

WDM Series

Developed ▪ Solution Design ▪ Manufacture

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A background image showing various optical components, including fiber optic connectors, lenses, and waveguides, arranged in a complex, overlapping manner. The image is overlaid with a blue, semi-transparent grid pattern.

Passive Optical
Solutions

Hirundo

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WDM Product

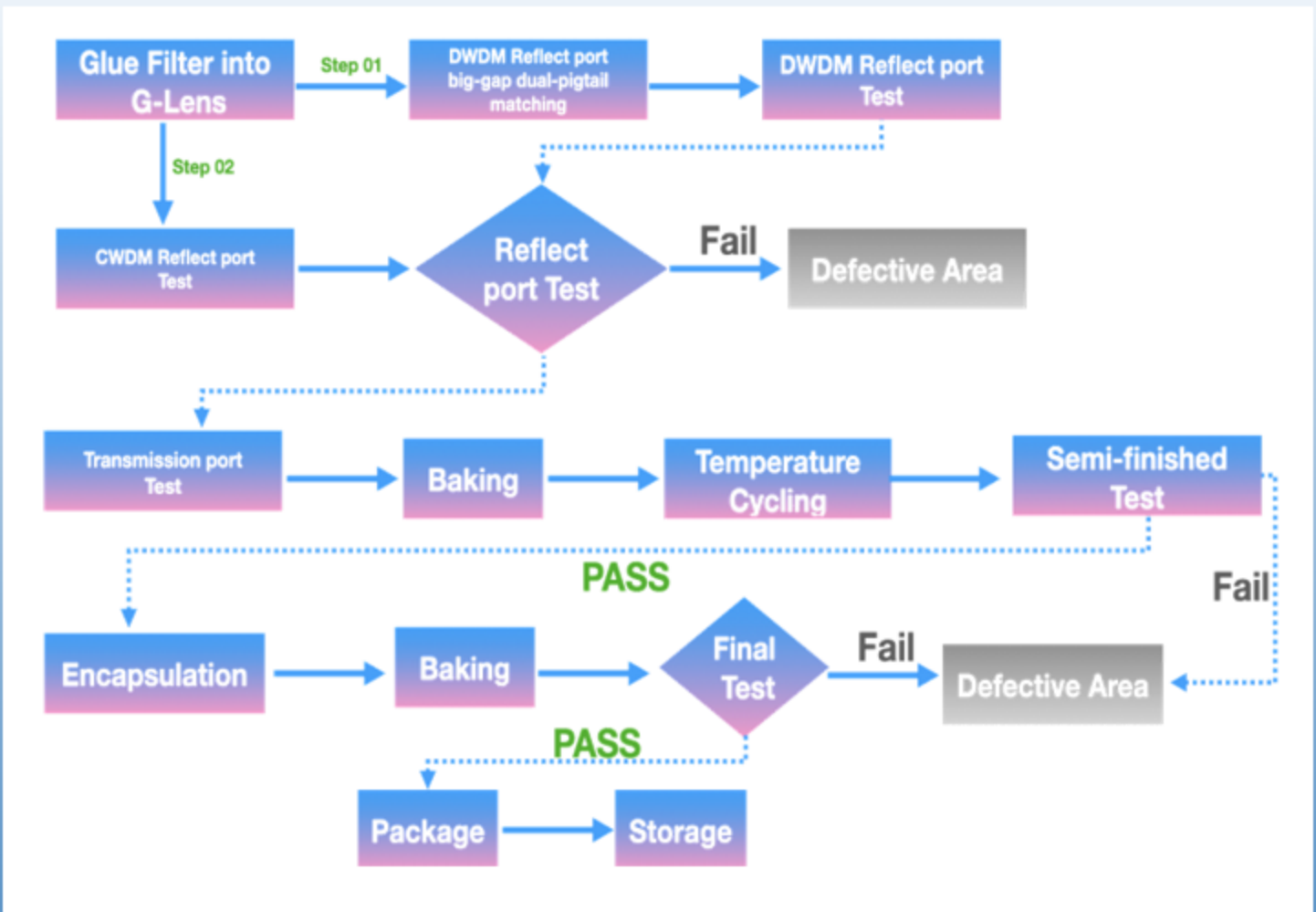
AWG

DWDM

CWDM/CCWDM

CEX-WDM

WDM Production Process



Equipment-Reliability Testing

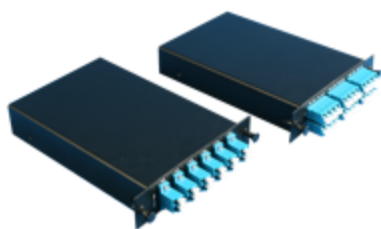
