Double Jackets Double Armored Aerial With messenger wire

1. GENERAL

1.1 SCOPE

This listed specification covers the design requirements and performance standard for the supply of optical fiber cable in the industry. It also includes premium designed cable with optical, mechanical and geometrical characteristics

Cable Type	Application
DJDA	Aerial installation

1.2 Cable Description

cable possesses high tensile strength and flexibility in compact cable sizes. At the same time, it provides excellent optical transmission and physical performance.

1.3 Quality

ISO 9001 standard

1.4 Reliability

Both initial and periodic qualification testing are performed to assure the cable's performance and durability in the field environments. .

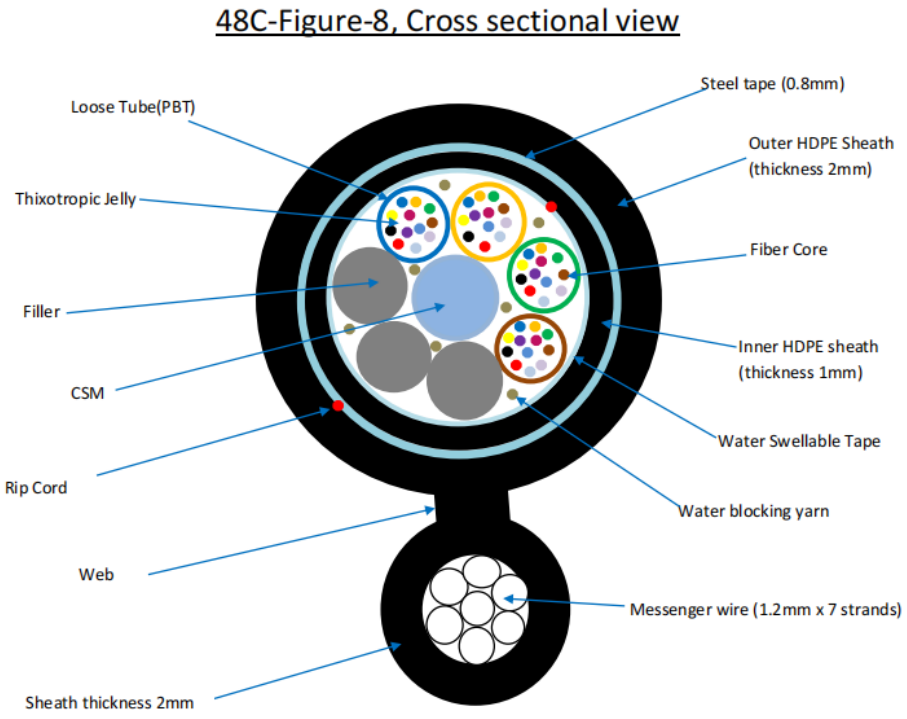
1.5 The cable are designed, manufactured and tested according to international standards as follow:

2. B1.3(G652D) single mode fiber

Optics Specifications		
Attenuation(dB/km)	@1310nm	≤0.35db/km
	@1383nm (after hydrogen aging)	≤0.32db/km
	@1550nm	≤0.21db/km
	@1625nm	≤0.24db/km
Dispersion	@1285nm~1340nm	-3.0~3.0ps/(nm*km)
	@1550nm	≤18ps/(nm*km)
	@1625nm	≤22ps/(nm*km)
Zero-Dispersion wavelength		1300~1324nm
Zero-Dispersion slope		≤0.092ps/(nm^2*km)
Mode field diameter @ 1310nm		9.2±0.4μm
Mode field diameter @ 1550nm		10.4±0.8μm
PMD	Max. value for fiber on the reel	0.2ps/km 1/2
	Max. Designed value for link	0.08ps/km 1/2
Cable cutoff wave length, λcc		≤1260nm
Effective group index(Neff)@1310nm		1.4675
Effective group index(Neff)@1550nm		1.4680
Macro-bend loss(Φ60mm,100 turns)@1550nm		≤0.05db
Back scatter characteristic(@1310nm&1550nm)		
Point discontinuity		≤0.05db
Attenuation uniformity		≤0.05db/km
Attenuation coefficient difference for bi-directional measurement		≤0.05db/km
Geometrical characteristics		
Cladding diameter		125±1μm
Cladding non-circularity		≤1%
Core/cladding concentricity error		≤0.4μm
Fiber diameter with coating(uncolored)		245±5μm
Cladding/coating concentricity error		≤12.0μm
Curl		≥4m
Mechanical characteristic		
Proof test		0.69GPa
Coating strip force(typical value)		1.4N
Dynamic stress corrosion susceptibility parameter(typical value)		≥20
Environmental characteristics(@1310nm&1550nm)		
Temperature induced attenuation(-60~+85℃)		≤0.5dB/km
Dry heat induced attenuation(85±2℃,30days)		≤0.5dB/km
Water immersion induced attenuation(23±2℃,30days)		≤0.5dB/km
Damp heat induced attenuation(85±2℃,RH85%,30days)		≤0.5dB/km

