OPTICAL TRANSCEIVER TEST REPORT

Tested by: Betty | Date: 2022.10.10

1. Test Purpose

Test objects: QSFP-40G-CU3,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	QSFP-40G-CU3	ACS22060700630	3m (10ft) 40G QSFP+ Passive Direct Attach Copper Twinax Cable

3.2. Test equipment

Equipment Brand	Equipment Model	Software version (running)
Cisco	Cisco N9K-C93180YC-EX	BIOS: version 07.59 NXOS: version 9.2(3)

4. Test data

4.1. Connectivity testing

Test Method	1. Check whether the device status is normal; 2. Check whether the port device port LED is green; (individual brand port LED is yellow or white) 3. Check whether the device port is normally linked up; 4. Check whether the device port rate is up to standard.
Test Data	N9K-C93180YC-EX# show inventory NAME: "Chassis", DESCR: "Nexus9000 93180YC-EX chassis" PID: N9K-C93180YC-EX , VID: V01 , SN: FD021192HKE NAME: "Slot 1", DESCR: "48x10/25G + 6x40/100G Ethernet Module" PID: N9K-C93180YC-EX , VID: V01 , SN: FD021192HKE NAME: "Power Supply 1", DESCR: "Nexus9000 93180YC-EX chassis Power Supply" PID: NXA-PAC-650W-PE , VID: V02 , SN: LIT21182CKL NAME: "Power Supply 2", DESCR: "Nexus9000 93180YC-EX chassis Power Supply" PID: NXA-PAC-650W-PE , VID: V02 , SN: LIT21182G55 NAME: "Fan 1", DESCR: "Nexus9000 93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A NAME: "Fan 2", DESCR: "Nexus9000 93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A NAME: "Fan 3", DESCR: "Nexus9000 93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A NAME: "Fan 4", DESCR: "Nexus9000 93180YC-EX chassis Fan Module" PID: NXA-FAN-30CFM-F , VID: V01 , SN: N/A N9K-C93180YC-EX# show interface status -- Port Name Status Vlan Duplex Speed Type -- mgmt0 -- notconnec routed auto auto -- -- Port Name Status Vlan Duplex Speed Type --

	Eth1/1	--	xcvrAbsen routed	auto	auto	--
	Eth1/2	--	xcvrAbsen routed	auto	auto	--
	Eth1/3	--	xcvrAbsen routed	auto	auto	--
	Eth1/4	--	xcvrAbsen routed	auto	auto	--
	Eth1/5	--	xcvrAbsen routed	auto	auto	--
	Eth1/6	--	xcvrAbsen routed	auto	auto	--
	Eth1/7	--	xcvrAbsen routed	auto	auto	--
	Eth1/8	--	xcvrAbsen routed	auto	auto	--
	Eth1/9	--	xcvrAbsen routed	auto	auto	--
	Eth1/10	--	xcvrAbsen routed	auto	auto	--
	Eth1/11	--	xcvrAbsen routed	auto	auto	--
	Eth1/12	--	xcvrAbsen routed	auto	auto	--
	Eth1/13	--	xcvrAbsen routed	auto	auto	--
	Eth1/14	--	xcvrAbsen routed	auto	auto	--
	Eth1/15	--	xcvrAbsen routed	auto	auto	--
	Eth1/16	--	xcvrAbsen routed	auto	auto	--
	Eth1/17	--	xcvrAbsen routed	auto	auto	--
	Eth1/18	--	xcvrAbsen routed	auto	auto	--
	Eth1/19	--	xcvrAbsen routed	auto	auto	--
	Eth1/20	--	xcvrAbsen routed	auto	auto	--
	Eth1/21	--	xcvrAbsen routed	auto	auto	--
	Eth1/22	--	xcvrAbsen routed	auto	auto	--
	Eth1/23	--	xcvrAbsen routed	auto	auto	--
	Eth1/24	--	xcvrAbsen routed	auto	auto	--
	Eth1/25	--	xcvrAbsen routed	auto	auto	--
	Eth1/26	--	xcvrAbsen routed	auto	auto	--
	Eth1/27	--	xcvrAbsen routed	auto	auto	--
	Eth1/28	--	xcvrAbsen routed	auto	auto	--
	Eth1/29	--	xcvrAbsen routed	auto	auto	--
	Eth1/30	--	xcvrAbsen routed	auto	auto	--
	Eth1/31	--	xcvrAbsen routed	auto	auto	--
	Eth1/32	--	xcvrAbsen routed	auto	auto	--
	Eth1/33	--	xcvrAbsen routed	auto	auto	--
	Eth1/34	--	xcvrAbsen routed	auto	auto	--
	Eth1/35	--	xcvrAbsen routed	auto	auto	--
	Eth1/36	--	xcvrAbsen routed	auto	auto	--
	Eth1/37	--	xcvrAbsen routed	auto	auto	--
	Eth1/38	--	xcvrAbsen routed	auto	auto	--
	Eth1/39	--	xcvrAbsen routed	auto	auto	--
	Eth1/40	--	xcvrAbsen routed	auto	auto	--
	Eth1/41	--	xcvrAbsen routed	auto	auto	--
	Eth1/42	--	xcvrAbsen routed	auto	auto	--
	Eth1/43	--	xcvrAbsen routed	auto	auto	--
	Eth1/44	--	xcvrAbsen routed	auto	auto	--
	Eth1/45	--	xcvrAbsen routed	auto	auto	--

