

Class B Test Procedure



Session Name *General*

Trial Name Set-Up **VDOT Point Value** 0

Step	Action	Background
1	Specify the following input parameters for the test: Test Object #1 Drop A Drop B Drop C Drop D Drop E Community Name Entry InvalidCtrlByte InvalidIPI InvalidCRC ChangedData	Test Object #1 -- a read-write object supported by the device, typically globalTime.0 Drop A is the standard drop number for the device as used throughout the test procedures, between 1-62. Drop B is an alternative drop number which is not used by any device on the circuit, between 1-62. Drop C is an alternative drop number which the test device will be temporarily changed to, 1-62. Drop D is a large drop number that the device will temporarily be changed to, 64-8191. Drop E is a large address that is not used on the circuit, 64-8191. Community Name is a valid community name for SNMP requests Entry - a valid entry in the Group Address Table InvalidCtrlByte - An invalid control byte (I.e., not 0x 03, 0x13, or 0x33) InvalidIPI - An invalid IPI value (I.e., not 0x21 or 0xC1) InvalidCRC - A random CRC value (make sure that it is in fact invalid when being used.) ChangedData - Define the change to make to the data stream
2	Prepare the test environment.	Familiarize yourself with NTCIP 2101. Ensure that the device is properly powered, is properly connected to the Exerciser via a valid communications port and ensure that the drop is set to Drop A.
3	Prepare initialization files.	Ensure that the proper MIBs are in the Exerciser directory, that the MIBI file references the proper MIBs, that the Nexerciser.ini file is configured properly, and that the TreeCfg.ini file is configured properly.
4	Start the NTCIP Exerciser in Central Mode.	
5	Send unnumbered polls to Drop A until no response is received or an empty frame is received.	This will ensure that the device buffer is empty.

Session Name *Short Addresses*

Trial Name Single Address - Positive Test #1 **VDOT Point Value** 3

Step	Action	Background
1	Send an SNMP 'get-request' for: Test Object #1	Use Drop A and community name and ensure that the "Group Address" box is not selected.
2	Verify that a valid response is received and record the value.	



Trial Name Single Address - Negative Test #1 **VDOT Point Value** 3

Step Action	Background
1 Send an SNMP 'get-request' to Drop B for: Test Object #1	Ensure that the community name is properly set and that the "Group Address" checkbox is not selected.
2 Verify that there is no response.	

Trial Name Single Address - Positive Test #2 **VDOT Point Value** 3

Step Action	Background
1 Within the sign controller, change the address to Drop C. NOTE -- The sign controller may need to be rebooted for this to take affect.	Ensure that the community name is properly set and that the "Group Address" checkbox is not selected.
2 Send an SNMP 'get-request' to Drop C for: Test Object #1	
3 Verify that a valid response is received and record the value.	

Trial Name Single Address - Negative Test #2 **VDOT Point Value** 3

Step Action	Background
1 Ensure that the controller is still set to Drop C.	Ensure that the community name is properly set and that the "Group Address" checkbox is not selected.
2 Send an SNMP 'get-request' to Drop D for: Test Object #1	
3 Verify that there was no response.	

Trial Name Restore Default Address **VDOT Point Value** 1

Step Action	Background
1 Restore the device to Address Drop A. NOTE -- The device may need to be rebooted.	
2 Send an SNMP 'get-request' for: Test Object #1	
3 Verify that a valid response is received and record the value.	

Session Name Long Addresses

Trial Name Large Single Address - Positive Test **VDOT Point Value** 0

Step Action	Background
1 Determine if the vendor claims compliance to large HDLC addresses. If not, stop trial.	
2 Within the sign controller, change the address Drop D. NOTE -- The sign controller may need to be rebooted for this to take affect.	



3 Send an SNMP 'get-request' to Drop D for:
Test Object #1

Ensure that the community name is properly set and that the "Group Address" checkbox is not selected.

4 Verify that a valid response is received and record the value.

Trial Name Large Single Address - Negative Test #1 **VDOT Point Value** 0

Step Action **Background**

- 1 Determine if the vendor claims compliance to large HDLC addresses. If not, stop trial.
- 2 Ensure that the sign controller is still set to Drop D.
- 3 Send an SNMP 'get-request' to Drop A for:
Test Object #1
- 4 Verify that there is no response.

Trial Name Large Single Address - Negative Test #2 **VDOT Point Value** 0

Step Action **Background**

- 1 Determine if the vendor claims compliance to large HDLC addresses. If not, stop trial.
- 2 Ensure that the sign controller is still set to Drop D.
- 3 Send an SNMP 'get-request' to Drop E for:
Test Object #1
- 4 Verify that there is no response.

Trial Name Restore Default Address **VDOT Point Value** 0

Step Action **Background**

- 1 Restore the device to Address Drop A.

NOTE -- The device may need to be rebooted.
- 2 Send an SNMP 'get-request' for:
Test Object #1
- 3 Verify that a valid response is received and record the value.

Session Name *Broadcasting*

Trial Name Broadcast Message **VDOT Point Value** 1

Step Action **Background**

- 1 Send an SNMP 'get-request' to group address #63 for:
Test Object #1
 - 2 Ensure that no response is received.
- Use an appropriate communications stack and an appropriate Community Name.



Trial Name Poll Message **VDOT Point Value** 1

Step Action **Background**

- 1 Send an unnumbered poll to Drop A
- 2 Verify that the response to the previous request (I.e., from Trial 1) is received.

