

Optical Fibre Cable Technical Specification

Standard FTTH Drop Cable

FTTH DROP - nB6a1/G657A1

NextraCom Optical Fibre Cable

All rights reserved

1. Scope

This Specification covers the design requirements and performance standard for the supply of optical fibre cable in the industry. NextraCom ensures a stable quality control system for our cable products through several programs including ISO 9001, ISO 14001 and OHS.

Cable type	Application
FTTH DROP - nB6a1/G657A1	Suitable for FTTH installation

n represent the number of fibres in the cable.

1.1 Cable Description

The typical FTTH DROP optical cable includes central optical fibre(s) with 2 parallel GFRP as the strength members..Then a LSZH sheath is extruded outside as outer sheath.

1.2 Reference

The cable offered by NextraCom are designed, manufactured and tested according to the standards as follows:

ITU-T G.652D	Characteristics of a single-mode optical fibre
IEC 60794-1-1	Optical fibre cables-part 1-1: Generic specification-General
IEC 60794-2	Optical fiber cables-part 2 indoor cables- sectional specification

1.3 Life Time

Optical fibre cables supplied in compliance with this specifications is capable to withstand the typical service condition for a period of thirty (30) years without detriment to the operation characteristics of the cable.

2. Optical Fibre

2.1 Optical Fibres supplied in this specification meet the requirements of ITU-T G657A1

2.2 Optical fibre specifications

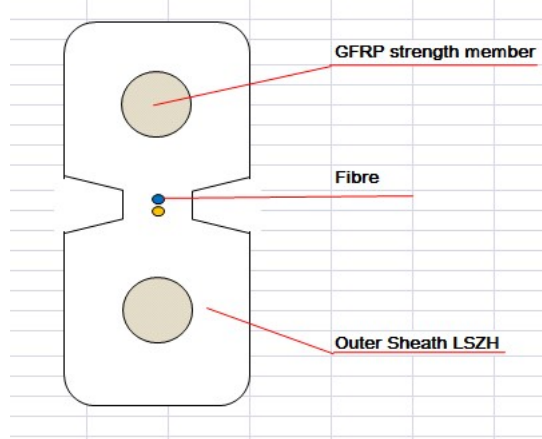
Category	Description	Specification	
		Before cable	After cable
Geometric characteristics	Cladding diameter	$125.0 \pm 0.7 \mu\text{m}$	
	Cladding non-circularity	$\leq 0.7 \%$	
	Coating non-circularity	$\leq 0.6\mu\text{m}$	
	Coating diameter	$245 \pm 7 \mu\text{m}$ (Before Colored) $250 \pm 15 \mu\text{m}$ (Colored)	
	Coating-cladding concentricity error	$\leq 12\mu\text{m}$	
Optical characteristics	diameter of the fiber core	$9.0 \pm 0.5 \mu\text{m}$	
	Attenuation at 1310 nm	$\leq 0.35 \text{ dB/km}$	$\leq 0.40 \text{ dB/km}$
	Attenuation at 1550 nm	$\leq 0.24 \text{ dB/km}$	$\leq 0.30 \text{ dB/km}$
	Dispersion coefficient 1285 – 1340 nm	$\geq -3.4 \leq 3.4 \text{ ps}/(\text{nm} \cdot \text{km})$	
	Dispersion at 1550 nm	$\leq 18 \text{ ps}/(\text{nm} \cdot \text{km})$	
	Dispersion at 1625 nm	$\leq 22 \text{ ps}/(\text{nm} \cdot \text{km})$	
	Zero dispersion wavelength	1300 – 1324 nm	
	Zero dispersion slope	$\leq 0.091 \text{ ps}/(\text{nm}^2 \cdot \text{km})$	
	Cable cutoff wavelength λ_{cc}	$\leq 1260 \text{ nm}$	
	bending Loss (10 turns around a mandrel of 30 mm diameter, 1550/1625nm)	$\leq 0.05 \text{ dB}$	
Mechanical characteristics	Proof stress level	$\geq 100 \text{ kpsi}$ (0.69 GPa)	
	Coating strip force (peak value)	9H	
	Additional Attenuation	10 turns around a mandrel of 30 mm diameter, 1550nm	$\leq 0.25 \text{ dB}$
		1 turns around a mandrel of 20 mm diameter, 1550nm	$\leq 0.75 \text{ dB}$

3. Optical Cable

3.1 Technical Characteristics

- The unique second coating and stranding technology provide the fibres with enough space and bending endurance, which ensure good optical property of the fibres in the cable
- Accurate process control ensures good mechanical and temperature performance
- High quality raw material guarantees the long service life of cable

3.2 Cross Section of Cable



FTTH DROP - 2B1.3/G657A1

3.3 Fibre Identification

The color code of fibres will be identification in accordance with the following color sequence, other sequence also is available.

Color code	1	2
	Blue	Orange

3.4 Dimensions and Descriptions

The standard structure of FTTH DROP cable is shown in the following table, other structure and fibre count are also available according to customer requirements.

Item	contents	Value
		2
strength member	material	GFRP
	diameter (mm)	0.51
sheath	Material	LSZH
	Color	White
Cable diameter(mm) Approx.		2.0×3.0
Cable weight(kg/km) Approx.		7.5

3.5 Main Mechanical and Environmental Performance

Item	Value
Tensile performance(N)	100
Crush(N/100mm)	1000
Operation temperature:	-40℃~+60℃
Installation temperature	-10℃~+50℃
Storage temperature	-40℃~+60℃

4 Mechanical, Physical and Environmental Test Characteristics

The mechanical and environmental performance of the cable are in accordance with the following table. Unless otherwise specified, all attenuation measurements required in this section shall be performed at 1550nm.

Items	Test Method	Requirements
Tension	<u>IEC 60794-1-2-E1</u> Load: According to 3.5 Sample length: Not less than 50m. Duration time: 1min.	Additional attenuation: $\leq 0.4\text{dB}$ after test No damage to outer jacket and inner elements
Crush	<u>IEC 60794-1-2-E3</u> Load: According to 3.5 Duration of load: 1min	Additional attenuation: $\leq 0.4\text{dB}$ after test No damage to outer jacket and inner elements
Impact	<u>IEC 60794-1-2-E4</u> Radius: 12.5mm Impact energy: 1 J Impact number: 1 Impact points: 3	Additional attenuation: $\leq 0.4\text{dB}$ No damage to outer jacket and inner elements
Torsion	<u>IEC 60794-1-2-E7</u> Cycles:20 Length under test: 1m Turns: $\pm 180^\circ$ Load: 20N	Additional attenuation: $\leq 0.4\text{dB}$ No damage to outer jacket and inner elements
Temperature cycling	<u>IEC 60794-1-2-F1</u> Sample length: at least 1000m Temperature range: -40℃~+60℃ Cycles: 2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.4 dB/km 1550nm.

5 Packaging and Drum

5.1 Cable Sheath Marking

Unless otherwise specified, the cable sheath marking shall be as follows:

- ☐ Color: Black
- ☐ Contents: NEXTRA OPTICAL CABLE, the type of cable, the year of manufacture, length marking
- ☐ Interval: $1 \pm 0.2\%$ m

Outer sheath marking legend can be changed according to user's requests.

5.2 Reel Length

Standard reel length: 1/2 km/reel, other length is also available.

5.3 Cable Drum

The cables are packed in plywood drums.