

**PFC**

PERSIAN FIBER COMMUNICATION CO.  
**TECHNICAL SPECIFICATION FOR DATA CABLE**

# CAT6A

## SFTP PVC

SALE ENGINEERING DEPARTMENT  
CODE:102061



- UP LINK
- CAT 6A
- 500 MHz
- SFTP
- PVC



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**SPECIFICATION FOR DATA CABLE**

# CAT6A

## SFTP PVC

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## 1- GENERAL

This specification details the construction of Category 6A network cable. The conductors are solid copper, covered with a solid plastic insulating compound. The insulated conductors (four twisted pairs) are inside cable core. The cable structure is completed with shield aluminum foil and PVC jacket. The cable is fully color coded so that each insulated conductor in the cable is distinguishable from other insulated conductor. Cat6A cable supports frequencies up to 500 MHz.

## 2- ASSOCIATED DOCUMENTS

This specification is in accordance with REA'ASTM (American society for testing and material), BS (British Standard Institute), IP (Institute of Petroleum), ISO (International Organization for Standardization) and TIA/EIA 568C2 has been specified.

## 3- TEMPERATURE AND ENVIRONMENT

The cables shall without detriment, perform suitably throughout a temperature range of -40 to +70 C.

## 4- CONDUCTOR

Each conductor is a solid wire of commercially pure annealed copper, smoothly drawn, circular in cross section, uniform in quality and free from defects. Conductors meet the quality requirements of ASTM B3. The maximum resistance for a cross section area of 1 mm<sup>2</sup> and a length of 1 km is 17.241 ohms when measured at 20±2 °C.

The nominal conductor diameters may be 0.57 mm (23 AWG).

## 5- CONDUCTOR INSULATION

Each conductor is uniformly covered with solid polyethylene conforming to ASTM D-1248. Type III class A category 4 or 5 Grade E8. Insulation contains a suitable antioxidant system including a copper inhibitor. The insulation will be uniform, smooth and have non-porous surface.

The insulation colors are in accordance with the following table (1).

<b>Number Pairs</b>	<b>Color Coded</b>
1	White – Blue / Blue
2	White – Orange / Orange
3	White – Green / Green
4	White – Brown / Brown

## **6- TWISTING**

Two appropriately colored insulated conductors are uniformly twisted together to form a pair. The lays of all pairs are in the same direction and different for each pair in a unit.

## **7- RIP CORD**

The rip cords will be placed over the core under the jacket and must be strong and flexible enough to be able to strip or the jackets easily.

## **8- ALUMINUM FOIL**

An aluminum foil with copolymer coating on one side will be applied longitudinally with 3 mm overlap at least. The Aluminum thickness is 35 Micron.

## **9- SHIELD BRAID**

Shielding braids consist of bobbin wires, located parallel, which have been braided into a tube.

## **10- DRAIN WIRE**

A drain wire is the bare, stranded wire you find interleaved with the wrapping foil inside cables. This wire plays an important part in facilitating the cable's operation.

