FiberHome Cable Specification

Wuhan FiberHome International Technologies Co., LT

ADSS – 96 G.652D Span 120m

Span: 120m **Max. Applied voltage: 110kv**

Max operating weather conditions: 25 m/s wind speed and no ice load

Cable cross-section and dimensions

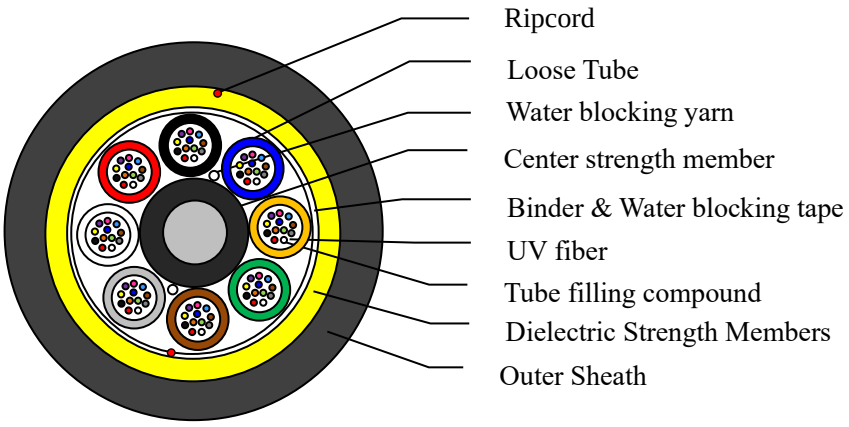


Figure. Cable Cross-Section (A-end)

Item	Material	Description
Outer sheath	HDPE	Black HDPE，Min thickness：1.8mm
Tearing threads	Polyester	two tearing threads at 180 degrees to each other on the outer cover
Dielectric Strength Members	Aramide yarns	Crown of aramid yarns impregnated with a flooding compound, distributed in the form of braided layers in opposite directions
Binder	Polyester yarn	Fastening of the helical or transverse curb central assembly using polyester or similar tapes
Water blocking yarn	Water blocking yarn	Water blocking & moisture proof
Water blocking tape	Water blocking tape	Water blocking & moisture proof
Loose tube	PBT	8 tubes，Colors of tubes: blue, orange, green，brown, grey,white,red,black ,EIA/TIA-598
Tube filling compound	Thyrotrophic gel	Water Blocking & Moisture Proof
Fiber	Silicon-based fiber(G.652D)	12fibers each tube，UV fiber, color with: blue, orange, green, brown,grey,white,red,black,yellow,violet,pink,aqua, EIA/TIA-598
Center strength member	FRP+PE	FRP+PE
Cable O.D.	13.0-13.8mm	
Cable weight	140±15kg	

Cable main mechanical properties and application

Serial No.	Item	Requirement
1	MAT	2700N
2	Allow crush resistance	1000N/10mm
3	Application temperature	-40 º C ~+70º C
4	Application	Aerial
5	Maximum sag	1.5%
6	lifespan	20 years

ADSS – 48 G.652D Span 120m

Span: 120m Max. Applied voltage: 110kv

Max operating weather conditions: 25 m/s wind speed and no ice load

Cable cross-section and dimensions

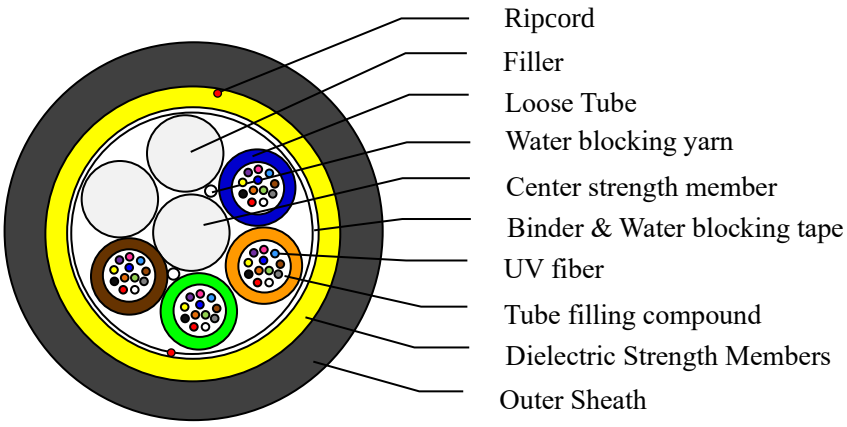


Figure. Cable Cross-Section (A-end)

