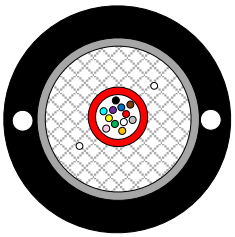
Aerial Cable 1x12 G.657A1

1. Application / Construction

Identification	OFC-12G.657A1-FGSA-S1 Module 12		
Application	Duct and aerial installation		
Cross Section (not to scale)	12fibers 		
Configuration	- Micro module with 12 optical fibers and jelly inside - Easy to strip the micro module - Central tube with glass yarns and water-blocking yarns - Outer sheath: HDPE, with 2 FRP embedded in the sheath symmetrically		
Temperature Range	Storage and transport -40 to +70°C	Installation -5 to +45°C	Operation -30 to +70°C
Standards	IEC 60793-1, IEC 60793-2, IEC 60794-4-20, EN 50290-2-24		
ZTT Specification	ZTT 20-109344-2-D		
Customer Reference	Common Standard		

2. Dimensions

Fiber counts		12
Fibers/Module		12
Module Φ	mm	1.3
Outer diameter (± 0.5)	mm	7.1
Weight	kg	36

Sizes and values without tolerances are nominal values

3. Mechanical Properties

Fiber counts	12
MAT	750N
Crush	2000N/10cm
Static bending radius	10xOD
Impact	5Nm
Torsion	±180° /m

See Point 6: Test Methods

4. Marking

Fiber Colors	1	2	3	4	5	6	7	8	9	10	11	12
	red	green	blue	yellow	white	grey	brown	purple	turquoise	black	orange	Pink

Tube Colors	1
	red

Outer Sheath: black, ink jet print, marking in 1 meter intervals as follows:

ZTT Aerial Cable M12 <Fiber Counts> G657A1 <meter marking >

5. Optical Fiber

Standard	ITU-T G.657A1 UBIF®R10		
Optical	Fibre attenuation (after cabling) .. @ 1310 nm .. @ 1550 nm	≤0.36 dB/km ≤0.23 dB/km	
	Refractive index	1.466@1310nm 1.467@1550nm	
	Zero Dispersion Wavelength	1300-1324nm	
	Zero dispersion slope	≤0.092 ps/nm² ·km	
	Dispersion coefficient	≤3.5 ps/(nm*km)@1310nm ≤19 ps/(nm*km)@1550nm	
	PMD Individual	≤0.2 ps/ √ km	
	Cable cut-off wavelength	≤1260 nm	
	Mode field diameter (MFD)	8.8 ± 0.4 μm@1310 nm	
	Macro bending loss (1 turn Ø20 mm)	@1550 nm ≤0.75 dB	@1625 nm ≤1.5 dB
Geometric	Cladding diameter	125 ± 0.7 μm	
	Core/clad concentricity error	Max individual 1 μm Max. average value: ≤0.5 μm	
	Cladding non-circularity	≤ 1.0 %	
	Coating diameter (Colored)	250 ± 15 μm	
Mechanical	Proof stress	≥ 0.69 Gpa	

6. Test Methods

Test	Conditions	Acceptance criteria
Tension Loading IEC 60794-1-2 E1	Tensile strength: See point3 Tensioned length: ≥ 25 m, 10min	- Fiber strain≤ 0.33%, by clamps - Δα reversilbe
Impact Resistance IEC 60794-1-2 E4	Radius =300 mm, number of places/tests: 3 Impact energy: 5 J	- Δα reversible - No damage
Static bending IEC 60794-1-2 E11A	R=10xOD, 4 turns, 3 cycles	- Δα reversible
Kink IEC 60794-1-2 E10	Kink radius : 10xOD	- No kink
Torsion/Twist IEC 60794-1-2 E7	Sample length:1m, Test condition: see Point 3, 10cycles	- Δα ≤ 0.1 dB
Crush/Compression IEC 60794-1-2 E3	Crush: see Point 3, 1min Number of tests: 3	- Δα reversible - No damage
Temperature cycling IEC 60794-1-2 F1	-30°C..+70°C t1=12h, 2 cycles	- Δα ≤0.1 dB/km
Water penetration IEC 60794-1-2 F5B	Sample length: 3 m,water column height: 1 m Test duration: 24 h,	- No leakage

All optical measurements at 1550 nm

7. Stress-Sag Data Sheet

Cable Parameters:

Sl.	Description	Unit	Parameters
			12F
1	Overall diameter	mm	7.1
2	Sectional area	mm^2	4.78
3	Nominal weight	Kg/km	36
4	Modulus of elasticity	KN/mm^2	54.37
5	Coefficient of linear expansion	10^{-6}/℃	15.19

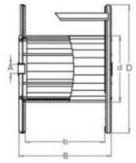
Sag Sheet [12]:

Span	Installation*		NESC Light	
	Sag	Tension	Sag	Tension
M	%	N	%	N
20	1.3	70	2.21	370
40	1.3	140	2.69	610
50	1.3	180	2.86	710

Note:

1. Marked is installation state, ZTT designed the installation temperature 16℃, wind speed 5m/s and no ice coating.
2. ZTT design optical fiber cable would meet tension requirement under the worst weather conditions, and can be kept in good working condition

8. Logistics

Cable type	Length (-1%/+3%)	2000m	 D*d*B in cm
OFC-12G.657A1-FGSA-S1 Module 12	Drum type: Wood Dimensions Weight	95*60*75 124kg	

Dimensions including protection. Indicative values, actually delivered drum sizes and weights may deviate. Cable ends sealed with caps