CBi electric Telecom Cables (Pty) Ltd
3 Marthinus Ras Street, Brits, North West
Tel : 012 381 1400
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MEDIUM SHORT SPAN AERIAL FIBRE OPTIC CABLE

APPLICATION

- Self Supporting All Dielectric
- Spans up to 250m (No Ice loading)
- Long Haul and Access

MSA CABLES

CONSTRUCTION

GRP/FRP	Glass reinforced plastic central strength, PE over sheathed in certain cases
LOOSE TUBE	PBT (Polybutylene Terephthalate) filled with thixotropic gel
FIBRES	*6 to 8 colour coated fibers per tube
BEDDING SHEATH	Polyethylene
PERIPHERAL STRENGTH MEMBERS	Aramid (Optimized load transfer between aramid and sheath)
SHEATHING	Polyethylene (Black UV resistant sheath is standard)

MECHANICAL PROPERTIES

FIBRE COUNT	NUMBER OF ELEMENTS	CABLE DIAMETER NOMINAL (mm)	CABLE WEIGHT (kg/km)	MAXIMUM INSTALLATION LOAD (N)	OPERATION TEMPERATURE RANGE	BENDING RADIUS	
						LONG TERM	SHORT TERM
Up to 30	5 (*6 fibres/tube)	13.2	137	3000	-10°C to 70°C	20 x OD	12 x OD
48	6 (*8 fibres/tube)	13.2	145	3000	-10°C to 70°C	20 x OD	12 x OD

SAG AND TENSION CALCULATIONS (Max installation load)

SPAN	150m	200m	250m
Up to 24F Normal Sag (m)	1.3	2.2	3.5
48F Normal Sag (m)	1.4	2.4	3.7

FIBRE AND BUFFER COLOURS AS TIA/EIA

1	Blue	2	Orange	3	Green	4	Brown	5	Grey	6	White
7	Red	8	Black								

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ORDERING INFORMATION

FIBRE COUNT	CABLE TYPE	FIBRE TYPE ITU-T	DRUM QUANTITY (m)	CUSTOMER
24	Medium Short Span Aerial (MSA)	G657.A1	4000	CBi

OPTICAL PROPERTIES (Bend tolerant Multi-Mode)

CHARACTERISTICS		ITU-T G.651 OM2	ITU-T G.651 OM3	ITU-T G.651 OM4
Fibre Core Diameter (µm)		50.0 ± 2.5	50.0 ± 2.5	50.0 ± 2.5
Cabled Attenuation (dB/km)	850nm	≤ 3	≤ 2.5	≤ 2.5
	1300nm	≤ 1	≤ 0.7	≤ 0.7
Macro-Bend Loss	850nm	Ø15mm, 2turns, ≤ 0.2dB	Ø15mm, 2turns, ≤ 0.2dB	Ø15mm, 2turns, ≤ 0.2dB
		Ø30mm, 2turns, ≤ 0.1dB	Ø30mm, 2turns, ≤ 0.1dB	Ø30mm, 2turns, ≤ 0.1dB
		Ø75mm, 100turns, ≤ 0.05dB	Ø75mm, 100turns, ≤ 0.05dB	Ø75mm, 100turns, ≤ 0.05dB
	1300nm	Ø15mm, 2turns, ≤ 0.5dB	Ø15mm, 2turns, ≤ 0.5dB	Ø15mm, 2turns, ≤ 0.5dB
		Ø30mm, 2turns, ≤ 0.3dB	Ø30mm, 2turns, ≤ 0.3dB	Ø30mm, 2turns, ≤ 0.3dB
		Ø75mm, 100turns, ≤ 0.15dB	Ø75mm, 100turns, ≤ 0.15dB	Ø75mm, 100turns, ≤ 0.15dB
Bandwidth	High Performance EMB* (MHz.km)	950@850nm	2000@850nm	4700@850nm
		-	-	-
	Legacy Performance EMB** (MHz.km)	700@850nm	1500@850nm	3500@850nm
		500@1300nm	500@1300nm	500@1300nm
Optimised Data Rate over Distance		-	40/100 Gb/s over 140m***	40/100 Gb/s over 170m***
		10 Gb/s over 150m	10 Gb/s over 300m	10 Gb/s over 550m
		1 Gb/s over 750m	1 Gb/s over 1000m	1 Gb/s over 1100m
Cladding Diameter (µm)		125 ± 1	125 ± 1	125 ± 1
Cladding Non Circulatory (%)		≤ 1	≤ 1	≤ 1
Core-Clad Concentricity (µm)		≤ 1.5	≤ 1.5	≤ 1.5
Cable Cut-Off Wavelength (nm)			≤ 1260	≤ 1260

* Ensured via minEMBc per TIA 455-22A and IEC 60793-1-49, for high performance laser-based systems (up to 100Gb/s)

** OFLBW, per TIA/EIA 455-2-4 and IEC 60793-1-41, for legacy and LED-based systems (typically up to 100Mb/s)

*** Distances specified in the 40G/100G per IEEE 802.3ba standard are 150m for OM4 and 100m for OM3 (For these distances cabled attenuation ≤ 3.0dB/km and 1.0dB of connector loss is assumed.)

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OPTICAL PROPERTIES

CHARACTERISTICS		ITU-T.652D	ITU-T.657A1
Modefield Diameter (µm)	1310nm	9.2 ± 0.4	9.2 ± 0.4
	1550nm	10.4 ± 0.5	10.4 ± 0.5
Cabled Attenuation (dB/km)	1310nm	≤ 0.34	± 0.34
	1550nm	≤ 0.20	± 0.20
Polarization Mode Dispersion (ps/√km)	Link (PMDQ)	≤ 0.04	≤ 0.04
	Individual (PMDmax)	≤ 0.1	≤ 0.1
Chromatic Dispersion (ps/nm.km)	1285-1330nm	| 3 |	| 3 |
	1550nm	≤ 18	≤ 18
	1625nm	≤ 22	≤ 22
Macro-Bend Loss	1550nm	Ø32mm, 1turn, ≤ 0.03dB	Ø10mm, 1turn, ≤ 0.5dB
		Ø50mm, 100turns, ≤ 0.03dB	Ø15mm, 10turns, ≤ 0.05dB
			Ø25mm, 100turns, ≤ 0.01dB
	1625nm		Ø10mm, 1turn, ≤ 1.5dB
			Ø15mm, 10turns, ≤ 0.3dB
		Ø50mm, 100turns, ≤ 0.03dB	Ø25mm, 100turns, ≤ 0.01dB
Cladding Diameter (µm)		125 ± 0.7	125 ± 0.7
Cladding Non Circulatory (%)		≤ 0.7	≤ 1
Core-Clad Concentricity (µm)		≤ 0.5	≤ 0.6
Cable Cut-Off Wavelength (nm)		≤ 1260	≤ 1260
Local Variations : Cabled (dB)		≤ 0.1@1550nm	≤ 0.1@1550nm