QSFP-LR4-40G
TEST REPORT (Cisco)

Content

1. Test Purpose

By building test scenarios and simulating the customer's usage environment, we test whether the module performance meets the customer's requirements.

2. Test Result Summary

Table 2-1: Test Result Summary

Test Items	Test Result
Muti-Version	Pass
Connectivity	Pass
Module Basic Information	Pass
Digital Diagnostic Monitoring	Pass

3. Test Equipment Used

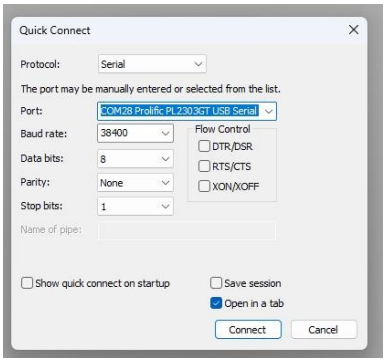
Table 3-1: Test Equipment Used

Vendor	Device	Soft Version/Compatible Brand	Serial Number
Cisco Switch	C9500-24Y4C	17.12.03	/
FS Optical Transceiver Module	QSFP-LR4-40G	Cisco Compatible	A1930000936 A1930000937

4. Test Data

4.1 Test Scenario

Table 4-1: Test Scenario

Test Topology	Network topology:  Interoperability test scenario : 
Test Premise	1. Confirm the brand, quantity and placement of the switches to be tested. 2. Prepare control cables, test software and optical fiber patch cords. Power on the switches in advance. 3. Locate the Console port on the switch, which is usually marked as "CON" on the switch, although some switches may display it as "IOIOI" or a computer monitor icon, etc. Use a control cable to connect the switch to the computer.  4. Before connecting the software, it is necessary to confirm the connection port of the control cable. Go to the computer device manager, click on the ports (COM and LPT) to view the ports. After confirming the ports, proceed with the next step.
Test Method	Click to open the SecureCRT Portable software and enter the quick connection interface. ① Protocol selection: Serial ② Port selection: The same as the port you viewed in the previous step ③ Baud rate selection: The same as the baud rate of the port on the target switch ④ Flow control: Do not check this option The remaining configurations can keep the default values. 

Test Steps	① Insert the module into the corresponding rate port of the switch, and connect the TX-RX ends with an optical fiber jumper or an MTP self-loop device. Observe whether the module is connected. If not connected, please check the jumper connection or the switch port configuration (login to the switch is required). ② Enter the test interface, input the account and password, log in to the switch and enter privileged mode. ③ According to the switch command configuration table, input the corresponding test command and view the relevant information: port status (connectivity), connection rate, alarm status, module basic information, DDM information, etc. Determine whether it meets the requirements.

4.2 Test Result

Table 4-2: Test Result

Test Information

1. Read the switch model name and software version, and read the status of all ports on the switch

```
C9500-24Y4C#show version
Cisco IOS XE Software, Version 17.12.03
Cisco IOS Software [Dublin], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.12.3, RELEASE SOFTWARE (fc7)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2024 by Cisco Systems, Inc.
Compiled Wed 20-Mar-24 15:40 by mcpre
```

```
C9500-24Y4C#show interfaces status

Port      Name               Status       Vlan       Duplex  Speed Type
Twe1/0/1                     notconnect   routed       full  a-25G unknown
Twe1/0/2                     notconnect   routed       full   auto unknown
Twe1/0/3                     notconnect   routed       full  a-10G unknown
Twe1/0/4                     notconnect   routed       full  a-10G unknown
Twe1/0/5                     notconnect   routed       full  a-10G unknown
Twe1/0/6                     notconnect   1          full   auto unknown
Twe1/0/7                     notconnect   1          full   auto unknown
Twe1/0/8                     notconnect   1          auto   auto unknown
Twe1/0/9                     notconnect   1          full   auto unknown
Twe1/0/10                    notconnect   1          auto   auto unknown
Twe1/0/11                    notconnect   1          full   auto unknown
Twe1/0/12                    notconnect   1          auto   auto unknown
Twe1/0/13                    notconnect   1          auto   auto unknown
Twe1/0/14                    notconnect   1          auto   auto unknown
Twe1/0/15                    notconnect   routed       auto   auto unknown
Twe1/0/16                    notconnect   1          auto   auto unknown
Twe1/0/17                    notconnect   1          full  a-25G unknown
Twe1/0/18                    notconnect   1          full   auto unknown
Twe1/0/19                    notconnect   1          auto    10G unknown
Twe1/0/20                    notconnect   1          full   auto unknown
Twe1/0/21                    notconnect   routed       auto   auto unknown

Port      Name               Status       Vlan       Duplex  Speed Type
Twe1/0/22                    notconnect   routed       auto   auto unknown
Twe1/0/23                    notconnect   1          auto   auto unknown
Twe1/0/24                    notconnect   1          auto   auto unknown
Hu1/0/25                     connected    1          full    40G QSFP 40G LR4 SFP
Hu1/0/26                     connected    1          full    40G QSFP 40G LR4 SFP
Hu1/0/27                     notconnect   routed       full   100G unknown
Hu1/0/28                     notconnect   1          full   100G unknown
```

