



## ADSS CABLE

AR-1NSU-ADSS-PE-50M  
xxF-G652D

# OPTICAL FIBRE CABLE TECHNICAL SPECIFICATION

## 1. General

This specification covers the design requirements and performance standard for the supply of optical fibre cable in the industry. It also includes ARTIC premium designed cable with optical, mechanical and geometrical characteristics.

Cable type	Application
AR-1NSU-ADSS-PE-50M-xxF-G652D	Aerial installation

50 represents the span, xx represents the fibre count

### 1.1 Cable Description

ARTIC cable has excellent optical transmission and physical performance, to meet customer requirements.

### 1.2 Quality

ARTIC ensures a stable quality control system for our cable products through several programs including ISO 9001, ISO 14001 and ROHS.

### 1.3 Reliability

Initial and periodic qualification tests for raw material and cable product are performed to assure the cable's performance and durability in the field environment.

### 1.4 Reference

ITU-T G.652D	Characteristics of a single-mode optical fibre ARTIC
IEC 60794-1-1	Optical fibre cables-part 1-1: Generic specification-General
IEC 60794-1-2	Optical fibre cables-part 1-2: Generic specification-Basic optical cable test procedure
IEC 60794-3	Optical fibre cables-part 3: Sectional specification-Outdoor cables
IEC 60794-3-10	Optical fibre cables-part 3-10: Outdoor cables-Family specification for duct and direct buried optical communication cables
IEC 60794-4	Optical fibre cables-part 4: Sectional specification-Aerial optical cables along electrical power lines

## 1.5 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.

## 2. Optical Fibre In Cable(ITU-G652D)

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

Parameter	Specification
MFD (1310nm)	9.1+/-0.4um
MFD (1550nm)	10.4+/-0.5um
Cladding diameter	125+/-1.0um
Fiber diameter	245+/-7um, with UV coating, and colored to : 250+/-15um
Core/cladding concentricity error	≤ 0.6um
Coating/cladding concentricity error	≤ 12.0um
Cladding non circularity	≤ 1.0%
Cable Cut off wavelength	$\lambda_{cc} \leq 1260\text{nm}$
Attenuation coefficient	1310nm: 0.36dB/km
	1550nm: 0.22dB/km
Bending-loss performance of optical fiber @1550nm&1625nm	≤0.05dB (100 turns around a mandrel of 60mm diameter)
Polarization mode dispersion link value	≤0.1ps/km-1/2
Zero-dispersion wavelength	1300~1324nm
Zero-dispersion slope	≤0.092ps/nm <sup>2</sup> *km

## 3. Optical Cable

### 3.1 General Design

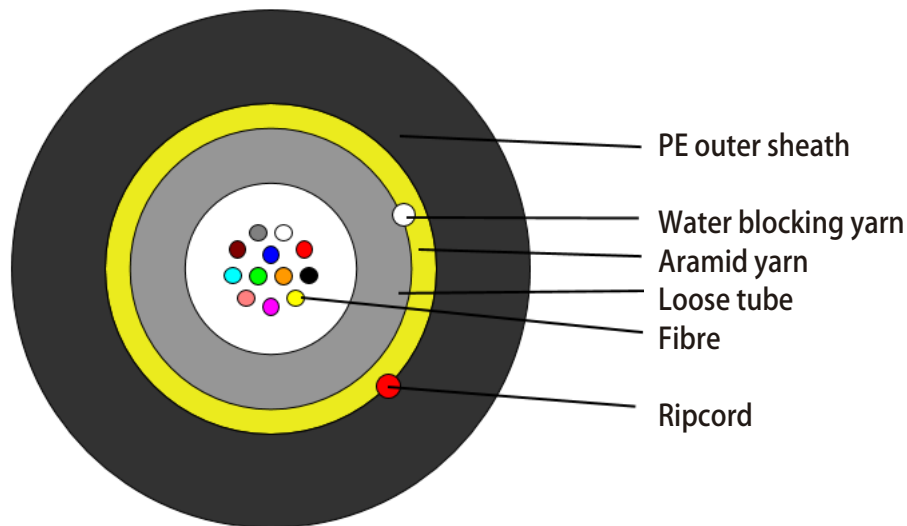
Optical fibres are housed in loose tubes that are made of high-modulus plastic and filled with waterproof compounds.

Aramid yarns are applied to provide high tensile strength.

Polyethylene sheath are applied as outer sheath.

## 3.2 Construction

### 3.2.1 Cross Section of Cable



#### Technical Characteristics

- Accurate process control ensures good mechanical and temperature performance.
- High quality raw material supply the long service life of cable.
- The full packing structure is taken to ensure the cable watertight.