<table>
<tr><td></td><td>Eth1/46 -- xcvrAbsen routed auto auto --
Eth1/47 -- xcvrAbsen routed auto auto --
Eth1/48 -- xcvrAbsen routed auto auto --
Eth1/49 -- xcvrAbsen routed auto auto --
Eth1/50 -- xcvrAbsen routed auto auto --
Eth1/51 -- xcvrAbsen routed auto auto --
Eth1/52 -- xcvrAbsen routed auto auto --
Eth1/53 -- connected routed full 40G QSFP-40G-CR4
Eth1/54 -- connected routed full 40G QSFP-40G-CR4
Vlan1 -- down routed auto auto --</td></tr>
<tr><td rowspan="4">Test Situation</td><td colspan="3">QSFP-40G-CU3</td></tr>
<tr><td>Port Number</td><td>Port 53</td><td>Port 54</td></tr>
<tr><td>Port Status</td><td>active</td><td>active</td></tr>
<tr><td>Port Link Rate</td><td>40G</td><td>40G</td></tr>
<tr><td>Test Conclusion</td><td colspan="3">After testing, the above transceivers are normally connected on Cisco N9K-C93180YC-EX, the device port LEDs at both ends are always on green, the link is link up.</td></tr>
<tr><td>Remarks</td><td colspan="3"></td></tr>
</table>

