

Configuring QDD Optical Line System

This chapter describes the QDD Optical Line System (OLS) and its supported configurations.

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Configuring QDD Optical Line System

Table 1: Feature History Table

Feature Name	Release Information	Description
QDD OLS support on QSFP28 ports	Release 25.2.1	Introduced in this release on: NCS 5500 modular routers (select variants only*) The QDD Optical Line System (OLS) pluggable optical amplifier is now supported on QSFP28 ports. *This feature is supported on: • NCS-55A2-MOD-SE-S via NC55-MPA-1TH2H-S

Feature Name	Release Information	Description
QDD Optical Line System	Release 7.10.1	

Feature Name	Release Information	Description
		Introduced in this release on: NCS 5500 fixed port routers (select variants only*); NCS 5700 fixed port routers (select variants only*) The QDD Optical Line System (OLS) is a new pluggable optical amplifier that interconnects two routers or switches for transmitting traffic on a limited number of coherent optical channels over a single span point-to-point link. With the QDD OLS pluggable, it's now possible to obtain the functionality of amplification into a QSFP-DD module that can be plugged into a port of the router or switch. The benefits of this pluggable are: • Provides compact solution for amplification. • Provides extended reach. • Increases fiber bandwidth. • Lowers power dissipation. This feature introduces the following: • **CLI**: • **controller ots (QDD OLS)** • **rx-low-threshold** • **tx-low-threshold** • **ampli-control-mode** • **egress-ampli-gain** • **egress-ampli-power** • **egress-ampli-safety-control-mode** • **egress-ampli-osri** • **show controllers ots (QDD OLS)** • **YANG Data Model**: • `Cisco-IOS-XR-controller-ots-oper.yang` • `Cisco-IOS-XR-controller-ots-cfg.yang` • `Cisco-IOS-XR-pmengine-oper.yang` • `Cisco-IOS-XR-pmengine-cfg.yang` • `Cisco-IOS-XR-pmengine-clear-act.yang`

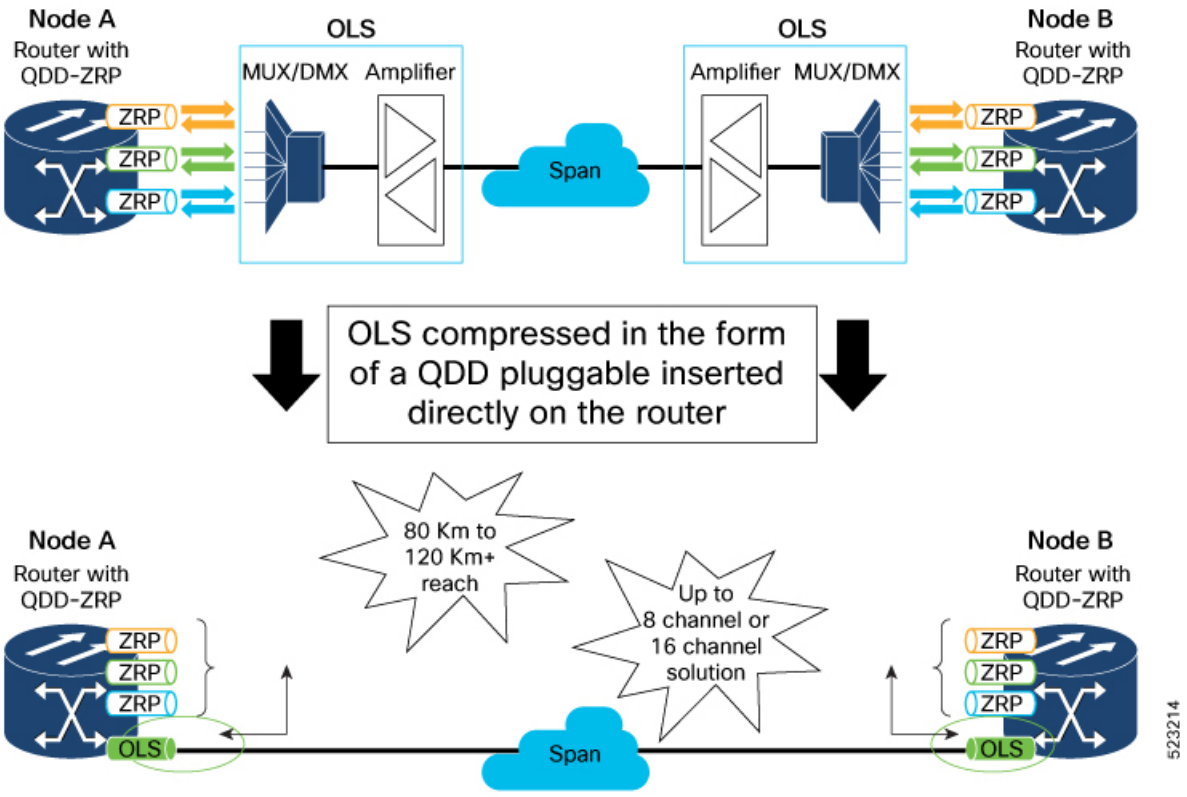
Feature Name	Release Information	Description
		* The QDD Optical Line System is now supported on the following hardware: • NCS-57B1-6D24-SYS and NCS-57B1-5DSE-SYS routers. • On NCS-57C3-MOD and NCS-55A2-MOD routers, the QDD OLS pluggable can be used only through the NC57-MPA-2D4H-S modular port adapter.