Item	Material	Description
Outer sheath	HDPE	Black HDPE，Min thickness：1.8mm
Tearing threads	Polyester	two tearing threads at 180 degrees to each other on the outer cover
Dielectric Strength Members	Aramide yarns	Crown of aramid yarns impregnated with a flooding compound, distributed in the form of braided layers in opposite directions
Binder	Polyester yarn	Fastening of the helical or transverse curb central assembly using polyester or similar tapes
Water blocking yarn	Water blocking yarn	Water blocking & moisture proof
Water blocking tape	Water blocking tape	Water blocking & moisture proof
Filler	PP	Color：natural；Diameter same as tube
Loose tube	PBT	4 tubes，Colors of tubes: blue, orange, green，brown，EIA/TIA-598
Tube filling compound	Thyrotrophic gel	Water Blocking & Moisture Proof
Fiber	Silicon-based fiber(G.652D)	12 fibers each tube，UV fiber, color with: blue, orange, green, brown,grey,white,red,black,yellow,violet,pink,aqua, EIA/TIA-598
Center strength member	FRP	FRP
Cable O.D.	11.3-12.3mm	
Cable weight	105±15kg	

Cable main mechanical properties and application

Serial No.	Item	Requirement
1	MAT	2200N
2	Allow crush resistance	1000N/10mm
3	Application temperature	-40 º C ~+70º C
4	Application	Aerial
5	Maximum sag	1.5%
6	lifespan	20 years

ADSS – 24 G.652D Span 120m

Span: 120m **Max. Applied voltage: 110kv**

Max operating weather conditions: 25 m/s wind speed and no ice load

Cable cross-section and dimensions

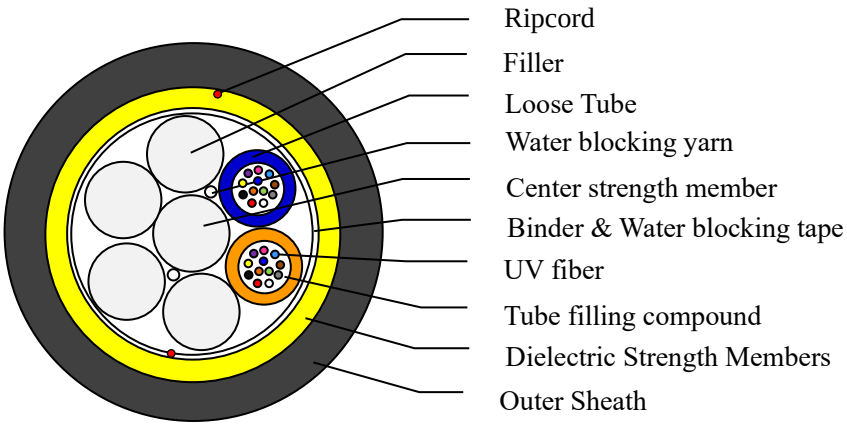


Figure. Cable Cross-Section (A-end)

Item	Material	Description
Outer sheath	HDPE	Black HDPE，Min thickness：1.8mm
Tearing threads	Polyester	two tearing threads at 180 degrees to each other on the outer cover
Dielectric Strength Members	Aramide yarns	Crown of aramid yarns impregnated with a flooding compound, distributed in the form of braided layers in opposite directions
Binder	Polyester yarn	Fastening of the helical or transverse curb central assembly using polyester or similar tapes
Water blocking yarn	Water blocking yarn	Water blocking & moisture proof
Water blocking tape	Water blocking tape	Water blocking & moisture proof
Filler	PP	Color：natural；Diameter same as tube
Loose tube	PBT	2 tubes，Colors of tubes: blue, orange, EIA/TIA-598
Tube filling compound	Thyrotrophic gel	Water Blocking & Moisture Proof
Fiber	Silicon-based fiber(G.652D)	12 fibers each tube，UV fiber, color with: blue, orange, green, brown,grey,white,red,black,yellow,violet,pink,aqua, EIA/TIA-598
Center strength member	FRP	FRP
Cable O.D.	11.3-12.3mm	
Cable weight	105±15kg	

Cable main mechanical properties and application

Serial No.	Item	Requirement
1	MAT	2200N
2	Allow crush resistance	1000N/10mm
3	Application temperature	-40 º C ~+70º C
4	Application	Aerial
5	Maximum sag	1.5%
6	lifespan	20 years

