

PFC

PERSIAN FIBER COMMUNICATION CO.
TECHNICAL SPECIFICATION FOR DATA CABLE

CAT5e

UTP PVC

SALE ENGINEERING DEPARTMENT
CODE:102003



WWW.PFCCO.NET

SPECIFICATION FOR DATA CABLE

CAT5e

UTP PVC

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1- GENERAL

This specification details the construction of Category 5e 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 PVC jacket. The cable is fully color coded so that each insulated conductor in the cable is distinguishable from other insulated conductor. Cat-5e cable supports frequencies up to 100 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 mm² and a length of 1 km is 17.241 ohms when measured at 20±2 °C.

The nominal conductor diameters may be 0.51 mm.

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).

Table 1	
Number Pairs	Color Coded
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

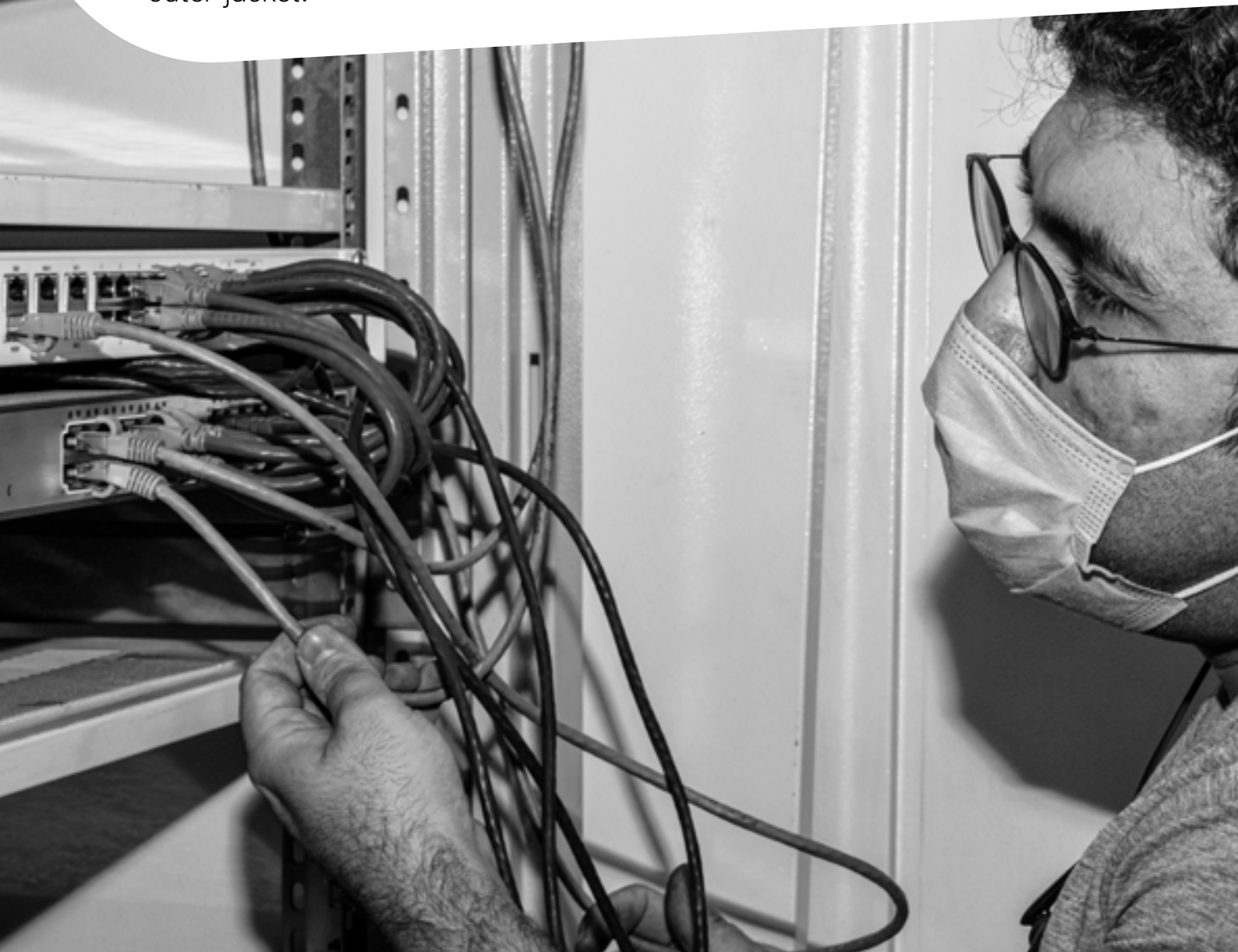
The rip cords will be placed over the core under the jacket and must be strong and flexible enough to be able to strip or the jackets easily.