The QDD OLS is a pluggable optical amplifier that interconnects two routers or switches for transporting a limited number of coherent optical channels over a single span point-to-point link.

Currently, an optical line system (OLS) requires a separate Cisco Network Convergence System 1000 Series or Cisco Network Convergence System 2000 Series optical system with dedicated 48 or 64 channels MUX/DMX units and amplifiers. The new QDD OLS module provides amplification functionality in a QSFP module, while the passive cables provide MUX/DMX functionality. With this solution, you can compress a point-to-point DWDM system directly into the routing or switching platform.

The new optical line system can now transport 8 or 16 optical channels without any additional optical hardware unit. With the use of external passive MUX/DMX units (examples for these) along with this setup, it's also possible to obtain up to 32 optical channels.

Figure 1: QDD Optical Line System



Supported Routers and MPAs

The support of the QDD OLS pluggable on the routers and MPA is explained as follows:

- The QDD OLS pluggable can be directly inserted into the NCS-57B1-6D24-SYS and NCS-57B1-5DSE-SYS routers.
- On NCS-57C3-MOD and NCS-55A2-MOD routers, the QDD OLS pluggable can be used only through the NC57-MPA-2D4H-S modular port adapter.

Supported Wavelength or Frequency Configuration

For each channel supported through ONS-BRK-CS-8LC or ONS-BRK-CS-16LC passive/mux cable, the wavelength or the frequency must be configured according to the table below.

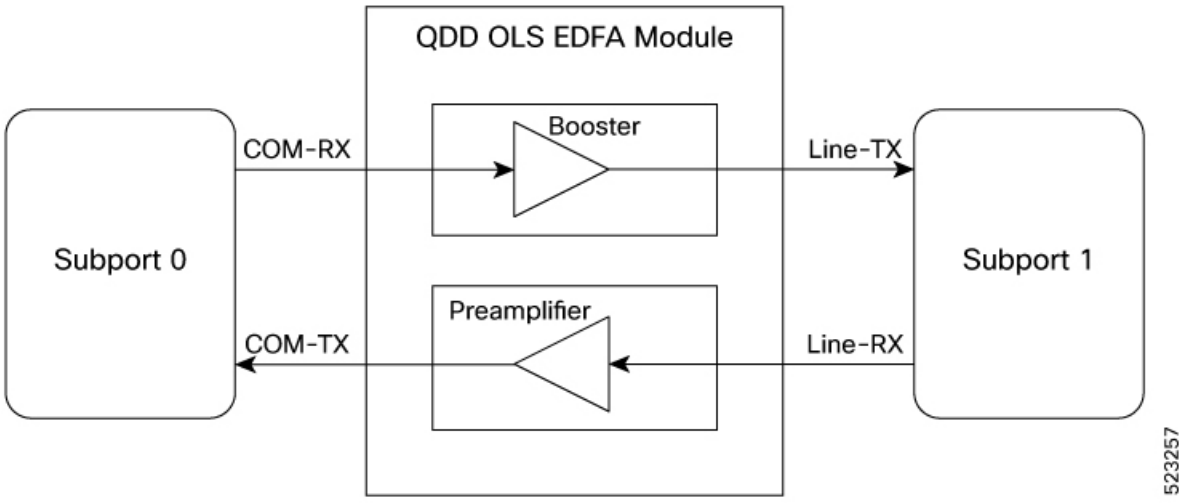
Table 2: QDD OLS Operating Signal Wavelength Range

Channel Spacing	Total Bandwidth	Wavelength		Frequency	
		Start	End	Start	End
8 channels - 200 GHz spaced 16 channels - 100 GHz spaced	19.2 nm 2.4 THz	1539.1 nm	1558.4 nm	192.375 THz	194.775 THz

Port mapping for QDD OLS pluggable (Reference)

The QDD OLS pluggable contains the COM side and the Line side as shown in the figure below:

Figure 2: Functional Description of QDD OLS



Each physical port of the QDD OLS pluggable is represented as two ots controllers (subport 0 and subport 1). COM port is subport 0 and Line port is subport 1.

