

Specification for 24 Core Fibre Optic Cable

3.6.7 Specifications of OFC			
Serial	Specification	Detailed specification	Remark
1	Max Continuous length	2km±10%, 4km±5%	
2	Cable Design Life	More than 20 years	
3	Marking	Cable type, Running meter length, Number of fibres, Year of manufacture and batch no., Manufacturer's name, Employer's name	
4	Outer Jacket	A circular jacket of (>0.65mm) Polymide-12 material sheath and of termite resistant.	
5	Rip Cord	properly waxed to prevent wicking action and shall not work as a water carrier	
6	The Sheath / Inner jacket The sheath shall be extruded directly over the central fibre optic unit.	Smooth, concentric, free from holes, splits, blisters and other surface flaws, non-hygroscopic. Easy removal without damage to the optical fibres and made from good quality of weather resistant polyethylene compound (Black High Density Polyethylene- HDPE) and thickness shall be > 1.8mm.	
7	Colour Coding & Fibre Identification	Individual optical fibres within a fibre unit, and fibre units shall be identifiable in accordance with EIA/TIA 598 or IEC 60304 or Bellcore GR-20 colour-coding scheme.	
8	Filling Compound	The filling compound used shall be a non-toxic homogenous waterproofing compound that is free of dirt and foreign matter, anti-hygroscopic, electrically nonconductive and non-nutritive to fungus. The compound shall also be fully compatible with all cable components it may come in contact with and shall inhibit the generation of hydrogen within the cable.	
9	Strength Members	Fibre Reinforced Plastic (FRP) or other suitable material. Peripheral strength members and aramid yarns are also acceptable.	
10	No. of fibers in the cable	24F	
11	Type of fibers	Dual Window Single Mode	
12	No. of fibers per tube	6	
13	No. of loose tubes	4	
14	Cable diameter (Nominal + tolerance) (mm)	13.4±0.5	
15	Cable Weight (Kg/km)	145-161	
16	Mode Field Diameter:	8.6 to 9.5 μm (±0.6 μm)	
17	Cladding Diameter:	125.0 μm ± 1μm	
18	Mode field Concentricity Error:	≤ 0.6μm	
19	Core-Clad concentricity error:	≤ 1.0μm	

20	Cladding non-circularity	$\leq 1\%$	
21	Cable Cut off Wavelength:	$\leq 1260 \text{ nm}$	
22	1550 loss performance	As per G.652	
23	Proof Test Level	$< 0.69 \text{ Gpa}$	
24	Attenuation coefficient	@1310nm $\leq 0.35 \text{ dB/Km}$, @1550nm $\leq 0.21 \text{ dB/Km}$	
25	Attenuation variation with wavelength		
a	1285nm – 1330nm	Attenuation coefficient @1310 $\pm 0.05 \text{ dB}$	
b	1525 nm – 1575 nm	Attenuation coefficient @1550 $\pm 0.05 \text{ dB}$	
26	Point discontinuities	$\leq 0.1\text{dB}$	
27	Chromatic Dispersion; Maximum: Zero Dispersion Wavelength: Zero Dispersion Slope:	18.0 ps/(nm x km) @ 1550 nm, 3.5 ps/(nm x km) @ 1288-1339nm 5.3 ps/(nm x km) @ 1271-1360nm 1300 to 1324nm -0.092 ps/(nm ² xkm) maximum	
28	Temperature Dependence:	Induced attenuation $\leq 0.05 \text{ dB}$ (-60 °C - +85 °C)	
29 a	Bend performance: 1310nm (75±2 mm dia Mandrel)	100 turns; Attenuation rise $< 0.05 \text{ dB}$	
b	Bend performance: 1550nm (30±1 mm dia Mandrel)	100 turns; Attenuation rise $< 0.10 \text{ dB}$	
c	Bend performance: 1550nm (32±0.5 mm dia Mandrel)	1 turn; Attenuation rise $< 0.50 \text{ dB}$	
30	Polarization mode dispersion coefficient	$\leq 0.2 \text{ ps/km}^{1/2}$	