ADSS – 12 G.652D Span 120m

Span: 120m **Max. Applied voltage: 110kv**

Max operating weather conditions: 25 m/s wind speed and no ice load

Cable cross-section and dimensions

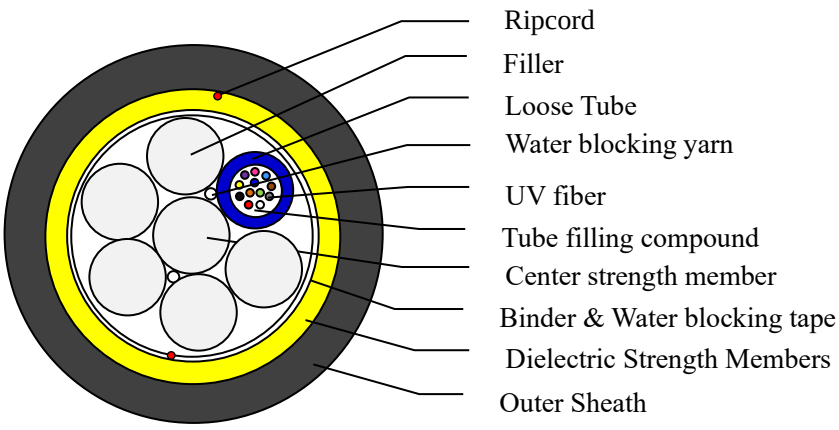


Figure. Cable Cross-Section (A-end)

Item	Material	Description
Outer sheath	HDPE	Black HDPE，Min thickness：1.8mm
Tearing threads	Polyester	two tearing threads at 180 degrees to each other on the outer cover
Dielectric Strength Members	Aramide yarns	Crown of aramid yarns impregnated with a flooding compound, distributed in the form of braided layers in opposite directions
Binder	Polyester yarn	Fastening of the helical or transverse curb central assembly using polyester or similar tapes
Water blocking yarn	Water blocking yarn	Water blocking & moisture proof
Water blocking tape	Water blocking tape	Water blocking & moisture proof
Filler	PP	Color：natural；Diameter same as tube
Loose tube	PBT	1 tube，Colors of tubes: blue , EIA/TIA-598
Tube filling compound	Thyrotrophic gel	Water Blocking & Moisture Proof
Fiber	Silicon-based fiber(G.652D)	12 fibers each tube，UV fiber, color with: blue, orange, green, brown,grey,white,red,black,yellow,violet,pink,aqua, EIA/TIA-598
Center strength member	FRP	FRP
Cable O.D.	11.3-12.3mm	
Cable weight	105±15kg	

Cable main mechanical properties and application

Serial No.	Item	Requirement
1	MAT	2200N
2	Allow crush resistance	1000N/10mm
3	Application temperature	-40 º C ~+70º C
4	Application	Aerial
5	Maximum sag	1.5%
6	lifespan	20 years

ADSS – 6 G.652D Span 120m

Max Span: 120m **Max. Applied voltage: 110kv**

Max operating weather conditions: 25 m/s wind speed and no ice load

Cable cross-section and dimensions

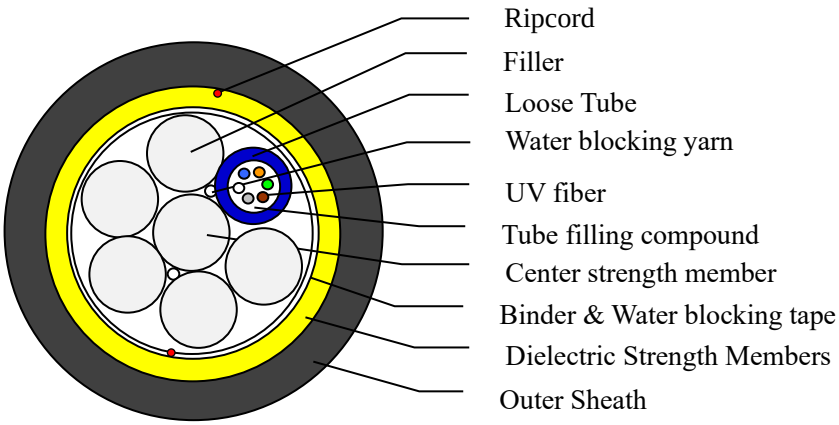


Figure. Cable Cross-Section (A-end)

Item	Material	Description
Outer sheath	HDPE	Black HDPE，Min thickness：1.8mm
Tearing threads	Polyester	two tearing threads at 180 degrees to each other on the outer cover
Dielectric Strength Members	Aramide yarns	Crown of aramid yarns impregnated with a flooding compound, distributed in the form of braided layers in opposite directions
Binder	Polyester yarn	Fastening of the helical or transverse curb central assembly using polyester or similar tapes
Water blocking yarn	Water blocking yarn	Water blocking & moisture proof
Water blocking tape	Water blocking tape	Water blocking & moisture proof
Filler	PP	Color：natural；Diameter same as tube
Loose tube	PBT	1 tube，Colors of tubes: blue , EIA/TIA-598
Tube filling compound	Thyrotrophic gel	Water Blocking & Moisture Proof
Fiber	Silicon-based fiber(G.652D)	6 fibers each tube，UV fiber, color with: blue, orange, green, brown,grey,white, EIA/TIA-598
Center strength member	FRP	FRP
Cable O.D.	11.2±0.5mm	
Cable weight	95±15kg	