Test Information

2. Read the module's basic information from the switch side

```
C9500-24Y4C#show idprom interface Hu1/0/25 detail

IDPROM for transceiver HundredGigE1/0/25:
  Description                          = QSFP optics (type 132)
  Transceiver Type:                    = QSFP 40GE LR4 (427)
  Product Identifier (PID)             = QSFP-40GE-LR4
  Vendor Revision                      = A
  Serial Number (SN)                   = A1930000936
  Vendor Name                          = FS
  Vendor OUI (IEEE company ID)         = 00.00.5F (95)
  CLEI code                            = IP9IANECAA
  Cisco part number                    = 10-2848-01
  Device State                         = Enabled.
  Date code (yy/mm/dd)                 = 20/19/02
  Connector type                       = LC
  Encoding                             = 64B66B
  Nominal bitrate per channel          = 10GE (10300 Mbits/s)
  Single mode fiber supported length   =  10 km
  Supported options implemented:
       Tx disable
       Tx fault signal
       Loss of signal
  Diagnostic monitoring implemented:
       Network Lane received power monitor
       Network Lane laser bias current monitor
       Network Lane laser output power monitor
       Transceiver temperature monitor
       Transceiver power supply voltage monitor

                        MODULE THRESHOLDS
                 high alarm    high warning     low warning      low alarm
Temperature    C      +075.000      +070.000      +000.000       -05.000
Voltage        V      003.6300      003.4650      003.1350       002.9700

                        LANES  THRESHOLDS
                 high alarm    high warning     low warning      low alarm
Bias Current   mA      095.0000      090.0000      005.0000       003.0000
Transmit power mW      002.8183      002.2387      000.1584       000.1259
Receive power  mW      002.8183      002.2387      000.0316       000.0251


 QSFP IDPROM Lower Info:
       000:      00 00 00 00 00 00 00 00 00 00
       010:      00 00 00 00 00 00 00 00 00 00
       020:      00 00 00 00 00 00 00 00 00 00
       030:      00 00 00 00 00 00 00 00 00 00
       040:      00 00 00 00 00 00 00 00 00 00
       050:      00 00 00 00 00 00 00 00 00 00
       060:      00 00 00 00 00 00 00 00 00 00
       070:      00 00 00 00 00 00 00 00 00 00
       080:      00 00 00 00 00 00 00 00 00 00
       090:      00 00 00 00 00 00 00 00 00 00
       100:      00 00 00 00 00 00 1F 00 00 00
       110:      00 00 00 00 00 00 00 00 00 00
       120:      00 00 00 00 00 00 00 00

 QSFP IDPROM Page 0x0:
       128:      0D B0 07 02 00 00 00 00 00 00
       138:      00 05 67 00 0A 00 00 00 00 40
       148:      46 53 20 20 20 20 20 20 20 20
       158:      20 20 20 20 20 20 00 00 00 5F
       168:      51 53 46 50 2D 4C 52 34 2D 34
       178:      30 47 20 20 20 20 41 20 66 58
       188:      05 14 46 43 00 00 0C D8 41 31
       198:      39 33 30 30 30 30 39 33 36 20
       208:      20 20 20 20 32 30 31 39 30 32
       218:      32 32 0C 00 00 62 00 00 08 D0
       228:      79 3D BE F3 31 3B 62 7E 54 DE
       238:      EC C1 66 15 36 00 00 00 00 00
       248:      00 00 00 00 55 33 B9 5D

 QSFP IDPROM Page 0x1:

 QSFP IDPROM Page 0x2:
       128:      49 50 39 49 41 4E 45 43 41 41
       138:      31 30 2D 32 38 34 38 2D 30 31
       148:      56 30 31 20 01 00 00 00 00 00
       158:      00 00 00 7E 00 00 00 00 00 00
       168:      00 00 8C 99 9B 00 AD DB D9 9C
       178:      00 00 29 99 61 CF 1E 9A 00 67
       188:      00 00 AA AA 51 53 46 50 2D 34
       198:      30 47 45 2D 4C 52 34 20 20 20
       208:      20 20 20 20 00 00 00 00 00 00
       218:      00 00 00 00 00 36 36 34 31 33
       228:      34 34 31 35 00 9C 62 48 62 BA
       238:      62 F7 20 B7 26 70 1A 59 FF 00
       248:      00 00 00 00 00 00 00 00
```