4.2. Parameter Testing

Test Method	1. check whether the basic information such as module manufacturer name, model name and serial number is correct. 2. check whether the module transmission distance, wavelength, type and other key parameters are correct. 3. check whether the module DDM parameters have exceeded the threshold value.
Test Data	Port： 53 switch# show interface eth 1/53

```
Ethernet1/53 is up
admin state is up, Dedicated Interface
  Hardware: 1000/10000/25000/40000/50000/100000 Ethernet, address: 70df.2f96.e55
7 (bia 70df.2f96.e598)
  MTU 1500 bytes, BW 40000000 Kbit, DLY 10 usec
  reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, medium is broadcast
  full-duplex, 40 Gb/s, media type is 40G
  Beacon is turned off
  Auto-Negotiation is turned on  FEC mode is Auto
  Input flow-control is off, output flow-control is off
  Auto-mdix is turned off
  Rate mode is dedicated
  Switchport monitor is off
  EtherType is 0x8100
  EEE (efficient-ethernet) : n/a
    admin fec state is auto, oper fec state is off
  Last link flapped 00:02:36
  Last clearing of "show interface" counters never
  3 interface resets
  Load-Interval #1: 30 seconds
    30 seconds input rate 0 bits/sec, 0 packets/sec
    30 seconds output rate 0 bits/sec, 0 packets/sec
    input rate 0 bps, 0 pps; output rate 0 bps, 0 pps
  Load-Interval #2: 5 minute (300 seconds)
    300 seconds input rate 16 bits/sec, 0 packets/sec
    300 seconds output rate 16 bits/sec, 0 packets/sec
    input rate 16 bps, 0 pps; output rate 16 bps, 0 pps
  RX
    0 unicast packets  76 multicast packets  0 broadcast packets
    76 input packets  19988 bytes
    0 jumbo packets  0 storm suppression bytes
    0 runts  0 giants  0 CRC  0 no buffer
    0 input error  0 short frame  0 overrun   0 underrun  0 ignored
    0 watchdog  0 bad etype drop  0 bad proto drop  0 if down drop
    0 input with dribble  0 input discard
    0 Rx pause
  TX
    0 unicast packets  76 multicast packets  0 broadcast packets
    76 output packets  19988 bytes
    0 jumbo packets
    0 output error  0 collision  0 deferred  0 late collision
    0 lost carrier  0 no carrier  0 babble  0 output discard
    0 Tx pause
```

```
switch# show interface eth 1/53 transceiver details
Ethernet1/53
     transceiver is present
     type is QSFP-40G-CR4
     name is NADDOD
     part number is QSFP-40G-CU3
     revision is 03
     serial number is ACS22060700630
     nominal bitrate is 10300 MBit/sec per channel
     Link length supported for copper is 3 m
     cisco id is 13
     cisco extended id number is 16
     cisco product id is QSFP-H40G-CUXM

DOM is not supported


Port :  54

switch# show interface eth 1/54
Ethernet1/54 is up
admin state is up, Dedicated Interface
  Hardware: 1000/10000/25000/40000/50000/100000 Ethernet, address: 70df.2f96.e55
7 (bia 70df.2f96.e59c)
  MTU 1500 bytes, BW 40000000 Kbit, DLY 10 usec
  reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, medium is broadcast
  full-duplex, 40 Gb/s, media type is 40G
  Beacon is turned off
  Auto-Negotiation is turned on  FEC mode is Auto
  Input flow-control is off, output flow-control is off
  Auto-mdix is turned off
  Rate mode is dedicated
  Switchport monitor is off
  EtherType is 0x8100
  EEE (efficient-ethernet) : n/a
    admin fec state is auto, oper fec state is off
  Last link flapped 00:02:41
  Last clearing of "show interface" counters never
  3 interface resets
  Load-Interval #1: 30 seconds
    30 seconds input rate 0 bits/sec, 0 packets/sec
    30 seconds output rate 0 bits/sec, 0 packets/sec
    input rate 0 bps, 0 pps; output rate 0 bps, 0 pps
```

<table>
<tr><td></td><td colspan="3">Load-Interval #2: 5 minute (300 seconds)
300 seconds input rate 16 bits/sec, 0 packets/sec
300 seconds output rate 16 bits/sec, 0 packets/sec
input rate 16 bps, 0 pps; output rate 16 bps, 0 pps
RX
0 unicast packets 76 multicast packets 0 broadcast packets
76 input packets 19988 bytes
0 jumbo packets 0 storm suppression bytes
0 runts 0 giants 0 CRC 0 no buffer
0 input error 0 short frame 0 overrun 0 underrun 0 ignored
0 watchdog 0 bad etype drop 0 bad proto drop 0 if down drop
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0 Rx pause
TX
0 unicast packets 76 multicast packets 0 broadcast packets
76 output packets 19988 bytes
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0 output error 0 collision 0 deferred 0 late collision
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switch# show interface eth 1/54 transceiver details
Ethernet1/54
transceiver is present
type is QSFP-40G-CR4
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part number is QSFP-40G-CU3
revision is 03
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DOM is not supported</td></tr>
<tr><td rowspan="2">Test situation</td><td colspan="3">QSFP-40G-CU3</td></tr>
<tr><td>Vendor</td><td>NADDOD</td><td>NADDOD</td></tr>
</table>

	Part Number	QSFP-40G-CU3	QSFP-40G-CU3
	Serial Number	ACS22060700630	ACS22060700630
	Link Length	3m	3m
	Transceiver Type	QSFP-40G-CR4	QSFP-40G-CR4
	DDM Alarm	NO	NO
Test Conclusion	After testing, the above Transceiver on Cisco 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			

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-8679).
	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.
	Voltage	

	Tx Bias Current	2. The DDM threshold range is in accordance with the module specification.
	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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1. We are committed to continuous product improvement and feature upgrades, and the contents contained in this manual are subject to change without notice.

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