



**QSFP-LR-100G**

**OPTICAL TRANSCEIVER  
MODULE**

**Scenario Application Test Report (Juniper)**

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## 1. Test Purpose

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

## 2. Test Results Summary

Table 2: Test Results

| Items                         | Test Data | Remarks |
|-------------------------------|-----------|---------|
| Multi-Version                 | Pass      | /       |
| Connectivity                  | Pass      | /       |
| Module Basic Information      | Pass      | /       |
| Digital Diagnostic Monitoring | Pass      | /       |

## 3. Test Environment

### 3.1 Test Equipment Used

Table 3-1: Test Equipment Used

| Vendor         | Device         | Soft Version |
|----------------|----------------|--------------|
| Juniper Switch | EX4650-48Y-8C  | 20.4R1-S1.2  |
| NVIDIA NICs    | MCX516A-CCAT   | 16.35.4030   |
| DELL Server    | PowerEdge R860 | /            |

### 3.2 Test Sample

Table 3-2: Test Sample

| Product ID | P/N          | Serial Number |
|------------|--------------|---------------|
| #143542    | QSFP-LR-100G | A2310221612   |

## 4. Test Data

Table 4: Scenario Application Testing

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Topology</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Test Premise</b>  | <ol style="list-style-type: none"> <li>1. Confirm the brand, quantity and placement of the switches to be tested.</li> <li>2. Prepare control cables, test software and optical fiber patch cords. Power on the switches in advance.</li> <li>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.</li> </ol>  <ol style="list-style-type: none"> <li>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.</li> </ol> |
| <b>Test Method</b>   | <p>Click to open the SecureCRT Portable software and enter the quick connection interface.</p> <ol style="list-style-type: none"> <li>① Protocol selection: Serial</li> <li>② Port selection: The same as the port you viewed in the previous step</li> <li>③ Baud rate selection: The same as the baud rate of the port on the target switch</li> <li>④ Flow control: Do not check this option</li> </ol> <p>The remaining configurations can keep the default values.</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Test Steps</b>    | <ol style="list-style-type: none"> <li>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).</li> <li>② Enter the test interface, input the account and password, log in to the switch and enter privileged mode.</li> <li>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.</li> </ol>                                                                                             |

