LITE KABEL SDN. BHD. (Company No. 229741-U)
3, Medan Bayan Lepas,Phase 4, NFTZ,Bayan Lepas Technoplex,
11900 Penang, MALAYSIA
Tel : (60 4) 642-3624 Fax : (60 4) 642-3625

CABLE SPECIFICATION

Specification No.	**LKSB 20001A**
Revision No.	**3**
Page No.	**Page 1 of 6**

Single Mode Optical Fibre Cables With Loose Fibres in Stranded Tubes For Aerial Applications

LITE KABEL SDN. BHD. reserves the right to make changes to the cable design which improves the quality of the product without adversely affecting significant physical or optical properties of the product.

Unless otherwise stated, cables conform to the ITU-T Recommendations and Lite Kabel Standards. Testing conforms to IEC standards.

	Name	Signature	Date
Prepared By			
Approved By			

Accepted By

Name	Company	Date

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1. Environmental Conditions:

1.1 Temperature:

Operating	-20 to 70 ^{o}C
Installation	0 to 60 ^{o}C
Storage	-20 to 70 ^{o}C

1.2 Humidity:

Operating	Up to 100 % non condensing
Installation	Up to 100 % non condensing
Storage	Up to 100 % non condensing

2. Cable Structure:

2.1 Fibre Construction:
(ITU-T G.652D Standard Single Mode Fibre)

ITEM	VALUE
Type of Fibre	Single Mode, Step Index
Maximum Attenuation at 1310 nm	0.35 dB/km
Maximum Attenuation at 1550 nm	0.22 dB/km
Mode Field Diameter at 1310 nm	9.2 μm ± 0.4μm
Mode Field Diameter at 1550 nm	10.4 μm ± 0.8μm
Cable Cut-off Wavelength	≤ 1260 nm
Cladding Diameter	125. 0 ± 1 μm
Core-Clad Concentricity	≤ 0.5 μm
Cladding Non-Circularity	≤ 1 %
Coating Diameter	245 ± 5 μm
Coating-Cladding Concentricity	< 12 μm
1288-1339 nm Chromatic Dispersion	≤ 3.5 $^{ps}/_{nm * km}$
1550 nm Chromatic Dispersion	≤ 18 $^{ps}/_{nm * km}$
Zero Dispersion Slope	<0.092 $^{ps}/_{nm^2 * km}$
Zero Dispersion Wavelength	1301.5 to 1321.5 nm
Proof Test Strain Level	1%

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Revision No.	3
Page No.	Page 3 of 6

Cable Construction:

ITEM		CONSTRUCTION															
Number of Fibres		2	4	6	8	12	16	18	24	36	48	60	64	72	96	144	288
Maximum No. of Fibres per Tube		2	4	6	6	6	6	6	6	6	12	12	12	12	12	12	12
Number of Tubes		1	1	1	2	2	3	3	4	6	4	5	6	6	8	12	24
Number of Filler Rods		5	5	5	4	4	3	3	2	0	2	1	0	0	0	0	0
Fibres		See Section 2.1															
Central Strength Member	Material	Fibre Reinforced Plastic Rod, FRP.															
	Diameter(mm)	2.2									3.0						
Loose Tubes	Material	Thermoplastic. (PBT)															
	Diameter(mm)	2.1									2.7						
	Filling	Thixotropic gel.															
	Assembly	Fibres are brought together with the filling compound and placed in the extruded tube.															
Filler Rod	Material	Polyethylene.															
	Diameter(mm)	2.1									2.7						
Stranding		The required number of fibre filled tubes and filler rods (if any) are stranded tightly about the central strength member.															
Flooding Compound	Material	Jelly Compound.															
	Assembly	The jelly compound is injected into the interstices of the cable core.															
Core Wrap	Material	Water blocking tape.															
	Assembly	The tape is wrapped longitudinally over the cable core.															
Rip Cord		A ripcord will be placed immediately under the polyethylene sheath.															
Messenger Wire	Material	High carbon galvanised steel wire.															
	Assembly	7 x 1.6 mm.															
Outer Sheath	Material	Medium density black polyethylene.															
	Thickness(mm)	1.8															
Cable Marking	Length	Sequential printed in unit metre.															
	Sheath	Standard marking is embossed with " LITE CABLE SINGLE MODE". The final marking method & text to be finalised at the time of purchase.															
Sealing		Both cable ends shall be sealed with end caps.															
Cable Diameter (mm)		10.2									12.7				14	18	20
Cable Weight (kg/km)		240									280				320	410	470
Tensile Strength (N)		1400									2000						
Minimum Bending Radius	Dynamic	20 x Cable Outer Diameter															
	Static	10 x Cable Outer Diameter															
Mechanical Testing		Cable tested in accordance to IEC 794 Standard.															