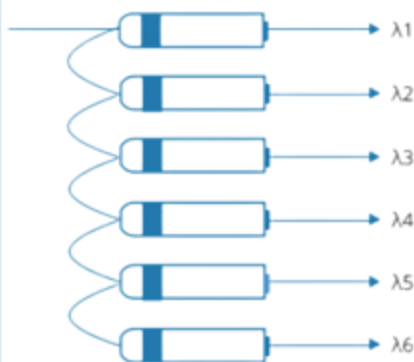


WDM Series Solution

■ WDM Technology

Thin-film filter (TFF)

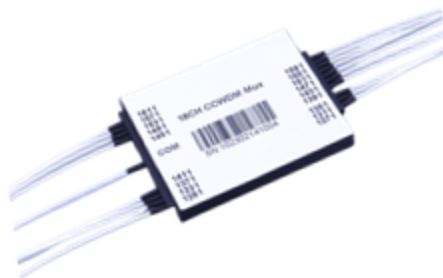
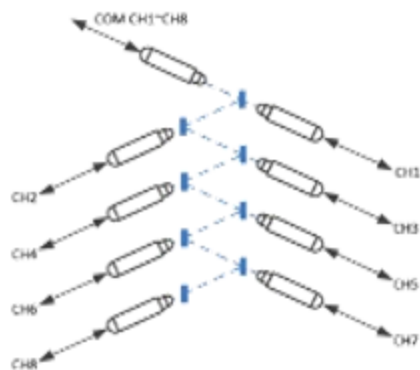
- Low sensitivity to temperature & polarization
- Low insertion loss
- High channel isolation
- Wide passband



2-, 4-, 8-CH

Free Space Technology

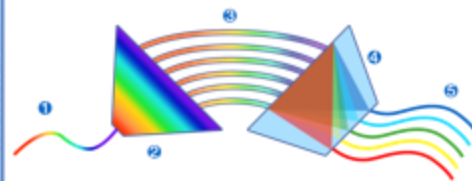
- Compact Size
- Low insertion loss
- High channel isolation



4, 8, 12, 18CH

Arrayed waveguide grating (AWG)

- Large Channel Numbers;
- Able to achieve 50GHz wavelength interval;
- High Integration
- Cost-effective