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

```
{master:0}
root> show version
localre:
-----
Model: ex4650-48y-8c
Junos: 20.4R1-S1.2
JUNOS OS Kernel 64-bit [20201028.e1cef1d_builder_stable_11]
JUNOS OS libs [20201028.e1cef1d_builder_stable_11]
JUNOS OS runtime [20201028.e1cef1d_builder_stable_11]
JUNOS OS time zone information [20201028.e1cef1d_builder_stable_11]
JUNOS OS libs compat32 [20201028.e1cef1d_builder_stable_11]
JUNOS OS 32-bit compatibility [20201028.e1cef1d_builder_stable_11]
JUNOS py extensions2 [20210301.192034_builder_junos_204_r1_s1]
JUNOS py extensions [20210301.192034_builder_junos_204_r1_s1]
JUNOS py base2 [20210301.192034_builder_junos_204_r1_s1]
JUNOS py base [20210301.192034_builder_junos_204_r1_s1]
JUNOS OS vmguest [20201028.e1cef1d_builder_stable_11]
JUNOS OS crypto [20201028.e1cef1d_builder_stable_11]
JUNOS OS boot-ve files [20201028.e1cef1d_builder_stable_11]
JUNOS network stack and utilities [20210301.192034_builder_junos_204_r1_s1]
JUNOS libs [20210301.192034_builder_junos_204_r1_s1]
JUNOS libs compat32 [20210301.192034_builder_junos_204_r1_s1]
JUNOS runtime [20210301.192034_builder_junos_204_r1_s1]
JUNOS na telemetry [20.4R1-S1.2]
JUNOS Web Management [20210301.192034_builder_junos_204_r1_s1]
JUNOS Web Management Platform Package [20210301.192034_builder_junos_204_r1_s1]
JUNOS qfx modules [20210301.192034_builder_junos_204_r1_s1]
JUNOS qfx runtime [20210301.192034_builder_junos_204_r1_s1]
JUNOS probe utility [20210301.192034_builder_junos_204_r1_s1]
JUNOS common platform support [20210301.192034_builder_junos_204_r1_s1]
JUNOS qfx platform support [20210301.192034_builder_junos_204_r1_s1]
JUNOS Openconfig [20.4R1-S1.2]
JUNOS dcp network modules [20210301.192034_builder_junos_204_r1_s1]
JUNOS modules [20210301.192034_builder_junos_204_r1_s1]
JUNOS qfx Data Plane Crypto Support [20210301.192034_builder_junos_204_r1_s1]
JUNOS daemons [20210301.192034_builder_junos_204_r1_s1]
JUNOS qfx daemons [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services URL Filter package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services TLB Service PIC package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Telemetry [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services TCP-LOG [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services SSL [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services SOFTWARE [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Stateful Firewall [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services RTCOM [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services RPM [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services PCEF package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services NAT [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Mobile Subscriber Service Container package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services MobileNext Software package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Logging Report Framework package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services LL-PDF Container package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Jflow Container package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Deep Packet Inspection package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services IPSec [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services IDS [20210301.192034_builder_junos_204_r1_s1]
JUNOS IDP Services [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services HTTP Content Management package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Crypto [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Captive Portal and Content Delivery Container package [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services COS [20210301.192034_builder_junos_204_r1_s1]
JUNOS Appld Services [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services Application Level Gateways [20210301.192034_builder_junos_204_r1_s1]
JUNOS Services AACL Container package [20210301.192034_builder_junos_204_r1_s1]
JUNOS SDN Software Suite [20210301.192034_builder_junos_204_r1_s1]
JUNOS Extension Toolkit [20210301.192034_builder_junos_204_r1_s1]
JUNOS Phone-home [20210301.192034_builder_junos_204_r1_s1]
JUNOS Packet Forwarding Engine Support (DC-PFE) [20210301.192034_builder_junos_204_r1_s1]
JUNOS Packet Forwarding Engine Support (M/T Common) [20210301.192034_builder_junos_204_r1_s1]
JUNOS Juniper Malware Removal Tool (JMRT) [1.0.0+20210301.192034_builder_junos_204_r1_s1]
JUNOS J-Insight [20210301.192034_builder_junos_204_r1_s1]
JUNOS jfirmware [20210301.192034_builder_junos_204_r1_s1]
JUNOS Online Documentation [20210301.192034_builder_junos_204_r1_s1]
JUNOS jail runtime [20201028.e1cef1d_builder_stable_11]
JUNOS FIPS mode utilities [20210301.192034_builder_junos_204_r1_s1]
JUNOS Host Software [3.14.52-rt50-WR7.0.0.9_ovp:3.1.0]
JUNOS Host qfx-5e host-control package [20.4R1-S1.2]
JUNOS Host qfx-5e host-platform package [20.4R1-S1.2]
JUNOS Host qfx-5e control-plane package [20.4R1-S1.2]
JUNOS Host qfx-5e platform package [20.4R1-S1.2]
JUNOS Host qfx-5e base package [20.4R1-S1.2]
JUNOS Host qfx-5e data-plane package [20.4R1-S1.2]
```