8- OUTER JACKET

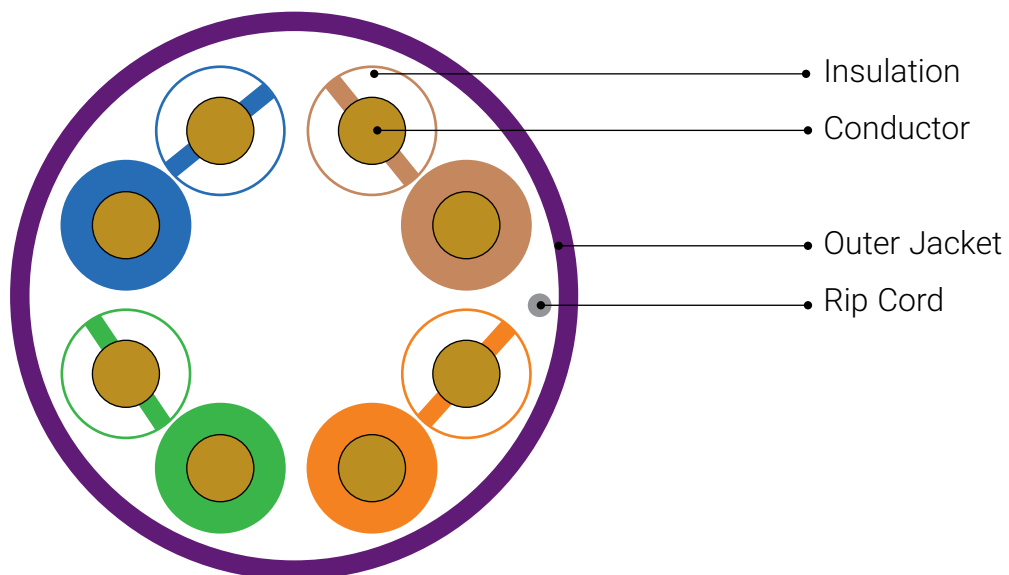
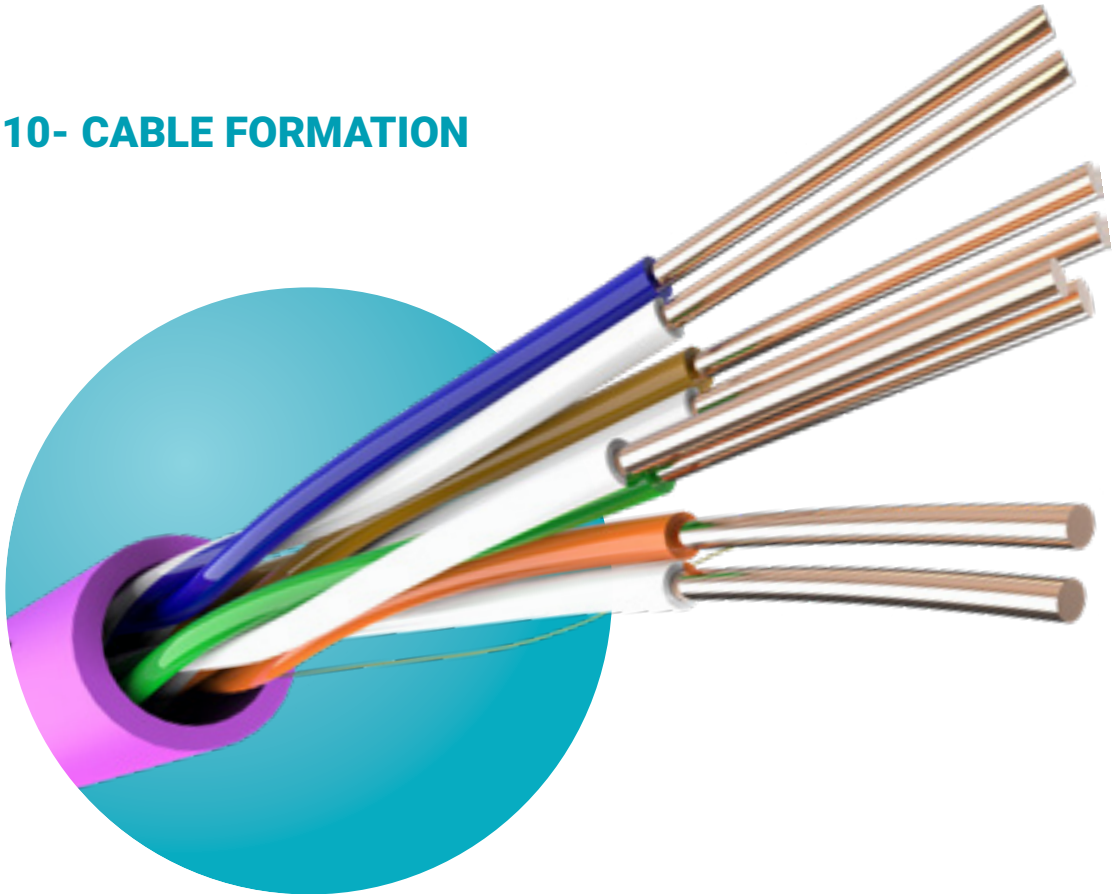
A PVC compound will be applied on the cable core. The nominal jacket thickness will be 0.5mm.

