ITU-T The leader in CWDM Recommendations

G.694.2 – Spectral grids for WDM applications: CWDM wavelength grid
Provides the wavelength grid for coarse wavelength division multiplexing (CWDM) applications. This wavelength grid supports a channel spacing of 20 nm.

G.695 – Optical interfaces for coarse wavelength division multiplexing (CWDM) applications
Provides optical parameter values for physical layer interfaces of coarse wavelength division multiplexing (CWDM) applications with up to 16 channels and up to 2.5 Gbit/s.

Related Recommendations

G.652 – Characteristics of a single-mode optical fibre and cable
The characteristics of a single-mode optical fibre and cable with zero-dispersion wavelength around 1310 nm, but which can also be used in the 1550 nm region.

G.653 – Characteristics of a dispersion-shifted single-mode optical fibre and cable
The characteristics of a single-mode optical fibre and cable with zero-dispersion wavelength shifted into the 1550 nm region, specified to take advantage of the attenuation minimum in that spectral region.

G.655 – Characteristics of a non-zero dispersion-shifted single-mode optical fibre and cable
The characteristics of a single-mode optical fibre and cable, which has the absolute value of the chromatic dispersion coefficient greater than some non-zero value throughout the wavelength range from 1530 to 1565 nm, in order to reduce the growth of nonlinear effects which can be particularly deleterious in DWDM systems.

G.664 – Optical safety procedures and requirements for optical transport systems
Provides guidelines and requirements for techniques to enable optically safe working conditions (for the human eye and skin) on optical interfaces of the optical transport network (OTN), in particular, for systems employing high-power Raman amplification techniques, for equipment in restricted and controlled locations.

CWDM means

- Cost-effective applications, through a combination of uncooled single mode lasers, relaxed laser wavelength tolerances and wide pass-band filters
- 90 km reach for 2 bidirectional channels at 1.25 Gbit/s on a single fibre
- 55 km reach for 8 wavelengths at 2.5 Gbit/s
- 42 km reach for 6 bidirectional channels at 1.25 Gbit/s on a single (conventional) fibre
- 42 km reach for 16 wavelengths at 2.5 Gbit/s using low water peak fibre

For more information on optical transmission Recommendation related activities please check the ITU-T Study Group 15 website at: www.itu.int/ITU-T/com15

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CWDM

COARSE WAVELENGTH DIVISION MULTIPLEXING

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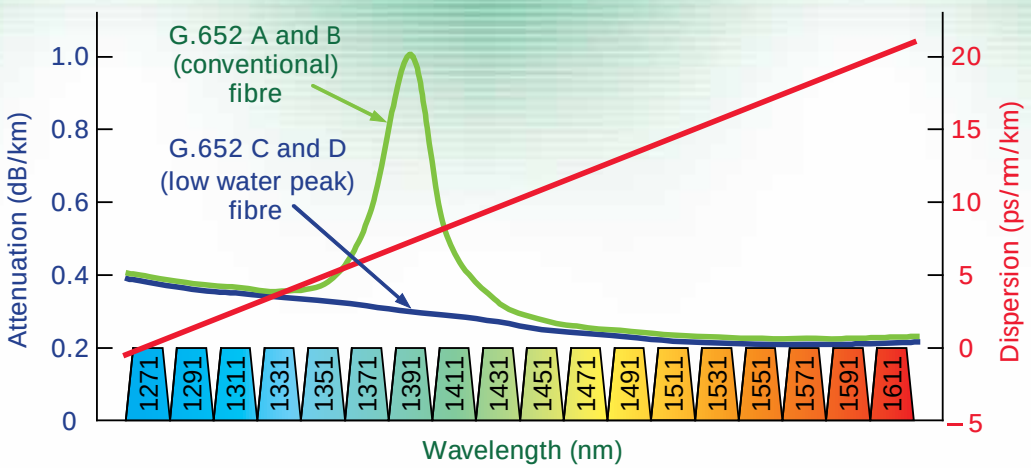
Highlights

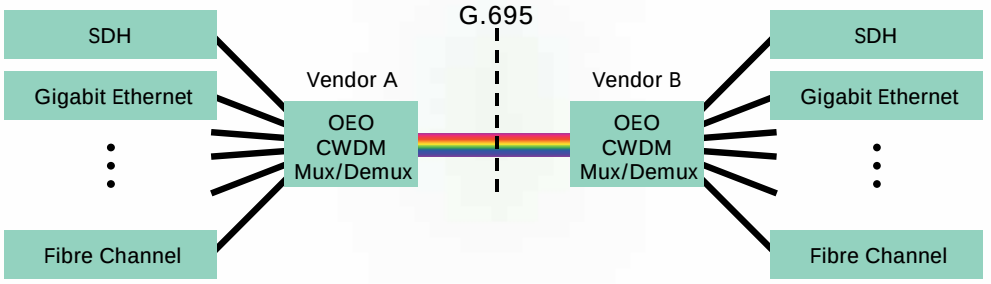
- 20 nm channel spacing (G.694.2)
- 4, 8, 12 and 16 wavelength applications
- Unidirectional or bidirectional (single fibre)
- Applications up to 2.5 Gbit/s per wavelength
- G.652.C and D low water peak fibre
- G.652.A and B conventional fibre also supported for many applications
- Spectral dependence of attenuation and dispersion accounted for

Figure 1



- Multichannel (CWDM) interfaces
- Multivendor interoperability:
  Vendor A Mux/Demux can be connected to
  Vendor B Mux/Demux

Figure 2



- Single channel (coloured) interfaces
- Linear and ring configurations with OADMs
- Multivendor interoperability:
  Vendor A transceiver can be connected through
  Vendor B Mux/Demux and link to
  Vendor C transceiver

Figure 3