

DCM Dispersion Compensation Device

HTF optical compensation function with slope dispersion compensation for standard single-mode fiber can DCM (G.652) were dispersion and dispersion slope compensation broad band in the C-band, allowing the system to optimize residual dispersion. In the dispersion compensation value of 1545nm wavelength dispersion can reach -2070ps / nm.

The DCM offer a high dispersion compensation level and a very low insertion loss penalty. They provide negative dispersion compensation over the full C-Band with possible distance extensions of up to 120 kilometers.



- DWDM system dispersion compensation and broadband low residual dispersion
- G.652 fiber C-band 100% slope compensation (standard value)
- Low insertion loss
- Low polarization mode dispersion
- Performance indicators by Telcordia GR-2854-CORE standard certification
- Reliability by Telcordia GR-1221-CORE standard certification

Dispersion Compensation and Dispersion Slope Compensation

Obtained at a specific wavelength dispersion compensation, should satisfy the following relationship:

$$DTF \times LTF + DDCF \times LDCF = 0$$

DTF: transmission fiber dispersion;

LTF: length of the transmission fiber;

DDCF: dispersion of the dispersion compensating optical fiber;

LDCF: dispersion compensation fiber length;

Dispersion slope compensation in the band, should satisfy the following relationship:

$$STF \times LTF + SDCF \times LDCF = 0$$

STF: dispersion of the transmission fiber;

SDCF: dispersion of the dispersion compensating optical fiber

According to the above two relationships obtained dispersion compensation and dispersion slope

compensation, should satisfy the following relation:

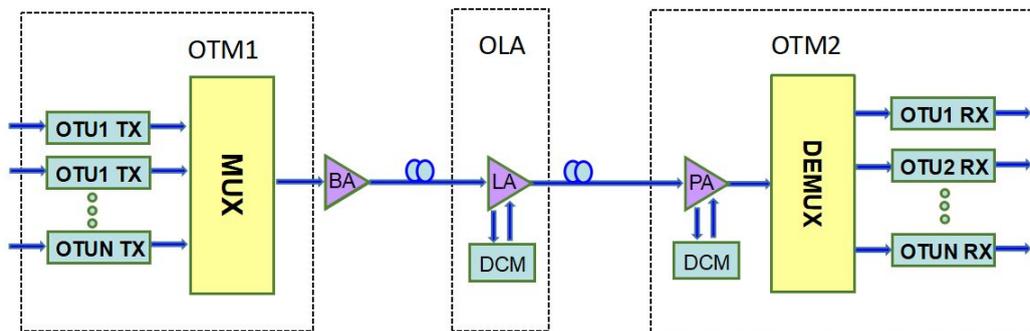
$$RDSDCF = SDCF / DDCF = STF / DTF$$

Assuming standard single mode fiber at 1545nm wavelength dispersion of 16.7ps / nm / km, a dispersion slope of 0.060 ps / nm² / km, RDS about 0.0036nm⁻¹.

Nonlinear Characteristics

Parameter	Min.	Max.
Brillouin Scattering Threshold (dBm)	6	-
Non-linear Coefficient (n^2/A_{eff}) (W^{-1})	-	1.4×10^{-9}
Effective Area (A_{eff})@1550nm (μm^2)	20	-
Maximum Input Power (dBm)		23
Operating Temperature Range	-5°C	70°C
Storage Temperature Range	-40°C	85°C
Relative Humidity	<85%	
Environmental / Reliability Testing	Comply with Telcordia GR-2854 and GR-1221 standard	
Size (mm)	482.6(W) x 350(D) x 43.6(H)	

Application Example



Ordering Information

Parameter	DCM-20	DCM-40	DCM-60	DCM-80	DCM-100	DCM-120
Compensated Distance (km)	20	40	60	80	100	120
1545nm Dispersion (ps/nm)	-340+/-10	-670+/-20	-1000+/-30	-1340+/-40	-1680+/-50	-2010+/-60
1545nm Relative Dispersion Slope (nm-1)	0.0036 +/- 10%					
Insertion Loss (dB)	≤3.3	≤4.7	≤6.4	≤8.0	≤9.5	≤11.0
Insertion Loss (typ) (dB)	2.7	4.0	5.4	6.7	8.0	9.3
Polarization Mode Dispersion (ps)	≤0.6	≤0.7	≤0.8	≤0.9	≤1.0	≤1.1
Polarization Mode Dispersion (typ) (ps)	0.2	0.3	0.4	0.5	0.6	0.7
Polarization Dependent Loss (dB)	≤0.1	≤0.1	≤0.1	≤0.1	≤0.1	≤0.1