Stable and Local Evaluating Flags portion of the Flags field • No Variable Descriptors present 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit Variable Request OAMPDUs with QTag Prefixes; otherwise all Variable Request OAMPDU transmission appeared to be valid. 		

Test # and Label	Part(s)	Result(s)
57.7.2 – Variable Request from Passive Mode	a	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT does not transmit Variable Request OAMPDUs while in Passive mode.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit Variable Request OAMPDUs while operating in Passive mode. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. Despite selecting Passive Mode operation in the DUT's User Interface, the DUT was not observed to operate any differently. As a result these tests were not performed. 		

GROUP 8: Variable Response Operation

Test # and Label	Part(s)	Result(s)
57.8.1 – Properly Encapsulated Variable Response OAMPDUs	a	FAIL
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly encapsulates Variable Response OAMPDUs.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit Variable Response OAMPDUs with: <ul style="list-style-type: none"> • Tags including but not limited to the QTag Prefix • A value in the Reserved Flags portion of the Flags field • The value of 0x3 in the Local Stable and Local Evaluating Flags portion of the Flags field • No Variable Containers present 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit Variable Response OAMPDUs with QTag Prefixes; otherwise all Variable Response OAMPDU transmission appeared to be valid. 		

Test # and Label	Part(s)	Result(s)
57.8.2 – Timely Response	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT transmits Variable Response OAMPDUs within one second of reception of the Variable Request.</p> <p>Expected Results:</p> <p><i>Case 1: Known Variables</i></p> <ol style="list-style-type: none"> a. The DUT should transmit a Variable Response OAMPDU with a Variable Container within one second of the reception of the Variable Request OAMPDU querying known variables. <p><i>Case 2: Unknown Variables</i></p> <ol style="list-style-type: none"> b. The DUT should transmit a Variable Response OAMPDU with a Variable Container indicating an error within one second of the reception of the Variable Request OAMPDU querying unknown variables. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit a Variable Response OAMPDU within one second of the reception of a Variable Request OAMPDU querying known variables. b. The DUT was observed to transmit a Variable Response OAMPDU within one second of the reception of a Variable Request OAMPDU querying unknown variables. 		

Test # and Label	Part(s)	Result(s)
57.8.3 – Error Indication	a	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT transmits Variable Response OAMPDU's with proper error indication.</p> <p>Expected Results:</p> <ul style="list-style-type: none"> a. The DUT should either return a Variable Error for all attributes it could not return or return a Variable Error for the entire package or object. 		
Comments on Test Results		
<ul style="list-style-type: none"> a. The DUT was observed to return a Variable Error for each attribute it could not return within an object and simply returned a Variable Error for the entire package that contained an attribute it could not return. 		

Test # and Label	Part(s)	Result(s)
57.8.4 – Variable Container Larger Than Rest of Frame	a	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT handles requested variables which are larger than the maximum allowed OAMPDU.</p> <p>Expected Results:</p> <ul style="list-style-type: none"> a. The DUT should not transmit a Variable Container, which contains requested MIB variables larger than the maximum allowed OAMPDU for the link. The DUT should transmit a Variable Container with the 0x01 error code. 		
Comments on Test Results		
<ul style="list-style-type: none"> a. The DUT was not observed to transmit a Variable Container that contains a MIB variable larger than the maximum allowed OAMPDU for the link. The DUT was observed to transmit a Variable Container with the error code of 0x01. 		

Test # and Label	Part(s)	Result(s)
57.8.5 – Response to Action Request	a	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT does not respond to requests for MIB actions.</p> <p>Expected Results:</p> <ul style="list-style-type: none"> a. The DUT should not be observed to transmit Variable Response OAMPDU's with Variable Containers, which contains a MIB action. 		
Comments on Test Results		
<ul style="list-style-type: none"> a. The DUT was not observed to transmit a Variable Response OAMPDU with Variable Containers, which contain a MIB action. 		