3. Cable Specifications

3.1 structure



3.2 Technical Characteristics

Stranded Figure 8 Aerial Cable, single mode/multimode fibers are positioned in the loose tubes, while the loose tubes strand together around FRP central strength member into a compact and circular cable core, and the water-blocking materials are distributed into interstices of it. It's double armored and with outer jacket and inner jacket.

Characteristics
Excellent mechanical and temperature performance.
Critical protection to fibers.
The following measures are taken to ensure the water blocking performance of the cable:
-FRP used as the central strength member
-Special water-blocking filling compound in the loose tube
-100% cable core filling

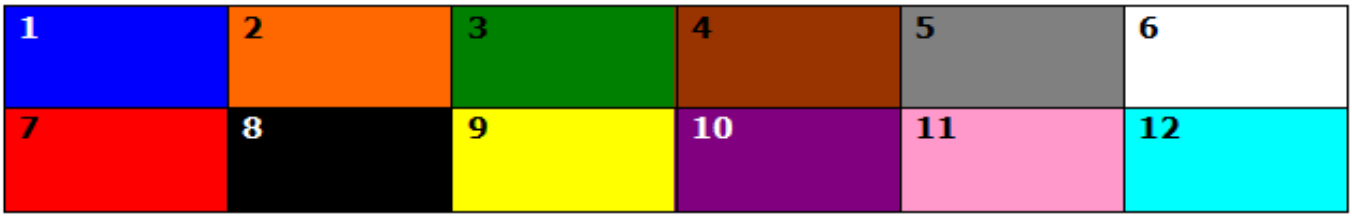
Applications
1.Suitable for aerial duct and buried method.
2.Long distance and local area network communication.

3.3 Optic cable

Type	DADJ
Fiber count	48
Max. No of loose tube	4
Fiber No. per tube	12
PBT Loose tube diameter	2.0mm
Central strength member diameter FRP	2.1mm
Outer sheath thickness/inner sheath thickness	2.0mm/1.0mm
Rip cord	Under Second layer armored
Cable OD mm	14.2mmx22mm
Messenger	7*1.2mm galvanized steel wire
Inner Jacket material	HDPE
Out jacket	HDPE
Cable weight kg/km	256KG/KM
Armored	Steel Armored/FRP Amour(3MM*1MM)
Operation temperature range	-40 ℃to + 70 ℃
Installation temperature range	-40 ℃to + 70 ℃
Transport and storage temperature range	-40 ℃to + 70 ℃
Allowable Tensile Load(N)	Short term:1000 Long term:3000
Crush resistance	Short term :3000 N/100mm Long term:1000N/100mm
Minimal installation bending radius	20 x OD
Minimal operation bending radius	10 x OD

The fibers shall be marked by a colored coating with 12 different colors according to EIA/TIA 598:

fiber #1: Blue
fiber #2: Orange
fiber #3: Green
fiber #4: Brown
fiber #5: Slate (Grey)
fiber #6: White
fiber #7: Red
fiber #8: Black (natural with being marked
fiber #9: Yellow
fiber #10: Violet
fiber #11: Rose (Pink)
fiber #12: Aqua (Light Blue)



4. TEST REQUIREMENTS

The cable is in accordance with applicable standard of cable and requirement of customer. The following test items are carried out according to corresponding reference.Routine tests of optical fiber