16, 24, 32, 40, 44,
48, 80, 96CH

WDM Series Solution

■ Optic Performance Test



●-----● Insertion Loss Test

●-----● Isolation Test

■ Reliability Test



●-----● Temperature cycling



Barcode
Tracking
System



200K CH/month
WDM Production
Capacity



100%
Factory tested



OEM/ODM
High-quality
customized
services

WDM Series Solution

■ Various Package Types

Device



ABS Box



Plug-in Module



LGX Package



Rack Mount Package



AWG Module Type



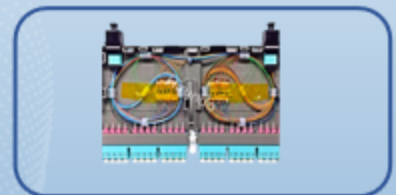
Customized Solution



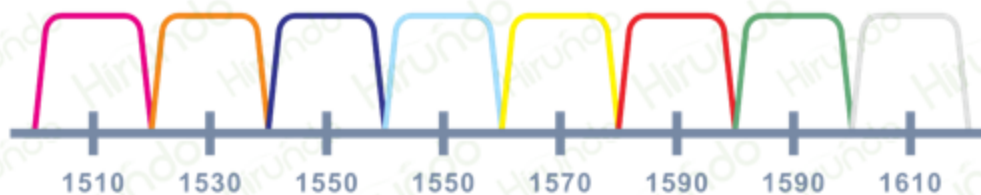
Customized Splice Tray



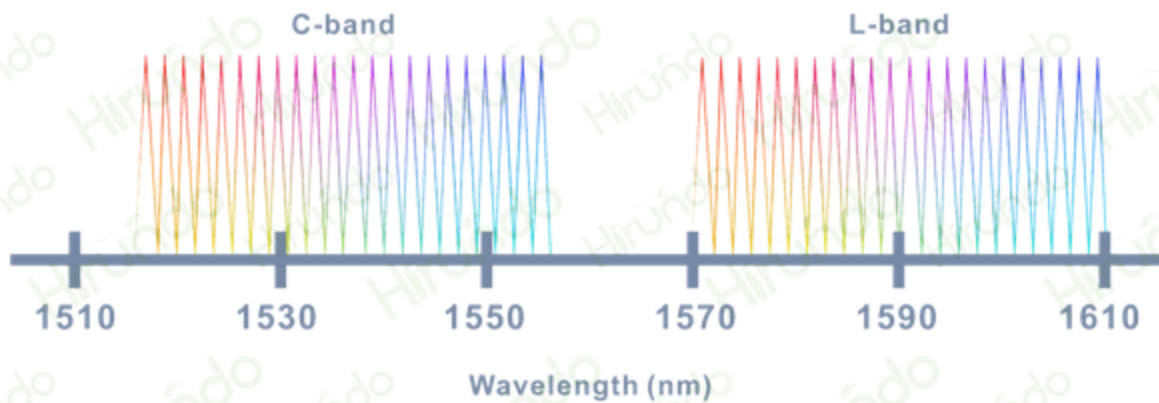
Customized Plastic Module



CWDM: 20-nm CHANNEL SPACING

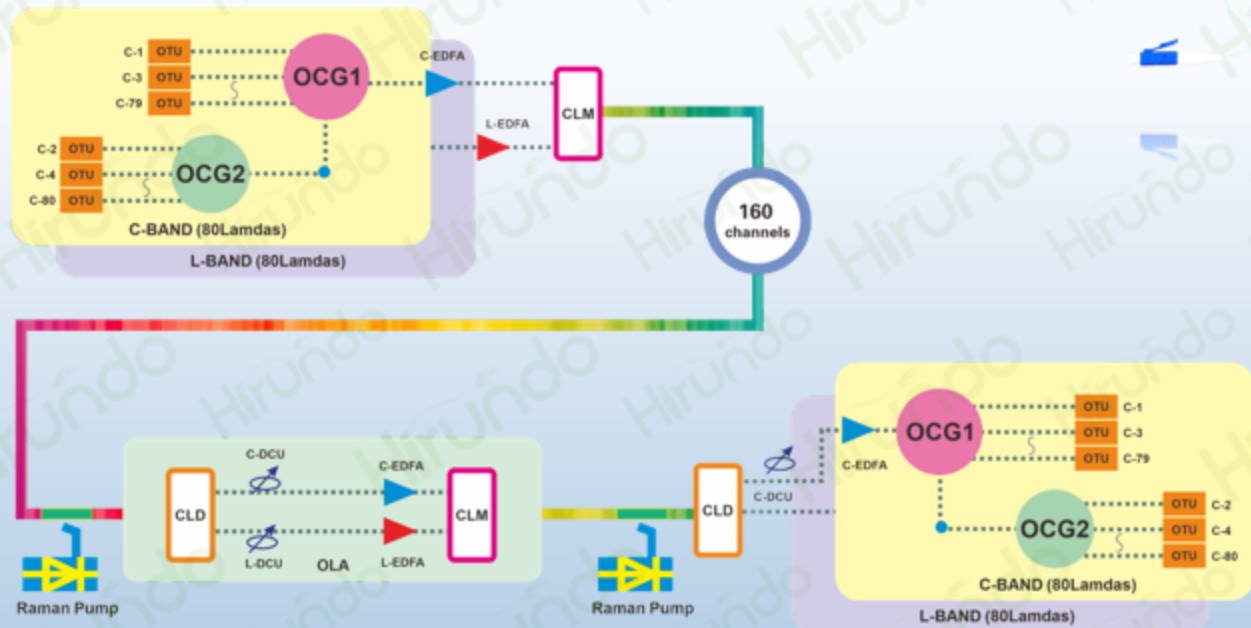


DWDM: 0.4, 0.8, OR 1.6-nm CHANNEL SPACING



AWG Specification

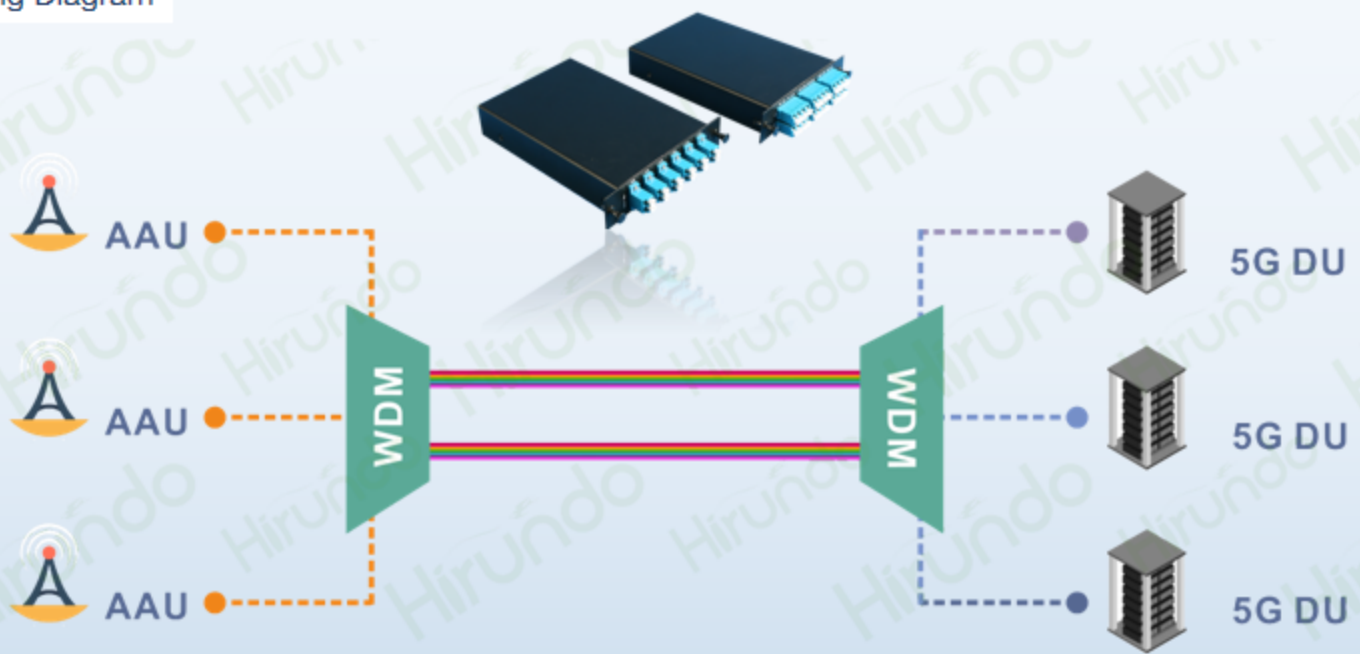
Working Diagram



Parameters	100G AAWG	100G AAWG	50G AAWG	75G AAWG	150G AAWG	150G AAWG
Chip Type	Gaussian	Flat top	Flat top	Flat top	Gaussian	Flat top