The Gain of the Booster is associated to subport 1 while the gain of the Preamplifier is associated to subport 0.

Controller	Optical Ports
ots R/S/I/P/0	COM-RX (booster input)
	COM-TX (preamplifier output)
ots R/S/I/P/1	LINE-RX (preamplifier input)
	LINE-TX (booster output)

QDD OLS Configurations

The following section contains the QDD OLS configuration details.

Configuring the Operational Mode, Amplifier Gain, and Amplifier Output Power

You can configure the mode of operation of the OLS pluggable to either gain control or power control mode.

In the gain control mode, you can configure the desired gain value of the OLS pluggable.

In the power control mode, you can configure the desired output power (TX) of the OLS pluggable.

Gain Control Operational Mode and Amplifier Gain Configuration Example

The following example shows how to configure the gain control operational mode and the amplifier gain of the OLS pluggable:

```
Router#config
Router(config)#controller ots 0/0/2/1/0
Router(config-Ots)#ampli-control-mode manual
Router(config-Ots)#egress-ampli-gain 150
Router(config-Ots)#commit
Router(config-Ots)#exit
Router(config)#exit
```

Running Configuration

This example shows the running configuration for the OLS pluggable:

```
Router#show run controller optics 0/0/2/1/0
controller Ots0/0/2/1/0
 ampli-control-mode manual
 egress-ampli-gain 150
!
!
```

Verification

This example shows how to verify the configured gain control operational mode and amplifier gain of the OLS pluggable:

```
Router#show controllers ots 0/0/2/1/0
Thu Mar 23 21:33:49.862 UTC
```

```
Controller State: Up

Transport Admin State: In Service

LED State: Green

               Alarm Status:
               -------------
               Detected Alarms: None

               Alarm Statistics:
               -----------------
               RX-LOS-P = 4
                RX-LOC = 0
                TX-POWER-FAIL-LOW = 1
                INGRESS-AUTO-LASER-SHUT = 0
                INGRESS-AUTO-POW-RED = 0
                INGRESS-AMPLI-GAIN-LOW = 0
                INGRESS-AMPLI-GAIN-HIGH = 0
                EGRESS-AUTO-LASER-SHUT = 0
                EGRESS-AUTO-POW-RED = 0
                EGRESS-AMPLI-GAIN-LOW = 4
                EGRESS-AMPLI-GAIN-HIGH = 1
                HIGH-TX-BR-PWR = 0
                HIGH-RX-BR-PWR = 0
                SPAN-TOO-SHORT-TX = 0
                SPAN-TOO-SHORT-RX = 0

               Parameter Statistics:
               ---------------------
               Total Tx Power = 16.72 dBm
                Rx Signal Power = -22.29 dBm
                Tx Signal Power = 16.53 dBm
                Egress Ampli Gain = 14.7 dB
               Egress Ampli OSRI = OFF

               Configured Parameters:
               -------------
               Egress Ampli Gain = 15.0 dB
                Egress Ampli Power = 4.0 dBm
               Egress Ampli OSRI = OFF
                Ampli Control mode = Manual
                Rx Low Threshold = -30.0 dBm
                Tx Low Threshold = -5.0 dBm


               Temperature = 27.92 Celsius
                Voltage = 3.33 V

Optical Module Details

               Optics type                : QDD DUAL EDFA
               Name                       : CISCO-II-VI
               OUI Number                 : 00.90.65
               Part Number                : 60P310001
               Rev Number                 : 01
               Serial Number              : IFB26520001
               PID                        : ONS-QDD-OLS
               VID                        : VES1
               Firmware Version           : 0.10
               Date Code(yy/mm/dd) : 23/02/22
               Fiber Connector Type    : CS
```

Power Control Operational Mode and Amplifier Output Power Configuration Example

The following example shows how to configure the power control operational mode and the amplifier output power of the OLS pluggable :

```
Router#config
Router(config)#controller ots 0/0/2/1/0
Router(config-Ots)#ampli-control-mode powermode
Router(config-Ots)#egress-ampli-power 50
Router(config-Ots)#commit
Router(config-Ots)#exit
Router(config)#exit
```

