Cisco ONS 15216 Dispersion Compensator Unit

Product Overview

As metropolitan (metro) transport networks grow from 2.5-generation (2.5G) services to 10G and eventually 40G, the underlying optical systems need to compensate for the lower chromatic dispersion tolerances on the 10G and 40G interfaces. In optical networks, the dispersion compensation unit (DCU) compensates for accumulated chromatic dispersion effect in fiber. It provides a flexible solution for accumulated chromatic dispersion without dropping and regenerating the wavelengths on the link, a process that would otherwise be necessary when accumulated chromatic dispersion exceeds the maximum allowed dispersion tolerance. To provide effective compensation, the DCU is designed to operate over the entire band from 1525 to1565 nm.

Features and Benefits

The Cisco ONS 15216 Dispersion Compensator Shelf (Figure 1) is a passive mechanical housing that is 1 rack unit (1RU) high and fits in a 19- or 23-inch rack or bay.

Figure 1. Cisco ONS 15216 Dispersion Compensator Shelf

The Cisco ONS 15216 Dispersion Compensator Modules (Figure 2) can be installed in the dispersion compensator shelf in the following configurations:

- The first slot in the shelf is used for east-to-west traffic and the other slot for west-to-east traffic (Figure 3).
- The first slot in the shelf is used for west-to-east traffic and the other slot for east-to-west traffic (Figure 3).
- Both slots can be cascaded together east-to-west (the output of the first module in the first slot is connected to the input of the second module in the second slot). This configuration provides higher chromatic dispersion compensation than an individual module can provide (Figure 4).
- Both slots can be cascaded together from west to east (the output of the first module in the first slot is connected to the input of the second module in the second slot). This configuration provides higher chromatic dispersion compensation than an individual module can provide (Figure 4).

Figure 2. Cisco ONS 15216 Dispersion Compensation Unit

Figure 3. Single-Shelf DCU Application East-to-West and West-to-East [Note: AMP stands for Amplifier in the above figure]

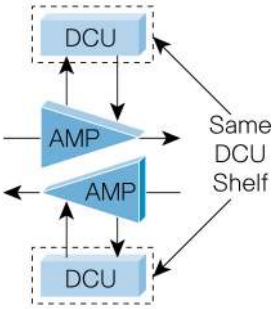


Figure 4. Cascaded DCU Shelf per Direction [Note AMP stands for Amplifier in the above figure]

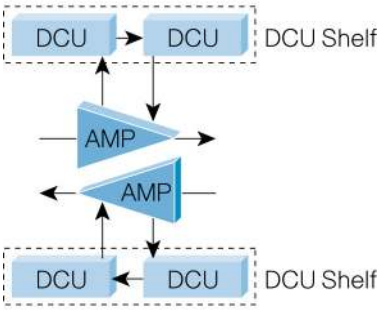
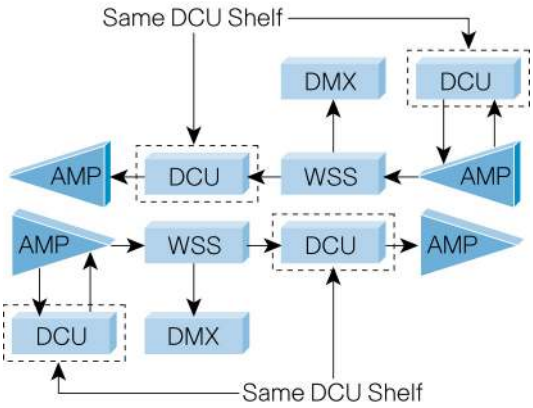


Figure 5. Example of DCU Placed Between Wavelength Selective Switch (WSS) and Amplifier



Product Specifications

Tables 1 through 3 give specifications of the dispersion compensation unit.