Test Information

```
C9500-24Y4C#show idprom interface Hu1/0/26 detail

IDPROM for transceiver HundredGigE1/0/26:
  Description                          = QSFP optics (type 132)
  Transceiver Type:                    = QSFP 40GE LR4 (427)
  Product Identifier (PID)             = QSFP-40GE-LR4
  Vendor Revision                      = A
  Serial Number (SN)                   = A1930000937
  Vendor Name                          = FS
  Vendor OUI (IEEE company ID)         = 00.00.5F (95)
  CLEI code                            = IP9IANECAA
  Cisco part number                    = 10-2848-01
  Device State                         = Enabled.
  Date code (yy/mm/dd)                 = 20/19/02
  Connector type                       = LC
  Encoding                             = 64B66B
  Nominal bitrate per channel          = 10GE (10300 Mbits/s)
  Single mode fiber supported length   =  10 km
  Supported options implemented:
       Tx disable
       Tx fault signal
       Loss of signal
  Diagnostic monitoring implemented:
       Network Lane received power monitor
       Network Lane laser bias current monitor
       Network Lane laser output power monitor
       Transceiver temperature monitor
       Transceiver power supply voltage monitor

                          MODULE THRESHOLDS
                high alarm    high warning     low warning      low alarm
Temperature     C      +075.000       +070.000       +000.000       -05.000
Voltage         V      003.6300       003.4650       003.1350       002.9700

                          LANES  THRESHOLDS
                high alarm    high warning     low warning      low alarm
Bias Current    mA      095.0000       090.0000       005.0000       003.0000
Transmit power  mW      002.8183       002.2387       000.1584       000.1259
Receive power   mW      002.8183       002.2387       000.0316       000.0251


 QSFP IDPROM Lower Info:
       000:      00 00 00 00 00 00 00 00 00 00
       010:      00 00 00 00 00 00 00 00 00 00
       020:      00 00 00 00 00 00 00 00 00 00
       030:      00 00 00 00 00 00 00 00 00 00
       040:      00 00 00 00 00 00 00 00 00 00
       050:      00 00 00 00 00 00 00 00 00 00
       060:      00 00 00 00 00 00 00 00 00 00
       070:      00 00 00 00 00 00 00 00 00 00
       080:      00 00 00 00 00 00 00 00 00 00
       090:      00 00 00 00 00 00 00 00 00 00
       100:      00 00 00 00 00 00 1F 00 00 00
       110:      00 00 00 00 00 00 00 00 00 00
       120:      00 00 00 00 00 00 00 00

 QSFP IDPROM Page 0x0:
       128:      0D B0 07 02 00 00 00 00 00 00
       138:      00 05 67 00 0A 00 00 00 00 40
       148:      46 53 20 20 20 20 20 20 20 20
       158:      20 20 20 20 20 20 00 00 00 5F
       168:      51 53 46 50 2D 4C 52 34 2D 34
       178:      30 47 20 20 20 20 41 20 66 58
       188:      05 14 46 43 00 00 0C D8 41 31
       198:      39 33 30 30 30 30 39 33 37 20
       208:      20 20 20 20 32 30 31 39 30 32
       218:      32 32 0C 00 00 63 00 00 08 2A
       228:      19 50 71 37 72 3A 0A 2E AA 0A
       238:      53 4D 41 9F 38 00 00 00 00 00
       248:      00 00 00 00 8E 30 41 6B

 QSFP IDPROM Page 0x1:

 QSFP IDPROM Page 0x2:
       128:      49 50 39 49 41 4E 45 43 41 41
       138:      31 30 2D 32 38 34 38 2D 30 31
       148:      56 30 31 20 01 00 00 00 00 00
       158:      00 00 00 7E 00 00 00 00 00 00
       168:      00 00 8C 99 9B 00 AD DB D9 9C
       178:      00 00 29 99 61 CF 1E 9A 00 67
       188:      00 00 AA AA 51 53 46 50 2D 34
       198:      30 47 45 2D 4C 52 34 20 20 20
       208:      20 20 20 20 00 00 00 00 00 00
       218:      00 00 00 00 00 36 36 34 31 33
       228:      34 34 31 35 00 9C 62 48 62 BA
       238:      62 F7 20 B7 26 70 1A 59 FF 00
       248:      00 00 00 00 00 00 00 00
```

Test Information	3. Read the DDM information of the module

C9500-24Y4C#show interfaces Hu1/0/25 transceiver detail
ITU Channel not available (Wavelength not available),
Transceiver is internally calibrated.
mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.
++ : high alarm, + : high warning, - : low warning, -- : low alarm.
A2D readouts (if they differ), are reported in parentheses.
The threshold values are calibrated.