GROUP 9: Remote Loopback Operation

Test # and Label	Part(s)	Result(s)
57.9.1 – Properly Encapsulated Loopback Control OAMPDUs	a	FAIL
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly encapsulates Loopback Control OAMPDUs.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit Loopback Control OAMPDUs with: <ul style="list-style-type: none"> • Tags including but not limited to the QTag Prefix • A value in the Reserved portion of the Flags field • The value of 0x3 in the Local Stable and Local Evaluating flags portion of the Flags field • Loopback Command value of 0x00 or within the range of 0x03 - 0xFF inclusive 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit Loopback Control OAMPDUs with QTag Prefixes; otherwise all Loopback Control OAMPDU transmission appeared to be valid. 		

Test # and Label	Part(s)	Result(s)
57.9.2 – Loopback Control from Passive Device	a	Not Applicable
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT does not transmit Loopback Control OAMPDUs while in Passive mode.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should not transmit Loopback Control OAMPDUs while operating in Passive mode. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. Despite selecting Passive Mode operation in the DUT's User Interface, the DUT was not observed to operate any differently. As a result these tests were not performed. 		

Test # and Label	Part(s)	Result(s)
57.9.3.1 – Initiation – Master Starts	a	FAIL
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT stops transmitting and responding to non-OAMPDUs when initiating the loopback operation.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should stop the transmission and reception of MAC client frames before sending Loopback Control OAMPDUs. b. The DUT should transmit a Loopback Control OAMPDU with the Enable OAM Remote Loopback command value (0x01). c. The DUT should transmit and respond to OAMPDUs throughout the initiation of loopback operation. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to stop the transmission and reception MAC client frames before sending a Loopback Control OAMPDU. b. The DUT was observed to transmit a properly formed Loopback Control OAMPDU. c. The DUT was observed to transmit and respond to OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.9.3.2 – Initiation – Slave Acknowledges	a	FAIL
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT stops responding to non-OAMPDUs when accepting the initiation of the loopback operation.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should stop the transmission of MAC client frames and start looping back received MAC client frames before sending an Information OAMPDU. b. The DUT should transmit an Information OAMPDU with an updated State field (0x05) within one second of the reception of a Loopback Control OAMPDU with the Enable OAM Remote Loopback command. c. The DUT should transmit and respond to OAMPDUs throughout the initiation of loopback operation. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to stop the transmission of MAC client frames and start looping back received MAC client frames before sending an Information OAMPDU. b. The DUT was observed to transmit an Information OAMPDU with properly updated State information. c. The DUT was observed to transmit and respond to OAMPDU. 		

Test # and Label	Part(s)	Result(s)
57.9.3.3 – Initiation – Master Completes	a	PASS
	b	PASS
	c	Informative
	d	PASS
	e	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT starts transmitting test frames after receiving an acknowledgement of loopback initiation.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should transmit a Loopback Control OAMPDU with the Enable OAM Remote Loopback command value (0x01). b. The DUT should copy the remote device’s updated State field value (0x05) into the Remote Information TLV State field of all following Information OAMPDUs. c. The DUT should start the transmission of MAC client loopback test frames to the testing station. (Informative) d. The DUT should not respond or forward MAC client frames received from the testing station. e. The DUT should transmit Information OAMPDUs with an updated State field value (0x02) after the reception of an Information OAMPDU from the remote OAM device. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit a properly formed Loopback Control OAMPDU. b. The DUT was observed to copy the remote device’s updated State field into the Remote Information TLV. c. The DUT was observed to start transmitting MAC client loopback test frames. d. The DUT was not observed to respond of forward MAC client frames. e. The DUT was observed to transmit Information OAMPDU with a properly updated State field. 		

Test # and Label	Part(s)	Result(s)
57.9.3.4 – Simultaneous Initiation	a	FAIL
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT follows the recommended procedures when simultaneously initiating the loopback operation with another OAM device.</p> <p>Expected Results:</p> <p><i>Case 1: DUT has Smaller Address</i></p> <ol style="list-style-type: none"> a. The DUT should ignore the Loopback Control OAMPDU and continue to wait for an Information OAMPDU containing a Local Information TLV with an updated State field (0x05) from the remote OAM device. <p><i>Case 2: DUT has Larger Address</i></p> <ol style="list-style-type: none"> b. The DUT should respond to the test station with an Information OAMPDU with an updated Local Information TLV State field value (0x05). 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to back off from the request to loopback from a remote OAM device with a smaller address. b. The DUT was observed to accept the request to loopback from a remote OAM device with a larger address. 		