### Test Information

## Test Information

```
root>
(master:0)
root> show interfaces et-0/0/52 extensive
Physical interface: et-0/0/52, Enabled, Physical link is Up
Interface index: 650, SNMP ifIndex: 704, Generation: 143
Link-level type: Ethernet, MTU: 1514, LAN-PHY mode, Speed: 100Gbps,
BPDU Error: None, Loop Detect PDU Error: None, Ethernet-Switching Error: None,
MAC-REWRITE Error: None, Loopback Disabled, Source filtering: Disabled,
Flow control: Disabled, Media type: Fiber
Device flags : Present Running
Interface flags: SNMP-Traps Internal: 0x4000
Link flags : None
CoS queues : 10 supported, 10 maximum usable queues
Hold-times : Up 0 ms, Down 0 ms
Current address: 3c8c93:5af1:45, Hardware address: 3c8c93:5af1:45
Last flapped : 2024-10-07 16:26:06 UTC (00:04:37 ago)
Statistics last cleared: Never
Traffic statistics:
Input bytes : 5966 0 bps
Output bytes : 5966 0 bps
Input packets : 20 0 pps
Output packets : 20 0 pps
IPv6 transit statistics:
Input bytes : 0
Output bytes : 0
Input packets : 0
Output packets : 0
Input errors:
Errors: 0, Drops: 0, Framing errors: 0, Runt: 0, Policed discards: 0,
L3 incompletes: 0, L2 channel errors: 0, L2 mismatch timeouts: 0,
FIFO errors: 0, Resource errors: 0
Output errors:
Carrier transitions: 3, Errors: 0, Drops: 0, Collisions: 0, Aged packets: 0,
FIFO errors: 0, HS link CRC errors: 0, MTU errors: 0, Resource errors: 0
Egress queues: 10 supported, 5 in use
Queue counters: Queued packets Transmitted packets Dropped packets
0 0 0 0
3 0 0 0
4 0 0 0
7 14 14 0
8 0 0 0
Queue number Mapped forwarding classes
0 best-effort
3 fcoe
4 no-loss
7 network-control
8 mcast
Active alarms : None
Active defects : None
Pre-emphasis(reg 234/237)
Register-value 0
Ctle(reg 234/235)
Register-value 0
Differential-amplitude(reg 238/239)
Register-value 0
PCS statistics Seconds
Bit errors 0
Errored blocks NONE
Ethernet FEC Mode : NONE
Ethernet FEC statistics Errors
FEC Corrected Errors 0
FEC Uncorrected Errors 0
FEC Corrected Errors Rate 0
FEC Uncorrected Errors Rate 0
MAC statistics: Receive Transmit
Total octets 5966 5966
Total packets 20 20
Unicast packets 0 0
Broadcast packets 6 6
Multicast packets 14 14
CRC/Align errors 0 0
FIFO errors 0 0
MAC control frames 0 0
MAC pause frames 0 0
Oversized frames 0
Jabber frames 0
Fragment frames 0
VLAN tagged frames 0
Code violations 0
MAC Priority Flow Control Statistics:
Priority: 0 0 0
Priority: 1 0 0
Priority: 2 0 0
Priority: 3 0 0
Priority: 4 0 0
Priority: 5 0 0
Priority: 6 0 0
Priority: 7 0 0
PRBS Mode: Disabled
Packet Forwarding Engine configuration:
Destination slot: 0 (0x00)
CoS information:
Direction : Output
CoS transmit queue Bandwidth usec Buffer Priority Limit
% bps % usec
0 best-effort 5 5000000000 5 0 low none
3 fcoe 35 35000000000 35 0 low none
4 no-loss 35 35000000000 35 0 low none
7 network-control 5 5000000000 5 0 low none
8 mcast 20 20000000000 20 0 low none
Interface transmit statistics: Disabled
MACSec statistics:
Output
Secure Channel Transmitted
Protected Packets : 0
Encrypted Packets : 0
Protected Bytes : 0
Encrypted Bytes : 0
Input
Secure Channel Received
Accepted Packets : 0
Validated Bytes : 0
Decrypted Bytes : 0
Logical interface et-0/0/52.0 (Index 555) (SNMP ifIndex 705) (HW Token 4095)
(Generation 142)
Flags: Up SNMP-Traps 0x4004000 Encapsulation: ENET2
Traffic statistics:
Input bytes : 6210
Output bytes : 6754
Input packets : 20
Output packets : 20
Local statistics:
Input bytes : 6210
Output bytes : 6754
Input packets : 20
Output packets : 20
Transit statistics:
Input bytes : 0 0 bps
Output bytes : 0 0 bps
Input packets : 0 0 pps
Output packets : 0 0 pps
Protocol inet, MTU: 1500
Max nh cache: 75000, New hold nh limit: 75000, Curr nh cnt: 0,
Curr new hold cnt: 0, NH drop cnt: 0
Generation: 167, Route table: 0
Flags: Sendcast-pkt-to-re
(master:0)
root>
```

