ITU Grid
> Coarse WDM Reference Table

Coarse Wavelength Division Multiplexing (CWDM), a WDM technology, is characterized by wider channel spacing than Dense WDM (DWDM) as defined in ITU-T Rec. G.671. CWDM systems can realize cost-effective applications, through a combination of uncooled lasers, relaxed laser wavelength selection tolerances and wide pass-band filters. CWDM systems can be used in transport networks in metropolitan areas for a variety of clients, services and protocols.

Nominal central wavelengths for coarse WDM systems

The CWDM grid wavelengths within the range 1270 nm to 1610 nm are shown below. The value of "c" (speed of light in vacuum) that should be used for converting between wavelength and frequency is 2.99792458×10^8 m/s.

ITU G.694.2 - Nominal central wavelengths

Nominal central wavelengths (nm) for spacing of 20nm
1270
1290
1310
1330
1350
1370
1390
1410
1430
1450
1470
1490
1510
1530
1550
1570
1590
1610

Central wavelength spacing and wavelength variation

Effective CWDM realizations with uncooled lasers and wide passband filters a nominal central wavelength spacing of not less than 20 nm. Total source wavelength variation of the order of ± 6-7 nm is expected to be compatible with current filter technologies. As for the guard-band, one third of the minimum channel spacing is sufficient. Therefore, in order to maximise the number of channels, 20 nm has been chosen.

Specific values and allocations of this variation will be defined in individual applications.

The wavelength variation is determined by mainly two factors. First, the laser manufacturer is allowed a wavelength variation around the nominal wavelength in order to achieve a higher yield and/or relax fabrication tolerances. Second, the use of uncooled lasers will cause the wavelength to change with temperature within the specified temperature range of the laser.

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