

DATA SHEET

CISCO ONS 15216 C+L-BAND SPLITTER/COMBINER MODULE FOR THE CISCO ONS 15454 MULTISERVICE TRANSPORT PLATFORM

The Cisco® ONS 15216 is an advanced C+L-band splitter/combiner module that provides service providers, system integrators, and network equipment manufacturers with one of the critical technologies needed to build high-capacity 2.5-, 10-, and 40-Gbps reconfigurable optical add/drop multiplexer (ROADM)-enabled DWDM networks.

Cisco DWDM systems deploying a maximum of thirty-two 100-GHz spaced channels in the C-band can be expanded to 64-channel capacity using the Cisco ONS 15216 C+L-Band Splitter/Combiner Module. The module can be deployed with the initial DWDM installation to make the DWDM system compatible with future versions and to avoid traffic downtime when the additional capacity is required. The module allows for a further 32-channel expansion into the L-band. To accomplish this upgrade a C+L-band splitter/combiner is required for multiplexing and demultiplexing the C and L bands. The Cisco ONS 15216 C+L-Band Splitter/Combiner Module incorporates a multiplexing section that combines the C and L bands into a composite signal for transmission over Cisco ONS 15454 Multiservice Transport Platform (MSTP) DWDM systems. The demultiplexer section splits the composite signal into the C and L band spectrums prior to further channel demultiplexing by the Cisco ONS 15454 MSTP ROADM.

The equipment is housed in a passive Cisco ONS 15216 FlexLayer module and mounted in the Cisco ONS 15216 FlexLayer 4-slot 1-rack-unit (RU) shelf unit. This module extracts a small part of the composite DWDM signal at the splitter and combiner for monitoring purposes. The module is completely (optical and electrical) passive.

Figure 1

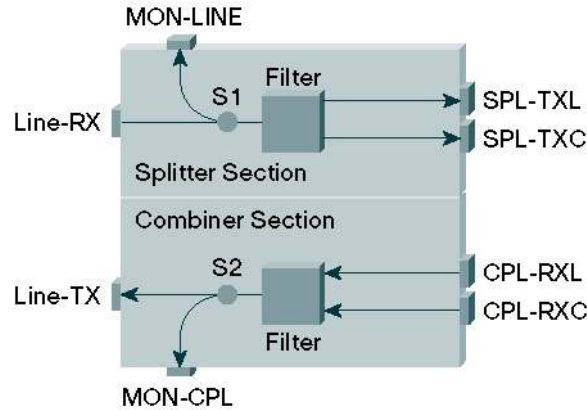
Cisco ONS 15216 C+L-Band Splitter/Combiner Module



Figure 2 shows the Cisco ONS 15216 C+L-Band Splitter/Combiner Module optical flow. The unit is a bidirectional unit, in which the splitter function and the combiner function are implemented in two different sections so that signal flowing in opposite directions can be managed separately. The splitter section includes a tap coupler, allowing aggregate (C+OSC+L) received channels spectrum monitoring at the input (MON-LINE port), followed by a band-pass filter to split C-band plus optical supervisory channel (OSC) signals (SPL-TXC port) and the L-band signal (SPL-TXL port).

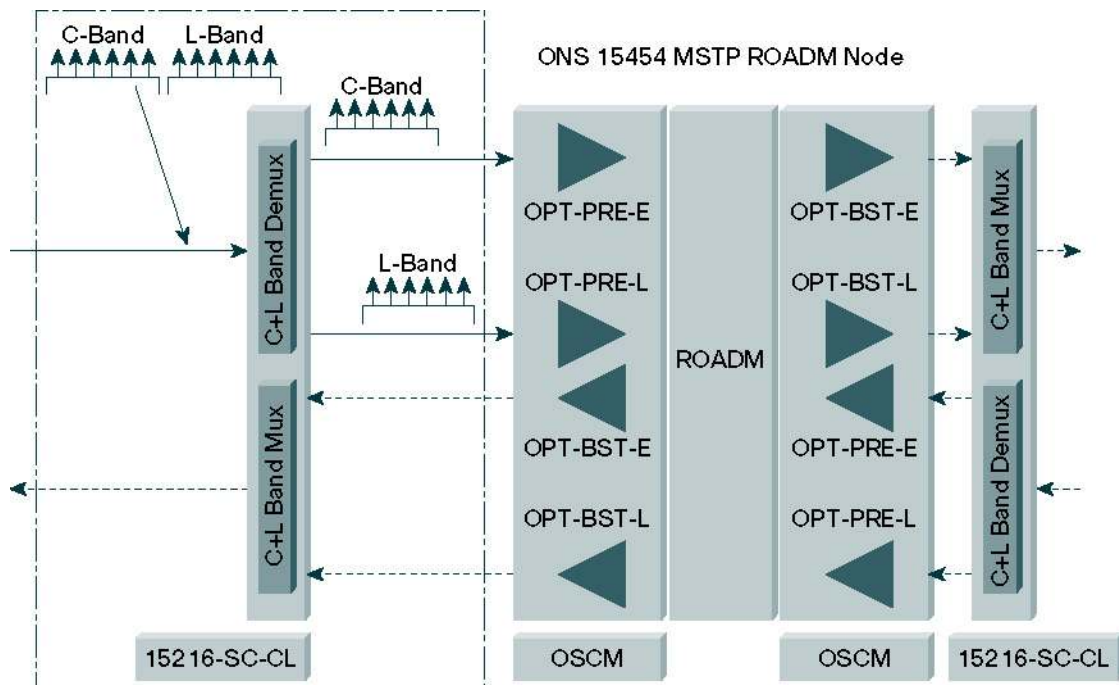
The combiner section includes a band-pass filter, to combine C-band plus OSC signals (CPL-RXC port) and the L-band signal (CPL-RXL port), followed by a tap coupler allowing aggregate (C+OSC+L) transmitted optical channels spectrum monitoring at the output (MON-CPL port).