Operating Wavelength(nm)	1525-1570 (C-band)	1525-1570 (C-band)	1525-1570 (C-band)	1525-1570 (C-band)	1260-1360 (O-band)	1525-1570 (C-band)
Channel	16 ~ 48	16 ~ 48	80/96	64	17	32
Channel Wavelength(nm)	1529.55~1567.13 (ITU C13~C60)	1529.55~1567.13 (ITU C13~C60)	191.35~196.1	fc	See channel plan	See channel plan
Channel Frequency Interval(GHz)	100	100	50	75	150	150
Center Wavelength Bandwidth	±0.1(nm)	±0.1(nm)	±6.25(GHz)	fc ± 31.5(GHz)	±18.75(GHz)	±16.25(GHz)
Center Wavelength Accuracy(nm)	±0.05	±0.05	±0.05	fc ± 9.0(GHz)	±0.05	±0.05
-1dB Bandwidth(nm)	≥0.22	≥0.4	≥0.2	>22.5(@- 0.5dB)	≥0.23	≥75(GHz)
-3dB Bandwidth(nm)	≥0.42	≥0.55	≥0.28	>36.0	≥0.42	≥90(GHz)
-20dB Bandwidth(nm)	≤1.2	≤1.2	--	--	≤1.2	--
Pass band Insertion Loss (dB)	≤4.0	≤5.5	≤6.0	≤6.2	≤3.0	≤6.0
Adjacent Isolation(dB)	≥25	≥25	≥25	≥13	≥25	≥25
Non-Adjacent Isolation(dB)	≥30	≥30	≥30	≥30	≥30	≥30
Total Cross Talk(dB)	≥22	≥22	≥22	≥11	≥24	≥22
Insertion Loss Uniformity at ITU	≤1.5	≤1.5	≤1.3	≤1.5	≤1.2	≤1.5
Passband Ripple @±0.1nm(dB)	≤1.5	≤0.5	≤0.5	≤0.5	≤1.5	≤0.5

