

Spec No.: ZTT 51903

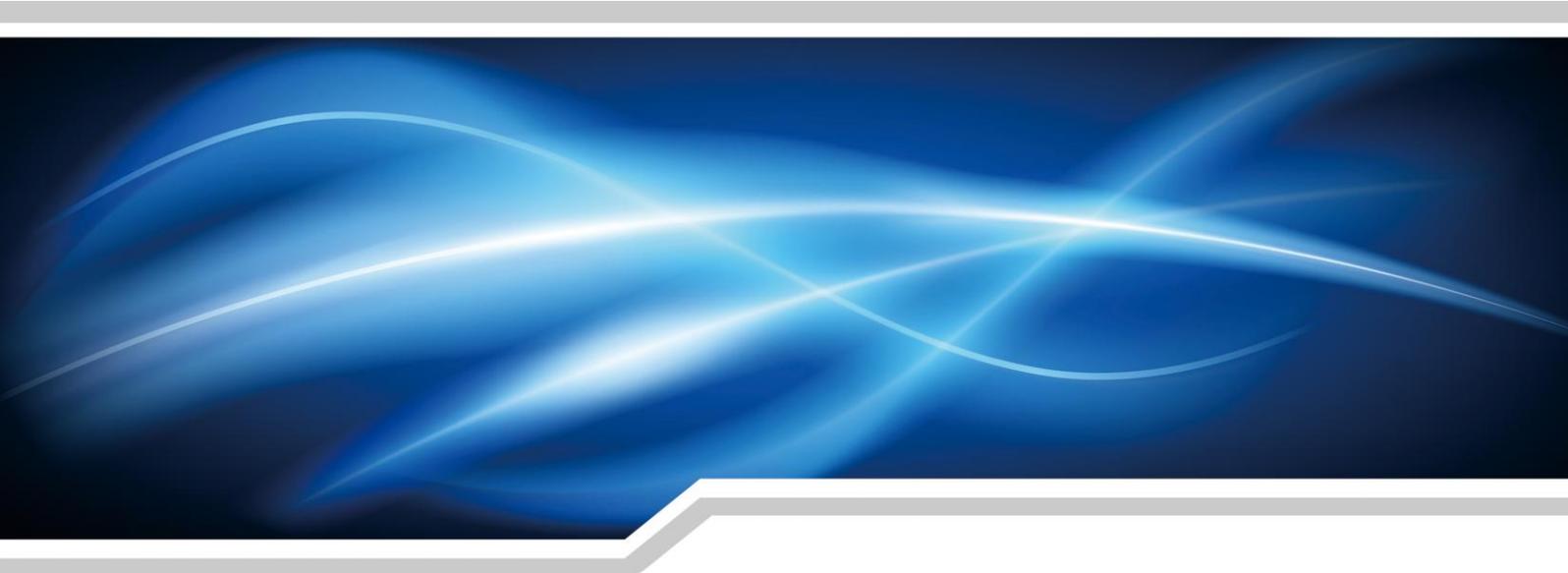
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# TECHNICAL SPECIFICATION

## Drop Cable



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## 1. General

### 1.1 Scope

This listed specification covers the design requirements and performance standard for the supply of optical fiber cable in the industry. It also includes ZTT premium designed cable with optical, mechanical and geometrical characteristics.

Cable type	Application
OFC-1G.657A2-Drop cable-LSZH	Indoor installation

### 1.2 Cable Description

ZTT cable possesses high tensile strength and flexibility in compact cable sizes. At the same time, it provides excellent optical transmission and physical performance.

### 1.3 Quality

Excellent quality control is achieved through intense in-house quality check and stringent audit acceptance by ISO 9001.

### 1.4 Reliability

Initial and periodic product qualification tests for performance and durability are performed rigorously to ensure product reliability.

