



**Aerial Dielectric  
Self Supporting  
Anti Tracking  
Double Jacket Cable**

AR-1-FDPE-13AT-ADSS-1200M-48F-G652D



## ① General

### 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
Aerial Dielectric Self Supporting Anti Tracking Double Jacket Cable	Self-supporting aerial installation
Cable Code	
AR-1-FDPE-13AT-ADSS-1200M-48F-G652D	

### 1.2 Reference

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

ITU-T G.652	Characteristics of a single-mode optical fibre
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 60794-4-20	Aerial optical cables along electrical power lines – Family specification for ADSS (All Dielectric Self Supported) optical cables

## ① General

### 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~+65 °C
Static bending radius	15 times the cable diameter
Dynamic bending radius	25 times the cable diameter

## ② Optical Fiber

### Specification sheet

Optical Fibres supplied in this specification meet the requirements of ITU-T G.652.D

Category	Description	Specification
Geometrical Characteristics	Cladding diameter	125.0±1µm
	Cladding non-circularity	< 1%
	Coating diameter	245±7µm, Before Colored / 250±15µm Colored
	Core concentricity error	<0.6µm
	Coating/Cladding concentricity error	≤12µm
Optical Characteristics	Mode field diameter at 1310nm	9.10±0.40µm
	Mode field diameter at 1550nm	10.40±0.80µm
	Point discontinuity in 1310 and 1550nm	≤0.05dB
	Attenuation at 1260-1625nm	≤0.40dB/km (after cable)
	Attenuation at 1310nm	≤0.345dB/km (after cable)
	Attenuation at 1383nm	≤0.345dB/km (after cable)
	Attenuation at 1550nm	≤0.215dB/km (after cable)
	Dispersion in 1285-1330nm	≤3.2 ps/(nm*km)
	Dispersion at 1550nm	≤17 ps/(nm*km)
	Dispersion at 1625nm	≤23ps/(nm*km)
	Attenuation vs Wavelength - Max α difference (1285-1330nm, relative to 1310nm)	≤0.03dB/km
	Attenuation vs Wavelength - Max α difference (1525-1575nm, relative to 1550nm)	≤0.02 dB/km
	Zero dispersion wavelength	1300-1324 nm
	Zero dispersion slope	≤0.092 ps/(nm <sup>2</sup> *km)
	Cable cut-off wavelength	≤1260nm
Mechanical Characteristics	Polarization mode dispersion individual fibre (uncable fiber)	≤0.07ps/√km
	Polarization mode dispersion design link value (M=20, Q=0.01%)	≤0.11ps/√km
	Proof stress level	100kpsi (0.69 Gpa)
Mechanical Characteristics	Coating strip force (peak value)	1.3~8.9N
	Fibre curl (Radius)	≥ 4m

## 3 Optical Cable

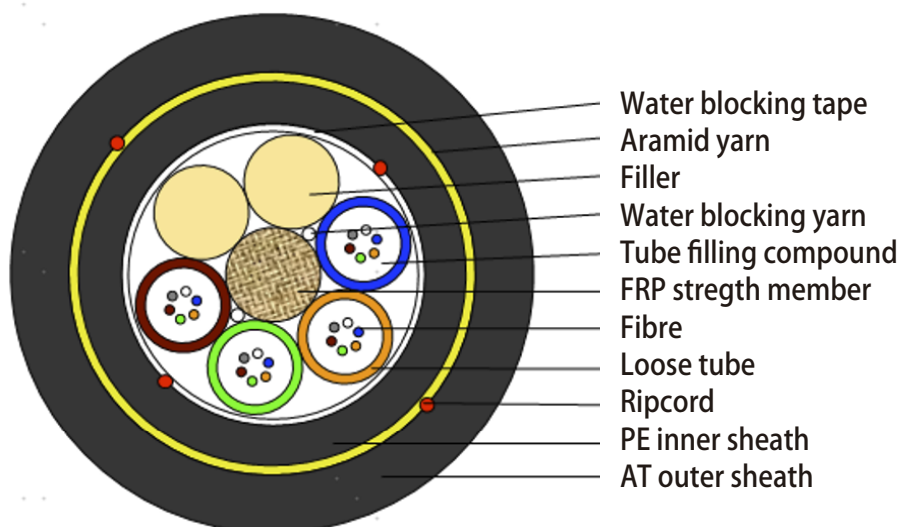
Specification sheet

### 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

The mechanical and environmental performance of the cable are in accordance with the following table. Unless otherwise specified, all attenuation measurements required in this section shall be performed at 1550nm.



