



AERIAL CABLE

AR-1FADPE-ADSS-FTTX-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 cable products through several programs including ISO 9001, ISO 14001 and ROHS.

Cable type	Application
AR-1FADPE-ADSS-FTTX xxF-G652D	Self-supporting aerial installation

60m represent the span.

xx represents the fibre counts of the cable

1.2 Reference

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

ITU-T G.652.D	Characteristics of a single-mode optical fibre.
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 (25) years without detriment to the operation characteristics of the cable.

1.4 Application

Item	Value
Max. pole distance	60m
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 Fibre

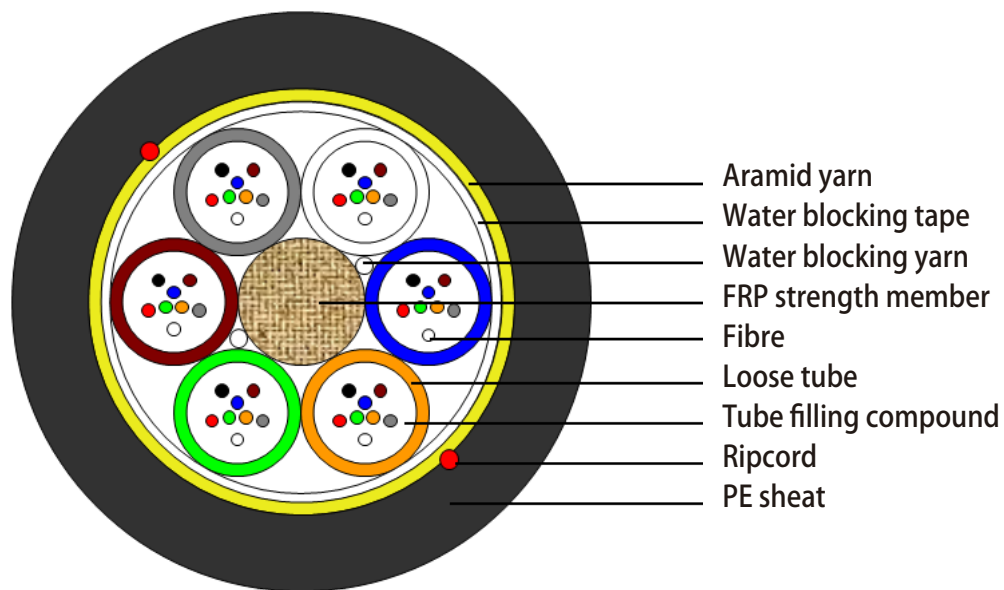
Optical Fibres supplied in this specification meet the requirements of ITU-T G.652D.

Parameter	Specification
MFD (1310nm)	$9.1 \pm 0.4 \mu\text{m}$
MFD (1550nm)	$10.4 \pm 0.5 \mu\text{m}$
Cladding diameter	$125 \pm 1.0 \mu\text{m}$
Fiber diameter	$245 \pm 7 \mu\text{m}$, with UV coating, and colored to: $250 \pm 15 \mu\text{m}$
Core/cladding concentricity error	$\leq 0.6 \mu\text{m}$
Coating/cladding concentricity error	$\leq 12.0 \mu\text{m}$
Cladding non circularity	$\leq 1.0\%$
Cut off wavelength	$\lambda_{cc} \leq 1260 \text{nm}$
Attenuation coefficient	1310 nm: 0.35dB/km 1550 nm: 0.21dB/km
Bending-loss performance of optical fiber @1310nm&1550nm	$\leq 0.05 \text{ dB}$ (100 turns around a mandrel of 50 mm diameter)
Polarization mode dispersion maximum individual fibre	$\leq 0.2 \text{ps}/\sqrt{\text{km}}$
Polarization mode dispersion link value	$\leq 0.1 \text{ps}/\sqrt{\text{km}}$
Zero-dispersion wavelength	$1312 \pm 12 \text{nm}$
Zero-dispersion slope	$\leq 0.091 \text{ps}/\text{nm}^2 \cdot \text{km}$













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.



Fiber 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	48
Structure	Type	1+5	1+5	1+6
Loose tube	Fiber counts/tube	6	8	8
	Outer diameter (mm)	1.9		
Central strength member	Material	FRP		
	Diameter (mm)	1.5	1.5	2.0
	PE layer diameter (mm)	-	-	-
Water blocking	Material	Water blocking yarn and tape		
Peripheral strength member	Material	Aramid yarn		
Sheath	Material	HDPE		
	Color	Black		
	Thickness (mm)	Nominal: 1.0		
Ripcord	Number	2		
	Color	Red		
Cable diameter (mm) Approx.		8.0	8.0	8.6
Cable weight (kg/km) Approx.		50	50	60

3.5 Main Mechanical and Environmental Performance

Main mechanical performance

Item	Max allowable tension (N)	Crush(N/100mm)	
		Short term	Long term
12/24/48	1500	1000	300

Environmental and installation condition

Max. wind speed	Max. ice thickness	Initial Installation sag	Temperature
25 m/s	0	1.0%	-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: 1min	Additional attenuation: $\leq 0.05\text{dB}$ 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: $\leq 0.05\text{dB}$ after test. No damage to outer jacket and inner elements.
Impact	IEC 60794-1-2-E4 Radius: 12.5 mm. Impact energy: 4.4 J. Impact number: 3. Impact points: 10	Additional attenuation: $\leq 0.1\text{dB}$. No damage to outer jacket and inner elements.
Repeated bending	IEC 60794-1-2-E6 Bending radius: $20 \times D$. Cycles: 25. Load: 150N.	Additional attenuation: $\leq 0.05\text{dB}$. No damage to outer jacket and inner elements.
Torsion	IEC 60794-1-2-E7 Cycles: 10. Length under test: 1m. Turns: $\pm 180^\circ$. Load: 150N	Additional attenuation: $\leq 0.1\text{dB}$. 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: $-40 \sim +70^\circ\text{C}$. Cycles: 2. Temperature cycling test dwell time: 12 hours.	The change in attenuation coefficient shall be less than 0.05 dB/km .
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: 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.