DWDM Specification

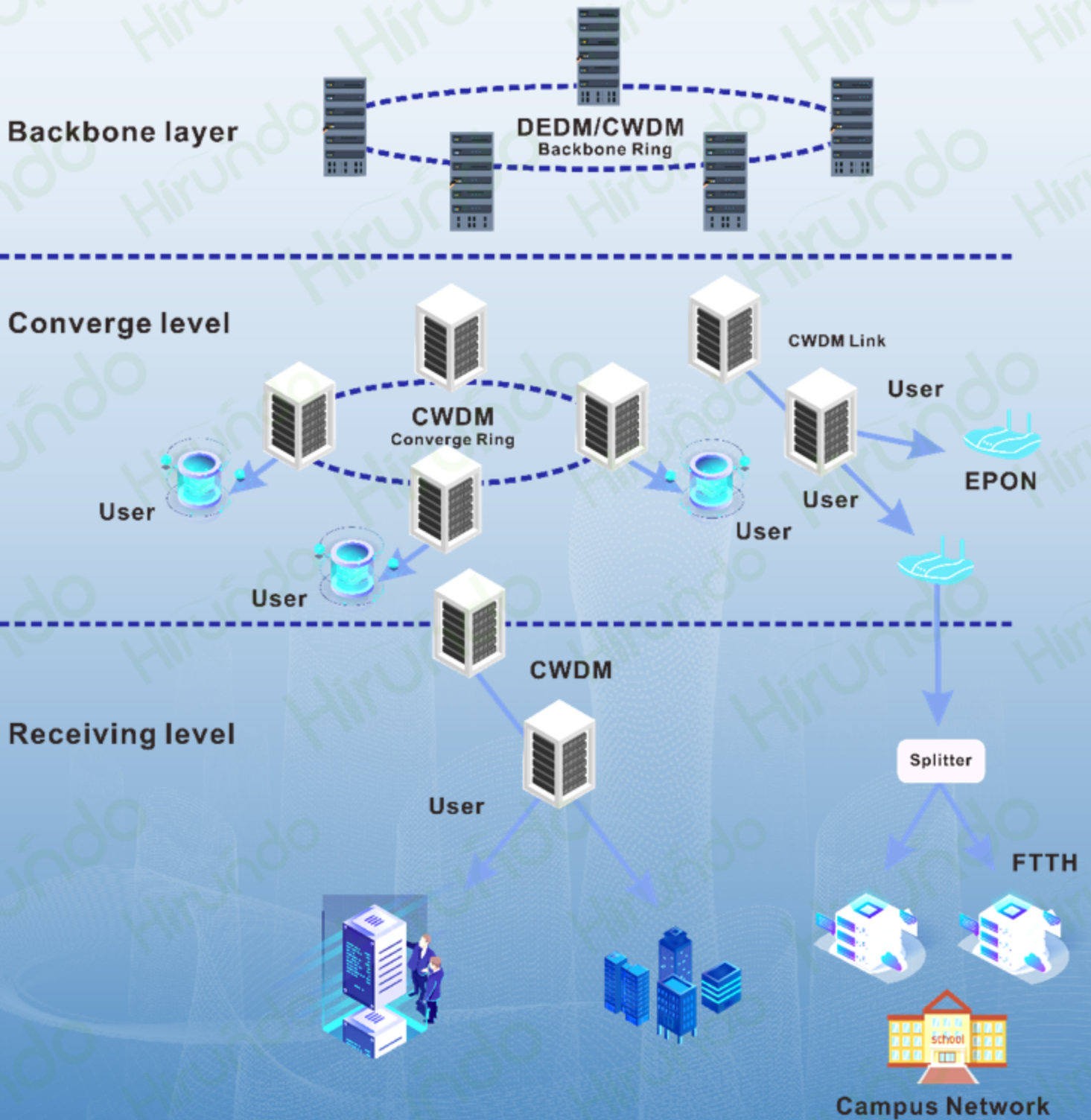
Working Diagram



Parameter		4 channel		8 channel		16 channel	
		Mux	Demux	Mux	Demux	Mux	Demux
Channel Wavelength (nm)		ITU 100GHz Grid					
Channel Spacing (GHz)		100					
Pass Band (@-0.5dB band width) (nm)		≥0.3					
Insertion loss (dB)		≤1.8		≤3.0		≤3.5	
Isolation (dB)	Adjacent	≥30					
	Non-Adjacent	≥40					
Wavelength Temperature Shifting (dB)		≤0.5					
Wavelength Temperature Shifting (nm/°C)		≤0.002					
Polarization-related losses (dB)		≤0.2					
Polarization Mode Dispersion (PS)		≤0.1					
Directivity (dB)		≥45					
Return Loss(dB)		≥45					
Max Optical Power (mW)		300					
Operating Temperature(°C)		-10-75					
Storage Temperature (°C)		-40-85					
Dimensions (mm)		L100×W80×H10			L120×W80×H18		
		19*1URack					