Session Name *Group Addresses*

Trial Name Setting Group Address **VDOT Point Value** 1

Step Action **Background**

- 1 Send an SNMP 'get-request' to Drop A for:
maxGroupAddress.0 This object is located under iso / organization / dod / internet / private / enterprises / nema / transportation / protocols / profiles / profilesPMPP
- 2 Select an entry in the group address table to set.
- 3 Send an SNMP 'set-request' to Drop A for:
hdlcGroupAddress.(Entry) = (Drop B)*4+3 This object is located under iso / organization / dod / internet / private / enterprises / nema / transportation / protocols / profiles / profilesPMPP
- 4 Ensure that the response does not indicate an error
- 5 Ensure that all other entries in the table are not equal to Drop C*4+3, or Drop E*4+3.

Trial Name Group Address - Positive Test **VDOT Point Value** 1

Step Action **Background**

- 1 Send an SNMP 'get-request' to Drop B with the Group Address box selected for:
Test Object #1
- 2 Verify that no response was received.
- 3 Send an unnumbered poll to Drop A (without the Group box checked).
- 4 Verify that the buffered response is received.

Trial Name Group Address - Negative Test **VDOT Point Value** 1

Step Action **Background**

- 1 Send an SNMP 'get-request' to Drop C with the Group Address box selected for:
Test Object #1
- 2 Verify that no response is received.
- 3 Send an unnumbered poll to Drop A
- 4 Verify that no response is received, an empty frame is received, or that the response is a trap.

Session Name *Long Group Addresses*



Trial Name Large Group Address - Positive Test **VDOT Point Value** 0

Step	Action	Background
1	Send an SNMP 'set-request' to Drop A for: hdlcGroupAddress.(Entry) = (Drop D)*4+3	
2	Ensure that the response does not indicate an error	
3	Send an SNMP 'get-request' to Drop D with the Group Address box selected for: Test Object #1	
4	Verify that no response was received.	
5	Send an unnumbered poll to Drop A (without the Group box checked).	
6	Verify that the buffered response is received.	

Trial Name Large Group Address - Negative Test **VDOT Point Value** 0

Step	Action	Background
1	Send an SNMP 'get-request' to Drop E with the Group Address box selected for: Test Object #1	
2	Verify that no response was received.	
3	Send an unnumbered poll to Drop A (without the Group box checked).	
4	Verify that no response, an empty frame, or a trap response is received.	

Session Name *Control Byte*

Trial Name Request Without Poll Bit **VDOT Point Value** 1

Step	Action	Background
1	Send an SNMP 'get-request' to Drop A with the Edit Byte Stream box checked for: Test Object #1	
2	Edit the byte stream by changing the control byte from a 0x13 to a 0x03 and then click the update button. Then Send.	
3	Verify that the controller does not respond	

Trial Name Poll **VDOT Point Value** 1

Step	Action	Background
1	Send an Unnumbered poll to Drop A.	
2	Verify that the response to the previous request (from the previous trial) was received.	

Trial Name Changed Control Byte **VDOT Point Value** 1

Step	Action	Background
1	Send an SNMP 'get-request' to Drop A with the Edit Byte Stream box checked for:	



Test Object #1

- 2 Before sending the "get-request", edit the byte stream by changing the value of the Control Byte from 0x13 to the InvalidCtrlByte value.
- 3 Verify that there is no response.

Session Name HDLC Errors

Trial Name Unknown IPI	VDOT Point Value	1
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Step Action	Background
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- 1 Send an SNMP 'get-request' to Drop A with the Edit Byte Stream box checked for: Test Object #1
- 2 Edit the byte stream by changing the hexadecimal value of the IPI byte from 0xC1 to the invalidIPI value. Hit the Update button and then Send.
- 3 Verify that there is no response.

Trial Name Invalid CRC	VDOT Point Value	1
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Step Action	Background
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- 1 Send an SNMP 'get-request' to Drop A with the Edit Byte Stream box checked for: Test Object #1
- 2 Edit the byte stream by changing the value of the CRC to InvalidCRC and then Send.
- 3 Verify that there is no response.

Trial Name Changed Data	VDOT Point Value	1
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Step Action	Background
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- 1 Send an SNMP 'get-request' to Drop A with the Edit Byte Stream box checked for: Test Object #1
- 2 Before sending the "get-request", edit the byte stream in the manner defined by ChangedData and then send.
- 3 Verify that there is no response.

Session Name RS232 Conformance Group

Trial Name RS232 Test	VDOT Point Value	1
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Step Action	Background
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| <ol style="list-style-type: none"> 1 Send an SNMP 'get-request' to Drop A for the following objects:
rs232PortInSpeed.1 2 Verify that the sign controller responds with a valid value. (non zero, positive integers) | <p>This object is located under iso / organization / dod / internet / mgmt / mib-2 / transmission / rs232 / rs232PortTable / rs232PortEntry</p> |
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Session Name LapB Conformance Group



Trial Name LapB Testing

VDOT Point Value 1

Step Action

Background

1 Send an SNMP 'get-request' to Drop A for:
lapbAdmnT1AckTimer.1

This object is located under iso / organization / dod /
internet / mgmt / mib-2 / transmission / lapb /
lapbOperTable / lapbOperEntry

2 Verify that the sign controller responds with a valid value. (non zero, positive integers)