



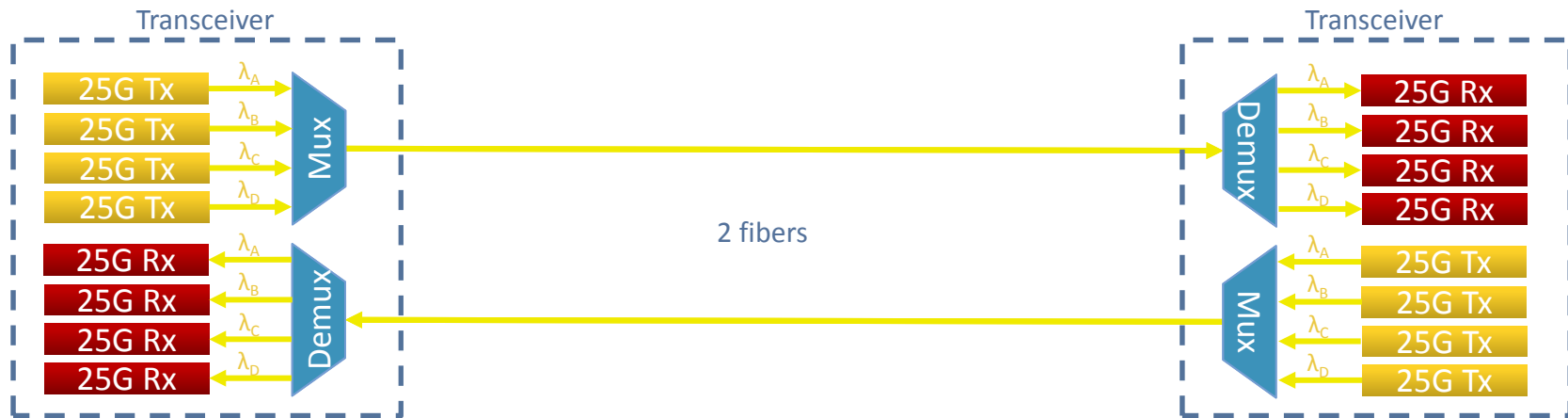
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100GBASE-LR4 Summary



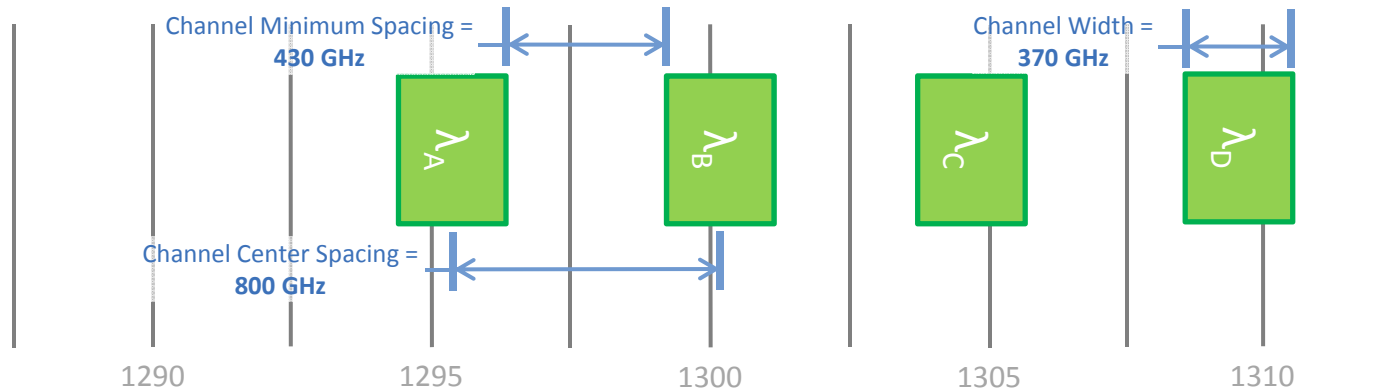
100GBASE-LR4 Summary

- ◆ NGEAPON Task Force considering using the LR4 wavelength plan
- ◆ 100GBASE-LR4 is duplex, two-fiber data link for 10km (Long Reach)
- ◆ 25Gb/lane (wavelength) X 4 wavelengths = 100Gb/s



Parameter	100GBASE-LR4
Maximum distance	9/125 SMF cable, 10 km (6.2 miles)
Transmitter wavelength per lane	1294.53 through 1296.59 nm 1299.02 through 1301.09 nm 1303.54 through 1305.63 nm 1308.09 through 1310.19 nm
Average launch power per lane	-4.3 through 4.5 dBm (Total max is 10.5 dBm)
Average receive power per lane	-10.6 through 4.5 dBm
Rx sensitivity (OMA) per lane (max)	-8.6 dBm

100GBASE-LR4 Wavelength Plan



Channel	Wavelength Range (nm)		Frequency Range (THz)		
	Minimum	Maximum	Minimum	Center	Maximum
A	1294.53	1296.59	231.59	231.41	231.22
B	1299.02	1301.09	230.79	230.61	230.42
C	1303.54	1305.63	229.99	229.81	229.62
D	1308.09	1310.19	229.19	229.01	228.82

100GBASE-LR4 and Four-Wave Mixing

- ◆ NGEPON task force is considering to use the same wavelength plan as 100GBASE-LR4
- ◆ FWM is not an issue for 100GBASE-LR4.
Key parameters:
 - Minimum wavelength spacing = 430 GHz
 - Max average optical launch power = +4.5 dBm
 - Fiber distance = 10 km
- ◆ With same wavelength plan, could FWM be an issue for 100Gb/s NGEPON?
 - Fiber distance increases from 10km to 20km
 - Max average optical launch power increases from +4.5dBm to ??.