Port	Temperature (Celsius)	High Alarm Threshold (Celsius)	High Warn Threshold (Celsius)	Low Warn Threshold (Celsius)	Low Alarm Threshold (Celsius)
Hu1/0/25	33.7	75.0	70.0	0.0	-5.0

Port	Voltage (Volts)	High Alarm Threshold (Volts)	High Warn Threshold (Volts)	Low Warn Threshold (Volts)	Low Alarm Threshold (Volts)
Hu1/0/25	3.21	3.63	3.46	3.13	2.97

Port	Lane	Current (milliamperes)	High Alarm Threshold (mA)	High Warn Threshold (mA)	Low Warn Threshold (mA)	Low Alarm Threshold (mA)
Hu1/0/25	1	40.0	95.0	90.0	5.0	3.0
Hu1/0/25	2	42.4	95.0	90.0	5.0	3.0
Hu1/0/25	3	41.4	95.0	90.0	5.0	3.0
Hu1/0/25	4	40.4	95.0	90.0	5.0	3.0

Port	Lane	Optical Transmit Power (dBm)	High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Hu1/0/25	1	0.2	4.5	3.5	-8.0	-9.0
Hu1/0/25	2	0.1	4.5	3.5	-8.0	-9.0
Hu1/0/25	3	0.1	4.5	3.5	-8.0	-9.0
Hu1/0/25	4	0.6	4.5	3.5	-8.0	-9.0

Port	Lane	Optical Receive Power (dBm)	High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Hu1/0/25	1	-0.4	4.5	3.5	-15.0	-16.0
Hu1/0/25	2	-0.6	4.5	3.5	-15.0	-16.0
Hu1/0/25	3	-0.1	4.5	3.5	-15.0	-16.0
Hu1/0/25	4	-1.4	4.5	3.5	-15.0	-16.0

C9500-24Y4C#show interfaces Hu1/0/26 transceiver detail
ITU Channel not available (Wavelength not available),
Transceiver is internally calibrated.
mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.
++ : high alarm, + : high warning, - : low warning, -- : low alarm.
A2D readouts (if they differ), are reported in parentheses.
The threshold values are calibrated.

Port	Temperature (Celsius)	High Alarm Threshold (Celsius)	High Warn Threshold (Celsius)	Low Warn Threshold (Celsius)	Low Alarm Threshold (Celsius)
Hu1/0/26	35.0	75.0	70.0	0.0	-5.0

Port	Voltage (Volts)	High Alarm Threshold (Volts)	High Warn Threshold (Volts)	Low Warn Threshold (Volts)	Low Alarm Threshold (Volts)
Hu1/0/26	3.20	3.63	3.46	3.13	2.97

Port	Lane	Current (milliamperes)	High Alarm Threshold (mA)	High Warn Threshold (mA)	Low Warn Threshold (mA)	Low Alarm Threshold (mA)
Hu1/0/26	1	46.3	95.0	90.0	5.0	3.0
Hu1/0/26	2	44.8	95.0	90.0	5.0	3.0
Hu1/0/26	3	42.1	95.0	90.0	5.0	3.0
Hu1/0/26	4	43.5	95.0	90.0	5.0	3.0

Port	Lane	Optical Transmit Power (dBm)	High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Hu1/0/26	1	0.2	4.5	3.5	-8.0	-9.0
Hu1/0/26	2	0.1	4.5	3.5	-8.0	-9.0
Hu1/0/26	3	0.2	4.5	3.5	-8.0	-9.0
Hu1/0/26	4	-0.3	4.5	3.5	-8.0	-9.0

Port	Lane	Optical Receive Power (dBm)	High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Hu1/0/26	1	-0.1	4.5	3.5	-15.0	-16.0
Hu1/0/26	2	-0.1	4.5	3.5	-15.0	-16.0
Hu1/0/26	3	-0.8	4.5	3.5	-15.0	-16.0
Hu1/0/26	4	-0.4	4.5	3.5	-15.0	-16.0

Test Conclusion	After completing the above test content, all the test information should be copied and pasted into a TXT document.
Remarks	