



COMPOSITE AERIAL SINGLE JACKET CABLE -150 M SPAN

AR-1FADPE-ADSS-150M-

- 24F-G655 + 12F-G652D
- 24F-G656 + 12F-G652D LL
- 36F-G655 + 12F-G52D
- 36F-G656 + 12F-G652D LL

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-150M- 24F-G655 + 12F-G652D 24F-G656 + 12F-G652D LL 36F-G655 + 12F-G52D 36F-G656 + 12F-G652D LL	Self-supporting aerial installation

150M represents 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 fibre
ITU-T G.655	
ITU-T G.656	
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 test procedure-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 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	150m
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 LL G652D

Fiber Characteristics	Parameters	Specification
Geometrical Characteristics	Cladding diameter	125.0±0.7um
	Core/Cladding concentricity error	≤0.5um
	Cladding non-circularity	≤0.7%
	Coating diameter	235~245um (uncolored)
		247~261um (colored)
Coating/Cladding concentricity error	≤12um	
Optical Characteristics	Attenuation coefficient (after cable)	1310nm: ≤0.335dB/km
		1383nm: ≤0.335dB/km
		1550nm: ≤0.195dB/km
	Point discontinuities (1310/1550nm)	≤0.10dB
	MFD at 1310nm	9.2±0.4um
	MFD at 1550nm	10.4±0.5um
	Dispersion at 1550 nm	≤18ps/(nm·km)
	Zero dispersion wavelength	1300~1322nm
	Zero dispersion slope	≤0.092 ps/(nm ² ·km)
	Polarization mode dispersion individual cabled fiber	≤0.1ps/√km
	Polarization mode dispersion link design value (M=20, Q=0.01%)	≤0.06ps/√km
	Cable cut off wavelength	λ _{cc} ≤1260nm
	Grope refractive index	1310nm:1.466, 1550nm:1.467
Mechanical Characteristics	Proof test	100kpsi (0.7Gpa)
	Coating strip force (peak value)	1.3~8.9N
	Dynamic fatigue parameter (Nd)	≥18
	Fiber curl	≥4m
Environmental Characteristics	Temperature dependence (-60°C~+85°C, 1310/1550nm)	≤0.05dB/km
	Temperature humidity cycling (-10°C~+85°C, 95%RH, 1310/1550nm)	≤0.05dB/km
	Water immersion (23±2°C, 30days, 1310/1550nm)	≤0.05dB/km
	Heat aging (85±2°C, 30days, 1310/1550nm)	≤0.05dB/km

Optical Fibres supplied in this specification meet the requirements of ITU-T G.655

Parameter	Specification
MFD (1550nm)	9.1~10.1um
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	$\lambda_{cc} \leq 1450\text{nm}$
Attenuation coefficient	1550nm: 0.24dB/km max after cabling
Bending-loss performance of optical fiber @1550nm	≤0.05dB (100 turns around a mandrel of 60mm diameter)
Polarization mode dispersion maximum individual fibre	≤0.2ps/√km
Polarization mode dispersion design link value	≤0.1ps/√km
Zero-dispersion wavelength	≤1520nm
Dispersion slope at 1550nm	≤0.084ps/nm ² ·km

Optical Fibres supplied in this specification meet the requirements of ITU-T G.656

