

AERIAL CABLE
AR-1NSU-ADSS-PE
80M-xxF-G652D

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-80M-xxF-G652D	Suitable for aerial installation

80 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

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 60794-2	Optical fibre cables- part2- Indoor cables-Sectional specification
IEC 60794-3	Optical fibre cables- part3-Sectional specification- Outdoor cables
IEC 60794-3-10	Optical fibre cables- part3-10- Outdoor cables-Family specification for duct and direct buried optical communication cables
IEC 60794-3-11	Optical fibre cables –Part 3-11: Outdoor cables – Detailed specification for duct and directly buried single-mode optical fibre telecommunication cables

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

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

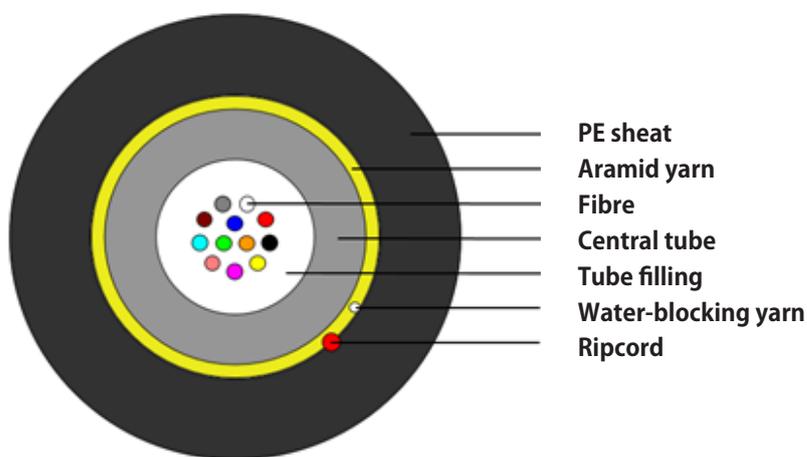
Parameter	Specification
MFD (1310nm)	8.7~9.5 μm
Cladding diameter	125 \pm 1.0 μm
Fiber diameter	235~255 μm , with UV coating, and colored to : 250 \pm 15 μm
Core/cladding concentricity error	\leq 0.6 μm
Coating/cladding concentricity error	\leq 12.0 μm
Cladding non circularity	\leq 1%
Cut off wavelength	$\lambda_{cc} \leq 1260\text{nm}$
Attenuation coefficient	1310nm: 0.36dB/km 1550nm: 0.22dB/km
Bending-loss performance of optical fiber @1310nm&1550nm	\leq 0.05dB (100 turns around a mandrel of 50mm diameter)
Polarization mode dispersion maximum individual fibre	\leq 0.2ps/ $\sqrt{\text{km}}$
Polarization mode dispersion link value	\leq 0.1ps/ $\sqrt{\text{km}}$
Zero-dispersion wavelength	1300~1324nm
Zero-dispersion slope	\leq 0.092ps/nm ² ·km

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.

3.2.1. CROSS SECTION CABLE



AR-1NSU-ADSS-PE-80M-xxF-G652D not scale

3.2.2 DIMENSIONS AND DESCRIPTIONS OF CABLE CONSTRUCTIONS

Parameter	Contents	Value		
		2~12	6~12	24
Loose tube diameter(mm)	Material	PBT		
	Diameter (mm)	3.0	3.2	3.5
Water blocking	Material	Water blocking yarn		
Strength member	Material	Aramid yarns		
Ripcord	Number	1		
Outer sheath	Material	HDPE		
	Color	Black		
	Thickness(mm)	Nominal: 1.0		
Cable diameter(mm) Approx.		5.7	6.0±0.3	6.3±0.3
Cable weight(kg/km) Approx.		30	35	39

3.2.3. MECHANICAL PERFORMANCE OF CABLE

Tensile performance(N)	Crush(N/100mm)	Bending Radius(mm)	
		Static	Dynamic
Short term	Short term	10D	20D
600	1500	10D	20D

Transportation and storage temperature: $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$

Installation temperature: $-5^{\circ}\text{C} \sim +60^{\circ}\text{C}$

Operation temperature: $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$

Span(M)	Max. wind speed	Max. ice thickness	Initial Installation sag	Temperature
80	25 m/s	0	1.0%	$-20 \sim +70^{\circ}\text{C}$

3.2.4. COLOR CODE OF THE FIBRE AND THE LOOSE TUBE

Each fibre can be identifiable throughout the length of the cable in accordance with the following color sequence. Fibre color starts from No. 1 Blue. The color of the loose tube is natural.

Fiber color code	24 fibers per tube	1	2	3	4	5	6
		● 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.

Items	Test method	Requirements
Tension	IEC 60794-1-2-E1 Load: According to 3.2.3 Sample length: Not less than 50m. Duration time: 1min.	Additional attenuation: ≤ 0.05 dB after test No damage to outer jacket and inner elements
Crush	IEC 60794-1-2-E3 Load: According to 3.2.3 Duration of load: 1min	Additional attenuation: ≤ 0.05 dB after test No damage to outer jacket and inner elements
Impact	IEC 60794-1-2-E4 Radius: 300 mm Impact energy: 4 J Impact number: 1 Impact points: 5	Additional attenuation: ≤ 0.1 dB No damage to outer jacket and inner elements
Repeated Bending	IEC 60794-1-2-E6 Bending radius: $20 \times D$ Cycles: 25 Load: 150 N	Additional attenuation: ≤ 0.05 dB No damage to outer jacket and inner elements
Bend	IEC 60794-1-2-E11A Mandrel radius: $10 \times D$ Turns: 4 Cycles: 3	Additional attenuation: ≤ 0.1 dB No damage to outer jacket and inner elements
Water Penetration	IEC 60794-1-2-F5B Time : 24 hours Sample length : 3m Water height : 1m	No water leakage
Temperature cycling	IEC 60794-1-2-F1 Sample length: at least 1000m Temperature range: $-20 \text{ }^{\circ}\text{C} \sim +70 \text{ }^{\circ}\text{C}$ Cycles: 2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.1 dB/km.
Other parameters		According to IEC 60794-1

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: $1 \pm 1\%$ m

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

5.2 REEL LENGHT

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

5.3 CABLE DRUM

The cables are packed in fumigated wooden drums.

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.