



OPTICAL TRANSCEIVER TEST REPORT

Tested by: Doubt.Zheng | Date: 2022.12.24

1. Test Purpose

Test objects: SFP-1G-SX, Through the corresponding tests, the test parameters conform to the relevant industry standards, and the test transceivers can be used normally in Cisco brand equipment, laying the foundation for the subsequent cooperation with customers.

2. Test items

Test items		Test details
Compatibility Testing	Connectivity testing	The transceiver can connect both ends of the device normally, and the device port status is up.
	Parameter testing	The transceiver PN, VN, SN, and DDM information read by the device is consistent with the module tag description.

3. Test environment

3.1. Test samples

Vendor Name	Part Number	Serial Number	Transceiver Description
NADDOD	SFP-1G-SX	ACS22060700020	Cisco Compatible 1000BASE-SX SFP 850nm 550m DOM LC MMF Transceiver Module
NADDOD	SFP-1G-SX	ACS22060700021	Cisco Compatible 1000BASE-SX SFP 850nm 550m DOM LC MMF Transceiver Module

3.2. Test equipment

Equipment Brand	Equipment Model	Software version (running)
Cisco	Cisco Nexus N9K-C93180YC-EX	NX-OS:10.2.1[F]

4. Test data

4.1. Connectivity testing

Test Method	<ol style="list-style-type: none"> check whether the device status is normal.; Check whether the port device port LED is green; (individual brand port LED is yellow or white) check whether the device port is normally linked up;
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	4. Check whether the device port rate is up to standard.														
Test Data	<pre> switch# show inventory NAME: "Chassis", DESCR: "Nexus9000 C93180YC-EX chassis" PID: N9K-C93180YC-EX , VID: V01 , SN: FDO21021SZV NAME: "Slot 1", DESCR: "48x10/25G + 6x40/100G Ethernet Module" PID: N9K-C93180YC-EX , VID: V01 , SN: FDO21021SZV NAME: "Power Supply 2", DESCR: "Nexus9000 C93180YC-EX chassis Power Supply" PID: NXA-PAC-650W-PE , VID: V01 , SN: LIT20140G26 NAME: "Fan 1", DESCR: "Nexus9000 C93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A NAME: "Fan 2", DESCR: "Nexus9000 C93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A NAME: "Fan 3", DESCR: "Nexus9000 C93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A NAME: "Fan 4", DESCR: "Nexus9000 C93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A switch# show interface status include connected mgmt0 -- connected routed full 1000 -- Eth1/31 -- connected routed full 1000 1000base-SX Eth1/32 -- connected routed full 1000 1000base-SX </pre>														
Test Situation	<table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="3">SFP-1G-SX</td> </tr> <tr> <td>Port Number</td> <td>Eth1/31</td> <td>Eth1/32</td> </tr> <tr> <td>Port Status</td> <td>connected</td> <td>connected</td> </tr> <tr> <td>Port Link Rate</td> <td>1G</td> <td>1G</td> </tr> </table>			SFP-1G-SX			Port Number	Eth1/31	Eth1/32	Port Status	connected	connected	Port Link Rate	1G	1G
SFP-1G-SX															
Port Number	Eth1/31	Eth1/32													
Port Status	connected	connected													
Port Link Rate	1G	1G													
Test Conclusion	After testing, the above transceivers are normally connected on Cisco Nexus N9K-C93180YC-EX, the device port LEDs at both ends are always on white, the link is linkup.														
Remarks															

