AERIAL CABLE

AR-1FADPE-ADSS-80M xxF-G652D

OPTICAL FIBRE CABLE TECHNICAL SPECIFICATION

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 products through several programs including ISO 9001, ISO 14001 and ROHS.

Cable type	Application
AR-1FADPE-ADSS-80M xxF -G652D	Self-supporting Aerial installation

80 represents the span

xx represents the fiber count

1.2 Reference

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

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 60794-4-20	Aerial optical cables along electrical power lines – family specification for ADSS (All Dielectric Self Supported) optical 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 years (25) without detriment to the operation characteristics of the cable.

1.4 Application

Item	Value
Operation temperature	-40 ºC～+70 ºC
Installation temperature	-10 ºC～+60 ºC
Storage temperature	-40 ºC～+70 ºC
Static bending radius	10 times the cable diameter
Dynamic bending radius	20 times the cable diameter

2. Optical Fibre

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

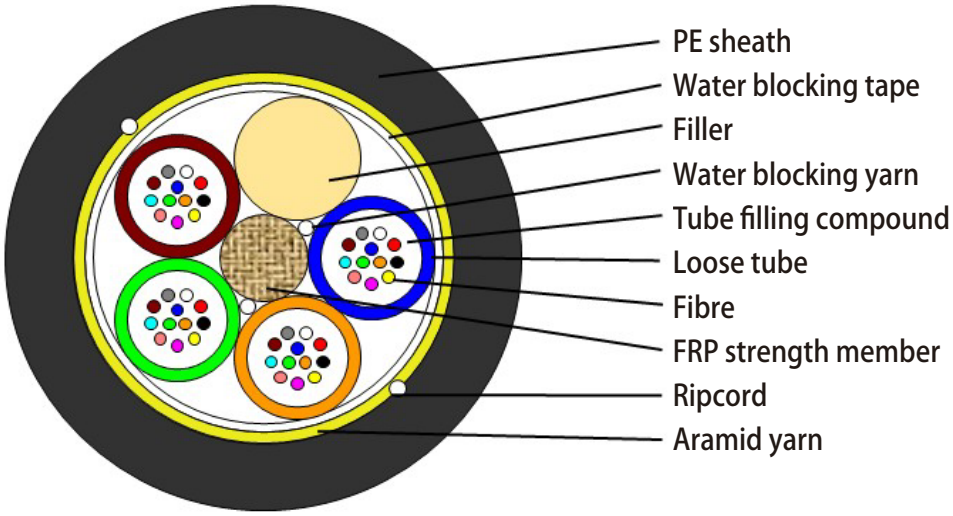
Parameter	Specification
MFD (1310nm)	9.1+/-0.4um
MFD (1550nm)	10.4+/-0.5um
Cladding diameter	125+/-1.0um
Fiber diameter	245+/-7um, with UV coating, and colored to : 250+/-15um
Core/cladding concentricity error	≤ 0.6um
Coating/cladding concentricity error	≤ 12.0um
Cladding non circularity	≤ 1.0%
Cut off wavelength	λ cc ≤1260nm
Attenuation coefficient	1310nm: 0.35dB/km max after cabling
	1550nm: 0.21dB/km max after cabling
Bending-loss performance of optical fiber @1310nm&1550nm	≤0.05dB (100 turns around a mandrel of 60mm diameter)
Polarization mode dispersion link value	≤0.1ps/km-1/2
Zero-dispersion wavelength	1312+/-12nm
Zero-dispersion slope	≤0.091ps/nm2*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 Cross Section of Cable



3.3 Fibre and Loose Tube Identification

The color code of fibre 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 fibre count are also available according to customer requirements.

Item	Contents	Value					
		12/24	36	48	72	96	144
Loose tube	Number	2/4	3	4	6	8	12
	Outer diameter	2.1	2.4	2.4	2.4	2.4	2.4
Filler	Number	3/6	2	1	0	0	0
Max. fiber count per tube	G.652D	6	12	12	12	12	12
Central strength member	Material						
	Diameter (mm)	1.6	1.8	1.8	2.6	3.0	3.5
	PE layer diameter (mm)	-	-	-	-	4.2	7.2
Water barrier	Material	Water blocking yarn & tape					
Peripheral strength member	Material	Aramid yarn					
Sheath	Material	HDPE					
	Color	Black					
	Thickness (mm)	Nominal: 1.5					
Ripcord	Number	2					
	Color	White					
Cable diameter(mm) Approx.		9.4	10.2	10.2	11.0	12.6	15.6
Cable weight(kg/km) Approx.		70	80	80	90	120	180

3.5 Main Mechanical and Environmental Performance

Main mechanical performance

Item	Span (M)	Tension (N)	Crush (N/100mm)	
			Short term	Long term
6	80	1000	1500	750
12		1000	1500	750
24		1000	1500	750
36		1200	1500	750
48		1200	1500	750
60		1200	1500	750
72		2500	1500	750
96		3000	1500	750
144		3200	1500	750

Environmental and installation condition

Max. wind speed	Max. ice thickness	Initial Installation sag	Tempreture
25 m/s	0	1.0%	-40℃~+70℃

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.

Item	Test Method	Requirements
Tension	**IEC 60794-1-2-E1** Load: According to 3.5 Sample length: Not less than 50m. Duration time: 1min	Additional attenuation: ≤0.05dB after test. No damage to outer jacket and inner element.
Crush	**IEC 60794-1-2-E3** Load: According to 3.5 Duration of load: 1min	Additional attenuation: ≤0.05dB after test. No damage to outer jacket and inner elements.
Impact	**IEC 60794-1-2-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: 20*D. Cycles: 25 Load: 150N	Additional attenuation: ≤0.05dB. 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 ~+70 ºC 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**	

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 drum.

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.