Running Configuration

This example shows the running configuration for the OLS pluggable:

```
Router(controller-Ots)#show run controller ots 0/0/2/1/0
controller Ots0/0/2/1/0
 ampli-control-mode powermode
 egress-ampli-power 50
!
```

Verification

This example shows how to verify the configured power control operational mode and amplifier output power of the OLS pluggable:

```
Router#show controllers ots 0/0/2/1/0
Thu Jun  1 08:56:37.236 UTC

Controller State: Up

Transport Admin State: In Service

LED State: Green

               Alarm Status:
               -------------
               Detected Alarms: None

               Alarm Statistics:
               -----------------
               RX-LOS-P = 4
                RX-LOC = 0
                TX-POWER-FAIL-LOW = 1
                INGRESS-AUTO-LASER-SHUT = 0
                INGRESS-AUTO-POW-RED = 0
                INGRESS-AMPLI-GAIN-LOW = 0
                INGRESS-AMPLI-GAIN-HIGH = 0
                EGRESS-AUTO-LASER-SHUT = 0
                EGRESS-AUTO-POW-RED = 0
                EGRESS-AMPLI-GAIN-LOW = 4
                EGRESS-AMPLI-GAIN-HIGH = 1
                HIGH-TX-BR-PWR = 0
                HIGH-RX-BR-PWR = 0
                SPAN-TOO-SHORT-TX = 0
                SPAN-TOO-SHORT-RX = 0

               Parameter Statistics:
               ---------------------
               Total Tx Power = 5.00 dBm
                Rx Signal Power = -22.29 dBm
                Tx Signal Power = 4.99 dBm
                Egress Ampli Gain = 3.2 dB
```

```
                Egress Ampli OSRI = OFF

                 Configured Parameters:
                -------------
                Egress Ampli Gain = 15.0 dB
                 Egress Ampli Power = 5.0 dBm
                Egress Ampli OSRI = OFF
                 Ampli Control mode = Power
                 Rx Low Threshold = -30.0 dBm
                 Tx Low Threshold = -5.0 dBm

                Temperature = 29.33 Celsius
                 Voltage = 3.34 V

Optical Module Details

                Optics type                 : QDD DUAL EDFA
                Name                        : CISCO-II-VI
                OUI Number                  : 00.90.65
                Part Number                 : 60P310001
                Rev Number                  : 01
                Serial Number               : IFB26520001
                PID                         : ONS-QDD-OLS
                VID                         : VES1
                Firmware Version            : 0.10
                Date Code(yy/mm/dd)         : 23/02/22
                Fiber Connector Type        : CS
```

Configuring the Low-Threshold Power

You can set the low-threshold power of the optical signal (RX and TX) that can be received or transmitted from the OLS pluggable.

Low-Threshold Power Configuration Example

The following example shows how to configure the optical receive (RX) low-threshold power on the OLS pluggable:

```
Router#config
Router(config)#controller ots 0/0/2/1/0
Router(config-Ots)#rx-low-threshold -200
Router(config-Ots)#commit
Router(config-Ots)#exit
Router(config)#exit
```



Note To configure the optical transmit (TX) low-threshold power on the OLS pluggable, use the **tx-low-threshold** *tx-low* command.

Running Configuration

This example shows the running configuration for the OLS pluggable:

```
Router#show run controller ots 0/0/2/1/0
controller Ots0/0/2/1/0
 rx-low-threshold -200
!
!
```

Verification

This example shows how to verify the configured optical receive (RX) low-threshold power value for the OLS pluggable:

```
Router#show controllers ots 0/0/2/1/0

 Controller State: Up

 Transport Admin State: In Service

 LED State: Yellow

        Alarm Status:
        -------------
        Detected Alarms:
                RX-LOS-P

        Alarm Statistics:
        -----------------
        RX-LOS-P = 0
        RX-LOC = 0
        TX-POWER-FAIL-LOW = 0
        INGRESS-AUTO-LASER-SHUT = 0
        INGRESS-AUTO-POW-RED = 0
        INGRESS-AMPLI-GAIN-LOW = 0
        INGRESS-AMPLI-GAIN-HIGH = 0
        EGRESS-AUTO-LASER-SHUT = 0
        EGRESS-AUTO-POW-RED = 0
        EGRESS-AMPLI-GAIN-LOW = 0
        EGRESS-AMPLI-GAIN-HIGH = 0
        HIGH-TX-BR-PWR = 0
        HIGH-RX-BR-PWR = 0
        SPAN-TOO-SHORT-TX = 0
        SPAN-TOO-SHORT-RX = 0

        Parameter Statistics:
        ---------------------
        Total Tx Power = -50.00 dBm
        Rx Signal Power = -50.00 dBm
        Tx Signal Power = -50.00 dBm
        Egress Ampli Gain = 0.0 dB
        Egress Ampli OSRI = OFF


        Configured Parameters:
        -------------
        Egress Ampli Gain = 20.0 dB
        Egress Ampli Power = 8.0 dBm
        Egress Ampli OSRI = OFF
        Ampli Control mode = Manual
        Rx Low Threshold = -20.0 dBm
        Tx Low Threshold = -5.0 dBm


        Temperature = 14.29 Celsius
        Voltage = 3.37 V

 Optical Module Details

        Optics type            : QDD DUAL EDFA
        Name                   : CISCO-ACCELINK
        OUI Number             : 00.00.00
        Part Number            : EDFA-211917-QDD
        Rev Number             : 19
        Serial Number          : ACW2631Z00X
```

```
PID                    : ONS-QDD-OLS=
Firmware Version       : 1.09
Date Code(yy/mm/dd)    : 22/06/02
Fiber Connector Type   : CS
```