CWDM Specification

Working Diagram



CWDM Specification

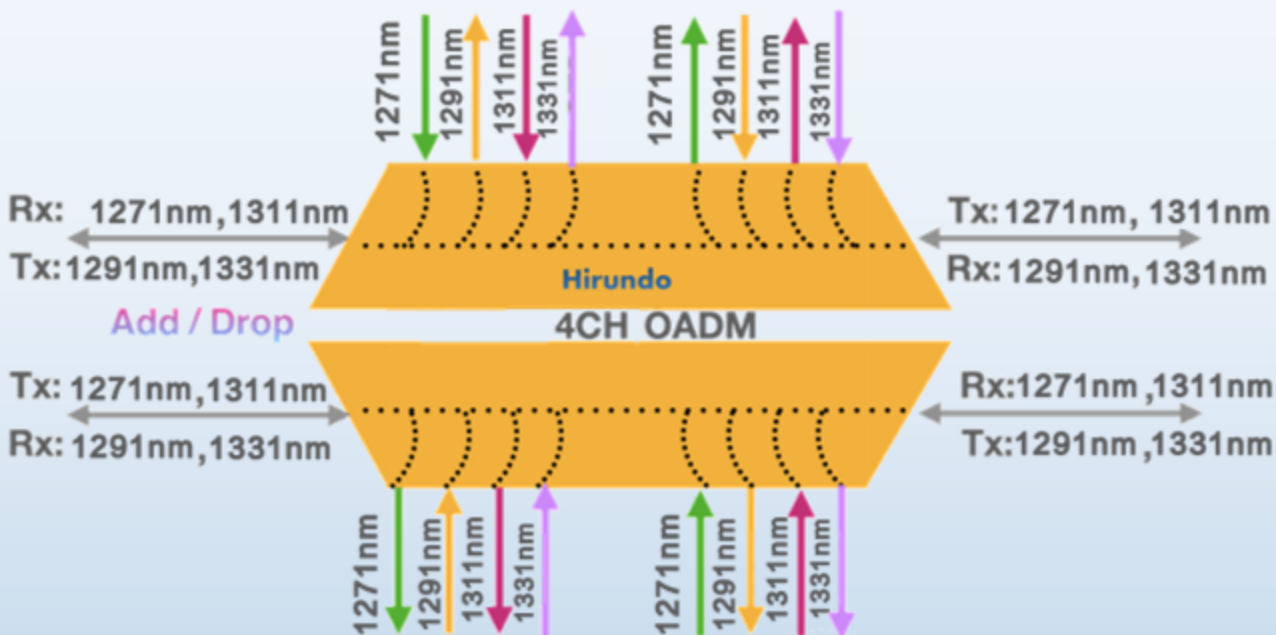
Parameter	4 channel		8 channel		16 channel	
	Mux	Demux	Mux	Demux	Mux	Demux
Channel Wavelength (nm)	1270~1610 or 1271~1611					
Channel Spacing (nm)	20					
Pass Band (@-0.5dB band width) (nm)	≥13					
Insertion loss(dB)	≤1.5		≤2.5		≤3.5	
Isolation(dB)	Adjacent		≥30			
	Non-Adjacent		≥40			
Insertion Loss Temperature Sensitivity (dB)	≤0.5					
Wavelength Temperature Shifting (nm/°C)	≤0.002					
Polarization-related losses (dB)	≤0.2					
Polarization Mode Dispersion (PS)	≤0.1					
Directivity (dB)	≥50					
Return Loss (dB)	≥45					
Max Optical Power (mW)	300					
Operating Temperature (°C)	-10~75					
Storage Temperature (°C)	-40~85					
Dimensions(mm)	L100×W80×H10			L120×W80×H18		
	19"1U Rack					

