

# QDD-ZR-400G

## TEST REPORT (Cisco)



## Content

|                                                   |   |
|---------------------------------------------------|---|
| 1. Test Purpose .....                             | 2 |
| 2. Test Results Summary .....                     | 2 |
| 3. Test Environment .....                         | 2 |
| 3.1 Test Equipment Used .....                     | 2 |
| 3.2 Test Sample .....                             | 2 |
| 4. Test Data .....                                | 3 |
| 4. 1 Product Software Performance Testing .....   | 3 |
| 4. 2 Product Compatibility Testing .....          | 4 |
| 5. Appendix .....                                 | 8 |
| 5. 1 Product Software Performance Standards ..... | 8 |
| 5. 2 Product Software Performance Standards ..... | 8 |

## 1. Test Purpose

The test object is the QDD-ZR-400G Transceiver. By testing the corresponding module, it will lay the foundation for subsequent cooperation with customers.

## 2. Test Results Summary

Table 2: Test Results

| 1st Items                            | Test Data | Remarks |
|--------------------------------------|-----------|---------|
| Product Software Performance Testing | Pass      |         |
| Product Compatibility Testing        | Pass      |         |

## 3. Test Environment

### 3.1 Test Equipment Used

Table 3- 1: Test Equipment Used

| Vendor | Device                | Soft Version | Hardware Version |
|--------|-----------------------|--------------|------------------|
| FS     | Coding Board          |              |                  |
| Cisco  | Nexus9000 C9332D-GX2B | 10.4(2)      |                  |

### 3.2 Test Sample

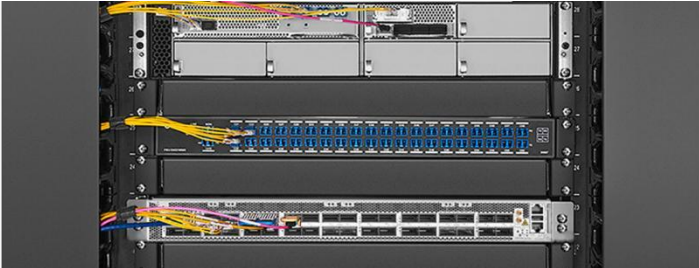
Table 3-2: Test Sample

| Product ID | P/N         | Serial N umber |
|------------|-------------|----------------|
| #193134    | QDD-ZR-400G | A2310220131    |

## 4. Test Data

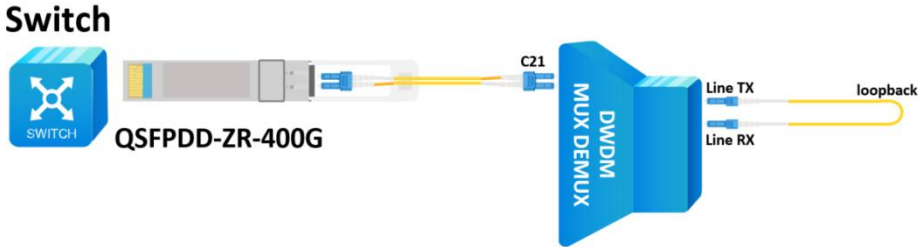
### 4.1 Product Software Performance Testing

