

Delivering more fibre systems over less fibre

Splitters are passive and sometimes called a Basic Wavelength Division Multiplexer. They will double the number of networks over a pair of fibres, but one network must operate at 1310nm and the other must work at 1550nm.

Circulators are passive and can double the number of networks over a pair of fibres, but networks can be 1310nm or 1550nm.

CWDM (Coarse wavelength division multiplexing) are passive and typically transports 8 wavelengths with channel spacing of 20 nm from 1270 nm to 1610 nm.

DWDM (Dense wavelength division multiplexing) are Passive and typically transport can carry 32 and up to 160 wavelengths (and more) by utilizing a much narrower spacing from 1.6nm to 0.8/0.4 nm (100 GHz/50 GHz grid).

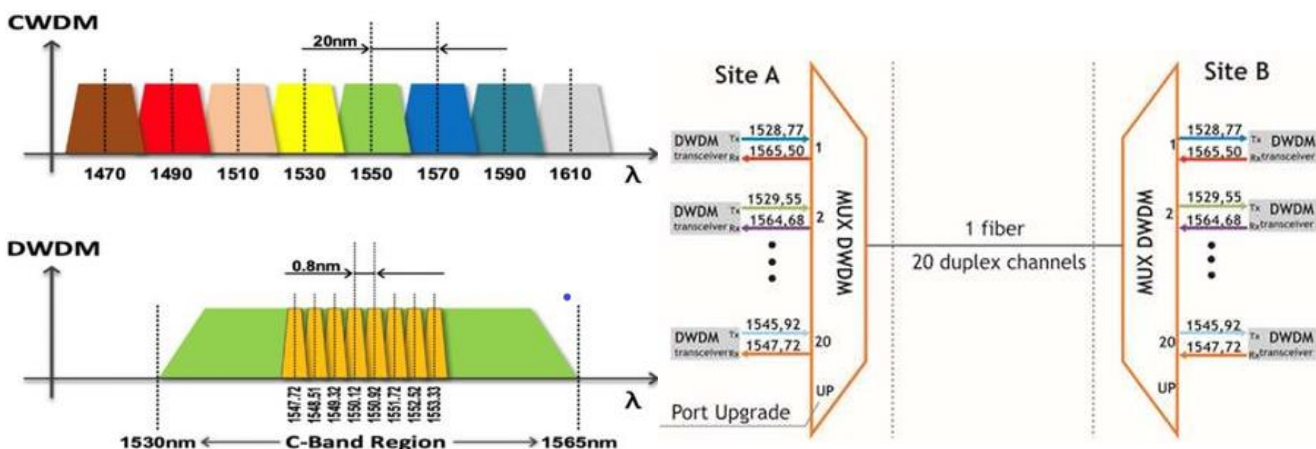
Difference between WDM, CWDM and DWDM

WDM an Optical multiplexer is used at the input and output side to multiplex these signals regular 1310, 1550, 1625, 1650nm windows of operation from normally available equipment.

CWDM and DWDM assign the incoming optical signals to specific frequencies and multiplexes them for transport over a single fibre.

Each input to CWDM or DWDM has a different wavelength not commonly available on standard Singlemode equipment.

Thus, the input/ output Multiplexor needs the matching different value SFP to read the signal, see below for typical CWDM/ DWDM operational wavelengths and spacing



- **WDM** is the lowest cost, a few hundred dollars – application Passive Optical Networks to 70km network condition dependent
- **Circulators** are about 10 times the cost of WDM – application limited network extension to 70km network condition dependent
- **CWDM** are about 15 times the cost of Circulators – application Short Haul Metro networks to 70km network condition dependent. Protocols 10GE or 16G fibre channel (40G using 4x10G)
- **DWDM** is about 15 times the cost of CWDM – application Long Haul Networks. 80-1000km amplified. Protocols 100G and beyond