Mode field diameter	IEC 60793-1-45
Mode field Core/clad concentricity	IEC 60793-1-20
Cladding diameter	IEC 60793-1-20
Cladding non-circularity	IEC 60793-1-20
Attenuation coefficient	IEC 60793-1-40
Chromatic dispersion	IEC 60793-1-42
Cable cut-off wavelength	IEC 60793-1-44

Tension Loading Test	
Test Standard	IEC 60794-1
Sample length	No less than 50 meters
Load	Max. installation load
Duration time	1 hour
Test results	Additional attenuation:≤0.05dB No damage to outer jacket and inner elements

Crush/Compression Test	

Test Standard	IEC 60794-1
Load	Crush load
Plate size	100mm length
Duration time	1 minute
Test number	1
Test results	Additional attenuation:≤0.05dB No damage to outer jacket and inner elements

Impact Resistance Test	
Test Standard	IEC 60794-1
Impact energy	6.5J
Radius	12.5mm
Impact points	3
Impact number	2
Test result	Additional attenuation:≤0.05dB

Repeated Bending Test	
Test Standard	IEC 60794-1
Bending radius	20 X diameter of cable
Cycles	25 cycles
Test result	Additional attenuation: ≤ 0.05dB No damage to outer jacket and inner elements

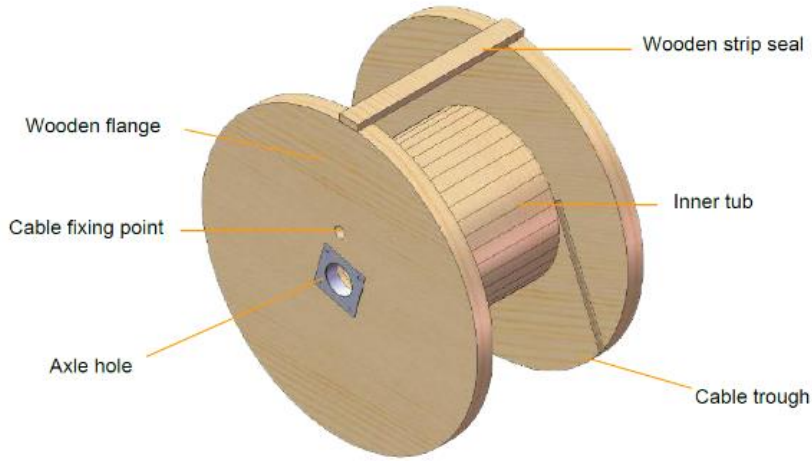
Torsion/Twist Test	
Test Standard	IEC 60794-1
Sample length	2m
Angles	±180 degree
cycles	10
Test result	Additional attenuation:≤0.05dB No damage to outer jacket and inner elements
Temperature cycling Test	
Test Standard	IIEC 60794-1

Temperature step	+20℃→-40℃→+85℃→+20℃
Time per each step	Transition from 0℃ to -40℃:2hours; duration at -40℃:8 hours; Transition from -40℃ to +85 ℃:4hours; duration at +85℃:8 hours; Transition from +85℃ to 0℃:2hours
Cycles	5
Test result	Attenuation variation for reference value (the attenuation to be measured before test at +20±3℃) ≤ 0.05 dB/km
Water penetration Test	
Test Standard	IEC 60794-1
Height of water column	1m
Sample length	1m
Test time	1 hour
Test result	No water leakage from the opposite of the sample

5. Packing and Marking

Each single length of cable shall be reeled on **Fumigated Wooden Drum**
Covered by plastic buffer sheet
Sealed by strong wooden battens
At least 1m of inside end of cable will be reserved for testing.
Drum length: Standard drum length is 2000m±2% as required.

5.2 Drum Marking (can according to the requirement in the technical specification)
Manufacturer name;
Manufacturing year and month
Roll--- direction arrow;
Drum length;
Gross/net



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1.2 Cable Description

Cable should possess high tensile strength and flexibility in compact cable sizes. At the same time, it provides excellent optical transmission and physical performance.

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Supplier should ensure a continuing level of quality in our cable products through several quality control programs including ISO 9001.