## Test Information

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

```
{master:0}
root> show chassis hardware
Hardware inventory:
Item          Version Part number Serial number Description
Chassis              XH3719210044  JNP48Y8C-CHAS
Pseudo CB 0
Routing Engine 0      BUILTIN  BUILTIN    RE-EX4650-48Y-8C
FPC 0              REV 07  650-083242 XH3719210044  JNP48Y8C-CHAS
CPU                BUILTIN  BUILTIN    FPC CPU
PIC 0              BUILTIN  BUILTIN    48x25G-8x100G
  Xcvr 52          REV 01  740-096178 A2310221631  QSFP-100G-LR
  Xcvr 54          REV 01  740-096178 A2310221631  QSFP-100G-LR
Power Supply 0      REV 03  740-070749 1F189130324  JPSU-650W-AC-AO
Power Supply 1      REV 03  740-070749 1F189130713  JPSU-650W-AC-AO
Fan Tray 0                                fan-ctrl-0 0, Front to Back Airflow - AFO
Fan Tray 1                                fan-ctrl-0 1, Front to Back Airflow - AFO
Fan Tray 2                                fan-ctrl-1 2, Front to Back Airflow - AFO
Fan Tray 3                                fan-ctrl-1 3, Front to Back Airflow - AFO
Fan Tray 4                                fan-ctrl-2 4, Front to Back Airflow - AFO
```

## 3. Read the DDM information of the module

```
{master:0}
root> show chassis hardware
Hardware inventory:
Item          Version Part number Serial number Description
Chassis              XH3719210044  JNP48Y8C-CHAS
Pseudo CB 0
Routing Engine 0      BUILTIN  BUILTIN    RE-EX4650-48Y-8C
FPC 0              REV 07  650-083242 XH3719210044  JNP48Y8C-CHAS
CPU                BUILTIN  BUILTIN    FPC CPU
PIC 0              BUILTIN  BUILTIN    48x25G-8x100G
  Xcvr 52          REV 01  740-096178 A2310221631  QSFP-100G-LR
  Xcvr 54          REV 01  740-096178 A2310221631  QSFP-100G-LR
Power Supply 0      REV 03  740-070749 1F189130324  JPSU-650W-AC-AO
Power Supply 1      REV 03  740-070749 1F189130713  JPSU-650W-AC-AO
Fan Tray 0                                fan-ctrl-0 0, Front to Back Airflow - AFO
Fan Tray 1                                fan-ctrl-0 1, Front to Back Airflow - AFO
Fan Tray 2                                fan-ctrl-1 2, Front to Back Airflow - AFO
Fan Tray 3                                fan-ctrl-1 3, Front to Back Airflow - AFO
Fan Tray 4                                fan-ctrl-2 4, Front to Back Airflow - AFO
```