CCWDM Specification

Parameters	Specifications					Unit
	4CH	8CH	8+E1CH	8+E2CH	18CH	
Operating Wavelength	1260-1620					nm
Channel Wavelength	1270~1610/1271~1611					nm
Channel Spacing	20					nm
Channel Passband (@-0.5dB)	Channel Port					nm
	UPG					nm
Insertion Loss ¹	≤1.0	≤1.5	≤1.5	≤1.5	≤2.5	dB
Isolation	Adjacent					dB
	Non-adjacent					dB
	UPG					dB
Insertion Loss Temperature Sensitivity	≤0.5					dB
Ripple	≤0.5					dB
Wavelength Temperature Shifting	≤0.002					nm/°C
Polarization Dependent Loss	≤0.2					dB
Polarization Mode Dispersion	≤0.1					ps
Directivity	≥50					dB
Return Loss	≥45					dB
Maximum Power Handling	300					mW
Operating Temperature	-40~+85					°C
Package size	8+1CH: L44×W28×H6.2 or L44×W25×H6.2 or L54×W32×H7.4 18CH: L50×W50×H6					mm

OADM Specification

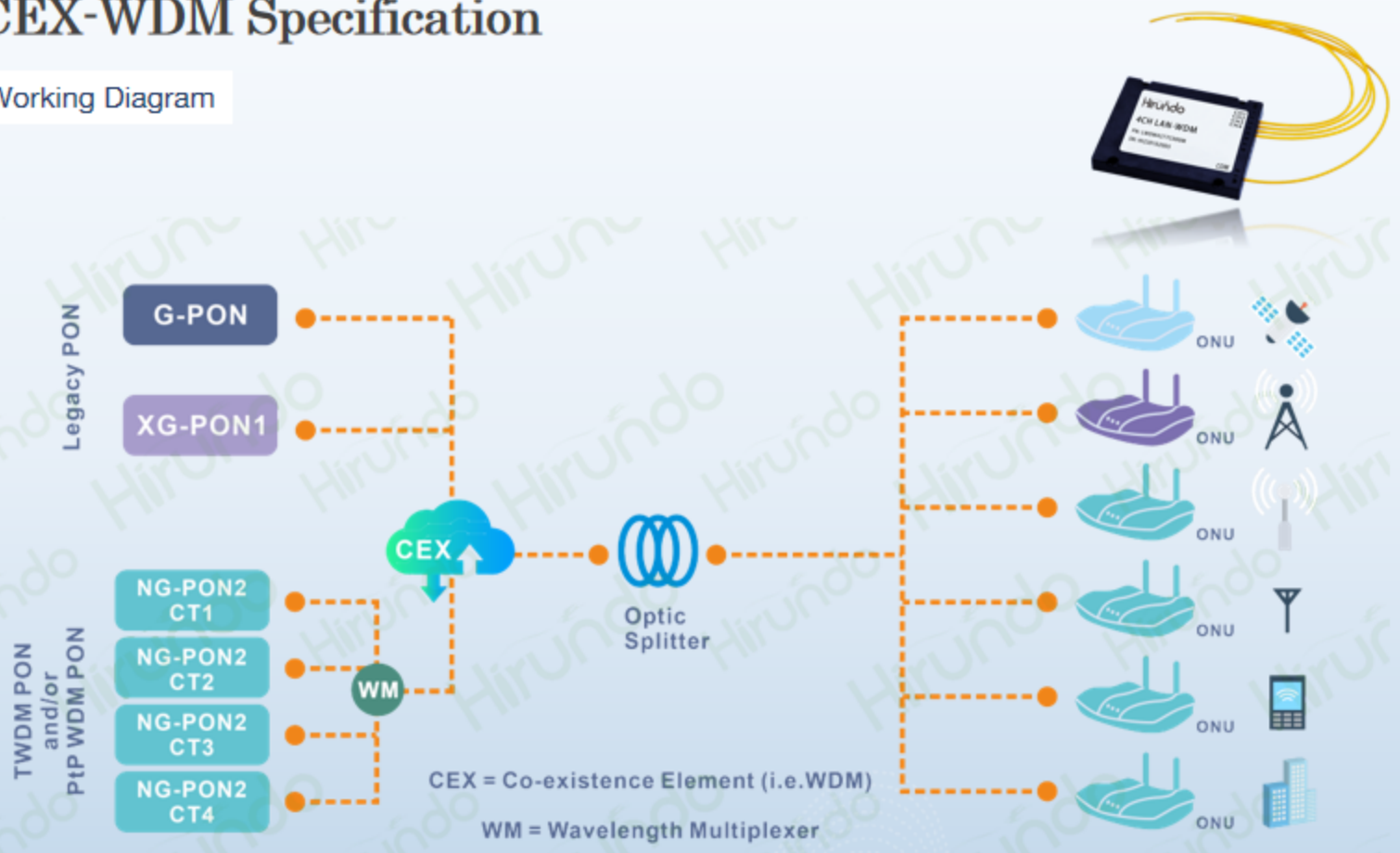
Working Diagram



Parameter		1CH	2CH	4CH	8CH
Operating Wavelength(nm)		1260-1620			
Channel Wavelength(nm)		1270-1610 / 1271-1611			
Channel Spacing(nm)		20			
Channel Passband(@-0.5dB bandwidth)(nm)		±6.5			