Table 1. Optical Specifications

Band	Part Number	Compensation Level (ps/nm)	Maximum IL (dB)	Maximum Polarization Mode Dispersion (PMD) (ps)	Maximum Polarization Dependent Loss (PDL) (dB)	Maximum Optical Return Loss (ORL) (dB)	Maximum Length (km)	Reference Wavelength (nm)	Relative Dispersion Slop (nm)	Wavelength Range (nm)
C-band	15216-DCU-100=	100	2.1	< 1 ps	< 0.1	> 45	0.95	1545.32	0.0037^{-1}	1525–1565
	15216-DCU-350=	350	3.0	< 1 ps	< 0.1	> 45	3.33	1545.32	0.0037	1525–1565
	15216-DCU-450=	450	3.5	< 1 ps	< 0.1	> 45	4.28	1545.32	0.0037	1525–1565
	15216-DCU-550=	550	3.9	< 1 ps	< 0.1	> 45	5.24	1545.32	0.0037	1525–1565
	15216-DCU-750=	750	5.0	< 1 ps	< 0.1	> 45	7.14	1545.32	0.0037	1525–1565
	15216-DCU-950=	950	5.5	< 1 ps	< 0.1	> 45	9.05	1545.32	0.0037	1525–1565
	15216-DCU-1150=	1150	6.2	< 1 ps	< 0.1	> 45	10.95	1545.32	0.0037	1525–1565
	15216-DCU-1350=	1350	6.4	< 1 ps	< 0.1	> 45	8.2	1545.32	0.0037	1525–1565
	15216-DCU-1550=	1550	7.2	< 1 ps	< 0.1	> 45	9.4	1545.32	0.0037	1525–1565
	15216-DCU-1950=	1950	8.8	< 1 ps	< 0.1	> 45	11.8	1545.32	0.0037	1525–1565
E-leaf	15216-DCU-E-200=	200	5.5	0.3	< 0.1	> 45	4.5	1545.32	0.0037	1525–1565
	15216-DCU-E-350=	350	7.0	0.3	< 0.1	> 45	7.1	1545.32	0.0037	1525–1565
L-band	15216-DCU-L-300=	300	3.0	0.5	0.1	45	2.5	1590.41	0.0035^{-1}	1576–1605
	15216-DCU-L-600=	600	4.2	0.6	0.1	45	5.0	1590.41	0.0035	1576–1605
	15216-DCU-L-700=	700	4.6	0.6	0.1	45	5.8	1590.41	0.0035	1576–1605
	15216-DCU-L-800	800	5.0	0.6	0.1	45	6.7	1590.41	0.0035	1576–1605
	15216-DCU-L-1000=	1000	5.8	0.8	0.1	45	8.2	1590.41	0.0035	1576–1605
	15216-DCU-L-1100	1100	6.0	0.8	0.1	45	9.2	1590.41	0.0035	1576–1605

Table 2. Product Specifications

Environmental Specification	Description
Temperature range	–5 to +55℃
Relative humidity	95% maximum, noncondensing
Dispersion value over temperature	Dispersion value +/–3%
Insertion loss variance over temperature	< 0.6 dB

Table 3. Mechanical Specifications

Mechanical Specification	Description
Connector type	LC-UPC
Overall dimensions (H x W x D)	1.62 x 8.20 x 9.78 in. (41 x 208 x 248 mm)
Weight	Minimum 4.4 lb (2 kg); maximum 7.7 lb (3.5 kg)

Ordering Information

To place an order, visit the Cisco Ordering Home Page and refer to Table 4. To download software, visit the Cisco Software Center: http://www.cisco.com/en/US/ordering/index.shtml.

Table 4. Ordering Information

Band	Module	Product ID	Product Description	Compensation Level
C-Band	DCU-100	15216-DCU-100=	DCF of -100 ps/nm	100 ps/nm
	DCU-350	15216-DCU-350=	DCF of -350 ps/nm	350 ps/nm
	DCU-450	15216-DCU-450=	DCF of - 450 ps/nm	450 ps/nm
	DCU-550	15216-DCU-550=	DCF of - 550 ps/nm	550 ps/nm
	DCU-750	15216-DCU-750=	DCF of -750 ps/nm	750 ps/nm
	DCU-950	15216-DCU-950=	DCF of - 950 ps/nm	950 ps/nm
	DCU-1150	15216-DCU-1150=	DCF of -1150 ps/nm	1150 ps/nm
	DCU-1350	15216-DCU-1350=	DCF of -1350 ps/nm	1350 ps/nm
	DCU-1550	15216-DCU-1550=	DCF of -1550 ps/nm	1550 ps/nm
	DCU-1950	15216-DCU-1950=	DCF of -1950 ps/nm	1950 ps/nm
L-Band	DCU-L-300	15216-DCU-L-300=	SMF L-band Dispersion Compensation Unit 300ps/nm	300 ps/nm
	DCU-L-600	15216-DCU-L-600=	SMF L-band Dispersion Compensation Unit 600ps/nm	600 ps/nm
	DCU-L-700	15216-DCU-L-700=	SMF L-band Dispersion Compensation Unit 700ps/nm	700 ps/nm
	DCU-L-800	15216-DCU-L-800=	SMF L-band Dispersion Compensation Unit 800ps/nm	800 ps/nm
	DCU-L-1000	15216-DCU-L-1000=	SMF L-band Dispersion Compensation Unit 1000ps/nm	1000 ps/nm
	DCU-L-1100	15216-DCU-L-1100=	SMF L-band Dispersion Compensation Unit 1100ps/nm	1100 ps/nm
E-LEAF	DCU-E-200	15216-DCU-E-200=	E-LEAF Dispersion Compensation Unit 200 ps/nm	200 ps/nm
	DCU-E-350	15216-DCU-E-350=	E-LEAF Dispersion Compensation Unit 350 ps/nm	350 ps/nm
Shelf	Chassis	15216-DCU-SA=	Mechanical shelf (housing 2 DCM)	N/A

Service and Support

Using the Cisco Lifecycle Services approach, Cisco and its partners provide a broad portfolio of end-to-end services and support that can help increase the business value and return on investment for your network. This approach defines the minimum set of activities needed, by technology and by network complexity, to help you successfully deploy and operate Cisco technologies and optimize their performance throughout the lifecycle of your network.

For More Information

For more information visit URL below or contact your local Cisco account representative.

http://www.cisco.com/en/US/products/hw/optical/ps1996/prod_literature.html

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