## **11- OUTER JACKET**

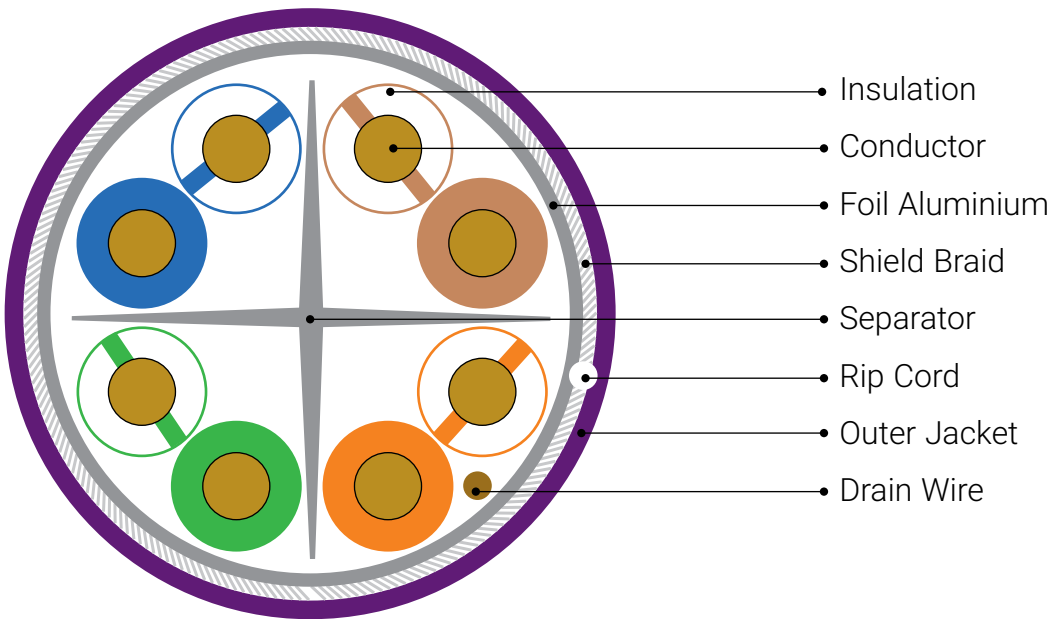
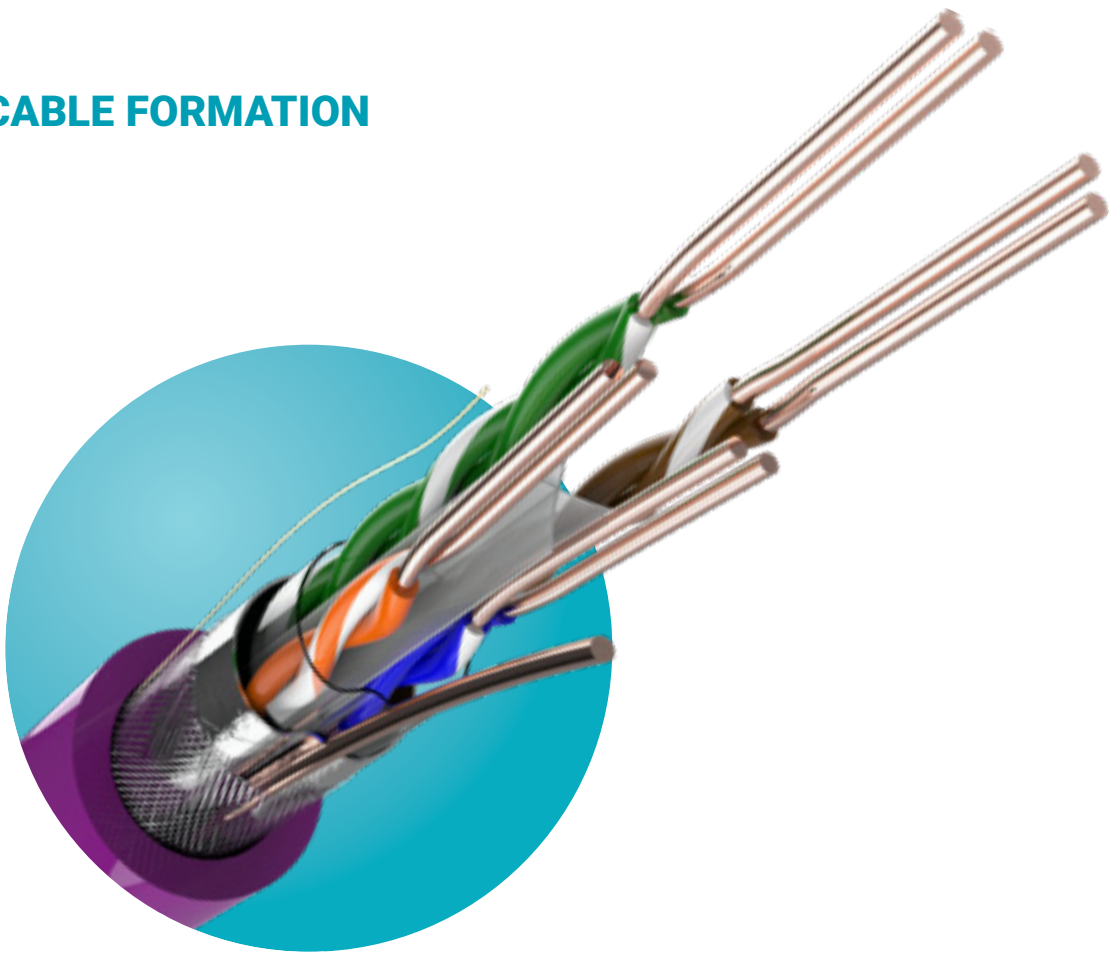
A PVC compound will be applied on the cable core. The nominal jacket thickness will be 0.6mm.

