

# Light ADSS Optical Fiber Cable

## Cable Design

### Loose Tube Optical Fiber Cable-Dielectric-Dry Core-Aramid Yarn Reinforcing-G.652D/G.657A1 Fiber



- **Central Strength Member (CSM):** GFRP, with PE sheath covering when needed.
- **Loose Tube:** PBT plastic material, containing 12 fibers and filled with a suitable water tightness jelly.
- **Filler Elements:** PP plastic rods, when needed.
- **Stranding:** loose tube & filler stranded around CSM.
- **Longitudinal Water Tightness:** dry core with water swellable elements.
- **Ripcord:** 1 aramid ripcord under outer sheath.
- **Outer Sheath:** Black HDPE.

## Cable Specification

| Cable Cores                  |       | 48   | 36 | 72 |
|------------------------------|-------|------|----|----|
| No. of Tubes                 |       | 4    | 3  | 6  |
| No. of Fillers               |       | 2    | 3  | 0  |
| Fiber Counts in Tube         |       | 12   |    |    |
| Tube/Filler-Φ                | mm    | 2.05 |    |    |
| CSM-Φ                        | mm    | 2.1  |    |    |
| Coated CSM-Φ                 | mm    | /    |    |    |
| Thickness of Outer PE Sheath | mm    | 1.2  |    |    |
| Nom. Cable Diameter          | mm    | 8.6  |    |    |
| Nom. Cable Weight            | Kg/km | 60   |    |    |
| MAT                          | N     | 1100 |    |    |

## Cable Application

| Temperature Range        |           | Minimum Bend Radius |      |
|--------------------------|-----------|---------------------|------|
| Transportation & Storage | -25~+70°C | Load                | 20×D |
| Operation                | -25~+70°C | Unload              | 10×D |

## Main Mechanical and Environmental Characteristic

| Test                | Test Standard    | Specified Value         | Acceptance Criteria   |
|---------------------|------------------|-------------------------|---|
| Tensile             | IEC 60794-1-2-E1 | MAT, 5min               | $\Delta\alpha \leq 0.05\text{dB}$ , fiber strain $\leq 0.1\%$ |
| Crush               | IEC 60794-1-2-E3 | 1500N/10cm, 1min        | $\Delta\alpha$ reversible, no damage                          |
| Impact              | IEC 60794-1-2-E4 | 4J, R=10mm, 3impacts    | $\Delta\alpha$ reversible, no damage                          |
| Repeated Bending    | IEC 60794-1-2-E6 | R=20D, 100N, 100cycles  | $\Delta\alpha$ reversible, no damage                          |
| Torsion             | IEC 60794-1-2-E7 | 100N, 5cycles, +/-180°  | $\Delta\alpha$ reversible, no damage                          |
| Temperature Cycling | IEC 60794-1-2-F1 | -25~+70°C, 1cycles, 8h  | $\Delta\alpha \leq 0.05\text{dB/km}$ , no damage              |
| Water Penetration   | IEC 60794-1-2-F5 | 3m cable, 1m water, 24h | No water leakage  |

# Light ADSS Optical Fiber Cable

## Cabled Fiber Performance (G.652D)

| Characteristics   |                 | Acceptance Value                                  |
|---|-----------------|---|
|   | @1310nm         | $\leq 0.40\text{dB/km}$                           |
|   | @1550nm         | $\leq 0.30\text{dB/km}$                           |
| Mode Field Diameter   | @1310nm         | $9.2\pm 0.4\mu\text{m}$                           |
|   | @1550nm         | $10.4\pm 0.5\mu\text{m}$                          |
| Dispersion  | @1300 +30/-15nm | $\leq 3.5\text{ps}/(\text{nm}\cdot\text{km})$     |
|   | @1550nm         | $\leq 18.0\text{ps}/(\text{nm}\cdot\text{km})$    |
|   | @1625nm         | $\leq 22\text{ps}/(\text{nm}\cdot\text{km})$      |
| Zero-Dispersion slope   |                 | $\leq 0.092\text{ps}/(\text{nm}^2\cdot\text{km})$ |
| Cable cutoff wavelength $\lambda_{cc}(\text{nm})$                 |                 | $\leq 1260\text{nm}$                              |
| Cladding diameter   |                 | $125\pm 0.7\mu\text{m}$                           |
| Cladding non-circularity  |                 | $\leq 0.7\%$                                      |
| Core/cladding concentricity error                                 |                 | $\leq 0.5\mu\text{m}$                             |
| Fiber diameter with coating (uncolored)                           |                 | $242\pm 5\mu\text{m}$                             |
| Cladding/coating concentricity error                              |                 | $\leq 12.0\mu\text{m}$                            |
| Proof stress  |                 | $\geq 0.69\text{GPa}(100\text{kpsi})$             |
| Dynamic stress corrosion susceptibility parameter (typical value) |                 | $\geq 20$   |