9- 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.



10- CABLE FORMATION



11 – 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	2.3	8.3	6.4	9.1	6.2	20.7	20.5

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



12 – TOTAL SPECIFICATION

Product Type		
Product Code	102003	
Shielding Type	Unshielded (U/UTP)	
Reference Standard	ISO/IEC 11801, ANSI/TIA-568-C.2	
Cable Length	305±1.5	
Conductor		
Conductor Type	Solid Oxygen-free Copper Pure 99.98%	
Wire Gauge (AWG)	24	
Conductor Qty.	4 Twisted Pairs	
Insulation		
Insulation Material	Polyethylene(HDPE)	
Insulation Diameter (mm)	0.87 ± 0.05	
Structure		
Aluminum Foil	No	
Shield Braid	No	
Sheath		
Material	PVC (Complies RoHS), CM	
Thickness (mm)	0.5 ± 0.05	
Outer O.D. (mm)	5 ± 0.4	
Color	Blue, Violet(indoor)	
Electrical Characteristics (20°C)		
Distance	Max 90 Meter	Max 55 Meter
Data Rate Support	1000Base-T	10/100/1000Base-T
Standard Bandwidth (MHz)	0-100	100 - 350
Reference Bandwidth (MHz)	350	350
1-250MHz, Characteristic Impedance (Ω)	100 ± 15	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	No	
Separator	No	
Packaging	Carton	

13- FLUKE TEST

This test is a random from 50000 meter cable process production



Cable ID: CAT5E-UTP-PER-90M

Test Limit: TIA Cat 5e Perm. Link

Limits Version: V7.5

Date / Time: 2020/09/15 15:50:20

Operator: IRANFLUKE

Headroom 6.4 dB (NEXT 3,6-4,5)

Cable Type: Cat 5e U/UTP

NVP: 69.0%

Main: Versiv

S/N: 1719045

Software Version: V6.5 Build 5

Calibration Date: 2020/08/17

Adapter: DSX-8000 (DSX-PLA804)

S/N: 3883022

Test Summary: PASS

Remote: Versiv

S/N: 1719046

Software Version: V6.5 Build 5

Calibration Date: 2020/08/17

Adapter: DSX-8000R (DSX-PLA804)

S/N: 3883021

Length (m), Limit 90.0	[Pair 7,8]	90.0
Prop. Delay (ns), Limit 498	[Pair 4,5]	456
Delay Skew (ns), Limit 44	[Pair 4,5]	21
Resistance (ohms)	[Pair 1,2]	16.95
Insertion Loss Margin (dB)	[Pair 4,5]	2.3
Frequency (MHz)	[Pair 4,5]	100.0
Limit (dB)	[Pair 4,5]	21.0

