Purpose:

This document lists the key specifications for compatible, 100-GHz, Dense Wavelength Division Multiplexing (DWDM) modules, which are offered by Cisco and by Fiberdyne Labs. The Cisco specifications were current (i.e. available on their website), as of January 2003.

Summary:

The following is a summary of specific differences between compatible units. Fiberdyne modules perform as well as Cisco's products -- or better. Fiberdyne offers these products at a significant cost savings. Additionally, Fiberdyne offers ***maximum flexibility***.

Modules can be customized according to customer requirements/needs. Purchase only those channels, which you need, now. Then, when more channels are required, buy Fiberdyne upgrade modules. Do you want specific monitoring capabilities? Do you need a mix of 1310/1550 WDM, Coarse WDM and DWDM? Fiberdyne offers a wide array of packaging, port-count, channel and other configuration options.

Fiberdyne platforms also offer:

- Lower end-to-end insertion loss.
- Wider passband.
- Better “second adjacent” channel isolation.
- Greater return loss.
- High-reliability “manual” variable attenuator (Add/Drop Modules).

On the subsequent pages, you will find the full, parameter-for-parameter comparison. If you have any questions, please contact Fiberdyne Labs.

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Mux/Demux Modules

Item Description	Unit	Cisco® ONS 15216		Fiberdyne FD15216-100	
Channel Spacing	GHz	100		100	
Center Wavelength per Channel	nm	Base (Red) Unit	Upgrade (Blue) Unit	Base (Red) Unit	Upgrade (Blue) Unit
		1546.12	1530.33	1546.12	1530.33
		1546.92	1531.12	1546.92	1531.12
		1547.72	1531.90	1547.72	1531.90
		1548.51	1532.68	1548.52	1532.68
		1550.12	1534.25	1550.12	1534.25
		1550.92	1535.04	1550.92	1535.04
		1551.72	1535.82	1551.72	1535.82
		1552.52	1536.61	1552.52	1536.61
		1554.13	1538.19	1554.13	1538.19
		1554.94	1538.98	1554.94	1538.98
		1555.75	1539.77	1555.75	1539.77
		1556.56	1540.56	1556.56	1540.56
		1558.17	1542.14	1558.17	1542.14
		1558.98	1542.94	1558.98	1542.94
		1559.79	1543.73	1559.79	1543.73
		1560.61	1544.53	1560.61	1544.53
End-to-end Insertion Loss, mux+demux	dB	< 11		< 10.5	
Channel Uniformity	dB	< 1.2		< 1.5	
Filter Passband @ -0.5 dB	nm	+/- 0.11		+/- 0.20	
Passband flatness	dB	< 0.5		< 0.75	
Isolation of dropped channels: - adjacent channels - non-adjacent channels	dB	 > 25 > 40		 > 25 > 40	
Polarization dependent loss	dB	< 0.35		< 0.50	
Polarization mode dispersion	ps	< 0.5		< 0.5	
Directivity	dB	> 50		> 50	
Return Loss	dB	> 40		> 40	
Insertion Loss of monitor ports	dB	17.8 +/- 1		< 17.7	
Temperature – Operating	^{O}C	0 to 70		0 to 70	
Temperature – Storage	^{O}C	-40 to +85		-40 to +85	
Connectors		SC/UPC		SC/UPC	
Dimensions	inch	3.5 x 17 x 11		3.5 x 17 x 8.5	

*** Note:** module depth (8.5 inch) does not include fiber management shelf.
Depth is 11 inches, with fiber management shelf.

