



AERIAL CABLE ADSS ANTI RODENT DIELECTRIC

AR-1FDPE-ADSS-RP-160M-
24F-G655

OPTICAL FIBRE CABLE TECHNICAL SPECIFICATION

1.1 Scope

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

| Cable type | Application |
|--------------------------------|-------------------------------------|
| AR-1FDPE-ADSS-RP-160M-24F-G655 | Self-supporting aerial installation |

160 represents the span.

1.2 Reference

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

| | |
|----------------|---|
| ITU-T G.655 | Characteristics of a non-zero dispersion-shifted single-mode optical fibre and cable |
| IEC 60794-1-1 | Optical fibre cables-part 1-1: Generic specification-General |
| IEC 60794-1-21 | Optical fiber cables- part1-2-Generic specification-Basic optical cable test procedure-Mechanical test methods |
| IEC 60794-1-22 | Optical fiber cables- part1-2-Generic specification-Basic optical cable test procedure-Environmental test methods |
| IEC 60794-3 | Optical fibre cables-part 3: Sectional specification-Outdoor cables |
| IEC 60794-3-20 | Optical fiber cables-part 3-20: Outdoor cables-Family specification for optical self-supporting aerial communication cables |

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 twenty-five (25) years without detriment to the operation characteristics of the cable.

1.4 Application

| Item | Value |
|------------------------|-----------------------------|
| Operation temperature | -40 °C~+70 °C |
| Storage temperature | -40 °C~+70 °C |
| Static bending radius | 15 times the cable diameter |
| Dynamic bending radius | 25 times the cable diameter |

2. Optical Fibre

Optical Fibres supplied in this specification meet the requirements of ITU-T G.655

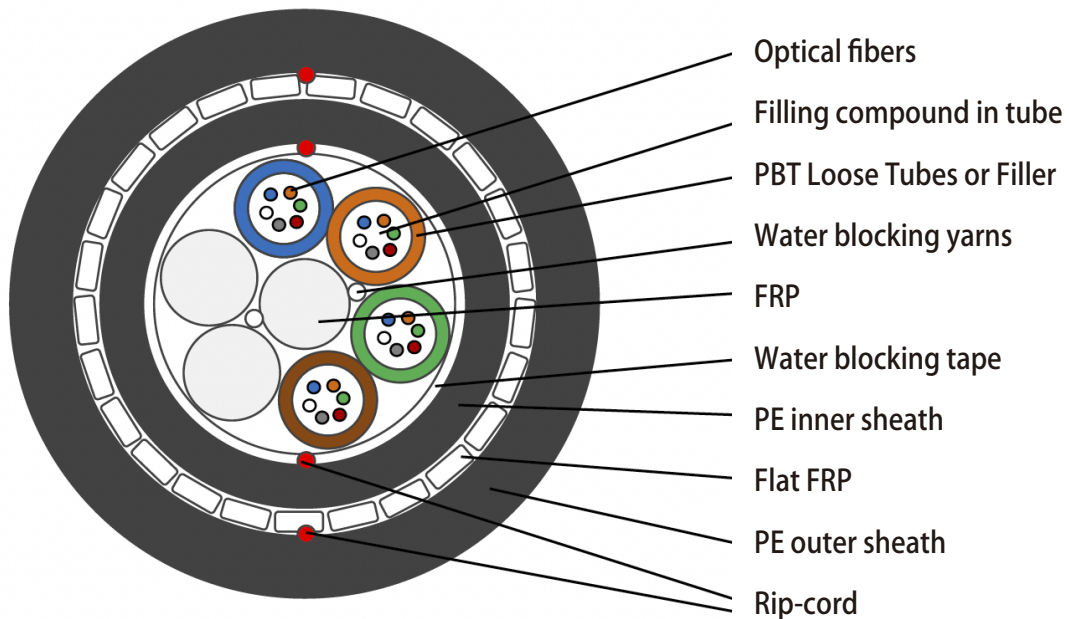
| Category | Description | Units | Specification |
|------------------------------------|---|--------------------------|---------------------------|
| Optical Characteristics | Type of fiber | | Single mode, Doped silica |
| | Attenuation @1550nm | dB/km | ≤ 0.22 |
| | @1625nm | | ≤ 0.24 |
| | Dispersion coefficient @1530~1565nm | ps/(nm.km) | 2~6 |
| | @1565~1625nm | | 4.5~11.2 |
| | Zero dispersion wavelength | ps | ≤ 1520 |
| | Zero dispersion slope | ps/(nm ² .km) | ≤0.092 |
| | Polarization Mode Dispersion PMD Maximum Individual Fibre | ps/km ^{1/2} | ≤0.2 |
| | PMD Link Design Value | | ≤0.08 |
| | Cable Cut-off wavelength λ _{cc} | nm | ≤ 1450 |
| Mode field diameter (MFD) @ 1550nm | μm | 9.6 ± 0.4 | |
| Geometrical Characteristics | Cladding diameter | μm | 125.0 ± 1.0 |
| | Cladding non-circularity | % | ≤ 1.0 |
| | Coating diameter | μm | 245 ± 10 |
| | Coating/Cladding concentricity error | μm | ≤12.0 |
| | Core/Cladding concentricity error | μm | ≤0.6 |
| | Curl (radius) | m | ≥4 |
| Mechanical Characteristics | Proof test offline | N | ≥9.0 |
| | | % | ≥1.0 |
| | | kpsi | ≥100 |
| | Bending Dependence Induced Attenuation 100 turns, 50mm diameter @1550nm | dB | ≤ 0.05 |
| | 100 turns, 60mm diameter @1625nm | | ≤ 0.05 |
| | 1 turns, 32mm diameter @1625nm | | ≤ 0.05 |
| | Temperature Dependence Induced Attenuation -60 °C~+85 °C @1550nm | dB/km | ≤ 0.05 |