Figure 2
Cisco ONS 15216 C+L-Band Splitter/Combiner Module Optical Schematic



The Cisco ONS 15216 C+L-Band Splitter/Combiner Module is deployed with the Cisco ONS 15454 MSTP. In Figure 3 the module is deployed in Cisco ONS 15454 MSTP ROADM node.

Figure 3
Cisco ONS 15216 C+L-Band Splitter/Combiner Module Deployed in a Cisco ONS 15454 MSTP ROADM Node



PRODUCT ORDERING INFORMATION

Table 1 lists the ordering information for the Cisco ONS 15216 C+L-Band Splitter/Combiner Module.

Table 1. Ordering Information

Product Number	Product Description
15216-SC-CL=	C+L-Band Splitter/Combiner Module

To check prices and lead times, and to order products, go to: <http://www.cisco.com/en/US/ordering/index.shtml>.

PRODUCT SPECIFICATIONS

Tables 2 and 3 list technical and environmental specifications for the Cisco ONS 15216 C+L-Band Splitter/Combiner Module. Table 4 provides port information.

Table 2. Technical Specifications

Parameter	Condition	Note	Min	Max	Units
(C + OSC) Band Wavelength Range (–0.5 dB Bandwidth)	LINE-RX → SPL-TXC CPL-RXC → LINE-TX	All Standard Operating Procedure (SOP) and within whole operating temperature range.	1500 to 1562		nm
L-Band Wavelength Range (–0.5 dB Bandwidth)	LINE-RX → SPL-TXL CPL-RXL → LINE-TX	All SOP and within whole operating temperature range.	1570 to 1605		nm
Insertion Loss ¹ (C+OSC) Band	LINE-RX → SPL-TXC CPL-RXC → LINE-TX	All SOP and within whole operating temperature range, including 2 connectors.	0.5	1	dB
Insertion Loss ² L-Band	LINE-RX → SPL-TXL CPL-RXL → LINE-TX		0.3	0.8	dB
MON Loss ³	MON-LINE with respect to LINE-RX	All SOP and within whole operating temperature range, including 2 connectors.	24	27	dB
	MON-CPL with respect to LINE-TX		27	30	dB
Isolation	LINE-RX → SPL-TXC	All SOP and within whole operating temperature range.	25		dB
	LINE-RX → SPL-TXL		12		dB
C-Band + OSC Channels Band Ripple	LINE-RX → SPL-TXC CPL-RXC → LINE-TX	All SOP and within whole operating temperature range.		0.3	dB
L-Band Channels Band Ripple	LINE-RX → SPL-TXL CPL-RXL → LINE-TX	All SOP and within whole operating temperature range.		0.15	dB
Chromatic Dispersion	Each optical path	All SOP and within whole operating temperature range.	–20	+20	ps/nm
Polarization Mode Dispersion (PMD)	Each optical path	Within whole operating temperature range.		0.1	ps
Polarization Dependent Loss (PDL)	Each optical path	Within whole operating temperature range.		0.1	dB
Return Loss		All optical ports.	40		dB
Directivity		All SOP and within whole operating temperature range.	40		dB
Maximum Power Handling		Within whole operating temperature range.	500		mW

1 All the Insertion Loss values have to be measured as the maximum insertion loss inside the Total (C + OSC) Optical Bandwidth.

2 All the Insertion Loss values have to be measured as the maximum insertion loss inside the Total L Optical Bandwidth.

3 All the Insertion Loss values have to be measured as the maximum insertion loss inside the Total Optical Bandwidth (C + OSC band and L band).

Table 3. Environmental Performance

Item	Condition	MIN	MAX	Units
Operating Temperature		-5	65	°C
Storage Temperature		-40	85	°C
Operating Humidity		5	95	%RH
Storage Humidity		5	95	%RH

Table 4. Port Naming and Labeling

Port Number	Port Label	Description	Type of connector
1	LINE-RX	Line Input	LC-PC II
2	MON-LINE	Input Monitor	LC-PC II
4	LINE-TX	Line Output	LC-PC II
5	MON-CPL	Output Monitor	LC-PC II
6	SPL-TXC	C-Band + OSC Output	LC-PC II
7	SPL-TXL	L-Band Output	LC-PC II
9	CPL-RXC	C-Band + OSC Input	LC-PC II
10	CPL-RXL	L-Band Input	LC-PC II

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