Table 4- 1: Product Software Performance Testing

|                 |                                                                                                                                                                                                                                                                                                                                                                                            |                         |             |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------|
| Test Topology   | Network topology:                                                                                                                                                                                                                                                                                                                                                                          |                         |             |
|                 | <div><div><div>PC</div><div></div></div><div><div>FS Coding board</div><div></div></div></div> <div>Test scenario:</div> <div></div> |                         |             |
| Test Premise    | 1. The equipment can be normally powered up and run normally.<br>2. According to the above networking to build a test environment.                                                                                                                                                                                                                                                         |                         |             |
| Test Equipment  | Device                                                                                                                                                                                                                                                                                                                                                                                     | Model No.               |             |
|                 | QDD-ZR-400G                                                                                                                                                                                                                                                                                                                                                                                | A2310220131             |             |
| Test Method     | 1. The P/N, serial number, optic type, vendor name of the transceiver can be read by FS Coding board;<br>2. Transceiver is successfully coded by FS Coding board;<br>3. When FS Coding board and PC are powered on, plug and unplug the optics at least five times, then check whether the read information is consistent.                                                                 |                         |             |
|                 | Items                                                                                                                                                                                                                                                                                                                                                                                      | Content                 | The Results |
|                 | Function                                                                                                                                                                                                                                                                                                                                                                                   | Accessible Page         | Pass        |
|                 |                                                                                                                                                                                                                                                                                                                                                                                            | Coding                  | Pass        |
|                 | Upgrade                                                                                                                                                                                                                                                                                                                                                                                    | Firmware Online Upgrade | Pass        |
|                 | Stability                                                                                                                                                                                                                                                                                                                                                                                  | Hot Swap                | Pass        |
| Test Conclusion | After testing, the results of all tested items meet the requirements of the inspection basis.                                                                                                                                                                                                                                                                                              |                         |             |
| Remarks         |                                                                                                                                                                                                                                                                                                                                                                                            |                         |             |