Configuring the Optical Safety Remote Interlock (OSRI)

To shut down the amplifier, use the Optical Safety Remote Interlock (OSRI) configuration. This configuration is used during the maintenance of the pluggable, debugging scenarios, and when the OLS pluggable isn't in use. With this configuration enabled, the output power can still be a maximum of -15dBm based on the input power.

OSRI Configuration Example

The following example shows how to configure the Optical Safety Remote Interlock (OSRI) on the OLS pluggable:

```
Router#config
Router(config)#controller ots 0/0/2/1/0
Router(config-Ots)#egress-ampli-osri on
Router(config-Ots)#commit
Router(config-Ots)#exit
Router(config)#exit
```

Running Configuration

This example shows the running configuration for the OLS pluggable:

```
Router#show run controller optics 0/0/2/1/0
controller Ots0/0/2/1/0
 egress-ampli-osri on
 !
```

Verification

This example shows how to verify the configured OSRI for the OLS pluggable:

```
Router#show controllers ots 0/0/2/1/0

Thu Jun  1 09:04:10.335 UTC

Controller State: Up

Transport Admin State: In Service

LED State: Green

               Alarm Status:
               -------------
               Detected Alarms: None

               Alarm Statistics:
               -----------------
               RX-LOS-P = 4
                RX-LOC = 0
                TX-POWER-FAIL-LOW = 1
                INGRESS-AUTO-LASER-SHUT = 0
                INGRESS-AUTO-POW-RED = 0
                INGRESS-AMPLI-GAIN-LOW = 0
                INGRESS-AMPLI-GAIN-HIGH = 0
                EGRESS-AUTO-LASER-SHUT = 0
                EGRESS-AUTO-POW-RED = 0
                EGRESS-AMPLI-GAIN-LOW = 4
```

```
                 EGRESS-AMPLI-GAIN-HIGH = 1
                 HIGH-TX-BR-PWR = 0
                 HIGH-RX-BR-PWR = 0
                 SPAN-TOO-SHORT-TX = 0
                 SPAN-TOO-SHORT-RX = 0

                Parameter Statistics:
                ---------------------
                Total Tx Power = -50.00 dBm
                 Rx Signal Power = -22.36 dBm
                 Tx Signal Power = -50.00 dBm
                 Egress Ampli Gain = 0.0 dB
                Egress Ampli OSRI = ON

                Configured Parameters:
                -------------
                Egress Ampli Gain = 15.0 dB
                 Egress Ampli Power = 5.0 dBm
                Egress Ampli OSRI = ON
                 Ampli Control mode = Power
                 Rx Low Threshold = -30.0 dBm
                 Tx Low Threshold = -5.0 dBm

                Temperature = 27.90 Celsius
                 Voltage = 3.34 V

Optical Module Details

                Optics type                     : QDD DUAL EDFA
                Name                            : CISCO-II-VI
                OUI Number                      : 00.90.65
                Part Number                     : 60P310001
                Rev Number                      : 01
                Serial Number                   : IFB26520001
                PID                             : ONS-QDD-OLS
                VID                             : VES1
                Firmware Version                : 0.10
                Date Code(yy/mm/dd)             : 23/02/22
                Fiber Connector Type            : CS
```

Configuring Safety Control Mode

You can enable safety control mode only on subport 1.

With safety-control-mode set as **auto** and if LOS is detected on the line RX, the line TX normalizes the signal output power to 8 dBm and the ALS (automatic laser shutdown) and APR (automatic power reduction) alarms are raised.