## Cabled Fiber Performance (G.657A1)

| Characteristics                                   |                             | Acceptance Value                                  |
|---|-----------------------------|---|
| Attenuation                                       | @1310nm                     | $\leq 0.35\text{dB/km}$                           |
|   | @1383nm                     | $\leq 0.34\text{dB/km}$                           |
|   | @1550nm                     | $\leq 0.21\text{dB/km}$                           |
|   | @1625nm                     | $\leq 0.23\text{dB/km}$                           |
| Mode Field Diameter                               | @1310nm                     | $8.8\pm 0.4\mu\text{m}$                           |
| Dispersion  | @1300 +30/-15nm             | $\leq 3.5\text{ps}/(\text{nm}\cdot\text{km})$     |
|   | @1550nm                     | $\leq 18\text{ps}/(\text{nm}\cdot\text{km})$      |
|   | @1625nm                     | $\leq 22\text{ps}/(\text{nm}\cdot\text{km})$      |
| Zero-Dispersion Wavelength                        |                             | $1300\text{nm} \sim 1324\text{nm}$                |
| Zero-Dispersion Slope                             |                             | $\leq 0.092\text{ps}/(\text{nm}^2\cdot\text{km})$ |
| Cable Cutoff Wavelength $\lambda_{cc}(\text{nm})$ |                             | $\leq 1260\text{nm}$                              |
| Cladding Diameter                                 |                             | $125\pm 0.7\mu\text{m}$                           |
| Macrobend loss                                    | 30mm radius, 10 turn, @1550 | $\leq 0.25\text{dB}$                              |
|   | 30mm radius, 10 turn, @1625 | $\leq 0.10\text{dB}$                              |
|   | 20mm radius, 1 turn, @1550  | $\leq 0.75\text{dB}$                              |
|   | 20mm radius, 1 turn, @1625  | $\leq 1.5\text{dB}$                               |
| Cladding Non-circularity                          |                             | $\leq 0.7\%$                                      |
| Core/Cladding Concentricity Error                 |                             | $\leq 0.5\mu\text{m}$                             |
| Proof Test  |                             | $\geq 0.69\text{GPa}(100\text{kpsi})$             |
| Dynamic Fatigue                                   |                             | $\geq 20$   |

# Light ADSS Optical Fiber Cable

## Fiber & Tube Color

### Color Identification of Fiber

| No    | 1   | 2     | 3      | 4    | 5     | 6     | 7    | 8      | 9     | 10     | 11   | 12   |
|-------|-----|-------|--------|------|-------|-------|------|--------|-------|--------|------|------|
| Color | Red | Green | Yellow | Blue | Brown | White | Grey | Violet | Black | Orange | Aqua | Pink |

### Color Identification of Tube

| No    | 1   | 2     | 3      | 4    | 5     | 6     |
|-------|-----|-------|--------|------|-------|-------|
| Color | Red | Green | Yellow | Blue | Brown | White |

## Sheath Marking

The outer sheath is marked in 1 meter intervals as follows:

**In Accordance with Custom's Requirement**

## Delivery Length

Standard delivery length will be 4 or 6km.

## Drum Marking

Drum marking will comply with custom's requirement.