### 1.5 Reference

The cable which ZTT offered are designed, manufactured and tested according to international standards as follows:

IEC 60793-1	Optical fiber Part 1: Generic specifications
IEC 60793-2	Optical fiber Part 2: Product specifications
IEC 60794-2	Optical fiber cables-part 2 indoor cables- sectional specification
ITU-T G.650	Definition and test methods for the relevant parameters of single-mode fibers
ITU-T G.657	Characteristics of a bending-loss insensitive single-mode optical fiber
EIA/TIA 598	Color code of fiber optic cables

## 2. Optical Fiber

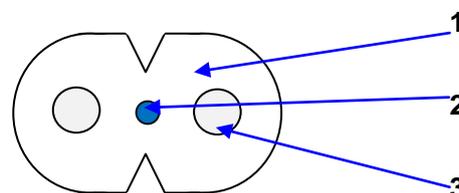
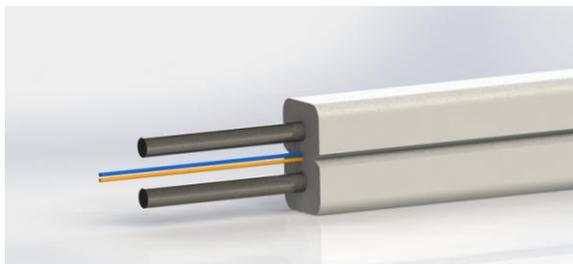
The optical fiber is made of high pure silica and germanium doped silica. UV curable acrylate material is applied over fiber cladding as optical fiber primary protective coating. The detail data of optical fiber performance are shown in the following table.

### G.657A2 Fiber

Category	Description	Specifications	
		Before cable	After cable
Optical Specifications	Attenuation @1310 nm	≤0.35 dB/km	≤0.40dB/km
	Attenuation @1550 nm	≤0.21 dB/km	≤0.25dB/km
	Zero Dispersion Wavelength	1300~1324 nm	
	Zero Dispersion Slope	≤0.092 ps/nm <sup>2</sup> ·km	
	Macro bending Loss (10 turns; Φ30 mm) @1550 nm	≤ 0.03 dB	
	(10 turns; Φ30 mm) @1625 nm	≤ 0.10 dB	
	(1 turns; Φ20 mm) @1550 nm	≤ 0.10 dB	
	(1 turns; Φ20 mm) @1625 nm	≤ 0.20 dB	
(1 turns; Φ15 mm) @1550 nm	≤ 0.50 dB		
(1 turns; Φ15 mm) @1625 nm	≤ 1.00 dB		
Mode Field Diameter @1310 nm	8.6±0.4μm		
Dimensional Specifications	Cladding Diameter	125±1μm	
	Cladding non circularity	≤1.0%	
	Core/clad concentricity error	≤0.5μm	
Mechanical Specifications	Proof stress	≥1.05%	

### 3. CABLE STRUCTURE

#### 3.1 Cable Type: OFC-1G.657A2-Drop cable-LSZH



Picture is only for reference

#### Technical Characteristics

- With excellent mechanical and environmental properties
- Has good bending performance, easy to install

#### Construction:

1. Outer sheath ( **LSZH white** )
2. Fiber
3. Strength member (steel wire)

#### Dimension and Properties

<b>Physical</b>	Fiber count	1 G.657A2
	Cable OD	2.0±0.2mm*3.0±0.2mm
	Cable weight	10kg/km±15%
	Operation temperature range	-20 deg C to + 60 deg C
	Installation temperature range	-10deg C to + 50 deg C
	Transport and storage temperature range	-20 deg C to + 60 deg C
<b>Mechanical</b>	Max. tensile load	200N
	Crush resistance	1000 N/10cm
	Minimal installation bending radius	20XOD
	Minimal operation bending radius	10XOD

#### Color code scheme:

Sheath color: white

Fiber color: blue

## 4. Test Requirements

Approved by various professional optical and communication product institution, ZTT also conduct various in-house testing in its own Laboratory and TestCenter. She also conduct test with special arrangement with the Chinese Government Ministry of Quality Supervision & Inspection Center of Optical Communication Products (QSICO). ZTT possess the technology to keep its fiber attenuation loss within Industry Standards.

The cable is in accordance with applicable standard of cable and requirement of customer. The following test items are carried out according to corresponding reference.