Safety Control Configuration Example

The following example shows how to enable safety control mode on the OLS pluggable (on subport 1):

```
Router#config
Router(config)#controller ots 0/0/2/1/1
Router(config-Ots)#egress-ampli-safety-control-mode auto
Router(config-Ots)#commit
Router(config-Ots)#exit
Router(config)#exit
```

Running Configuration

This example shows the running configuration for the OLS pluggable:

```
Router#show run controller ots 0/0/2/1/1
controller Ots0/0/2/1/1
 ampli-control-mode manual
 egress-ampli-gain 230
 egress-ampli-safety-control-mode auto
!
```

Verification

This example shows how to verify the configured safety control mode:

```
Router#show controllers ots 0/0/2/1/1

 Thu Jun  1 09:04:17.550 UTC

Controller State: Down

Transport Admin State: In Service

LED State: Yellow

               Alarm Status:
               -------------
               Detected Alarms:
                              RX-LOS-P
                              EGRESS-AUTO-LASER-SHUT
                              EGRESS-AUTO-POW-RED
                              EGRESS-AMPLI-GAIN-HIGH

               Alarm Statistics:
               -----------------
               RX-LOS-P = 12
                RX-LOC = 0
                TX-POWER-FAIL-LOW = 1
                INGRESS-AUTO-LASER-SHUT = 0
                INGRESS-AUTO-POW-RED = 0
                INGRESS-AMPLI-GAIN-LOW = 0
                INGRESS-AMPLI-GAIN-HIGH = 0
                EGRESS-AUTO-LASER-SHUT = 13
                EGRESS-AUTO-POW-RED = 13
                EGRESS-AMPLI-GAIN-LOW = 2
                EGRESS-AMPLI-GAIN-HIGH = 12
                HIGH-TX-BR-PWR = 0
                HIGH-RX-BR-PWR = 0
                SPAN-TOO-SHORT-TX = 0
                SPAN-TOO-SHORT-RX = 0

               Parameter Statistics:
               ---------------------
               Total Tx Power = 8.08 dBm
                Rx Signal Power = -50.00 dBm
                Tx Signal Power = 5.61 dBm
                Egress Ampli Gain = 28.9 dB
               Egress Ampli Safety Control mode = auto
                Egress Ampli OSRI = OFF



               Configured Parameters:
               -------------
               Egress Ampli Gain = 23.0 dB
                Egress Ampli Power = 3.0 dBm
               Egress Ampli Safety Control mode = auto
                Egress Ampli OSRI = OFF
                Ampli Control mode = Manual
```

```
                 Rx Low Threshold = -30.0 dBm
                 Tx Low Threshold = -5.0 dBm


                Temperature = 23.00 Celsius
                 Voltage = 3.36 V

Optical Module Details

                Optics type                     : QDD DUAL EDFA
                Name                            : CISCO-ACCELINK
                OUI Number                      : 00.00.00
                Part Number                     : EDFA-211917-QDD
                Rev Number                      : 24
                Serial Number                   : ACW2651Z001
                PID                             : ONS-QDD-OLS
                VID                             : VES1
                Firmware Version                : 2.04
                Date Code(yy/mm/dd)             : 22/12/27
                Fiber Connector Type            : CS
```

Use Case for QDD OLS pluggable

The QDD OLS pluggable can transport 8 or 16 coherent optical channels from the DWDM optical modules that are plugged into the router.

The optical modules are interconnected with the QDD OLS amplifiers using the following cables:

- ONS-BRK-CS-8LC: dual fanout 1x8 cable-assembly with embedded passive splitter and coupler
- ONS-BRK-CS-16LC: dual fanout 1x16 cable-assembly with embedded passive splitter and coupler
- ONS-CAB-CS-LC-5: dual adapter patch-cord CS-connector to LC-connector

The following section explains the 8-channel Optical Line System (OLS) that is achieved by using the QDD OLS pluggable and QDD-400G-ZRP-S modules. With this 8-channel Optical Line System (OLS) set-up it's now possible to obtain 28 dB/112 kilometer span reach. Also, the fiber bandwidth is increased by 8 times.

8-Channel Optical Line System (Reference)

The following section explains the 8-channel Optical Line System (OLS) that is achieved by using the QDD OLS pluggable and QDD-400G-ZRP-S modules. With this 8-channel Optical Line System (OLS) set up it's now possible to obtain 28 dB/112 kilometer span reach. Also, the fiber bandwidth is increased by 8 times.