Cable main mechanical properties and application

Serial No.	Item	Requirement
1	MAT	2100N
2	Allow crush resistance	1000N/10mm
3	Application temperature	-40 º C ~+70º C
4	Application	Aerial
5	Maximum sag	1.5%
6	lifespan	20 years

2. FiberHome®B1.3(G.652D) single mode fiber characteristics

It complies with or exceeds the specification of ITU-T recommendation of G.652D, the IEC 60793-2-50 B1.3 type fiber.

Fiber is produced by Fiberhome.

G.652D fiber characteristics		
Optics specifications		
Attenuation	@1260nm	≤0.47dB/km
	@1310nm	≤0.35dB/km
	@1383nm	≤0.35dB/km
	@1550nm	≤0.25dB/km
	@1625nm	≤0.25dB/km
Dispersion	@1285nm～1330nm	-3.5ps/(nm·km)～3.5ps/(nm·km)
	@1550nm	≤18ps/(nm·km)
	@1625nm	≤22ps/(nm·km)
Zero-Dispersion wavelength		1300nm～1324nm
Zero-Dispersion slope		≤0.092ps/(nm^2·km)
Mode field diameter (MFD) at 1310nm		8.6-9.5μm（±0. 6μm）
PMD	Max. for fiber on the reel	＜0.20ps/km$^{1/2}$
Cable cutoff wavelength λ_{cc}(nm)		≤1260nm
Back scatter characteristics (at 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±1.0μm
Cladding non-circularity		≤1.0%
Core/cladding concentricity error		≤0.6μm
Fiber diameter with coating (uncolored)		245±10μm
Cladding/coating concentricity error		≤12.5μm
coating non-circularity		≤5.0%
Mechanical characteristics		
Proof stress		≥0.69GPa(kpsi)
Macrobend loss at 1625nm	Φ60mm, 100turns	≤0.1dB
	Φ32mm,1turn	≤0.1dB

Environmental characteristics (at 1310nm 1550nm& 1625nm)	
Temperature induced attenuation (-60~+85℃)	≤0.05dB
Dry heat induced attenuation (85℃ ±2℃ , 30 days)	≤0.05dB
Water immersion induced attenuation (23℃ ±2℃ , 30 days)	≤0.05dB
Damp heat induced attenuation (85℃ ±2℃ , RH85%, 30 days)	≤0.05dB

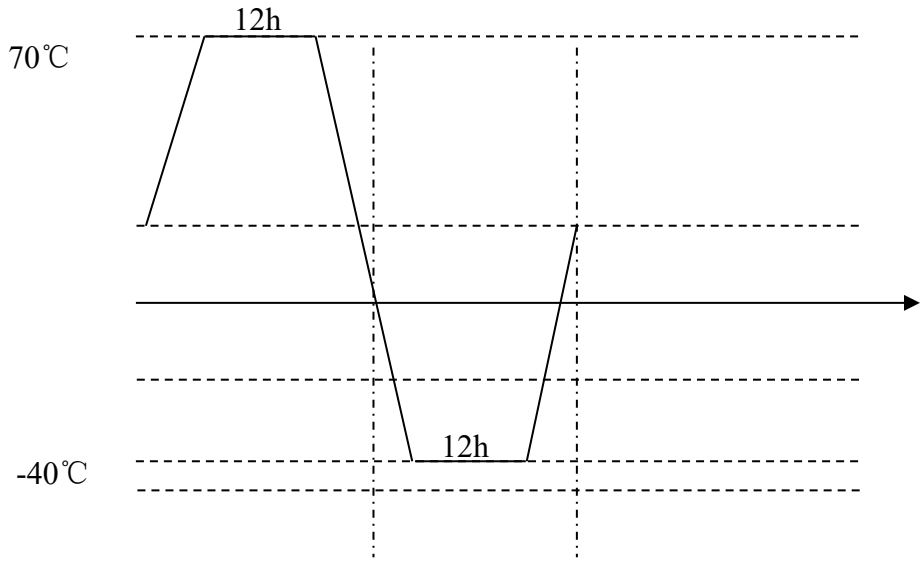
4. Physical, mechanical, environmental, performance and tests

4.1 Mechanical and Environmental Performance of the Cable

The mechanical and environmental performance of the cable shall be in accordance with Table 3.1 below. Unless otherwise specified, all attenuation measurements required in this section shall be performed at 1550nm for single mode fiber.