## 4. Read the NIC model and the status of all ports

```
root@fs2-PowerEdge-R860:~# mlxfwmanager -u
Querying Mellanox devices firmware ...

Device #3:
-----

Device Type:  ConnectX5
Part Number:  MCX516A-CCA_Ax
Description:  ConnectX-5 EN network interface card; 100GbE dual-port QSFP28; PCIe3.0 x16; tall bracket; ROHS R6
PSID:        MT_0000000012
PCI Device Name: /dev/mst/mt4119_pciconf1
Base GUID:    b8599f03001d04d2
Base MAC:     b8599f1d04d2
Versions:
  Current    Available
FW          16.35.4030  N/A
PXE         3.6.0902   N/A
UEFI        14.29.0015    N/A

Status:      No matching image found
```

```
root@fs2-PowerEdge-R860:~#  
root@fs2-PowerEdge-R860:~# mlxlink -d/dev/mst/mt4119_pciconf1.1|
```

#### Operational Info

```
-----  
State                : Active  
Physical state       : LinkUp  
Speed                : 100GbE  
Width                : 4x  
FEC                  : No FEC  
Loopback Mode        : No Loopback  
Auto Negotiation     : ON
```

#### Supported Info

```
-----  
Enabled Link Speed    : 0xf8f1f0d3 (100G,50G,40G,25G,10G,1G)  
Supported Cable Speed : 0x00800000 (100G)
```

#### Troubleshooting Info

```
-----  
Status Opcode         : 0  
Group Opcode          : N/A  
Recommendation        : No issue was observed
```

#### Tool Information

```
-----  
Firmware Version      : 16.35.4030  
MFT Version           : mft 4.28.0-92
```

### 5. Read the module basic information on NIC

```
root@fs2-PowerEdge-R860:~# mlxlink -d/dev/mst/mt4119_pciconf1.1 -c -m
```

## Test Information

#### Operational Info

```
-----  
State                : Active  
Physical state       : LinkUp  
Speed                : 100GbE  
Width                : 4x  
FEC                  : No FEC  
Loopback Mode        : No Loopback  
Auto Negotiation     : ON
```

#### Supported Info

```
-----  
Enabled Link Speed    : 0xf8f1f0d3 (100G,50G,40G,25G,10G,1G)  
Supported Cable Speed : 0x00800000 (100G)
```

#### Troubleshooting Info

```
-----  
Status Opcode         : 0  
Group Opcode          : N/A  
Recommendation        : No issue was observed
```

#### Tool Information

```
-----  
Firmware Version      : 16.35.4030  
MFT Version           : mft 4.28.0-92
```

#### Physical Counters and BER Info

```
-----  
Time Since Last Clear [Min] : 10.6  
Effective Physical Errors    : 0  
Raw Physical Errors Per Lane : 0,0,0,0  
Effective Physical BER       : 15E-255  
Raw Physical BER             : 15E-255
```

## Module Info

-----  
Identifier : QSFP28  
Compliance : 100G-LR, with CAUI-4 without FEC  
Cable Technology : 1310 nm EML  
Cable Type : Optical Module (separated)  
OUI : Mellanox  
Vendor Name : FS  
Vendor Part Number : QSFP-LR-100G  
Vendor Serial Number : A2310221612  
Rev : 01  
Wavelength [nm] : 1311  
Transfer Distance [m] : 0  
Attenuation (5g,7g,12g) [dB] : N/A  
FW Version : 81.83.18000  
Digital Diagnostic Monitoring : Yes  
Power Class : 4.0 W max  
CDR RX : N/A  
CDR TX : N/A  
LOS Alarm : N/A  
Temperature [C] : 48 [-5..75]  
Voltage [mV] : 3260.5 [2970..3630]  
Bias Current [mA] : 89.624,0,0,0 [20..120]  
Rx Power Current [dBm] : 4,-40,-40,-40 [-10..6]  
Tx Power Current [dBm] : 4,-40,-40,-40 [-4..6]

## 6. Read the module DDM on NIC

```
root@fs2-PowerEdge-R860:~# mlxlink -d/dev/mst/mt4119_pciconf1.1 --cable --ddm
```

## Operational Info

-----  
State : Active  
Physical state : LinkUp  
Speed : 100GbE  
Width : 4x  
FEC : No FEC  
Loopback Mode : No Loopback  
Auto Negotiation : ON