This section explains the 8-channel optical line system (OLS) that is achieved by using the following:

- Four NCS-57C3-MOD or NCS-57C3-MODS-SYS routers (represented as Node A, Node B, Node C, and Node D)
- Four NC57-MPA-2D4H-S MPAs
- Sixteen QDD-400G-ZRP-S modules
- Two QDD OLS (ONS-QDD-OLS) pluggables
- Two ONS-BRK-CS-8LC breakout cables

- Two ONS-CAB-CS-LC-5 fiber optic cable

Connections on Node A

Two NC57-MPA-2D4H-S MPAs are inserted in MPA slot 2 and MPA slot 3 of the NCS-57C3-MOD or NCS-57C3-MODS-SYS router. Four QDD-400G-ZRP-S modules are inserted into port 0 and port 2 of both the NC57-MPA-2D4H-S MPAs. The QDD OLS (ONS-QDD-OLS) pluggable is inserted into port 3 of the NC57-MPA-2D4H-S MPA that is installed MPA slot 3 of the NCS-57C3-MOD or NCS-57C3-MODS-SYS router.

Connections on Node B

Two NC57-MPA-2D4H-S MPAs are inserted in MPA slot 2 and MPA slot 3 of the NCS-57C3-MOD or NCS-57C3-MODS-SYS router. Four QDD-400G-ZRP-S modules are inserted into port 0 and port 2 of both the NC57-MPA-2D4H-S MPAs.

Connections between Node A and Node B

Using the ONS-BRK-CS-8LC breakout cable connect eight QDD-400G-ZRP-S modules (four each on Node A and Node B) and the QDD OLS (ONS-QDD-OLS) pluggable (port 3 of the NC57-MPA-2D4H-S MPA that is installed in MPA slot 3 of Node A).

Connections on Node C

Two NC57-MPA-2D4H-S MPAs are inserted in MPA slot 2 and MPA slot 3 of the NCS-57C3-MOD or NCS-57C3-MODS-SYS router. Four QDD-400G-ZRP-S modules are inserted into port 0 and port 2 of both the NC57-MPA-2D4H-S MPAs.

Connections on Node D

Two NC57-MPA-2D4H-S MPAs are inserted in MPA slot 2 and MPA slot 3 of the NCS-57C3-MOD or NCS-57C3-MODS-SYS router. Four QDD-400G-ZRP-S modules are inserted into port 0 and port 2 of both the NC57-MPA-2D4H-S MPAs. The QDD OLS (ONS-QDD-OLS) pluggable is inserted into port 3 of the NC57-MPA-2D4H-S MPA that is installed MPA slot 2 of the NCS-57C3-MOD or NCS-57C3-MODS-SYS router.

Connections between Node C and Node D

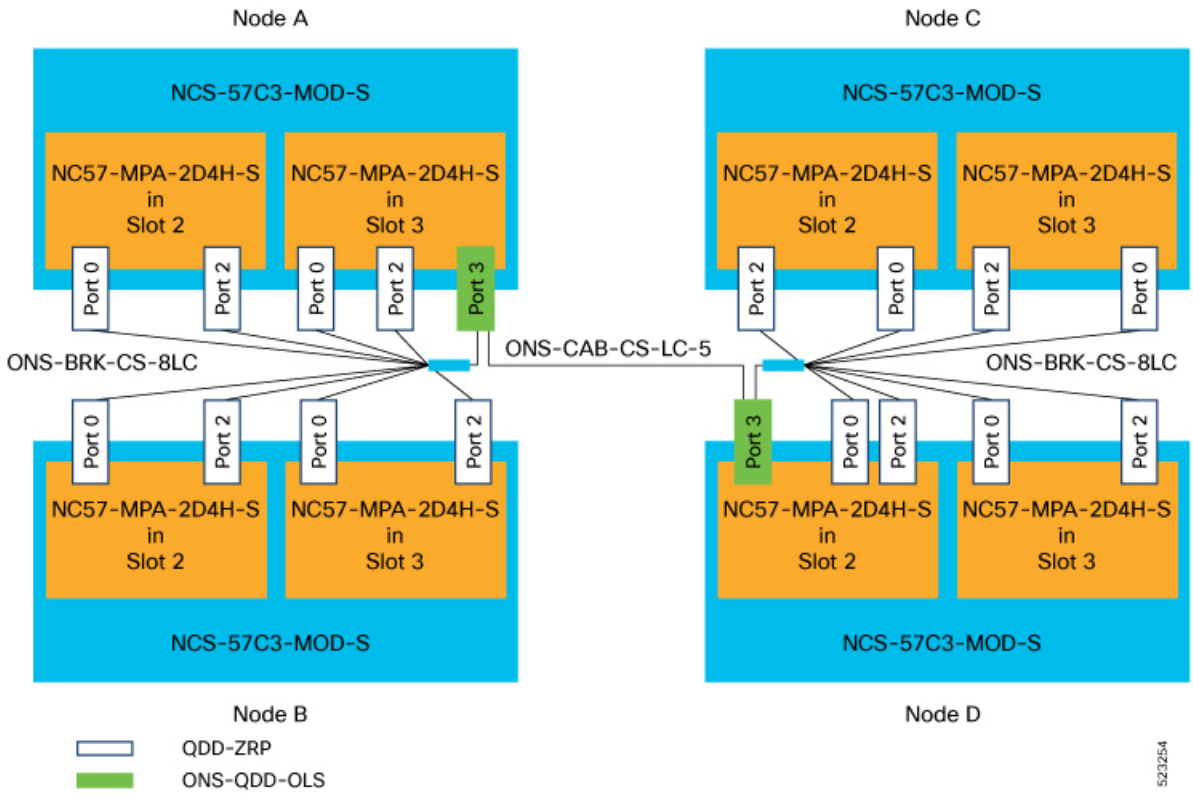
Using the ONS-BRK-CS-8LC breakout cable connect eight QDD-400G-ZRP-S modules (four each on Node C and Node D) and the QDD OLS (ONS-QDD-OLS) pluggable (port 3 of the NC57-MPA-2D4H-S MPA that is installed in MPA slot 2 of Node D).