### Routine tests of optical fiber

Mode field diameter	IEC 60793-1-45
Mode field Core/clad concentricity	IEC 60793-1-20
Cladding diameter	IEC 60793-1-20
Cladding non-circularity	IEC 60793-1-20
Attenuation coefficient	IEC 60793-1-40
Chromatic dispersion	IEC 60793-1-42
Cable cut-off wavelength	IEC 60793-1-44

## Test list

### 4.1 Tension Loading Test

Test Standard	IEC 60794-1-2 E1
Sample length	No less than 50 meters
Load	Max. tension load
Duration time	1 minute
Test results	Additional attenuation: ≤0.4dB
	No damage to outer jacket and inner elements

### 4.2 Crush/Compression Test

Test Standard	IEC 60794-1-2 E3
Load	Crush load
Duration time	1 minute
Test number	3
Test results	Additional attenuation: ≤0.4dB
	No damage to outer jacket and inner elements

### 4.3 Impact Resistance Test

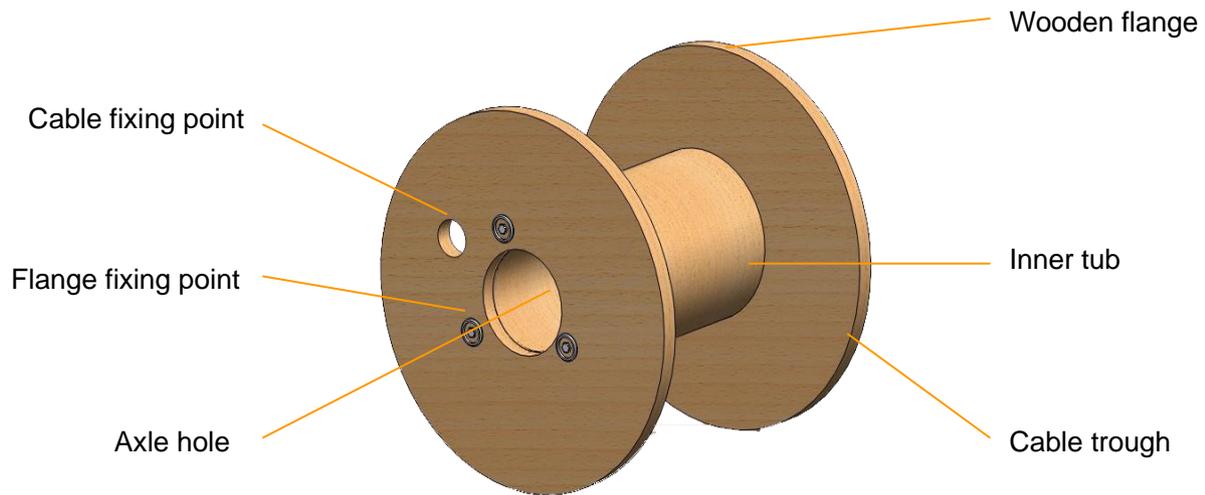
Test Standard	IEC 60794-1-2 E4
Impact energy	1J
Radius	12.5mm
Impact points	3
Impact number	1
Test result	Additional attenuation: ≤0.4dB
	No damage to outer jacket and inner elements

### 4.4 Repeated Bending Test

Test Standard	IEC 60794-1-2 E6
Bending radius	20 X diameter of cable
Cycles	30 cycles
Test result	Additional attenuation: ≤0.4dB
	No damage to outer jacket and inner elements

## 5. Packing and Drum

5.1 ZTT cables are packed in carton, coiled on Bakelite & wooden drum. During transportation, right tools should be used to avoid damaging the package and to handle with ease. Cables should be protected from moisture; kept away from high temperature and fire sparks; protected from over bending and crushing; protected from mechanical stress and damage.



The Bakelite Drum

5.2 The color of cable marking is white. (The printing shall be carried out at interval of 1 meter on the outer sheath of cable) The inner end of cable is then sealed with heat shrinkable end cap to prevent ingress of water and is made available for testing. The outer end of cable is equipped with heat shrinkable end cap. Outer sheath marking legend can be changed according to user's requests.