Test # and Label	Part(s)	Result(s)
57.9.4.1 – During – Master Transmit and Receive OAMPDUs	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT transmits and receives OAMPDUs at least once a second when controlling the loopback operation.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should transmit Information OAMPDUs with Local Information TLV State fields with an updated value (0x02) and Remote Information TLV State fields with an updated value (0x05). These Information OAMPDUs should be transmitted at a rate of at least once per second. b. The DUT should receive and respond to OAMPDUs from the remote OAM device. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit properly formed Information OAMPDUs during loopback operation. b. The DUT was observed to receive OAMPDUs during loopback operation. 		

Test # and Label	Part(s)	Result(s)
57.9.4.2 – During – Slave Transmit and Receive OAMPDUs	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT transmits and receives OAMPDUs at least once a second when looping frames back to the remote OAM device.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should transmit Information OAMPDUs with Local Information TLV State fields with an updated value (0x05) and Remote Information TLV State fields with an updated value (0x02). These Information OAMPDUs should be transmitted at a rate of at least once per second. b. The DUT should receive and respond to OAMPDUs from the remote OAM device. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit properly formed Information OAMPDUs during loopback operation. b. The DUT was observed to receive OAMPDUs during loopback operation. 		

Test # and Label	Part(s)	Result(s)
57.9.4.3 – During – Slave Loops Back Tests Frames	a	PASS
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT properly loops frames back to the remote OAM device.</p> <p>Expected Results:</p> <p><i>Case 1: Valid Loopback Test Frames</i></p> <ol style="list-style-type: none"> a. The DUT should loopback the ICMP Echo Request frames back to the testing station. These frames should be identical to the ICMP Echo Request frames transmitted by the testing station; this includes the same Destination and Source MAC addresses. <p><i>Case 2: Valid MAC Control Frames</i></p> <ol style="list-style-type: none"> b. The DUT should not loopback MAC Control frames. <p><i>Case 3: Invalid Loopback Test Frames</i></p> <ol style="list-style-type: none"> c. The DUT should not loopback frames with an incorrect CRC in the FCS field. If clause 30 is implemented, the DUT should log a FCS error. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to loopback the exact frame received without altering any fields. b. The DUT was not observed to loopback a MAC Control frame. c. The DUT was observed to loopback frames with incorrect CRC values in the FCS field. The DUT was observed to log these as “RxFCSerrors”. 		

Test # and Label	Part(s)	Result(s)
57.9.5.1 – Exiting – Master Starts	a	FAIL
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT stops transmitting and responding to non-OAMPDUs when exiting the loopback operation.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should stop the transmission and reception of MAC client frames before sending Loopback Control OAMPDUs. b. The DUT should transmit a Loopback Control OAMPDU with the Disable OAM Remote Loopback command value (0x02). c. The DUT should transmit and respond to OAMPDUs throughout the exiting of loopback operation. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to stop the transmission and reception of MAC client frames before sending a Loopback Control OAMPDU. b. The DUT was observed to transmit a properly formed Loopback Control OAMPDU. c. The DUT was observed to transmit and receive OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.9.5.2 – Exiting – Slave Acknowledges	a	FAIL
	b	PASS
	c	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT start responding to non-OAMPDUs when accepting the discontinuation of the loopback operation.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should start transmitting and responding to or forwarding MAC client frames before sending an Information OAMPDU. b. The DUT should transmit an Information OAMPDU with an updated State field (0x00) within one second of the reception of a Loopback Control OAMPDU with the Disable OAM Remote Loopback command. c. The DUT should transmit and respond to OAMPDUs throughout the exiting of loopback operation. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to start transmitting and receiving MAC client frames before sending an Information OAMPDU indicating it is exiting loopback operation. b. The DUT was observed to transmit Information OAMPDUs with properly updated State fields. c. The DUT was observed to transmit and receive OAMPDUs. 		

