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TECHNICAL DATA SHEET

CABLE CONSTRUCTION

SM-MLT-SA-SJ-A 24FO

24 CORES AERIAL

SINGLE MODE FIBER OPTIC CABLES with SINGLE JACKET and STEEL ARMOR

Characteristics	Offered by the Tenders
1. No of tubes / No of Fibers per tube 24 FO (6Tx4F)	Fiber and Tube colors are according to Customer's technical specification.
2. Central Strength member -Material -Diameter	 - Reinforced Glass Fiber -2,2 mm
3. Loose tubes -Material -Type of filling compound - Diameter -Thickness	 - Polybuteneterephteleta (PBT) - Thixotropic - 2,06 mm -0.4 ± 0.05 mm
4. Tube assembly -Tube layout -Stranding type	 -Tubes will be stranded around Cent. Strength Member with symmetrically - Tubes will strand with SZ stranding method
5. Flooding compound -Material	 - Jelly Filling
6. Core wrapping -Material	Core covering tape - Polyester Tape
7. Dielectric Tensile Strength Member	- Aramid Yarn
8. Rip cords	Rip cord will be applied longitudinally to open cable easily
9. Identification tape	- Tape will be applied underneath corrugated steel tape longitudinally. Printings: ''Company Name, production month year,Cable Type, TÜRKSAT A.Ş.''
10. Armoring -Material -Thickness (nom.)	 - Copolymer coated Corrugated steel tape - 0,155 micron
11. Messenger Wire	7x1.75 messenger wire
12. Outer Sheath -Material -Thickness -Color	 - MDPE (UV RESISTANCE) - Approx. 2,2±0,2 mm - ORANGE COLOR (RAL 2008)
13. Length marking	BLACK, Hot Stamping ''Meter, telephone symbol, Drum Core Number, TÜRKSAT A.Ş., 24 FO-H Optical Cable , ETK Kablo, phone symbol,Meter''
14. Drum Length	2000 meters ± 5 %
15. Cable weight (kg/km) 24 FO	 Approx. 358 kg/km
16. Outer Diameter of cable 24 FO	 Approx. 12.2 X 24 mm

16. Test results of Mechanical characteristics

Test	Test Standard	Specified Value	Acceptance Criteria
-Tensile Strength Short Term	IEC 60794-1-2-E1(A-B)	Min ≥2700 N	$\Delta\alpha$ reversible, fiber strain ≤ 0.33% no fiber strain, $\Delta\alpha \leq 0.05$ dB
Max. Instalation Tensile Strength	IEC 60794-1-2-E1(A-B)	Min ≥1000 N	$\Delta\alpha$ reversible, fiber strain ≤ 0% no fiber strain, $\Delta\alpha \leq 0.05$ dB
Crush	IEC 60794-1-2-E3	4000 N / 100 mm	$\Delta\alpha \leq 0.05$ dB, no damage
Impact	IEC 60794-1-2-E4	30 Nm, 3 impacts, R= 300 mm	$\Delta\alpha \leq 0.05$ dB after the test
Torsion	IEC 60794-1-2-E7	100N, +/- 180°, 10 cycles	$\Delta\alpha \leq 0.05$ dB, no damage
Cable Bend	IEC 60794-1-2-E11	R=20x D, 4 turns	$\Delta\alpha \leq 0.05$ dB, no damage
Repeat Cable Bend	IEC 60794-1-2-E6	R=20x D, 100N,35 turns	no damage
Temperature Cycling	IEC 60794-1-2-F1	-40°C to +70°C 36 hours, two period	Max. %10 dB/km
Water Penetration	IEC 60794-1-2-F5B	Sample=1m, water column=1m	no water leakage in 24h

Transport & Stok : -40°C to +70°C
Instalations : -20°C to +60°C
Working : -40°C to +70°C