## 4.2 Product Compatibility Testing

Table 4- 2: Product Compatibility Testing

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Test Topology    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |
| Test Equipment   | Device                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Model No.             |
|                  | Cisco                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Nexus9000 C9332D-GX2B |
| Test Method      | <p>1.Check whether the optics DDM threshold is accurate;<br/> 2.Check whether the DDM parameters of optics, basic information of optics, device port information, and device log information are normal.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |
| Test Information | <p>n# show version<br/> Cisco Nexus Operating System (NX-OS) Software<br/> TAC support: <a href="http://www.cisco.com/tac">http://www.cisco.com/tac</a><br/> Copyright (C) 2002-2023, Cisco and/or its affiliates.<br/> All rights reserved.</p> <p>The copyrights to certain works contained in this software are owned by other third parties and used and distributed under their own licenses, such as open source. This software is provided "as is," and unless otherwise stated, there is no warranty, express or implied, including but not limited to warranties of merchantability and fitness for a particular purpose.</p> <p>Certain components of this software are licensed under the GNU General Public License (GPL) version 2.0 or GNU General Public License (GPL) version 3.0 or the GNU Lesser General Public License (LGPL) Version 2.1 or Lesser General Public License (LGPL) Version 2.0.</p> <p>A copy of each such license is available at <a href="http://www.opensource.org/licenses/gpl-2.0.php">http://www.opensource.org/licenses/gpl-2.0.php</a> and <a href="http://opensource.org/licenses/gpl-3.0.html">http://opensource.org/licenses/gpl-3.0.html</a> and <a href="http://www.opensource.org/licenses/lgpl-2.1.php">http://www.opensource.org/licenses/lgpl-2.1.php</a> and <a href="http://www.gnu.org/licenses/old-licenses/library.txt">http://www.gnu.org/licenses/old-licenses/library.txt</a>.</p> <p>Software<br/> BIOS: version 01.11<br/> NXOS: version 10.4(2) [Feature Release]<br/> Host NXOS: version 10.4(2)<br/> BIOS compile time: 06/30/2023<br/> NXOS image file is: bootflash:///nxos64-cs.10.4.2.F.bin<br/> NXOS compile time: 11/30/2023 12:00:00 [12/14/2023 05:25:50]<br/> NXOS boot mode: LXC</p> <p>Hardware<br/> cisco Nexus9000 C9332D-GX2B Chassis<br/> Intel(R) Xeon(R) CPU D-1633N @ 2.50GHz with 32801496 kB of memory.<br/> Processor Board ID FDO26450X3Y<br/> Device name: n</p> |                       |

```

bootflash: 115805708 kB

Kernel uptime is 0 day(s), 0 hour(s), 43 minute(s), 48 second(s)

Last reset at 684261 usecs after Thu Mar 6 09:22:25 2025
Reason: Reset due to upgrade
System version: 10.4(3)
Service:

plugin
Core Plugin, Ethernet Plugin

Active Package(s):
n# show inventory
NAME: "Chassis", DESCR: "Nexus9000 C9332D-GX2B Chassis"
PID: N9K-C9332D-GX2B , VID: V01 , SN: FDO26450X3Y

NAME: "Slot 1", DESCR: "32x400G QSFP-DD + 2x10G SFP+ Ethernet Module"
PID: N9K-C9332D-GX2B , VID: V01 , SN: FDO26450X3Y

NAME: "Slot 27", DESCR: "32x400G QSFP-DD + 2x10G SFP+ Ethernet Module"
PID: N9K-C9332D-GX2B , VID: V01 , SN: FDO26450X3Y

NAME: "Power Supply 1", DESCR: "Nexus9000 C9332D-GX2B Chassis Power Supply"
PID: NXA-PAC-1500W-PI , VID: V01 , SN: POG2646FTDA

NAME: "Power Supply 2", DESCR: "Nexus9000 C9332D-GX2B Chassis Power Supply"
PID: NXA-PAC-1500W-PI , VID: V01 , SN: POG2646FT6T

NAME: "Fan 1", DESCR: "Nexus9000 C9332D-GX2B Chassis Fan Module"
PID: NXA-SFAN-35CFM-PI , VID: V01 , SN: N/A

NAME: "Fan 2", DESCR: "Nexus9000 C9332D-GX2B Chassis Fan Module"
PID: NXA-SFAN-35CFM-PI , VID: V01 , SN: N/A

NAME: "Fan 3", DESCR: "Nexus9000 C9332D-GX2B Chassis Fan Module"
PID: NXA-SFAN-35CFM-PI , VID: V01 , SN: N/A

NAME: "Fan 4", DESCR: "Nexus9000 C9332D-GX2B Chassis Fan Module"
PID: NXA-SFAN-35CFM-PI , VID: V01 , SN: N/A

NAME: "Fan 5", DESCR: "Nexus9000 C9332D-GX2B Chassis Fan Module"
PID: NXA-SFAN-35CFM-PI , VID: V01 , SN: N/A

NAME: "Fan 6", DESCR: "Nexus9000 C9332D-GX2B Chassis Fan Module"
PID: NXA-SFAN-35CFM-PI , VID: V01 , SN: N/A

n# show running-config interface ethernet 1/1

!Command: show running-config interface Ethernet1/1
!Running configuration last done at: Thu Mar 6 09:29:51 2025
!Time: Thu Mar 6 10:10:51 2025

version 10.4(2) Bios:version 01.11

interface Ethernet1/1
  zr-optics fec cFEC muxponder 1x400 modulation 16QAM dac-rate 1x1
  zr-optics cd-min -2300 cd-max 2300
  zr-optics transmit-power -70
  zr-optics dwdm-carrier 100MHz-grid frequency 1921000
  no shutdown
n# show interface status

-----
Port      Name      Status  Vlan  Duplex Speed Type
-----
mgmt0     --        notconnec routed  auto  auto  --
-----

