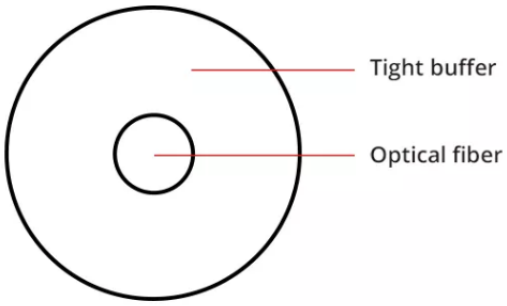
# Invisible FTTH Drop Cable

## 1. Cable Design




## 2. Cable structure and parameters

| | | | |
|---|---|---|---|
| No. of optical fiber | | | 1 |
| Optical Fiber Model | | | G.657A2 |
| Tight buffer | Material | | Nylon |
| | Color | | transparent |
| Cable size（±0.05）mm | | | 0.90 |
| Cable Weight（±0.1）kg/km | | | 1 |
| Allowable Tensile Strength | Short Term | N | 60 |
| | Long Term | | 30 |
| Min. bending radius | mm | | 7.5 |
| Temperature range（℃） | Installation | | -30~+50 |
| | Transport&Storage | | -30~+50 |
| | Operation | | -30~+50 |

## 3. Fiber Color

| | |
|---|---|
| No. | 1 |
| Color | White |

## 4. The properties of single mode optical fiber (ITU-T Rec. G.657A2)

| Characteristic | condition | data | unit |
|---|---|---|---|
| **Optical properties** | | | |
| Attenuation | 1310nm | ≤0.35 | dB/km |
| | 1383nm | ≤0.35 | dB/km |
| | 1490mm | ≤0.23 | dB/km |
| | 1550nm | ≤0.25 | dB/km |
| | 1625nm | ≤0.35 | dB/km |

| | | | |
|---|---|---|---|
| Relative wavelength attenuation<br>@1310nm<br>@1550nm | <br>1285～1330nm<br>1525～1575nm | <br>≤0.05<br>≤0.05 | <br>dB/km<br>dB/km |
| Dispersion in the wavelength range of | 1285～1340nm<br>1550nm | ≤3.5<br>≤18 | ps/(nm.km)<br>ps/(nm.km) |
| Zero dispersion wavelength | | 1300～1324 | nm |
| A zero-dispersion slope | | ≤0.092 | ps/(nm$^2$.km) |
| Polarization Mode Dispersion Coefficient PMD<br>Single fiber maximum<br>Fiber link value (M=20, Q=0.01%)<br>Typical value | | <br>≤0.2<br>≤0.1<br>0.04 | ps/<br>ps/<br>ps/ |
| Cable cut-off wavelength（λcc） | | ≤1260 | nm |
| Mode field diameter （MFD） | 1310nm<br>1550nm | 8.8±0.4<br>9.8±0.5 | μm<br>μm |
| Attenuation discontinuities | 1310nm<br>1550nm | ≤0.05<br>≤0.05 | dB<br>dB |
| **Geometric characteristics** | | | |
| Core diameter | | 125±0.7 | μm |
| Cladding roundness | | ≤0.7 | % |
| Coating diameter | | 245±5 | μm |
| Coating / package concentricity error | | ≤12.0 | μm |
| Core / package concentricity error | | ≤0.5 | μm |
| The warpage (radius) | | ≥4 | m |
| **Environmental characteristics**（1310nm、1550nm、1625nm） | | | |
| Temperature additional attenuation | -60℃ ～+85℃ | ≤0.05 | dB/km |
| Temperature-humidity cycle additional attenuation | -10℃ ～+85℃，98% Relative humidity | ≤0.05 | dB/km |
| Flooding additional attenuation | 23℃，30 days | ≤0.05 | dB/km |
| Hot and humid additional attenuation | 85℃ and 85% Relative humidity，30 days | ≤0.05 | dB/km |
| Dry heat aging | 85℃ | ≤0.05 | dB/km |
| **Mechanical properties** | | | |
| Screening tension | | ≥9.0 | N |
| The macro bend Additional attenuation<br>10 CircleΦ30mm<br>10 CircleΦ30mm<br>1 CircleΦ20mm | <br>1550nm<br>1625nm<br>1550nm | <br>≤0.025<br>≤1.0<br>≤0.75 | <br>dB<br>dB<br>dB |

| | | | |
|---|---|---|---|
| 1 CircleΦ20mm | 1625nm | ≤1.5 | dB |
| Coating peeling force | Typical average | 1.5 | N |
| Dynamic fatigue parameters | | ≥20 | |

## 5.Main mechanical & environmental performance test

| Item | Test Method | Acceptance Condition |
|---|---|---|
| Tensile Strength<br>IEC 794-1-2-E1 | - Load: Short term tension<br>- Length of cable: about 50m | - Fiber strain ≤ 0.36%<br>- Loss change ≤ 0.1 dB @1550 nm<br>- No fiber break and no sheath damage. |
| Crush Test<br>IEC 60794-1-2-E3 | - Load: Short term crush<br>- Load time: 1min | - Loss change ≤ 0.05dB@1550nm<br>- No fiber break and no sheath damage. |
| Impact Test<br>IEC 60794-1-2-E4 | - Points of impact: 3<br>- Times of per point: 1<br>- Impact energy: 5J | - Loss change ≤ 0.1dB@1550nm<br>- No fiber break and no sheath damage. |
| Temperature Cycling Test<br>YD/T901-2001-4.4.4.1 | - Temperature step: +20°C→-40°C→+70°C→+20°C<br>- Time per each step: 12 hrs<br>- Number of cycle: 2 | - Loss change ≤ 0.05 dB/km@1550 nm<br>- No fiber break and no sheath damage. |

## 6.Package and marking

Package 2km/drum or any length customer required.
Cable Mark:According to customer's requirements.
Drum Mark: According to customer's requirements.
Test Report Test report and certification supplied.