4.2. Parameter Testing

<p>Test Method</p>	<ol style="list-style-type: none"> check whether the basic information such as module manufacturer name, model name and serial number is correct. check whether the module transmission distance, wavelength, type and other key parameters are correct. check whether the module DDM parameters have exceeded the threshold value. 																																										
<p>Test Data</p>	<p>Ethernet1/31</p> <p>transceiver is present type is 1000base-SX name is NADDOD part number is SFP-1G-SX revision is 0 serial number is ACS22060700020 nominal bitrate is 1300 MBit/sec cisco id is 3 cisco extended id number is 4</p> <p style="text-align: center;">SFP Detail Diagnostics Information (internal calibration)</p> <p style="text-align: center;">-----</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Current</th> <th colspan="2" style="text-align: center;">Alarms</th> <th colspan="2" style="text-align: center;">Warnings</th> </tr> <tr> <th></th> <th style="text-align: center;">Measurement</th> <th style="text-align: center;">High</th> <th style="text-align: center;">Low</th> <th style="text-align: center;">High</th> <th style="text-align: center;">Low</th> </tr> </thead> <tbody> <tr> <td>Temperature</td> <td style="text-align: center;">38.64 C</td> <td style="text-align: center;">95.00 C</td> <td style="text-align: center;">-30.00 C</td> <td style="text-align: center;">85.00 C</td> <td style="text-align: center;">-20.00 C</td> </tr> <tr> <td>Voltage</td> <td style="text-align: center;">3.27 V</td> <td style="text-align: center;">3.63 V</td> <td style="text-align: center;">2.97 V</td> <td style="text-align: center;">3.46 V</td> <td style="text-align: center;">3.13 V</td> </tr> <tr> <td>Current</td> <td style="text-align: center;">6.45 mA</td> <td style="text-align: center;">12.00 mA</td> <td style="text-align: center;">0.50 mA</td> <td style="text-align: center;">11.00 mA</td> <td style="text-align: center;">1.00 mA</td> </tr> <tr> <td>Tx Power</td> <td style="text-align: center;">-4.13 dBm</td> <td style="text-align: center;">1.99 dBm</td> <td style="text-align: center;">-11.54 dBm</td> <td style="text-align: center;">0.00 dBm</td> <td style="text-align: center;">-9.50 dBm</td> </tr> <tr> <td>Rx Power</td> <td style="text-align: center;">-6.43 dBm</td> <td style="text-align: center;">1.99 dBm</td> <td style="text-align: center;">-19.20 dBm</td> <td style="text-align: center;">0.00 dBm</td> <td style="text-align: center;">-16.98 dBm</td> </tr> </tbody> </table> <p>Transmit Fault Count = 0</p> <p style="text-align: center;">-----</p> <p>Note: ++ high-alarm; + high-warning; -- low-alarm; - low-warning</p> <p>Ethernet1/32</p> <p>transceiver is present type is 1000base-SX name is NADDOD part number is SFP-1G-SX revision is 0 serial number is ACS22060700021 nominal bitrate is 1300 MBit/sec cisco id is 3 cisco extended id number is 4</p>		Current	Alarms		Warnings			Measurement	High	Low	High	Low	Temperature	38.64 C	95.00 C	-30.00 C	85.00 C	-20.00 C	Voltage	3.27 V	3.63 V	2.97 V	3.46 V	3.13 V	Current	6.45 mA	12.00 mA	0.50 mA	11.00 mA	1.00 mA	Tx Power	-4.13 dBm	1.99 dBm	-11.54 dBm	0.00 dBm	-9.50 dBm	Rx Power	-6.43 dBm	1.99 dBm	-19.20 dBm	0.00 dBm	-16.98 dBm
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SFP Detail Diagnostics Information (internal calibration)					

	Current	Alarms		Warnings	
	Measurement	High	Low	High	Low

Temperature	38.29 C	95.00 C	-30.00 C	85.00 C	-20.00 C
Voltage	3.25 V	3.63 V	2.97 V	3.46 V	3.13 V
Current	6.25 mA	12.00 mA	0.50 mA	11.00 mA	1.00 mA
Tx Power	-5.11 dBm	1.99 dBm	-11.54 dBm	0.00 dBm	-9.50 dBm
Rx Power	-6.79 dBm	1.99 dBm	-19.20 dBm	0.00 dBm	-16.98 dBm
Transmit Fault Count = 0					

Test situation	SFP-1G-SX				
	Vendor	NADDOD		NADDOD	
	Part Number	SFP-1G-SX		SFP-1G-SX	
	Serial Number	ACS22060700020		ACS22060700021	
	Wavelength	/		/	
	Link Length	550m		550m	
	Transceiver Type	1000base-SX		1000base-SX	
	DDM Alarm	NO		NO	
	DDM-Temp	38.64°C		38.29°C	
	DDM-Voltage	3.27V		3.25V	
	DDM-Tx Bias Current	6.45mA		6.25mA	
	DDM-Tx Power	-4.13dBm		-5.11dBm	
	DDM-Rx Power	-6.43dBm		-6.79dBm	
Test Conclusion	After testing, the above Transceiver on Cisco Nexus N9K-C93180YC-EX vendor name, part number, serial number, DDM and other information is normally identified, the five DDM parameters do not exceed the level I and II thresholds, and the Transceiver operates normally.				
Remarks	1.Cisco Nexus series devices cannot read optical module bands.				