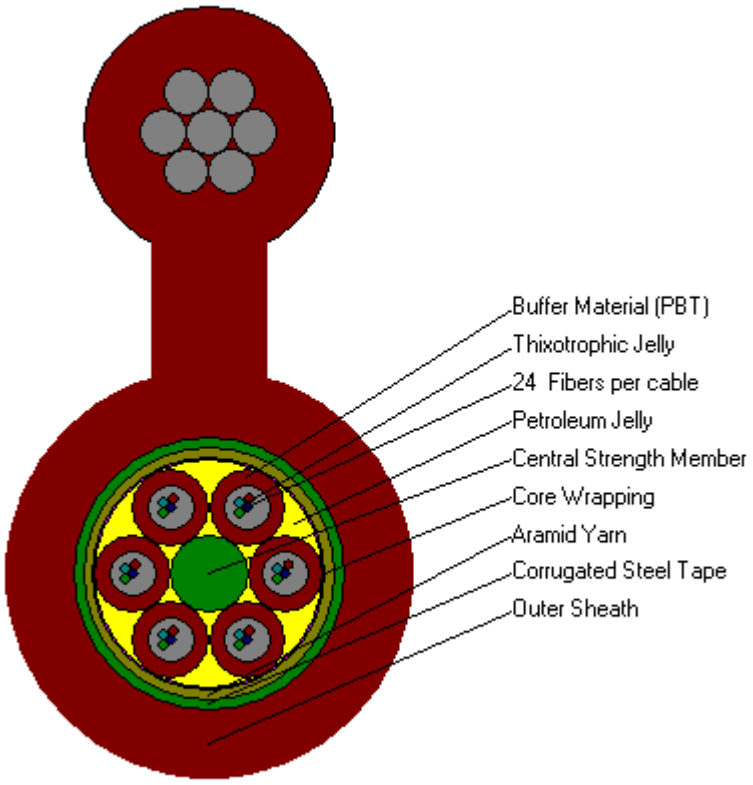
TECHNICAL DATA SHEET
SECTION 2

Attenuation for cable

Ref (nm)	Max.
1310	0,36 dB/km
1550	0,22 dB/km

TECHNICAL DATA SHEET
SECTION 3
TECHNICAL DRAWING

24 F0



1 Outer Sheath
2 Corrugated Steel Tape*
3 Aramid Yarn
4 Core Wrapping (Polyester)
5 Central Strength Member
6 Jelly Filling
7 Buffer Material (PBT)
8 Thixotrophic Jelly
9 24 Fibers per Cable
*Two (2) ripcords will be applied longitudinally.

OPTICAL FIBERS and TUBES COLORS*

Tube Color Scheme	
Tube No.	**Color**
1	Red
2	Yellow
3	Green
4	Blue
5	Violet
6	White

Fiber Color Scheme	
Fiber No.	**Color**
1	Red
2	Yellow
3	Green
4	Naturel

SECTION 5

OPTICAL FIBER CORE SPECIFICATIONS G.652.D

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Full Length Average Attenuation:		
@ 1310 nm	dB/km	≤0.34
@ 1550 nm	dB/km	≤0.21
@ 1625 nm	dB/km	≤0.22
Macro Bending – additional induced bending:		
32 mm dia./ 1 turn /@1550 nm	dB	≤0.05
50 mm dia. /100 turns/ @ 1310 nm and 1550nm	dB	≤0.05
60 mm dia. /100 turns/ @ 1550 nm and 1625nm	dB	≤0.05
Other Optical Properties:		
Zero dispersion wavelength –(λ_0)	nm	1300 to 1322
Dispersion slope (S_0) @ λ_0	ps/(nm^2*km)	≤0.089
Chromatic Dispersion @1285-1330 nm; @1550 nm; @1625 nm;	ps/nm.km ps/nm.km ps/nm.km	≤3.2 ≤17.0 ≤22.0
Mode field diameter @1310 nm @1550 nm	µm µm	9.2±0.4 10.4±0.5
Cut-off wavelength λ_{cc} – cable	nm	≤1260
Fiber Polarization Mode Dispersion (PMD), Link Design Value PMD_q Tension free conditions for uncabled fiber	 ps/√km ps/√km	 ≤0.08 ≤0.2
Change in attenuation vs. wavelength 1285 – 1330nm, ref. λ of 1310nm 1525 – 1575nm, ref. λ of 1550nm	 dB/km dB/km	 ≤0.03 ≤0.02
Geometrical Properties:		
Cladding diameter	µm	125.0±0.7
Cladding non-circularity	%	≤0.6
Core/Cladding Concentricity err.	µm	≤0.5
Coating diameter	µm	245±10
Coating/Cladding concentricity err.	µm	≤12
Mechanical Specifications		
Proof Test IEC 60793-1-30	0.7 GPa or 8.4N Load	≥ 1%