Connections between Node A and Node D

Using the ONS-CAB-CS-LC-5 fiber optic cable connect both the QDD OLS (ONS-QDD-OLS) pluggables that are present in Node A and Node D.

The representation of these interconnections between Node A/Node B and Node C/Node D are depicted in the block diagram below:

Figure 3: 8-Channel Optical Line System



OLS Alarms Troubleshooting

This section contains the procedures for troubleshooting alarms.

RX-LOS-P

Default Severity: Critical

Logical Object: Controller

The RX-LOS-P alarm is raised when there is loss of signal.

Clear the RX-LOS-P Alarm

1. Verify the transmission (TX) at the peer end.
2. Check the fiber connections.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

RX-POWER-FAIL-LOW

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: Controller

The RX-POWER-FAIL-LOW alarm is raised when the RX power is below the configured low threshold values.

Clear the RX-POWER-FAIL-LOW Alarm

1. Verify the transmission (TX) at the peer end.
2. Check the fiber connections.
3. Increase the peer end gain or transmit-power value to obtain the RX power above the threshold.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

TX-POWER-FAIL-LOW

Default Severity: Critical

Logical Object: Controller

The TX-POWER-FAIL-LOW alarm is raised when the TX power is below the configured low threshold values.

Clear the TX-POWER-FAIL-LOW Alarm

1. Increase the gain or power configuration value to obtain the TX power above the threshold.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

EGRESS-AMPLI-GAIN-LOW

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: Controller

The EGRESS-AMPLI-GAIN-LOW alarm is raised when the actual gain of the OLS pluggable is lower than the configured gain value.

Clear the EGRESS-AMPLI-GAIN-LOW Alarm

1. Configure the gain value within the optimum range.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

EGRESS-AMPLI-GAIN-HIGH

Default Severity: Minor (MN), Non-Service-Affecting (NSA)

Logical Object: Controller

The EGRESS-AMPLI-GAIN-HIGH alarm is raised when the actual gain of the OLS pluggable is higher than the configured gain value.

Clear the EGRESS-AMPLI-GAIN-HIGH Alarm

1. Verify the RX and TX values and adjust the gain within the optimum working range.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

EGRESS-AUTO-LASER-SHUT

Default Severity: Not-Alarmed

Logical Object: Controller

The EGRESS-AUTO-LASER-SHUT alarm is raised when there is loss of signal (LOS) on the OTS line side (subport 1)

Clear the EGRESS-AUTO-LASER-SHUT Alarm

1. Verify the fiber connections on the line side of the OLS pluggable.
2. Verify the gain or power on the line side of the peer end.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).

EGRESS-AUTO-POW-RED

Default Severity: Not-Alarmed

Logical Object: Controller

The EGRESS-AUTO-POW-RED alarm is raised when there is loss of signal (LOS) on the OTS line side (subport 1)

Clear the EGRESS-AUTO-POW-RED Alarm

1. Verify the fiber connections on the line side of the OLS pluggable.
2. Verify the gain or power on the line side of the peer end.

If the alarm does not clear, log into the Technical Support Website at http://www.cisco.com/c/en/us/support/index.html for more information or call Cisco TAC (1 800 553-2447).