## **12- IDENTIFICATION MARKING**

Each length of the cable shall be permanently identified as to the manufacturer, batch number and cable type. The marking will be printed on the outer jacket.



### 13- CABLE FORMATION



## 14 – ELECTRICAL PARAMETERS

Freq.	Attenuation Max	Return Loss Min	NEXT Min	PS. NEXT Min	PS. ACR Min	PS. ELFEXT Min	ELFEXT Min
MHz	dB/100m	dB	dB	dB	dB	dB/100m	dB/100m
1	2.0	20.0	76.3	74.3	72.3	64.8	67.8
4	3.8	23.0	67.3	65.3	61.5	52.7	55.7
8	5.3	24.5	62.8	60.8	55.5	46.7	49.7
10	6.0	25.0	61.3	59.3	53.3	44.8	47.8
16	7.6	25.0	58.3	56.3	48.7	40.7	43.7
20	8.5	25.0	56.8	54.8	46.3	38.7	41.7
25	9.5	24.3	55.3	53.3	43.8	36.8	39.8
31.25	10.7	23.6	53.9	51.9	41.2	34.9	37.9
62.5	15.4	21.5	49.4	47.4	32.0	28.8	31.8
100	8.9	10.1	3.1	5.6	7.1	20.7	20.5
250	3.8	3.7	5.1	6.1	16.2	10.4	9.6
500	3.1	1.6	3.9	5.7	10.6	14.7	10.0

\* All data in table are ideal and the real test results may deviate from the above table.



## 15 – TOTAL SPECIFICATION

Product Type	
Product Code	102061
Shielding Type	Shield Foil (SF/UTP)
Reference Standard	ISO/IEC 11801, ANSI/TIA-568-C.2
Cable Length	305,500
Conductor	
Conductor Type	Solid Oxygen-free Copper Pure 99.98%
Wire Gauge (AWG)	23
Conductor Qty.	4 Twisted Pairs
Insulation	
Insulation Material	Polyethylene(HDPE)
Insulation Diameter (mm)	0.92 ± 0.05
Structure	
Aluminum Foil	Yes
Shield Braid	Yes
Sheath	
Material	PVC (Complies RoHS)
Thickness (mm)	0.6 ± 0.05
Outer O.D. (mm)	7.9 ± 0.4
Color	Violet (indoor)
Electrical Characteristics (20°C)	
Distance	Max 90 Meter
Data Rate Support	10GBase-T
Standard Bandwidth (MHz)	500
Reference Bandwidth (MHz)	550
1-250MHz, Characteristic Impedance (Ω)	100 ± 15
Mechanical Characteristics	
Before Aging Tensile Strength (Mpa)	≥13.5
Before Aging Elongation (%)	≥150
After Aging Tensile Strength (Mpa)	≥12.5
After Aging Elongation (%)	≥125
Surface Printing	
Marker Height (mm)	3.0 ± 0.3
Distance Marker(m)	1
Color	Black
Others	
Rip Cord	Yes
Drain Wire	Yes
Separator	Yes
Packaging	Wooden Reel

## 16- FLUKE TEST

This test is a random from 40000 meter cable process production



### Cable ID: CAT6A-SFTP-PER-90M

Date / Time: 07/15/2020 04:11:36 PM

Headroom 3.9 dB (NEXT 45-78)

Test Limit: TIA Cat 6A Perm. Link

Cable Type: Cat 6A F/UTP

NVP: 68.0%

Operator: IRANFLUKE

Software Version: 2.7800

Limits Version: 1.9500

### Test Summary: PASS

Model: DTX-1800

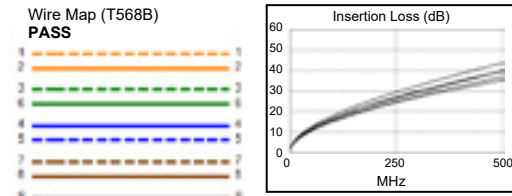
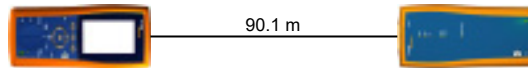
Main S/N: 9206015