Optical Add/Drop Modules (OADM1)

Item Description	Unit	Cisco® ONS 15216	Fiberdyne FD15216-100
Channel Spacing	GHz	100	100
Number of wavelengths	#	32	32
End-to-end Insertion Loss, mux+demux	dB	< 1.6 pass < 2.2 drop < 3.2 add	< 1.4 pass < 1.6 drop < 3.0 add
Filter Passband @ -0.5 dB	nm	+/- 0.10	+/- 0.15
Passband flatness	dB	< 0.5	< 0.5
Isolation of dropped channels: - adjacent channels - non-adjacent channels	dB	 > 25 > 40	 > 25 > 40
Polarization mode dispersion	ps	< 0.1	< 0.1
Directivity	dB	> 55	> 50
Return Loss	dB	> 40	> 45
Insertion Loss of monitor ports	dB	17.8 +/- 1	< 17.7
VOA dynamic range	dB	> 35	> 80
Connectors		SC/UPC	SC/UPC
Temperature – Operating	^{O}C	0 to 70	0 to 70
Temperature – Storage	^{O}C	-40 to +85	-40 to +85
Input voltage	VDC	-48 A+B	N/A
Power consumption	W	< 25	N/A
Network management - Physical interfaces - Protocols supported		 Ethernet, RS232 FTP, TL1, CL1	 N/A
Dimensions	inch	1.75 x 17 x 11	1.75 x 17 x 8.5

*** Note:** module depth (8.5 inch) does not include fiber management shelf.
Depth is 11 inches, with fiber management shelf.

Optical Add/Drop Modules (OADM2)

Item Description	Unit	Cisco® ONS 15216	Fiberdyne FD15216-100
Channel Spacing	GHz	100	100
Number of wavelengths	#	16	16
End-to-end Insertion Loss, mux+demux	dB	< 2.0 pass < 2.5 drop < 3.5 add	< 1.5 pass < 2.1 drop < 3.5 add
Filter Passband @ -0.5 dB	nm	+/- 0.10	+/- 0.15
Passband flatness	dB	< 0.5	< 0.5
Isolation of dropped channels: - adjacent channels - non-adjacent channels	dB	 > 25 > 40	 > 25 > 40
Polarization mode dispersion	ps	< 0.1	< 0.1
Directivity	dB	> 55	> 50
Return Loss	dB	> 40	> 45
Insertion Loss of monitor ports	dB	17.8 +/- 1	< 17.7
VOA dynamic range	dB	> 35	> 80
Connectors		SC/UPC	SC/UPC
Temperature – Operating	^{O}C	0 to 70	0 to 70
Temperature – Storage	^{O}C	-40 to +85	-40 to +85
Input voltage	VDC	-48 A+B	N/A
Power consumption	W	< 25	N/A
Network management - Physical interfaces - Protocols supported		 Ethernet, RS232 FTP, TL1, CL1	N/A
Dimensions	inch	1.75 x 17 x 11	1.75 x 17 x 8.5

*** Note:** module depth (8.5 inch) does not include fiber management shelf.
Depth is 11 inches, with fiber management shelf.

Optical Add/Drop Modules (OADM4)

Item Description	Unit	Cisco® ONS 15216	Fiberdyne FD15216-100
Channel Spacing	GHz	100	100
Number of wavelengths	#	8	8
End-to-end Insertion Loss, mux+demux	dB	< 1.5 pass < 3.6 drop < 4.5 add	< 1.6 pass < 2.8 drop < 4.1 add
Filter Passband @ -0.5 dB	nm	+/- 0.10	+/- 0.15
Passband flatness	dB	< 0.5	< 0.5
Isolation of dropped channels: - adjacent channels - non-adjacent channels	dB	 > 25 > 40	 > 25 > 40
Polarization mode dispersion	ps	< 0.1	< 0.1
Directivity	dB	> 55	> 50
Return Loss	dB	> 40	> 45
Insertion Loss of monitor ports	dB	17.8 +/- 1	< 17.7
VOA dynamic range	dB	> 35	> 80
Connectors		SC/UPC	SC/UPC
Temperature – Operating	^{O}C	0 to 70	0 to 70
Temperature – Storage	^{O}C	-40 to +85	-40 to +85
Input voltage	VDC	-48 A+B	N/A
Power consumption	W	< 25	N/A
Network management - Physical interfaces - Protocols supported		 Ethernet, RS232 FTP, TL1, CL1	 N/A
Dimensions	inch	1.75 x 17 x 11	1.75 x 17 x 8.5

*** Note:** module depth (8.5 inch) does not include fiber management shelf.
Depth is 11 inches, with fiber management shelf.