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



AR-1FDPE-ADSS-RP-160M-24F-G655

Schematic for reference only

3.3 Fibre and Loose Tube Identification

The color code of the loose tubes and the individual fibers within each loose tube shall be in accordance with below:

| Color code of loose tube | 1 | 2 | 3 | 4 | 5 | 6 |
|--------------------------|--------|----------|---------|---------|---|---|
| | ● Blue | ● Orange | ● Green | ● Brown | / | / |

Color code of fibers: blue, orange, green, brown, gray, white.

3.4 Mail Mechanical performance of cable

Main mechanical performance

| Cable Type | Initial Installation sag (%) | Tension (N) | Crush (N/100mm) |
|--------------------------------|------------------------------|-------------|-----------------|
| AR-1FDPE-ADSS-RP-160M-24F-G655 | 1.5 | 3600 | 3000 |

3.5 Diameter and Weight of Cable

| Cable Type | Outer Diameter ($\pm 0.8\text{mm}$) | Approx. Weight kg/km |
|--------------------------------|---------------------------------------|----------------------|
| AR-1FDPE-ADSS-RP-160M-24F-G655 | 14.5 | 195 |

4. Physical, Mechanical and Environmental Performance and Test

| Items | Test Method | Requirements |
|----------------------|--|--|
| Tension | IEC 60794-1-21-E1 Load: see clause 3.4 Length of test: $\geq 50\text{m}$. Duration: 1min | Additional attenuation: $\leq 0.05\text{dB}$ after test. No damage to outer jacket and inner elements. |
| Crush | IEC 60794-1-21-E3A Load: see clause 3.4 Duration of load: 1min | Additional attenuation: $\leq 0.05\text{dB}$ after test. No damage to outer jacket and inner elements. |
| Impact | IEC 60794-1-21-E4 Impact energy: 1000g - Highness of impact: 1m Number of impacts: at least 3 times | Additional attenuation: $\leq 0.05\text{dB}$ No damage to outer jacket and inner elements. |
| Repeated bending | IEC 60794-1-21-E6 Radius of pulley: 25xOD Number of bends: 25. Load: 150N | Additional attenuation: $\leq 0.05\text{dB}$ No damage to outer jacket and inner elements. |
| Torsion | IEC 60794-1-21-E7 Axial Load 150N - Length under test: 1m Cycles: 10. - Angle of rotation: $\pm 90^\circ$. | Additional attenuation: $\leq 0.05\text{dB}$ No damage to outer jacket and inner elements. |
| Cable Bend | IEC 60794-1-21-E11A Mandrel diameter: 25xOD - Number of turns: (1 cycle) 4. Number of cycles: at least 3 | Additional attenuation: $\leq 0.05\text{dB}$ No damage to outer jacket and inner elements. |
| Temperature cycling | IEC 60794-1-22-F1 -40°C ~ +70°C - Cycles: 2 - 12 hours. | $\Delta a \leq 0.1\text{dB/km}$. |
| Water Penetration | IEC 60794-1-22-F5B Sample: 3m - Water height: 1m - 24h | No water leakage. (Except flat FRP armor layer) |
| Temperature range | Storage/ Operation | -40 °C ~ +70 °C |
| Cable bending radius | Static Dynamic | 15 X OD 25 X OD |

5. Packing and Marking

5.1 Cable Sheath Marking

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

- Color: white.
- Content: ARTIC, the year of manufacture, the type of cable, cable number, length marking.
- Interval: 1m.
- Outer sheath marking legend can be changed according to user's requests.

5.2 Reel Length

Standard reel length: 4-5 Km/reel, other length is also available.

5.3 Cable Drum

The cables are packed in fumigated wooden drums.

5.4 Cable Packing

The cable reel shall be iron-wooden materials. It is not exceeding 2.4 meters in diameter and 1.6 meters in width. The diameter of the center hole is less than 110mm, and the reel shall be protected the cable from the damage during shipping, storage and installation.