Test # and Label	Part(s)	Result(s)
57.9.5.3 – Exiting – Master Completes	a	PASS
	b	PASS
	c	PASS
	d	PASS
	e	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT receives non-OAMPDU after exiting loopback mode.</p> <p>Expected Results:</p> <ol style="list-style-type: none"> a. The DUT should transmit a Loopback Control OAMPDU with the Disable OAM Remote Loopback command value (0x02). b. The DUT should copy the remote device’s updated State field value (0x00) into the Remote Information TLV State field of all following Information OAMPDUs. c. The DUT should start the transmission of MAC client frames to the testing station. d. The DUT should respond or forward MAC client frames received from the testing station. e. The DUT should transmit Information OAMPDUs with an updated State field value (0x00) after the reception of an Information OAMPDU from the remote OAM device. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was observed to transmit a properly formed Loopback Control OAMPDU. b. The DUT was observed to copy the remote device’s updated State field into the Remote Information TLV. c. The DUT was observed to start transmitting MAC client loopback test frames. d. The DUT was not observed to respond of forward MAC client frames. e. The DUT was observed to transmit Information OAMPDU with a properly updated State field. 		

Test # and Label	Part(s)	Result(s)
57.9.5.4 – Exiting – Time Out	a	PASS
	b	PASS
Expected Results and Procedural Comments		
<p>Purpose: To verify that the DUT exits loopback mode due to the expiration of local_lost_link_timer.</p> <p>Expected Results:</p> <p><i>Case 1: DUT is Master</i></p> <ol style="list-style-type: none"> a. The DUT should reset the OAM Discovery process and transmit Information OAMPDUs containing Local Information TLVs containing State fields with default configurations. <p><i>Case 2: DUT is Slave</i></p> <ol style="list-style-type: none"> b. The DUT should reset the OAM Discovery process and transmit Information OAMPDUs containing Local Information TLVs containing State fields with default configurations. 		
Comments on Test Results		
<ol style="list-style-type: none"> a. The DUT was not observed to reset its state configuration upon the expiration of local_lost_link_timer. b. The DUT was not observed to reset its state configuration upon the expiration of local_lost_link_timer. 		