## Supported Info

-----  
Enabled Link Speed : 0xf8f1f0d3 (100G,50G,40G,25G,10G,1G)  
Supported Cable Speed : 0x00800000 (100G)

## Troubleshooting Info

-----  
Status Opcode : 0  
Group Opcode : N/A  
Recommendation : No issue was observed

## Tool Information

-----  
Firmware Version : 16.35.4030  
MFT Version : mft 4.28.0-92

## Cable DDM Information

-----  
Temperature : 48C  
Voltage : 3.2610V  
Channels : Channel 1 ,Channel 2 ,Channel 3 ,Channel 4  
RX Power : 4.000dBm , -40.000dBm , -40.000dBm , -40.000dBm  
TX Power : 4.000dBm , -40.000dBm , -40.000dBm , -40.000dBm  
TX Bias : 89.654mA , 0.000mA , 0.000mA , 0.000mA

## DDM Flags

-----  
Temperature Alarm high : 0  
Temperature Warning high : 0  
Temperature Warning low : 0  
Temperature Alarm low : 0

Voltage Alarm high : 0  
Voltage Warning high : 0  
Voltage Warning low : 0  
Voltage Alarm low : 0

## Channel 1 Flags

```

-----
RX Power Alarm high      : 0
RX Power Warning high    : 0
RX Power Warning low     : 0
RX Power Alarm low       : 0

TX Power Alarm high      : 0
TX Power Warning high    : 0
TX Power Warning low     : 0
TX Power Alarm low       : 0

TX Bias Alarm high       : 0
TX Bias Warning high     : 0
TX Bias Warning low      : 0
TX Bias Alarm low        : 0

```

## Channel 2 Flags

```

-----
RX Power Alarm high      : 0
RX Power Warning high    : 0
RX Power Warning low     : 0
RX Power Alarm low       : 0

TX Power Alarm high      : 0
TX Power Warning high    : 0
TX Power Warning low     : 0
TX Power Alarm low       : 0

TX Bias Alarm high       : 0
TX Bias Warning high     : 0
TX Bias Warning low      : 0
TX Bias Alarm low        : 0

```

## Channel 3 Flags

```

-----
RX Power Alarm high      : 0
RX Power Warning high    : 0
RX Power Warning low     : 0
RX Power Alarm low       : 0

TX Power Alarm high      : 0
TX Power Warning high    : 0
TX Power Warning low     : 0
TX Power Alarm low       : 0

TX Bias Alarm high       : 0
TX Bias Warning high     : 0
TX Bias Warning low      : 0
TX Bias Alarm low        : 0

```

## Channel 4 Flags

```

-----
RX Power Alarm high      : 0
RX Power Warning high    : 0
RX Power Warning low     : 0
RX Power Alarm low       : 0

TX Power Alarm high      : 0
TX Power Warning high    : 0
TX Power Warning low     : 0
TX Power Alarm low       : 0

TX Bias Alarm high       : 0
TX Bias Warning high     : 0
TX Bias Warning low      : 0
TX Bias Alarm low        : 0

```

## DDM Thresholds

```

-----
Thresholds      : Temperature ,Voltage ,RX Power ,TX Power ,TX Bias
High alarm threshold : 75C ,3.630V ,5.500dBm ,5.500dBm ,120.000mA
High warning threshold : 70C ,3.460V ,4.500dBm ,4.500dBm ,110.000mA
Low warning threshold : 0C ,3.130V ,-8.700dBm ,-2.400dBm ,30.000mA
Low alarm threshold : -5C ,2.970V ,-9.698dBm ,-3.400dBm ,20.000mA

```

|                        |                                                                                                                    |
|------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Test Conclusion</b> | After completing the above test content, all the test information should be copied and pasted into a TXT document. |
| <b>Remarks</b>         | /                                                                                                                  |