1.4 Reliability

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Back scatter characteristic(@1310nm&1550nm)		
Point discontinuity		≤0.05db
Attenuation uniformity		≤0.05db/km
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Core/cladding concentricity error		≤0.4μm
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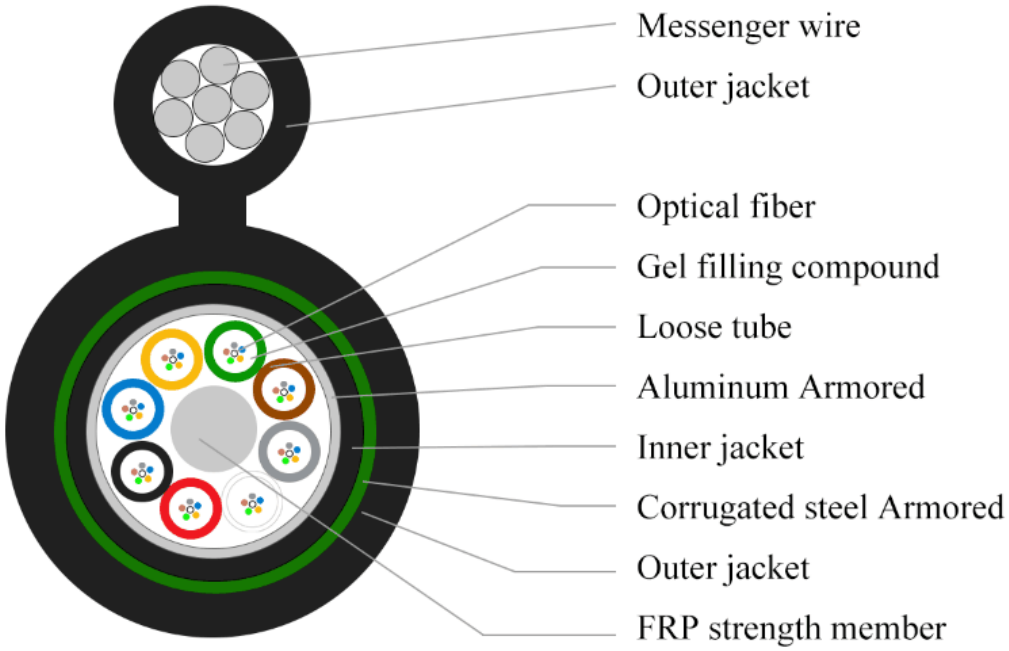

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Applications
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3.3 Optic cable

Type	DADJ
Fiber count	96
Max. No of loose tube	8
Fiber No. per tube	12
PBT Loose tube diameter	2.0mm
Central strength member diameter FRP	2.1mm
Outer sheath thickness/inner sheath thickness	1.8mm/1.0mm
Rip cord	Under Second layer armored
Cable OD mm	14.5mmx25mm
Messenger	7*1.0mm galvanized steel wire
Inner Jacket material	HDPE
Out jacket	HDPE
Cable weight kg/km	272KG/KM
Armored	Aluminum/corrugated steel armored
Operation temperature range	-40 ℃to + 70 ℃
Installation temperature range	-40 ℃to + 70 ℃
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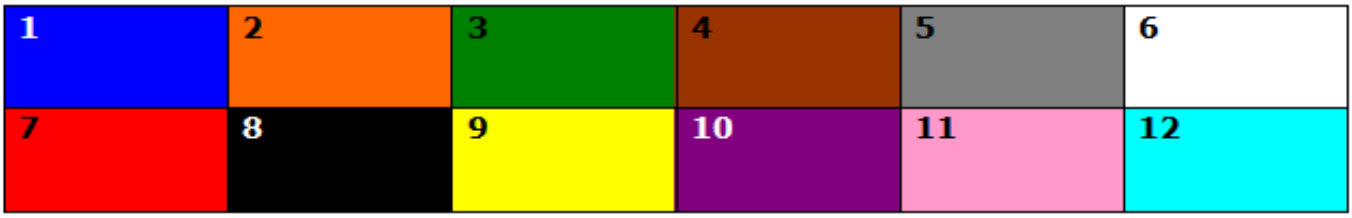

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Sealed by strong wooden battens
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Drum length: Standard drum length is 2000m±2% as required.

5.2 Drum Marking (can according to the requirement in the technical specification)
Manufacturer name;
Manufacturing year and month

Roll-- - direction narrow;

Drum length;
Gross/net