Annex A: Test Setup

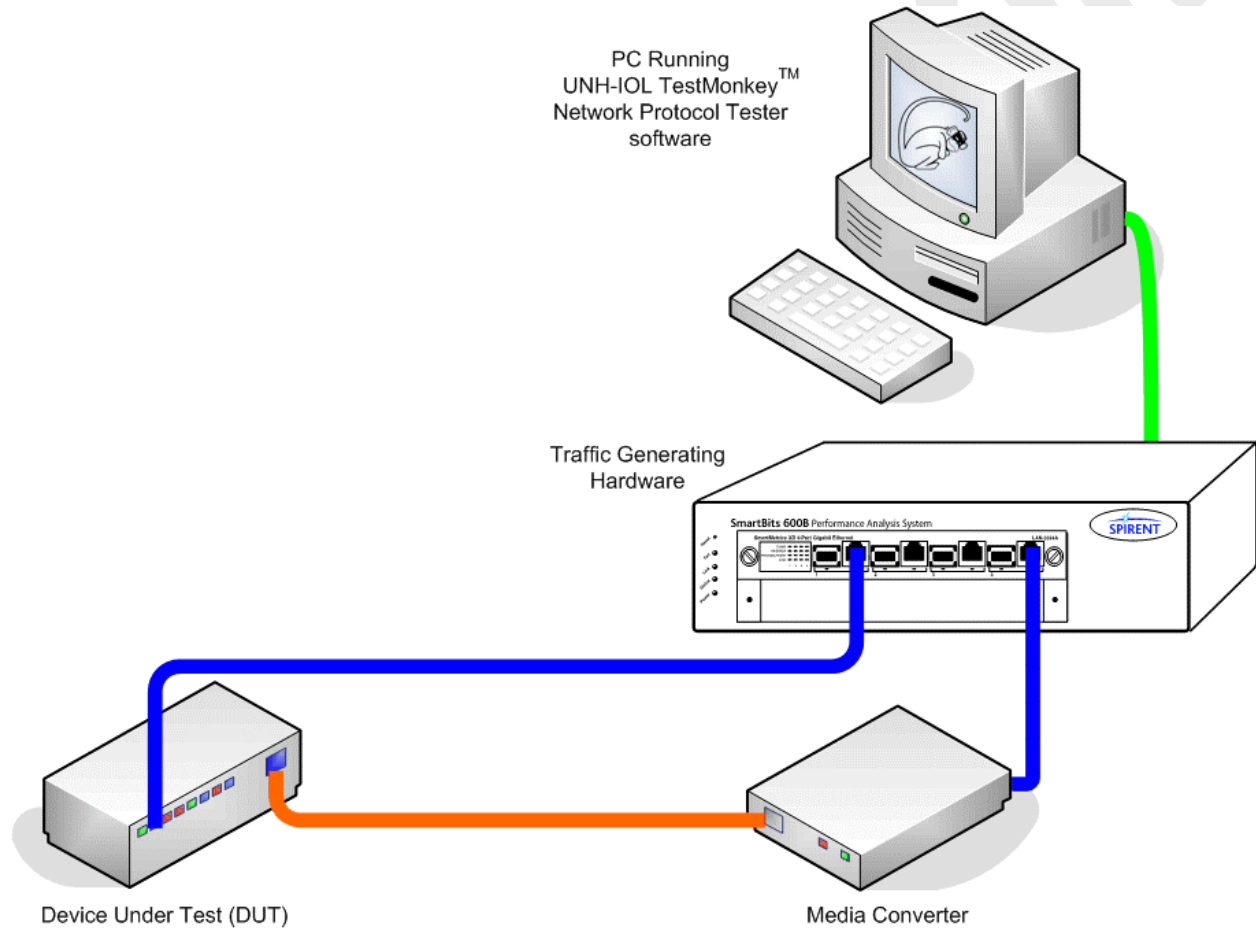
Test Equipment

The following equipment was used in performing Clause 57 OAM Conformance testing:

Test Equipment	Brand and Version Information
Test Station Software	UNH-IOL TestMonkey™ version 2.3.0.0
Test Station Hardware	Spirent Communications, Inc. - LAN-3325A TeraMetrics card in a SmartBits 600 Chassis
Media Converter	Canoga Perkins – 9119 UTP/Fiber Media Converter

Test Configuration

The following configuration was used while performing Clause 57 OAM Conformance testing:



Annex B: OAM Configuration Information

The following OAM configurations were used to direct the DUT to the proper states required by certain test procedures:

Information OAMPDU Field	Acceptable to DUT	Unacceptable to DUT
Flags		
Local Stable flag	X	1
Local Evaluating flag	X	1
Remote Stable flag	Copy of Last Received	Copy of Last Received
Remote Evaluating flag	Copy of Last Received	Copy of Last Received
Local Information TLV:		
Information Type	0x01	0x01
Information Length	0x10	0x10
OAM Version	0x01	0x01
Revision	0x0000	0x0000
State	0x00	0x00
OAM Configuration	0x1F	0x1F
OAMPDU Configuration	0x05EE	0x003F
OUI	0xFFFFFFFF	0xFFFFFFFF
Vendor Specific	0x00000000	0x00000000
Remote Information TLV:		
Information Type	0x02	0x02
Information Length	0x10	0x10
OAM Version	0x01	0x01
Revision	Copy of Last Received	Copy of Last Received
State	Copy of Last Received	Copy of Last Received
OAM Configuration	Copy of Last Received	Copy of Last Received
OAMPDU Configuration	Copy of Last Received	Copy of Last Received
OUI	Copy of Last Received	Copy of Last Received
Vendor Specific	Copy of Last Received	Copy of Last Received