### 5.3 Indoor cable packing

Bakelite & wooden drum

Strong wooden batten protection

## 6. Name of ZTT Optical Fiber Cable

### Slotted Cable

<b>OFC</b>	Optical Fiber Cable
<b>X</b>	Fiber Count and Fiber Type <ul style="list-style-type: none"> <li>Single mode fiber:G.652;G.655;G.657;</li> <li>Multimode fiber:OM1;OM2;OM3;OM4</li> </ul>
<b>Y</b>	Slotted cable
<b>K</b>	Outer Sheath Material <ul style="list-style-type: none"> <li>PE:Polyethylene</li> <li>PVC:Polyvinyl chloride</li> <li>FRPE:Fire retardant polyethylene</li> <li>LSZH:Low smoke zero halogen</li> </ul>

e.g. OFC-24G.652D-Slotted cable-PE

### Duct and Directly Buried Installation Cable (including Micro Cable, Ribbon Cable, Underwater Installation Cable)

<b>OFC</b>	Optical Fiber Cable
<b>X1</b>	Fiber Count and Fiber Type <ul style="list-style-type: none"> <li>Single mode fiber:G.652;G.655;G.657;</li> <li>Multimode fiber:OM1;OM2;OM3;OM4</li> </ul>
<b>X2</b>	Installation Method <ul style="list-style-type: none"> <li>/:Conventional cable</li> <li>R:Ribbon cable</li> <li>M:Micro cable</li> </ul>
<b>X3</b>	Armor Type <ul style="list-style-type: none"> <li>F:FRP</li> <li>S:Steel wire</li> <li>C:Central tube</li> </ul>
<b>X4</b>	Armor Type <ul style="list-style-type: none"> <li>G:Glass yarns (tape)</li> <li>A:Aramid yarns</li> <li>St:Steel tape</li> <li>Al:Aluminum tape</li> <li>Sw:Steel wire</li> <li>Sw2:Double steel wires</li> </ul>
<b>Y</b>	Installation Method <ul style="list-style-type: none"> <li>D:Duct installation</li> <li>DB:Directly buried installation</li> <li>UW:Underwater installation</li> </ul>
<b>K</b>	Outer Sheath Material <ul style="list-style-type: none"> <li>PE:Polyethylene</li> <li>PVC:Polyvinyl chloride</li> <li>AT:Anti-tracking;</li> <li>FRPE:Fire retardant polyethylene</li> <li>LSZH:Low smoke zero halogen</li> <li>Nylon</li> </ul>

e.g. OFC-12G.652D-FStD-PE

## Name of ZTT Optical Fiber Cable

### FTTx Cable

<b>OFC</b>	Optical Fiber Cable
<b>X</b>	Fiber Count and Fiber Type <ul style="list-style-type: none"> <li>Single mode fiber:G.652;G.655;G.657;</li> <li>Multimode fiber:OM1;OM2;OM3;OM4</li> </ul>
<b>Y</b>	FTTx Cable Type <ul style="list-style-type: none"> <li>Drop cable</li> <li>Figure-8 drop cable</li> <li>Flat drop cable</li> <li>Duct drop cable</li> <li>Armored drop cable</li> <li>Simplex indoor cable</li> <li>Duplex indoor cable</li> <li>Distribution cable</li> <li>Branch cable</li> </ul>
<b>K</b>	Outer Sheath Material <ul style="list-style-type: none"> <li>PE:Polyethylene</li> <li>PVC:Polyvinyl chloride</li> <li>FRPE:Fire retardant polyethylene</li> <li>LSZH:Low smoke zero halogen</li> </ul>

e.g. OFC-24G.657A1-Drop cable-PE

### Aerial Installation Cable

<b>OFC</b>	Optical Fiber Cable
<b>X</b>	Fiber Count and Fiber Type <ul style="list-style-type: none"> <li>Single mode fiber:G.652;G.655;G.657;</li> <li>Multimode fiber:OM1;OM2;OM3;OM4</li> </ul>
<b>SA</b>	Self-supporting Aerial Installation Cable <ul style="list-style-type: none"> <li>Fig.8</li> <li>ADSS</li> </ul>
<b>Y</b>	Span or installation force
<b>K</b>	Outer Sheath Material <ul style="list-style-type: none"> <li>PE:Polyethylene</li> <li>PVC:Polyvinyl chloride</li> <li>AT:Anti-tracking;</li> <li>FRPE:Fire retardant polyethylene</li> <li>LSZH:Low smoke zero halogen</li> </ul>

e.g. OFC-12G.652D-ADSS-100m span-AT