```

| Port                                               | Name | Status    | Vlan | Duplex | Speed | Type        |
|----------------------------------------------------|------|-----------|------|--------|-------|-------------|
| Eth1/1                                             | --   | connected | 1    | full   | 400G  | QSFP-DD-400 |
| G-ZR-S                                             |      |           |      |        |       |             |
| Eth1/2                                             | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/3/1                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/3/2                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/3/3                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/3/4                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/4                                             | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/5/1                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/5/2                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/5/3                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/5/4                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/6                                             | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/7/1                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/7/2                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/7/3                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/7/4                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/8                                             | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/9/1                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/9/2                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/9/3                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/9/4                                           | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/10                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/11/1                                          | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/11/2                                          | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/11/3                                          | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/11/4                                          | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/12                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/13                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/14                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/15                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/16                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/17                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/18                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/19                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/20                                            | --   | xcvrAbsen | 1    | auto   | 100G  | --          |
| Eth1/21                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/22                                            | --   | xcvrAbsen | 1    | auto   | 100G  | --          |
| Eth1/23                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/24                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/25                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/26                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/27                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/28                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/29                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/30                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/31                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/32                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/33                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| Eth1/34                                            | --   | xcvrAbsen | 1    | auto   | auto  | --          |
| n# show interface ethernet 1/1 transceiver details |      |           |      |        |       |             |
| Ethernet1/1                                        |      |           |      |        |       |             |
| transceiver is present                             |      |           |      |        |       |             |
| type is QSFP-DD-400G-ZR-S                          |      |           |      |        |       |             |
| name is FS                                         |      |           |      |        |       |             |
| part number is QDD-ZR-400G                         |      |           |      |        |       |             |
| revision is A                                      |      |           |      |        |       |             |
| serial number is A2310220126                       |      |           |      |        |       |             |
| nominal bitrate is 425000 MBit/sec per channel     |      |           |      |        |       |             |
| cisco id is 24                                     |      |           |      |        |       |             |
| cisco extended id number is 21                     |      |           |      |        |       |             |
| firmware version is 2.11                           |      |           |      |        |       |             |
| Link length SMF is 8 km                            |      |           |      |        |       |             |
| Nominal transmitter wavelength is 1547.70 nm       |      |           |      |        |       |             |
| Wavelength tolerance is 0.015 nm                   |      |           |      |        |       |             |
| host lane count is 8                               |      |           |      |        |       |             |

|                      | <p>media lane count is 1<br/>max module temperature is 70 deg C<br/>min module temperature is 0 deg C<br/>min operational voltage is 3.14 V<br/>vendor OUI is 0x7cb25c<br/>date code is 240507<br/>clei code is INUIANYEAA<br/>power class is 8 (&gt;14 W maximum)<br/>max power is 23.75 W<br/>near-end lanes used none<br/>far-end lane code for 8 lanes Undefined<br/>media interface is unknown value 0x10<br/>Advertising code is Optical Interfaces: SMF<br/>Host electrical interface code is 400GAUI-8 C2M (Annex 120E)</p> <p>FEC State: FEC cFEC<br/>Optics Status<br/>    Optics Type: QSFP-DD-400G-ZR-S<br/>    DWDM carrier Info: Frequency: 192.10 THz</p> <p>Alarm Status<br/>-----<br/>DAC Rate: 1x1</p> <p>THRESHOLD VALUES<br/>-----<br/>Configured Tx Power: 0 dBm<br/>Modulation Type: 16QAM<br/>Muxponder Type: 1x400<br/>Configured CD-MIN: -1430864206 ps/nm    CD-MAX: 530644985 ps/nm</p> <p>Lane Number:1 Network Lane</p> <table><tr><th></th><th>Current<br/>Measurement</th><th>Alarms<br/>High</th><th>Low</th><th>Warnings<br/>High</th><th>Low</th></tr><tr><td>Temperature</td><td>65.62 C</td><td>75.00 C</td><td>-5.00 C</td><td>70.00 C</td><td>0.00 C</td></tr><tr><td>Voltage</td><td>3.30 V</td><td>3.60 V</td><td>3.00 V</td><td>3.46 V</td><td>3.13 V</td></tr><tr><td>Current</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></tr><tr><td>Tx Power</td><td>-7.01 dBm</td><td>2.99 dBm</td><td>-8.01 dBm</td><td>1.99 dBm</td><td>-7.01 dBm</td></tr><tr><td>Rx Power</td><td>-11.13 dBm</td><td>7.99 dBm</td><td>-23.01 dBm</td><td>7.99 dBm</td><td>-22.21 dBm</td></tr><tr><td>Transmit Fault Count</td><td colspan="5">= 0</td></tr></table> <p>Note: ++ high-alarm; + high-warning; -- low-alarm; - low-warning</p> <p>*** This QSFP support partial diagnostic data! ***</p> |                | Current<br>Measurement | Alarms<br>High   | Low        | Warnings<br>High | Low | Temperature | 65.62 C | 75.00 C | -5.00 C | 70.00 C | 0.00 C | Voltage | 3.30 V | 3.60 V | 3.00 V | 3.46 V | 3.13 V | Current | N/A | N/A | N/A | N/A | N/A | Tx Power | -7.01 dBm | 2.99 dBm | -8.01 dBm | 1.99 dBm | -7.01 dBm | Rx Power | -11.13 dBm | 7.99 dBm | -23.01 dBm | 7.99 dBm | -22.21 dBm | Transmit Fault Count | = 0 |  |  |  |  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------|------------------|------------|------------------|-----|-------------|---------|---------|---------|---------|--------|---------|--------|--------|--------|--------|--------|---------|-----|-----|-----|-----|-----|----------|-----------|----------|-----------|----------|-----------|----------|------------|----------|------------|----------|------------|----------------------|-----|--|--|--|--|
|                      | Current<br>Measurement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Alarms<br>High | Low                    | Warnings<br>High | Low        |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Temperature          | 65.62 C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 75.00 C        | -5.00 C                | 70.00 C          | 0.00 C     |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Voltage              | 3.30 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 3.60 V         | 3.00 V                 | 3.46 V           | 3.13 V     |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Current              | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | N/A            | N/A                    | N/A              | N/A        |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Tx Power             | -7.01 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2.99 dBm       | -8.01 dBm              | 1.99 dBm         | -7.01 dBm  |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Rx Power             | -11.13 dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 7.99 dBm       | -23.01 dBm             | 7.99 dBm         | -22.21 dBm |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Transmit Fault Count | = 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                        |                  |            |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Test Conclusion      | The QDD-ZR-400G module was used in this test.After testing, the test results of the tested items (product software performance) meet the requirements of the test basis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |                        |                  |            |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |
| Remarks              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                        |                  |            |                  |     |             |         |         |         |         |        |         |        |        |        |        |        |         |     |     |     |     |     |          |           |          |           |          |           |          |            |          |            |          |            |                      |     |  |  |  |  |