4.3. Stability testing

<p>Test Method</p>	<p>1. the transceiver is operated continuously for 6 days in a real environment. 2. To see if the transceiver has normal bandwidth on the equipment. 3. To see if the transceiver has normal latency on the equipment.</p>			
<p>Test Data</p>	<pre> *****lperf***** [ID] Interval Transfer Bitrate [5] 0.00-3600.02 sec 395 GBytes 941 Mbits/sec receiver *****lb_write_bw***** root@naddod-test2:/home/naddod# ib_write_bw ***** * Waiting for client to connect... * ***** ----- RDMA_Write BW Test Dual-port : OFF Device : mlx5_0 Number of qps : 1 Transport type : IB Connection type : RC Using SRQ : OFF PCIe relax order: ON ibv_wr* API : ON CQ Moderation : 1 Mtu : 1024[B] Link type : Ethernet GID index : 3 Max inline data : 0[B] rdma_cm QPs : OFF Data ex. method : Ethernet ----- local address: LID 0000 QPN 0x0087 PSN 0x36ffce RKey 0x1ffbbae VAddr 0x007f726c8f8000 GID: 00:00:00:00:00:00:00:00:255:255:10:10:10:20 remote address: LID 0000 QPN 0x0089 PSN 0x661df8 RKey 0x1ffbb0 VAddr 0x007f9f53d32000 GID: 00:00:00:00:00:00:00:00:255:255:10:10:10:10 ----- #bytes #iterations BW peak[MB/sec] BW average[MB/sec] MsgRate[Mpps] 65536 5000 110.68 110.68 0.001771 </pre>			
<p>Test Situation</p>	<p>/</p>	<p>test tools</p> <table border="1" data-bbox="682 1955 1436 2027"> <tr> <td data-bbox="682 1955 1061 2027">lperf</td> <td data-bbox="1061 1955 1436 2027">lb_write_bw</td> </tr> </table>	lperf	lb_write_bw
lperf	lb_write_bw			

port number	Ethernet1/31	Ethernet1/32	Ethernet1/31	Ethernet1/32
average bandwidth	941 Mbits/sec		110.68MB/sec	
Port count(tx)	444141515553 bytes	8679504951 bytes	444141514255 bytes	8679505310 bytes
Port count(rx)	8679489518 bytes	444141499867 bytes	8679488859 bytes	444141486933 bytes
Packet loss rate	0%		0%	
error	0		0	
Test Conclusion	After testing, after the module runs continuously on the Cisco Nexus N9K-C93180YC-EX for one hour, the link is not interrupted during this period, the DDM parameters have no major changes, and the port count has no packet loss, no CRC, and no bit error.			
Remarks				

5. Appendix

5.1 Transceiver compatibility testing standards

On the basis of the threshold range, the allowed deviation value should be within the standard range specified by the industry protocol.

Content	Details	Standard
Basic Information	Part Number	The part number read by the device is the same as the Part Number on the label. (If there are special requirements, the actual information shall prevail)
	Serial Number	The serial number read by the device is the same as the serial number on the label. (If there is special requirement, the actual information shall prevail).
	Vendor	The vendor name information read is NADDOD. (If there are special requirements, the actual information shall prevail).
	Transceiver Type	Transceiver information read by the device is consistent with that specified on the actual optics protocol specification (SFF-8636/SFF-8024).
	Wavelength	Transceiver wavelength information read by the device is consistent with the module description.
	Link Length	Transceiver maximum transmission distance information read by the device is consistent with the module description.
DDM Information	Temp	1. The actual DDM information is within the DDM threshold and there are no alarms. 2. The DDM threshold range is in accordance with the module specification.
	Voltage	
	Tx Bias Current	
	Tx Power	

	Rx Power	
Port Information	Port Rate	The data rate information read on the switch port corresponds to the actual rate of the optics.
	Port Status	When the transceiver is connected, the port status information is UP.
	Switch Port LED Status	The port indicators on both ends of the transceiver will be green when the transceiver is connected.
	Port Count	No packet loss, no error code, no CRC, no other ERROR packets.
Device Log		The device does not have any transceiver warning message.

Further Information :

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