



AERIAL CABLE

AR-1-FDPE13-ZR-ADSS
200M-xxF G652D

1. GENERAL

1.1. SCOPE

This Specification covers the design requirements and performance standard for the supply of optical fiber 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-1-FDPE13-ZR-ADSS-200M-xxF G652D	Self-supporting Aerial installation

200m represent the span

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 fiber
IEC 60794-1-1	Optical fiber 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 fiber cables-part 3: Sectional specification-Outdoor cables
IEC 60794-3-20	Aerial optical cables along electrical power lines – Family specification for ADSS (All Dielectric Self Supported) optical cables
IEC 60332-1	Flame retardant polyethylene

1.3 LIFE TIME

Optical fiber 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

Optical fiber 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.

Item	Value
Max. pole distance	200m
Operation temperature	-40 °C~+70 °C
Storage temperature	-40°C~+70°C
Static bending radius	10 times the cable diameter
Dynamic bending radius	20 times the cable diameter

2. OPTICAL FIBER

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

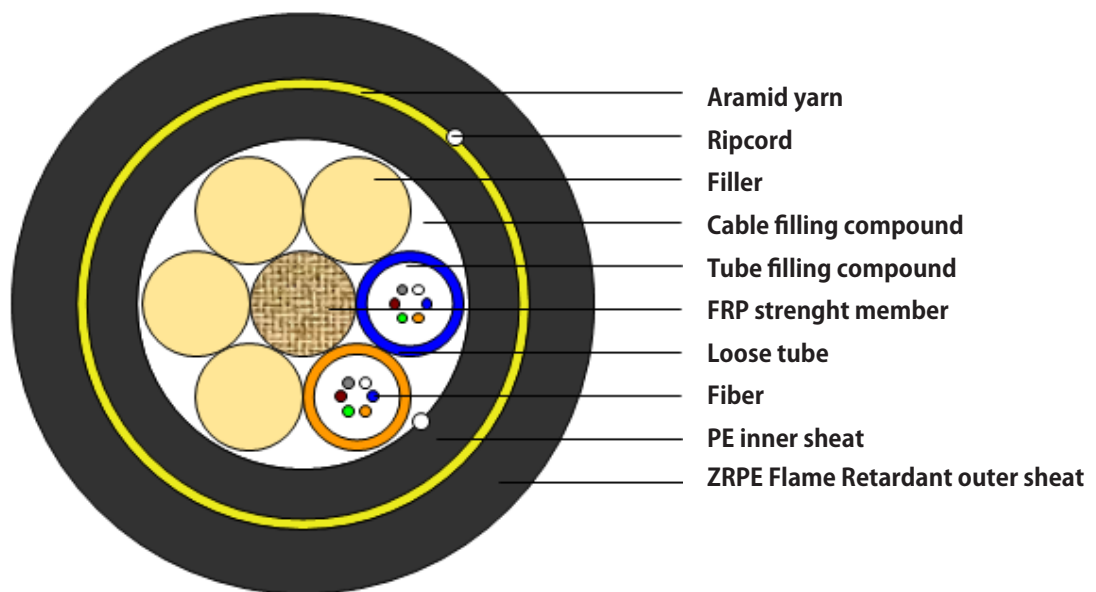
Parameter	Specification
MFD (1310nm)	8.7~9.5 μ m
Cladding diameter	125 \pm 1.0 μ m
Fiber diameter	235~255 μ m, with UV coating, and colored to : 250 \pm 15 μ m
Core/cladding concentricity error	\leq 0.6 μ m
Coating/cladding concentricity error	\leq 12.0 μ m
Cladding non circularity	\leq 1.0%
Cut off wavelength	$\lambda_{cc} \leq 1260$ nm
Attenuation coefficient	1310nm: 0.35dB/km max after cabling 1550nm: 0.21dB/km max after cabling
Bending-loss performance of optical fiber @1310nm&1550nm	\leq 0.05dB (100 turns around a mandrel of 50mm diameter)
Polarization mode dispersion maximum individual fiber	\leq 0.2ps/ \sqrt km
Polarization mode dispersion link value	\leq 0.1ps/ \sqrt 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 fibers with enough space and bending endurance, which ensure good optical property of the fibers 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 CABLE



AR-1-FDPE13-ZR-ADSS-200M-xxF G652D
Schematic for reference only

3.3. FIBER AND LOOSE TUBE IDENTIFICATION

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

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

3.4. DIMENSIONS AND DESCRIPTIONS

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

Parameter	Contents	Value
		12
Structure	Type	1+6
Loose tube	Fiber counts/tube	6
	Outer diameter (mm)	2.1
Central strength member	Material	FRP
	Diameter (mm)	2.25
	PE Layer Diameter (mm)	--
Water blocking	Material	Cable filling compound
Inner sheat	Material	HDPE
	Color	Black
	Thickness (mm)	Nominal: 0.8
Peripheral strength member	Material	Aramid yarn
Outer sheat	Material	ZRPE Flame Retardant
	Color	Black
	Thickness (mm)	Nominal: 1.7
Ripcord	Number	1+1
Cable diameter(mm) Approx.		12.2
Cable weight(kg/km) Approx.		131

3.5. MAIN MECHANICAL AND ENVIRONMENTAL PERFORMANCE

Main mechanical performance

Item	Max allowable tension(N)	Crush(N/100mm)
48	3.0*9.81*G	1.0*9.81*G

G is the cable weight per kilometer ,the unit is KG

Environmental and installation condition

Max. wind speed	Max. ice thickness	Initial Installation sag	Temperature
25m/s	0	1.5%	-40 °C~+70 °C

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	IEC 60794-1-2-E1 Load:According to 3.5 Sample length: Not less than 50m. Duration time: 1h.	Additional attenuation: ≤0.1dB after test No damage to outer jacket and inner elements
Crush	IEC 60794-1-2-E3 Load: According to 3.5 Duration of load: 1min	Additional attenuation: ≤0.1dB after test No damage to outer jacket and inner elements
Impact	IEC 60794-1-21-E4 Radius: 300 mm Impact energy: 10 J Impact number: 1 Impact points: 3	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Repeated Bending	IEC 60794-1-2-E6 Bending radius: 10*D Cycles: 25 Load: 150N	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Torsion	IEC 60794-1-2-E7 Cycles:10 Length under test: < 1m Turns: +/- 180° Load: 150N	Additional attenuation: ≤0.1dB 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:-40 °C~+70 °C Cycles:2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.05 dB/km.
Other parameters	According to IEC 60794-1	
Flame retardant polyethylene	According to IEC 60332-1	

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 m

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

5.2 REEL LENGTH

Standard reel length: 2/4 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.