Insertion Loss(dB)	In=>Drop@drop	≤1.0	≤1.5	≤2.0	≤3.2
	Add=>Out@add	≤1.0	≤1.5	≤2.0	≤3.2
	In=>Out@Other	≤1.0	≤1.5	≤2.5	≤5.0
Isolation(dB)	Adjacent	≥30			
	Non-adjacent	≥40			
Insertion Loss Temperature Sensitivity(dB)		≤0.5			
Ripple(dB)		≤0.5			
Wavelength Temperature Shifting(nm/°C)		≤0.002			
Polarization Dependent Loss(dB)		≤0.2			
Polarization Mode Dispersion(ps)		≤0.1			
Directivity(dB)		≥50			
Return Loss(dB)		≥45			
Maximum Power Handling(mW)		300			
Operating Temperature(°C)		-40~+85			
Storage Temperature(°C)		-40~+85			

CEX-WDM Specification

Working Diagram



Parameters		Specifications	Unit
		GPON / XGPON / NGPON2 / OTDR	
Operating Wavelength		1260-1650	nm
Channel Wavelength	GPON	1290~1330&1480~1500	nm
	XGPON	1260~1280&1575~1580	nm
	NGPON2	1524~1544&1596~1603	nm
	OTDR	1625~1650	nm
Insertion Loss	COM=>GPON	≤0.8	dB
	COM=>XGPON	≤1.2	dB
	COM=>NGPON2	≤1.4	dB
	COM=>OTDR	≤1.2	dB
Isolation	GPON@XGPON/NGPON2	≥30	dB
	XGPON@GPON/NGPON2	≥30	dB
	NGPON2@GPON/XGPON	≥30	dB
	OTDR	≥15	dB



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