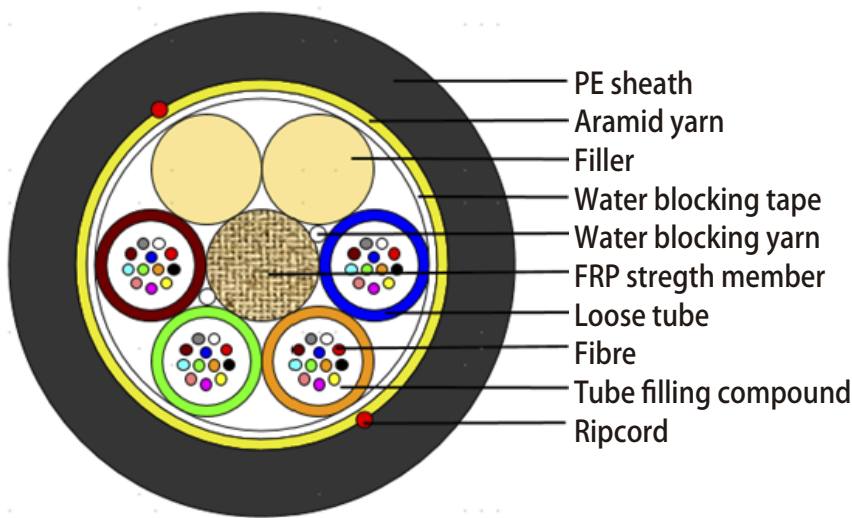
Parameter	Specification
MFD (1550nm)	8.5~9.5um
Cladding diameter	125+/-1.0um
Fiber diameter	245+/-10um, with UV coating, and colored to : 250+/-15um
Core/cladding concentricity error	≤ 0.6um
Coating/cladding concentricity error	≤ 12.0um
Cladding non-circularity	≤ 1.0%
Cut-off wavelength	$\lambda_{cc} \leq 1260\text{nm}$
Attenuation coefficient	1550nm: 0.24dB/km max after cabling
Bending-loss performance of optical fiber @1550nm	≤0.05dB (100 turns around a mandrel of 60mm diameter)
Polarization mode dispersion maximum individual fibre	≤0.2ps/√km
Polarization mode dispersion design link value	≤0.1ps/√km
Zero-dispersion wavelength	≤1420nm
Dispersion slope at 1550nm	≤0.06ps/nm ² ·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 fibres and loose tube will be identification in accordance with the following color sequence, other sequence also is available.

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

Tube Color Code	36B4+12B1.3	1(B4)	2(B4)	3(B4)	4(B1.3)	5	6
		● Blue	● Orange	● Green	● Brown	Filler	Filler
24B5+12B1.3	1(B5)	2(B5)	3(B1.3)	4	11	12	
	● Blue	● Orange	● Green	Filler	Filler	Filler	

3.4 Dimensions and Descriptions

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

Item	Contents	Value	
		36B4+12B1.3	24B5+12B1.3
Structure	Type	1+6	
Loose tube	Fiber counts/tube	12	
	Outer diameter (mm)	2.4	
Central strength member	Material	FRP	
	Diameter (mm)	2.6	
	PE layer diameter (mm)	/	
Water blocking	Material	Water blocking yarn & tape	
Peripheral strength member	Material	Aramid yarn	
Outer sheath	Material	HDPE	
	Color	Black	
	Thickness (mm)	Nominal: 1.5	
Ripcord	Number	2	
	Color	Red	
Cable diameter(mm) Approx (± 0.5 mm)		10.8	
Cable weight (kg/km) Approx.		90	

3.5 Main Mechanical and Environmental Performance

Main mechanical performance

Value	Max allowable tension (N)	Crush (N/100mm)
36B4+12B1.3	2900	1500
24B5+12B1.3		

Environmental and installation condition

Max. wind speed	Max. ice thickness	Initial Installation sag	Temperature
100km/h	0	1.0%	--40 °C~+70 °C

4. Main 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 60794-1-21-E1 Load: According to 3.5 Sample length: Not less than 50m. Duration time: 1 min.	Additional attenuation: 0.05dB after test. No damage to outer jacket and inner elements
Crush	IEC 60794-1-21-E3A Load: According to 3.5 Duration of load: 1 min	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: 10 J Impact number: 1 Impact points: 3	Additional attenuation: 0.05dB. No damage to outer jacket and inner elements
Repeated bending	IEC 60794-1-21-E6 Bending radius: 20*D Cycles: 25 Load: 150N	Additional attenuation: ≤0.05dB No damage to outer jacket and inner elements
Torsion	IEC 60794-1-21-E7 Cycles:10 Length under test: 1m Turns: ±180° Load:150N	Additional attenuation: ≤0.05dB 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 °C~+70 °C Cycles:2 Temperature cycling test dwell : 12 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:

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.