Table 4.1 The Mechanical and Environmental Performance of the Cable

Item	Test Method	Test Conditions	Acceptance Criteria
Tensile Strength	IEC60794-1-2- E1	L ≥ 50 m Load:MAT of each cable Time: 1min	Additional attenuation≤0.05dB No visible damage to the surface of out sheath
Crush Resistance	IEC60794-1-2- E3	Load：ADSS: 1000N Time: 1 minute Length: 100 mm	Additional attenuation≤0.05dB No visible damage to the surface of out sheath
Impact Resistance	IEC60794-1-2- E4	The impact of weight: 4.4N Weight high: 1m 3 point , 5 times per point	Additional attenuation≤0.05dB No visible damage to the surface of out sheath
Repeated bending	IEC60794-1-2- E6	Load: 150 N Radius：20D Tests = 30 cycles Each cycle ≈ 2 sec. L =1.0 m	Additional attenuation≤0.05dB No visible damage to the surface of out sheath
Torsion	IEC60794-1-2- E7	The test length =1m, ±180 degree， 10 cycles, Test weight 150N	Additional attenuation≤0.05dB No visible damage to the surface of out sheath
Compound drip	IEC60794-1-2- E14	Operating Temperature:70 ℃ Time:24h	At a temperature of 70 ℃ (24h) environmental conditions, the cable should not be filled composites and coating compounds, such as drop out.

Item	Test Method	Test Conditions	Acceptance Criteria
Temperature cycling	IEC60794-1-2- F1	Operating Temperature: -40 º C to +70º C Cycle time:24h Cycle:2 Cable length: ≥ 1000 m	Additional attenuation ≤0.05 dB/km
			
Water penetration Test	IEC60794-1-2-F5	At 20±5℃,1m water column applied to one of 3m cable after 24h,no water penetration	No water penetration

4.2 Minimum bending radius

Minimum Installation Curvature Radius: 20 x Outside Diameter

Minimum Operating Curvature Radius: 10 x Outside Diameter

4.3 Operating Condition

Item		**Performance**
Temperature	Installation	-10℃ to +40℃

（IEC60794-4-20）	Operation	-40℃ to +70℃
	Transportation and storage	-40℃ to +70℃

5. Marking and Coil

5.1 Marking of the cover

The following inscriptions will be engraved in 1m intervals, indelibly with sufficient resistance to mechanical abrasion, engraved and painted white.
CNT E.P.
Cable code of the manufacturer.
Identification code of the coil.
Sequential marking in meters, starting from zero to the total length of each coil.
Quantity and type of fibers.
Name of the manufacturer
Year of production.

5.2 The coil

5.2.1 The optical cables will be dispatched on wooden reels with sufficient mechanical resistance so that there is no damage to the cable during transport and installation, impregnated with non-toxic compounds to ensure their physical integrity. The standard length of the cables should be 5,000（Tolerance：0%-2%） meters per each. Other cable lengths are also available if requested by the customer. The arbor holes provided on the reels should be approximately 105 mm.
It must be ensured that once the entire fiber optic cable is wound in each coil, the difference between the dimensions of the outer diameter and the inner diameter (including the optical fiber) must be at least 100 mm.

Wooden reel

5.2.2 Both ends of the cable must be sealed with plastic plugs to prevent moisture during transportation, handling and storage.

5.2.3 All ends of the cables must be firmly fixed to prevent the cable from being released during transport or during installation operations.

5.3 Marking the coil

5.3.1 On each of the wings, the following will be marked: NATIONAL TELECOMMUNICATIONS CORPORATION CNT E.P. In painted and indelible form:
Name of the manufacturer
Reel number.
Direction of rotation of the coil.

5.3.2 Adhered to each of the side wings of the coil, in engraved form on plates of aluminum or acrylic of minimum dimensions A6, must include at least the following:
Net length in meters
Initial and final marking of the cable that contains the coil.
Number and type of fibers.
Weight of the cable and the reel.
Identification number of the coil.
Shipping date.
SAP code (CNT Code)

5.3.3 A plastic card containing recommendations for correct handling of the reel will be placed.

6. Test data

Include documentation that certifies that at the factory there will be tests of attenuation and uniformity values in the three windows (1310 nm, 1550nm and 1625 nm), of 100% of the fibers of the coils to be delivered. Prior to delivery-receipt test report must be included from the factory of the aforementioned tests.