### 3.3 Fiber and Loose Tube Identification

The color code of fibres and loose tube will be identification in accordance with the following color sequence, other sequence also is available.

Fibre color code	1 Blue	2 Orange	3 Green	4 Brown	5 Grey	6 White
	7 Red	8 Black	9 Yellow	10 Violet	11 Pink	12 Aqua

### 3 Optical Cable

#### 3.4 Dimensions and Descriptions

The standard optical cable structure is shown in the following table, other structure and fibre count are also available according to customer requirements.

Item	Contents	Value
		48
Structure	Type	4+2
Loose tube	Fiber counts/tube	12
Central strength member	Material	FRP with PE coat
Inner Sheath	Material	PE
Additional strength member	Material	Aramid yarn
Water blocking	Material	Water blocking yarn & tape
Outer Sheath	Material	AT outer sheath
Cable diameter( $\pm 0.5$ mm) Approx.		15
Cable weight(kg/km) ( $\pm 10\%$ ) Approx.		190

#### 3.5 Main Mechanical and Environmental Performance

- Main mechanical performance

Item	Max allowable tension(N)	Crush(N/100mm)
48	25000	2000

## 4 Mechanical, Physical and Environmental Test Characteristics

The mechanical and environmental performance of the cable are in accordance with the following table. Unless otherwise specified, all attenuation measurements required in this section shall be performed at 1550nm.

Items	Test Method	Requirements
Tension	<b>IEC 60794-1-21-E1</b> Load: According to 3.5 - Sample length: Not less than 50m. - Duration time: 1min	Additional attenuation: $\leq 0.05$ dB after test. No damage to outer jacket and inner elements.
Crush	<b>IEC 60794-1-21-E3A</b> Load: According to 3.5 - Duration of load: 1min	Additional attenuation: $\leq 0.05$ dB after test. No damage to outer jacket and inner elements.
Impact	<b>IEC 60794-1-21-E4</b> Radius: 300 mm - Impact energy: 20N Impact number: 5 - Impact points: 5	Additional attenuation: $\leq 0.05$ dB after test. No damage to outer jacket and inner elements.
Repeated Bending	<b>IEC 60794-1-21-E6</b> Bending radius: $20 \times D$ - Cycles: 25 - Load: 150N	Additional attenuation: $\leq 0.05$ dB after test. No damage to outer jacket and inner elements.
Torsion	<b>IEC 60794-1-21-E7</b> Cycles:10 - Length under test: 1m Turns: $\pm 180^\circ$ - Load:150N	Additional attenuation: $\leq 0.05$ dB after test. No damage to outer jacket and inner elements.
Water Penetration	<b>IEC 60794-1-22-F5B</b> Time : 24 hours - Sample length : 3m Water height : 1m	No water leakage
Temperature Cycling	<b>IEC 60794-1-22-F1</b> Sample length: at least 1000m Temperature range: $-40^\circ\text{C} \sim +70^\circ\text{C}$ - Cycles:2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.05 dB/km.
Others Parameters	According to <b>IEC 60794-1</b>	

## 5 Packaging and Drum

### 5.1 Cable Sheath Marking

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

Color: white

Contents: ARTIC, the year of manufacture, the type of cable, cable number, length marking

Interval: 1 m

Outer sheath marking legend can be changed according to user's requests.

### 5.2 Reel Length

Standard reel length: 4 km/reel, other length is also available.

### 5.3 Cable Drum

The cables are packed in fumigated wooden drums.

The nominal lengths of the cable reels will be: 4060 m on average +/- 30 m with its internal end of 5.00 m +/- 0.50 m, in a reel with an internal spiral

### 5.4 Cable Packing

Both ends of the cable will be sealed with suitable plastic caps to prevent the entry of moisture during shipping, handling and storage. The inner end is available for testing.