## 5. Appendix

### 5.1 Product Software Performance Standards

Table 5- 1: Product Software Performance Standards

| Test Items  | Content                 | Standards                                                                                                                                      |
|-------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Function    | Accessed Normally       | The model No., serial number, optics type, vendor name and other information of optics can be read.                                            |
|             | Accessible Page         |                                                                                                                                                |
| Upgrade     | Firmware Online Upgrade | Optics can be coded through BOX successfully                                                                                                   |
| Reliability | Hot Swap                | When FS BOX and PC are powered on, plug and unplug the optics for at least five times, then check whether the read information are consistent. |

### 5.2 Product Software Performance Standards

On the basis of threshold value range, the allowable deviation value should be within the standard range that is specified by FS.

Table 5- 2: Product Software Performance Standards

| Content           | Details                 | Standards                                                                                                                                                            |
|-------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic Information | Model name              | The read model No. is consistent with the model of optics. (If there are special requirements, the actual information shall prevail)                                 |
|                   | SN Number               | The read serial number is consistent with the serial number on label of optics. (If there are special requirements, the actual information shall prevail)            |
|                   | Vendor Name             | The vendor name information read is FS/OEM. (If there are special requirements, the actual information shall prevail)                                                |
|                   | Type                    | The optics type information read by the switch is consistent with the actual optics model. (If there are special requirements, the actual information shall prevail) |
| DDM Information   | Temperature             | 1. The actual DDM information is within the DDM threshold and there is no alarm;<br>2. The DDM threshold range meets the product specification requirements.         |
|                   | Voltage                 |                                                                                                                                                                      |
|                   | Bias current            |                                                                                                                                                                      |
|                   | Tx Power                |                                                                                                                                                                      |
|                   | RX Power                |                                                                                                                                                                      |
| Port Information  | Port Rate               | The data rate information read on switch port is consistent with the actual rate of the optics                                                                       |
|                   | Port Status             | After the product is connected, the port status information is UP                                                                                                    |
|                   | Switch Indicator Status | After the product is connected, the port indicators at both ends of the product will be green/orange                                                                 |
| Switch Log        |                         | Except for the official certification warning information, no other warning information                                                                              |