Remote S/N: 9206016

Main Adapter: DTX-PLA002

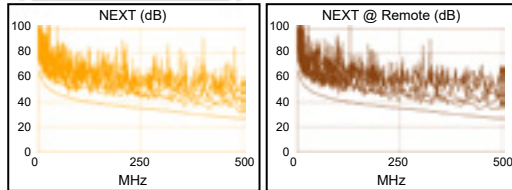
Remote Adapter: DTX-PLA002

Length (m), Limit 90.0	[Pair 12]	90.1
Prop. Delay (ns), Limit 498	[Pair 36]	477
Delay Skew (ns), Limit 44	[Pair 36]	35
Resistance (ohms)	[Pair 36]	12.0
Insertion Loss Margin (dB)	[Pair 45]	3.1
Frequency (MHz)	[Pair 45]	499.0
Limit (dB)	[Pair 45]	43.7

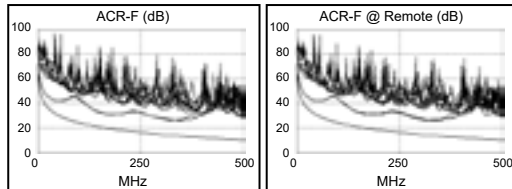


Worst Case Margin Worst Case Value

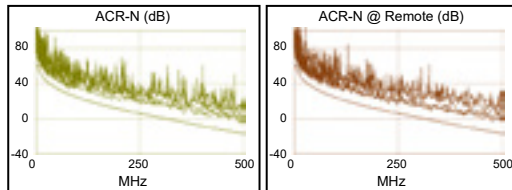
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	45-78	45-78
<b>NEXT (dB)</b>	3.9	4.5	4.9	5.0
Freq. (MHz)	76.5	325.0	494.0	475.0
Limit (dB)	43.7	32.8	26.8	27.4
Worst Pair	45	45	45	45
<b>PS NEXT (dB)</b>	5.4	5.7	5.9	7.2
Freq. (MHz)	76.5	328.0	494.0	475.0
Limit (dB)	41.2	30.1	23.9	24.5



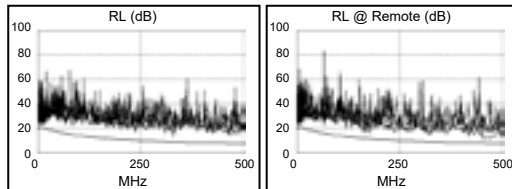
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
<b>ACR-F (dB)</b>	8.0	8.0	11.6	11.2
Freq. (MHz)	2.8	2.6	317.0	317.0
Limit (dB)	55.4	55.8	14.2	14.2
Worst Pair	45	45	45	78
<b>PS ACR-F (dB)</b>	10.5	10.6	14.7	17.9
Freq. (MHz)	1.0	1.0	344.0	499.0
Limit (dB)	61.2	61.2	10.5	7.2



N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	45-78	45-78
<b>ACR-N (dB)</b>	5.9	6.6	11.6	11.8
Freq. (MHz)	76.3	9.9	494.0	475.0
Limit (dB)	28.2	52.4	-16.6	-15.1
Worst Pair	45	45	45	45
<b>PS ACR-N (dB)</b>	6.6	6.5	10.0	13.0
Freq. (MHz)	76.3	14.8	494.0	497.0
Limit (dB)	25.7	46.1	-19.5	-19.7



PASS	MAIN	SR	MAIN	SR
Worst Pair	45	36	78	36
<b>RL (dB)</b>	5.0	1.6	6.7	1.6
Freq. (MHz)	4.6	464.0	463.0	464.0
Limit (dB)	21.0	8.0	8.0	8.0



Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100V-G-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare™ PC Version 9.7

Project: PFC/CABLE  
PFC6A.flw

Site: TEST







## شرکت پارسیان فیبر ارتباط

آدرس دفتر مرکزی: تهران  
ضلع شمالی بزرگراه رسالت  
نرسیده به خیابان استاد حسن بنا  
پلاک-۱۱۴۷ کد پستی: ۱۶۷۱۶۱۷۸۱۳  
شماره تماس ملی: ۱۵۲۸  
تلفن فروش: ۰۲۱.۷۲۹۷۸۰۰۰