Worst Case Margin Worst Case Value

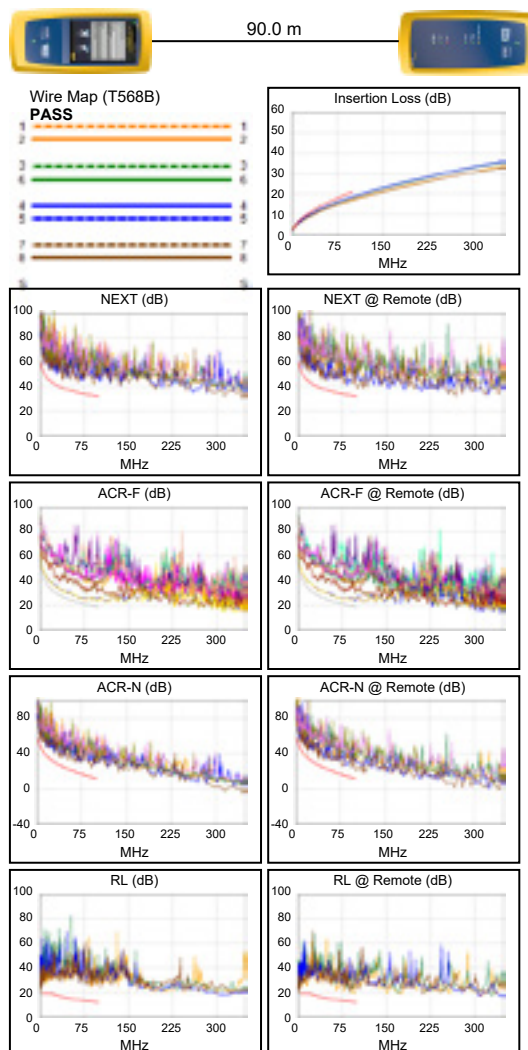
PASS	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	1,2-7,8	3,6-4,5	3,6-4,5
NEXT (dB)	6.4	6.8	8.9	9.2
Freq. (MHz)	38.5	7.1	92.0	100.0
Limit (dB)	39.1	50.8	32.9	32.3
Worst Pair	3,6	1,2	4,5	3,6
PS NEXT (dB)	9.1	9.7	11.6	11.3
Freq. (MHz)	38.5	7.1	92.0	100.0
Limit (dB)	36.1	47.8	29.9	29.3

PASS	MAIN	SR	MAIN	SR
Worst Pair	7,8-1,2	1,2-7,8	7,8-1,2	1,2-7,8
ACR-F (dB)	3.2	3.5	4.6	5.1
Freq. (MHz)	66.3	66.5	98.8	98.8
Limit (dB)	22.2	22.2	18.7	18.7
Worst Pair	1,2	1,2	1,2	7,8
PS ACR-F (dB)	6.2	6.5	7.5	8.1
Freq. (MHz)	66.5	76.3	98.8	98.8
Limit (dB)	19.2	18.0	15.7	15.7

N/A	MAIN	SR	MAIN	SR
Worst Pair	3,6-4,5	1,2-7,8	3,6-4,5	3,6-4,5
ACR-N (dB)	7.6	7.6	11.0	11.5
Freq. (MHz)	38.5	7.1	92.0	100.0
Limit (dB)	26.5	45.6	12.9	11.3
Worst Pair	4,5	1,2	4,5	3,6
PS ACR-N (dB)	10.4	10.4	13.7	13.9
Freq. (MHz)	38.5	7.1	92.0	100.0
Limit (dB)	23.5	42.6	9.9	8.3

PASS	MAIN	SR	MAIN	SR
Worst Pair	7,8	1,2	1,2	1,2
RL (dB)	8.3	5.2	11.8	6.5
Freq. (MHz)	3.9	3.8	89.5	96.0
Limit (dB)	19.0	19.0	12.5	12.2

Compliant Network Standards:
 10BASE-T 100BASE-TX 100BASE-T4
 1000BASE-T 2.5GBASE-T ATM-25
 ATM-51 ATM-155 100VG-AnyLan
 TR-4 TR-16 Active TR-16 Passive



LinkWare™ PC Version 10.7



شرکت پارسیان فیبر ارتباط

آدرس دفتر مرکزی: تهران
ضلع شمالی بزرگراه رسالت
نرسیده به خیابان استاد حسن بنا
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