Note: All measured values are nominal

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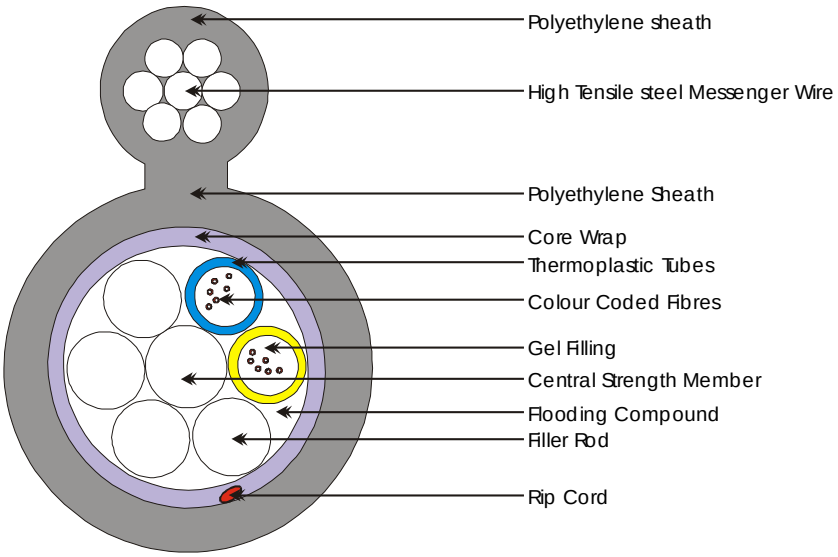
Specification No.	LKSB 20001A
Revision No.	3
Page No.	Page 4 of 6

2.3 Colour Codes:

Number	Fibre	Tube
1	Blue	Blue
2	Orange	Orange
3	Green	Green
4	Brown	Brown
5	Grey	Grey
6	White	White
7	Red	Red
8	Black	Black
9	Yellow	Yellow
10	Violet	Violet
11	Pink	Pink
12	Aqua	Aqua
13	-	Blue
14	-	Orange
15	-	Green
16	-	Brown

3. Typical Cross Sectional Diagram of Cable Design



12 Fibres Aerial Cable

Drawing Not To Scale

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4. Addendum- Cable Test

4.1 Attenuation Test:

Wavelength	1310 nm	1550 nm
Loss	≤0.35 db/km	≤0.22 dB/km

4.2 Water Penetration Test:

Water Penetration	IEC 794-1-F5	Specimen of 1 m under 1 m water head for 1 hour. 3 m for 24 hours if 1 m failed	No water leaks

Note: The Attenuation Test and Water Penetration Test will be performed on every cable drum.

4.3 Mechanical Tests:

Test	Test Setting		Requirement
Tensile	IEC 794-1-E1	Cable specimen of more than 120 m wound on mandrel radius of 20 times cable outer diameter for 10 minutes. The load is as specified in table 2.2.	Power loss after loading shall not be more that 0.1 dB
Repeated Bend	IEC 794-1-E6	Cable specimen shall be repeatedly bent with a frequency of 25 cycles at a rate of 30 cycles per minute on a mandrel radius of approximately 15 times cable outer diameter.	Power loss after loading shall not be more that 0.1 dB
Crush	IEC 794-1-E3	The load is 2000 N with the dimension of plate of 100 mm times 100 mm	Power loss after loading shall not be more that 0.1 dB
Repeated Impact Test	IEC 794-1-E4	The radius of hammerhead is 12.5 mm. The hammer shall be drop for 20 times from 150-mm height and the weight shall be determined by cable outer diameter. Refer to Table B attached.	Power loss after loading shall not be more than 0.1 dB

Note: The Mechanical Tests will only performed as per customer requirement.

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TABLE B: of Hammer Head Mass and Impact Energy (for 150 mm drop)

Cable Diameter (mm)	Mass in kg	Impact in Nm
0<D≤ 3.8	0.25	0.37
3.8<D≤ 5.3	0.5	0.74
5.3<D≤ 7.5	1.00	1.47
7.5<D≤ 13.0	2.00	2.94
13.0<D≤ 15.0	4.00	5.88
15.0<D≤ 16.6	6.00	8.83
16.6<D≤ 18.9	8.00	11.77
18.9<D≤ 21.4	10.00	14.71
21.4<D	12.00	17.65

Note 1 ; D= the outer diameter of the cable and is the minimum thickness for other than round cables

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