AERIAL CABLE ADSS TOTALLY DRY

AR-1FATDPE-ADSS-120M-xxF-G652D-G657A2

1. GENERAL

1.1. SCOPE

This Specification covers the design requirements and performance standard for the supply of optical fibrecable 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-120M-xxF-G652D-G657A2	Self-supporting aerial installation

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
ITU-T G.657 A2	Characteristics of a single-mode optical fibre
IEC 60794-1-1	Optical fibre 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 testprocedure-Environmental test methods
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 typicalservice 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	120m
Operation temperature	40 ºC～+70 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.652.D

Parameter	Specification
MFD (1310nm)	8.7~9.5um
Cladding diameter	125±1um
Fiber diameter	235~255um, 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: 0.36dB/km 1550nm: 0.22dB/km
Bending-loss performance of optical fibers @1310nm@1550nm	≤0.05dB (100 turns around a mandrel of 50mm diameter)
Polarization mode dispersion maximun individual fibre	≤0.2ps/√km
Polarization mode dispersion link value	≤0.1ps/√km
Zero-dispersion wavelength	1300~1324nm
Zero dispersion slope	≤0.092ps/nm2·km

Optical Fibres supplied in this specification meet the requirements of ITU-T G.657A2

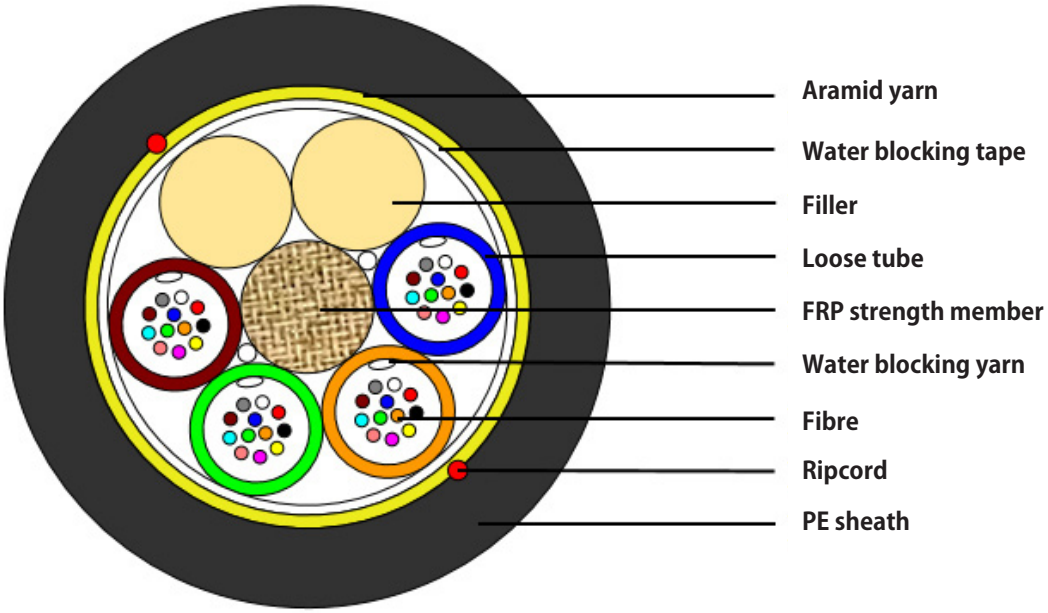
Parameter	Specification
MFD (1310nm)	8.4~9.2um
Cladding diameter	125±0.7um
Fiber diameter	235~255um, with UV coating, and colored to : 250±15um
Core/cladding concentricity error	≤ 0.5um
Coating/cladding concentricity error	≤ 12.0um
Cladding non circularity	≤ 0.7%
Cut off wavelength	λ cc ≤1260nm
Attenuation coefficient	1310nm: 0.36dB/km 1550nm: 0.22dB/km
Bending-loss performance of optical fibers @1550nm@1625nm	≤0.03dB @1550nm ≤0.1dB @1625nm (10 turns around amandrel of 30mm diameter) ≤0.1dB @1550nm ≤0.2dB @1625nm (1 turn around a mandrel of 20mm diameter) ≤0.5dB @1550nm ≤1.0dB @1625nm (1 turn around a mandrel of 15mm diameter)
Polarization mode dispersion maximun individual fibre	≤0.2ps/√km
Polarization mode dispersion link value	≤0.1ps/√km
Zero-dispersion wavelength	1300~1324nm
Zero dispersion slope	≤0.092ps/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 CABLE



Schematic for reference only

3.3. FIBRE AND LOOSE TUBE IDENTIFICATION

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

Fibre 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	120 M SPAN Value
		48
Loose tube	Number	4
	Outer diameter (mm)	2.5
Filler	Number	2
Max. fiber counts per tube		12
Central strength member	Material	FRP
	Diameter (mm)	2.8
	PE layer diameter (mm)	-
Water Blocking Material	Material	Water Blocking Tape & Yarn
Strength member	Material	Aramid yarn
Sheath	Material	MDPE
	Color	Black
	Thickness (Nominal: mm)	1.5
Ripcord	Number	2
Cable diameter (mm) Approx.		11.7
Cable weight (kg/km) Approx.		92

3.5 MAIN MECHANICAL AND ENVIRONMENTAL PERFORMANCE

Main mechanical performance:

Max pole distance (M)	48	Crush (N/100mm)	
	MAT (KN)	Short term	Long term
120	2.7	2200	1100

Environmental and installation condition:

Max pole distance (M)	Max. wind speed	Max. ice thickness	Initial Installation sag	Temperature
120	27m/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.

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: ≤0.05dB after test No damage to outer jacket and inner elements
Crush	**IEC 60794-1-21-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 60794-1-21-E4** Radius: 300 mm Impact energy: 4.5 J Impact number: 1 Impact points: 3	Additional attenuation: ≤0.05dB after test No damage to outer jacket and inner elements
Bend	**IEC 60794-1-21-E11A** Mandrel radius: 10*D Turns:4 Cycles:3	Additional attenuation: ≤0.05dB after test No damage to outer jacket and inner elements
Repeated Bending	**IEC 60794-1-21-E6** Bending radius: 20*D Cycles: 25 Load: 150 N	Additional attenuation: ≤0.05dB after test No damage to outer jacket and inner elements
Torsion	**IEC 60794-1-21-E7** Cycles:10 Length under test: 1m Turns: +/-180° Load: 150 N	Additional attenuation: ≤0.05dB after test No damage to outer jacket and inner elements
Water Penetration	**IEC 60794-1-22-F5B** Time : 24 hours Sample length : 3m Water height : 1m	No water leakage
Temperature cycling	**IEC 60794-1-22-F1** Sample length: at least 1000m Temperature range: -40 ºC~+70 ºC Cycles:2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.05 dB/km at 1310 and 1550nm.
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: 1m

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

5.2 REEL LENGHT

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.