### 3.2.2 Dimensions and Descriptions of Cable Constructions

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

Item	Contents	Value
Loose tube	Number	1
	Outer diameter(mm)	Nominal: $3.0 \pm 0.2\text{mm}$
Max. fibre counts per tube	G.652D	2~24
Additional strength member	Material	Aramid yarns
Sheath	Material	MDPE
	Color	Black
	Thickness (mm)	Nominal: 0.7mm
Ripcord	Number	1
Cable diameter(mm) Approx.		$5.4 \pm 0.2 \text{ mm}$
Cable weight(kg/km) Approx.		24

### 3.2.3 Main Mechanical and Environmental Performance of Cable










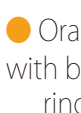





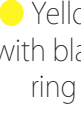
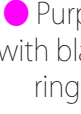

Tensile performance(N)	Crush(N/100mm)
Short term	Short term
500	1000N

Operation temperature: -10oC~+70 oC

Parameters	Value	
1. Maximum pole span length	50m	
2. Temperature	Installation	32°C
	Operation	Tropical, -20°C to 70 °C
3. Worst case loading condition(short-term)	Wind Velocity	Max. 90 km/hr
	Temperature	25°C
4. Initial Sag	3% of span length	
5. Relative humidity	Up to 90%, no frost	

### 3.2.4 Color Code of the Fibre

Each fibre can be identifiable throughout the length of the cable in accordance with the following color sequence. The color of the tube will be nature.

		1	2	3	4	5	6
Fiber color code	24 fibers per tube	 Blue	 Orange	 Green	 Brown	 Slate	 White
		7	8	9	10	11	12
		 Red	 Black	 Yellow	 Purple	 Pink	 Aqua
		13	14	15	16	17	18
		 Blue with black ring	 Orange with black ring	 Green with black ring	 Brown with black ring	 Slate with black ring	 White with black ring
		19	20	21	22	23	24
		 Red with black ring	 Nature	 Yellow with black ring	 Purple with black ring	 Pink with black ring	 Aqua with black ring

### 3.3 Mechanical, Electrical 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.

Item	Test Method	Requirements
<b>Tension</b>	<b>IEC 60794-1-2-E1</b> Load: According to 3.2.3 Sample length: Not less than 50m. Duration time: 5 minute	Additional attenuation: $\leq 0.1$ dB No damage to outer jacket and inner elements.
<b>Crush</b>	<b>IIEC 60794-1-2-E3</b> Load: According to 3.2.3 Duration of load: 10 min	Additional attenuation: $\leq 0.1$ dB No damage to outer jacket and inner elements.
<b>Impact</b>	<b>IEC 60794-1-2-E4</b> Radius: 300mm. Impact energy: 5J Impact number: 2 times on each point Impact points: 3	Additional attenuation: $\leq 0.1$ dB No damage to outer jacket and inner elements.
<b>Bend</b>	<b>IEC 60794-1-2-E11B</b> Mandrel radius: 20*D Turns:10. Cycles:1	Additional attenuation: $\leq 0.1$ dB No damage to outer jacket and inner elements.
<b>Repeated bending</b>	<b>IEC 60794-1-2-E6</b> Bending radius: 20*D Cycles: 25. Load: 150N	Additional attenuation: $\leq 0.1$ dB (after test). No damage to outer jacket and inner elements.
<b>Torsion</b>	<b>IEC 60794-1-2-E7</b> Cycles:10. Length under test: 1m Turns: $\pm 180^\circ$ . Load: 150N	Additional attenuation: $\leq 0.1$ dB No damage to outer jacket and inner elements
<b>Temperature cycling</b>	<b>IEC 60794-1-2-F1</b> Sample length: at least 1000m Temperature range: -20°C $\rightarrow$ +70°C. Cycles: 2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.1 dB/km.
<b>Water Penetration</b>	<b>IEC 60794-1-2-F5</b> Time : 1 hours. Sample length : 3m Water height : 1m	No water leakage.
<b>Compound flow</b>	<b>IEC 60794-1-2-E14</b> Sample count:5 Sample length:300 $\pm$ 5 mm, Temperature: 70°C, Time: 24h	No filling compound dripped.
<b>Other parameters</b>	According to <b>IEC 60794 ,YD/T 901-2009</b>	

## 4. Packaging and Drum

### 4.1 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:  $1 \pm 1\%$  m

### 4.2 Reel Length

Reel length: 4 km/reel.

### 4.3 Cable Drum

The cables are packed in fumigated wooden drums.

### 4.4 Cable Packing

Both cable ends are protected against water penetration and firmly secured to the drum, so the cable cannot move and the turns cannot slide when it is moved, handled or laid. The inner end has around 3 meters of accessible length to perform reception tests.

Other packing method is also available according customer's requirement.