

# **Specification**

FOR

**Non-Metal Optic Cable**

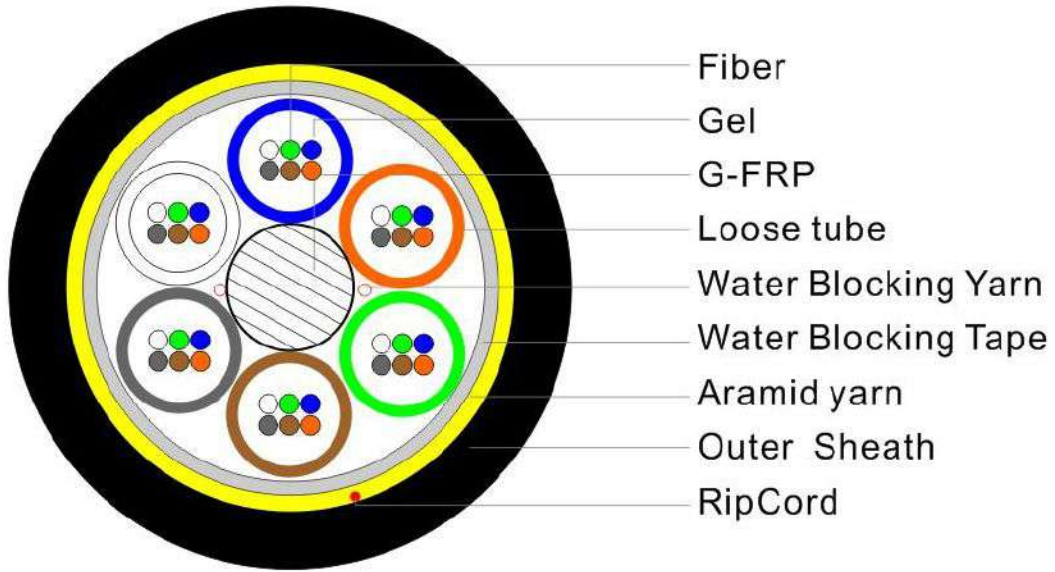
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**[ADSS-100m]**

# JDM NETWORKING

## 1. CABLE CONSTRUCTION

### 1.1. CROSS SECTIONAL DIAGRAM



## 2. TECHNICAL SPECIFICATION

### 2.1. TECHNICAL SPECIFICATION

|                             |                     |
|-----------------------------|---------------------|
| Fiber count                 | <b>12F</b>          |
| Max fiber count/tube        | 6                   |
| NO. of Tube                 | 2                   |
| NO. of Filler               | 4                   |
| Water blocking material     | Water blocking yarn |
| Reinforced materials        | Aramid yarn         |
| Outer sheath Thickness (mm) | 1.6                 |
| OD of cable (mm)            | 9.2±0.2             |
| Net weight ( kg/km)         | 66±2                |
| RTS (N)                     | 3375                |
| MAT (N)                     | 1350                |

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## 2.2 TEMPERATURE RANGE

|                             |           |
|-----------------------------|-----------|
| Operating temperature       | -40℃~+60℃ |
| Store/Transport temperature | -50℃~+70℃ |
| Installation temperature    | -20℃~+60℃ |

## 3. FIBER AND LOOSE BUFFER TUBE IDENTIFICATION

|             |      |        |       |       |       |       |     |       |        |        |      |      |
|-------------|------|--------|-------|-------|-------|-------|-----|-------|--------|--------|------|------|
| NO.         | 1    | 2      | 3     | 4     | 5     | 6     | 7   | 8     | 9      | 10     | 11   | 12   |
| Tube Color  | Blue | Orange | Green | Brown | Slate | White | Red | Black | Yellow | Violet | Pink | Aqua |
| NO.         | 1    | 2      | 3     | 4     | 5     | 6     | 7   | 8     | 9      | 10     | 11   | 12   |
| Fiber Color | Blue | Orange | Green | Brown | Slate | White | Red | Black | Yellow | Violet | Pink | Aqua |

## 4. OPTICAL FIBER

### 4.1 The Optical and Geometrical Performance of Single Mode Fiber (ITU-T G652D)

| Items                                       | UNITS                  | SPECIFICATION                                                           |
|---------------------------------------------|------------------------|-------------------------------------------------------------------------|
| Fiber type                                  | -                      | G652D                                                                   |
| Attenuation                                 | dB/km                  | $\leq 0.35$ at 1310nm<br>$\leq 0.22$ at 1550nm<br>$\leq 0.35$ at 1625nm |
| Chromatic Dispersion                        | ps/nm.km               | $\leq 3.5$ at 1310nm<br>$\leq 20$ at 1550nm<br>$\leq 22$ at 1625nm      |
| Zero Dispersion Slope                       | ps/nm <sup>2</sup> .km | 0.093                                                                   |
| Zero Dispersion Wavelength                  | nm                     | 1300 ~ 1324                                                             |
| PMD (M=20, Q=0.01%)                         | ps/ $\sqrt{\text{km}}$ | $\leq 0.2$                                                              |
| Cut-off Wavelength ( $\lambda_{cc}$ )       | nm                     | $\leq 1260$                                                             |
| Attenuation vs. Bending<br>(60mm x100turns) | dB                     | $\leq 0.1$ at 1625nm                                                    |
| Mode Field Diameter@1310nm                  | $\mu\text{m}$          | $(8.6-9.5) \pm 0.6$                                                     |
| Core-Clad Concentricity                     | $\mu\text{m}$          | $\leq 0.5$                                                              |
| Cladding Diameter                           | $\mu\text{m}$          | 125 $\pm$ 1                                                             |
| Cladding Non-circularity                    | %                      | $\leq 0.8$                                                              |
| Coating Diameter                            | $\mu\text{m}$          | 245 $\pm$ 5                                                             |

