



AERIAL CABLE

AR-1FATDPE-ADSS-80M

xxF-G652D

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-1FATDPE-ADSS-80M xxF-G652D	Self-supporting aerial installation

80 represents the span.

xx represents the fibre count.

1.2. CABLE DESCRIPTION

Optical fibres are housed in loose tubes that are made of high-modulus plastic and filled with water blocking yarns.

FRP is applied as central strength member.

Loose tubes are SZ stranded around the central strength member.

Water blocking tape and yarns are used in and over the cable core to prevent it from water ingress.

Aramid yarn is used as the strength member.

Polyethylene outer sheath is extruded around the aramid yarns.

1.3. 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
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

1.4. 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

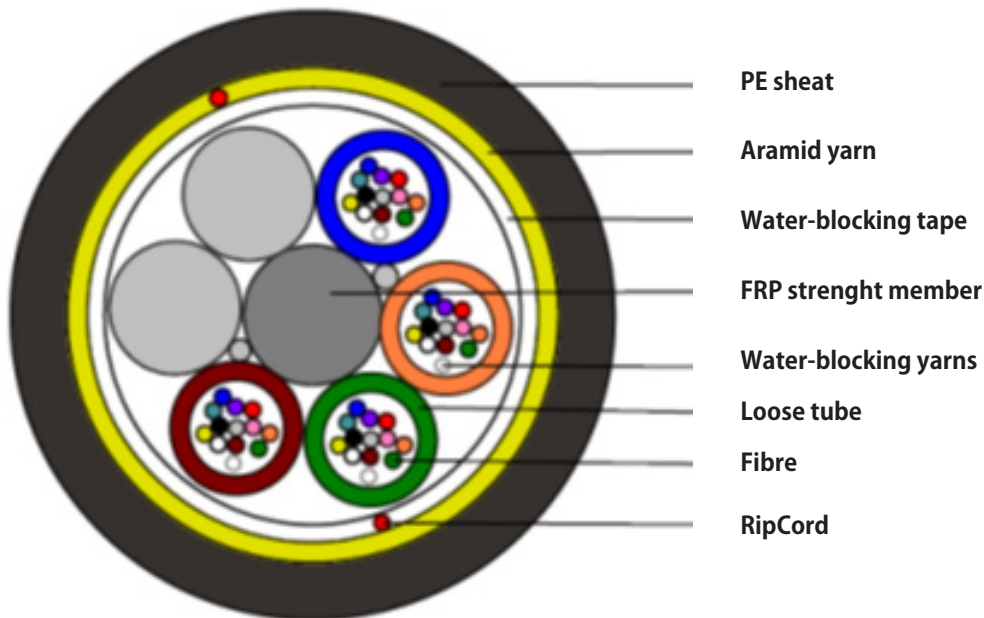
Category	Description	Specification
Optical Characteristics	Mode field diameter at 1310 nm	$9.1 \pm 0.4 \mu\text{m}$
	Point discontinuity	$\leq 0.05 \text{ dB}$
	Attenuation at 1310 nm	$\leq 0.36 \text{ dB/km}$
	Attenuation at 1550 nm	$\leq 0.22 \text{ dB/km}$
	Zero dispersion wavelength	1300 – 1324 nm
	Zero dispersion slope	$\leq 0.091 \text{ ps}/(\text{nm}^2 \cdot \text{km})$
	Cable cut-off wavelength	$\leq 1260 \text{ nm}$
	Polarization mode dispersion individual fibre	$\leq 0.2 \text{ ps}/\sqrt{\text{km}}$
Mechanical Specification	Proof stress level	$\geq 100 \text{ kpsi (0.69 GPa)}$
	Coating strip force(peak value)	1.3~8.9N
	Fibre curl (Radius)	$\geq 4 \text{ m}$

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 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.

	1	2	3	4	5	6
Color code	● 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 structure of ADSS cable is shown in the following table, other structure and fibre count are also available according to customer requirements.

Parameter	Contents	80 M SPAN							
		6	12	24	36	48	72	96	144
Loose tube	Fiber counts/tube	1	2	4	6	4	6	8	12
	Outer diameter (mm)	2.1				2.5			
Filler	Number	5	4	2	0	2	0		
Max. fiber count per tube	G.652D	6				12			
Central strength member	Material	FRP							
	Diameter (mm)	2.25				2.8	3.0	3.5	
	PE layer diameter (mm)	-					4.2	7.4	
Water Blocking Material	Material	Water blocking yarn & tape							
Strength member	Material	Aramid yarn							
Sheat	Material	MDPE							
	Color	Black							
	Thickness (mm)	Nominal: 1.5							
Ripcord	Number	2							
Cable diameter (± 0.5 mm)		10.2				11.4	12.8	16.1	
Cable weight(kg/km) Approx.		70				88	105	180	

3.5 MAIN MECHANICAL AND ENVIRONMENTAL PERFORMANCE

Main mechanical performance:

Value	Crush(N/100mm)		MAT (KN)	Initial Installation sag
	Short term	Long term		
6~36	1500	600	1.3	1.0%
48~72	2200	1000	1.5	
96			2.1	
144			2.7	

Environmental and installation condition

Max. wind speed	Max. ice thickness	Temperature
25 m/s	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: ≤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 60794-1-2-E4 Radius: 300 mm Impact energy: 4.5 J Impact number: 1 Impact points: 3	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Bend	IEC 60794-1-2-E11A Mandrel radius: 10*D Turns:4 Cycles: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: 150 N	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: 150 N	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: -30 °C~+70 °C Cycles:2 Temperature cycling test dwell time: 8 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:

- Method: inkjet
- 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.