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|                        |     |                             |
|------------------------|-----|-----------------------------|
| Proof Test             | Gpa | $\geq 0.69$                 |
| Temperature Dependence | dB  | $\leq 0.5$ (-60°C to +85°C) |

## 5. Mechanical and Environmental Performance of the Cable

| NO. | ITEMS                    | TEST METHOD                                                                                                                                                        | ACCEPTANCE CRITERIA                                                                             |
|-----|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1   | Tensile Loading Test     | #Test method:IEC 60794-1-E1<br>-. Long-tensile load: 0.5*MAT<br>-. Short-tensile load: MAT<br>-. Cable length: $\geq 50\text{m}$                                   | -.Attenuation increment@1550nm: $\leq 0.1\text{dB}$<br>-. No jacket cracking and fiber breakage |
| 2   | Crush Resistance Test    | #Test method:IEC 60794-1-E3<br>-.Long load: 300 N/100mm<br>-.Short load: 1000 N/100mm<br>Load time: 1 minutes                                                      | -.Attenuation increment@1550nm: $\leq 0.1\text{dB}$<br>-. No jacket cracking and fiber breakage |
| 3   | Impact Resistance Test   | #Test method:IEC 60794-1-E4<br>-.Impact height: 1 m<br>-.Impact weigh: 450 g<br>-.Impact point: $\geq 5$<br>-.Impact frequency: $\geq 3/\text{point}$              | -.Attenuation increment@1550nm: $\leq 0.1\text{dB}$<br>-. No jacket cracking and fiber breakage |
| 4   | Repeated Bending         | #Test method:IEC 60794-1-E6<br>-.Mandrel diameter: 20D (D = cable diameter)<br>-.Subject weight: 15kg<br>-.Bending frequency: 30 times<br>-.Bending speed: 2s/time | -.Attenuation increment@1550nm: $\leq 0.1\text{dB}$<br>-. No jacket cracking and fiber breakage |
| 5   | Torsion Test             | #Test method:IEC 60794-1-E7<br>-.Length: 1m<br>-.Subject weight:15kg<br>-.Angle: $\pm 180$ degree<br>-.Frequency: $\geq 10/\text{point}$                           | -.Attenuation increment@1550nm: $\leq 0.1\text{dB}$<br>-. No jacket cracking and fiber breakage |
| 6   | Water Penetration Test   | #Test method:IEC 60794-1-F5B<br>-.Height of pressure head: 1m<br>-.Length of specimen: 3m<br>-.Test time: 24 hours                                                 | -. No leakage through the open cable end                                                        |
| 7   | Temperature Cycling Test | #Test method:IEC 60794-1-F1<br>-.Temperature steps : + 20°C 、 - 40°C 、 + 70°C 、 + 20°C<br>-.Testing Time: 24 hours/step<br>-.Cycle index: 2                        | -.Attenuation increment@1550nm: $\leq 0.1\text{dB}$<br>-. No jacket cracking and fiber breakage |

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|   |                     |                                                                                                                    |                                 |
|---|---------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 8 | Drop<br>Performance | #Test method:IEC 60794-1-E14<br>-.Testing length: 30cm<br>-.Temperature range: 70±2 °C<br>-.Testing Time: 24 hours | -. No filling compound drop out |
|---|---------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------|

## 5.2 FIBER OPTIC CABLE BENDING RADIUS

Static bending:  $\geq 15$  times than cable out diameter

Dynamic bending:  $\geq 20$  times than cable out diameter.

## 6. PACKAGE AND MARK

### 6.1 PACKAGE

Not allowed two length units of cable in one drum, two ends should be sealed,. Two ends should be packed inside drum, reserve length of cable not less than 3 meters.

### 6.2 MARK

Cable shall be permanently marked in English at regular intervals with the following information

- Name of manufacturer
- Type of cable
- Fiber category

### 6.3 TEST REPORT

Test report and certification supplied.



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**Measuring record for optical cable**

|                                             |                        |                                 |        |
|---------------------------------------------|------------------------|---------------------------------|--------|
| NET WEIGHT: 133 KG                          |                        | GROSS WEIGHT: 163 KG            |        |
| Cable Type: ADSS-12B13                      |                        | Drum No: 004                    |        |
| Cable Length: 2000 m                        | Cable Diameter: 9.2 mm | Attenuation: dB/km              |        |
| Fiber Color                                 |                        |                                 |        |
| Tube Color                                  | wave length            | Blue                            | Orange |
| Tube                                        | 1310                   | 0.322                           | 0.333  |
| Tube                                        | 1550                   | 0.195                           | 0.184  |
| Orange Tube                                 | 1310                   | 0.318                           | 0.337  |
| Orange Tube                                 | 1550                   | 0.191                           | 0.195  |
| Effective Group Index                       |                        | Chromatic Dispersion (ps/nm.km) |        |
| 1550nm                                      | 1.4681                 | 0.16                            |        |
| 1310nm                                      | 1.4675                 | 0.35                            |        |
| Other Technicals Required Meet the Contract |                        |                                 |        |
| Test by: 02                                 | Check by: 01           | Date: 2022-12-17                |        |

