

PFC

PERSIAN FIBER COMMUNICATION CO.
TECHNICAL SPECIFICATION FOR DATA CABLE

CAT6A

UTP PVC

SALE ENGINEERING DEPARTMENT
CODE:102064



CAT
6A

500
MHz

UTP

PVC

UP
LINK



WWW.PFCCO.NET

SPECIFICATION FOR DATA CABLE

CAT6A

UTP 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 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^2 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).

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

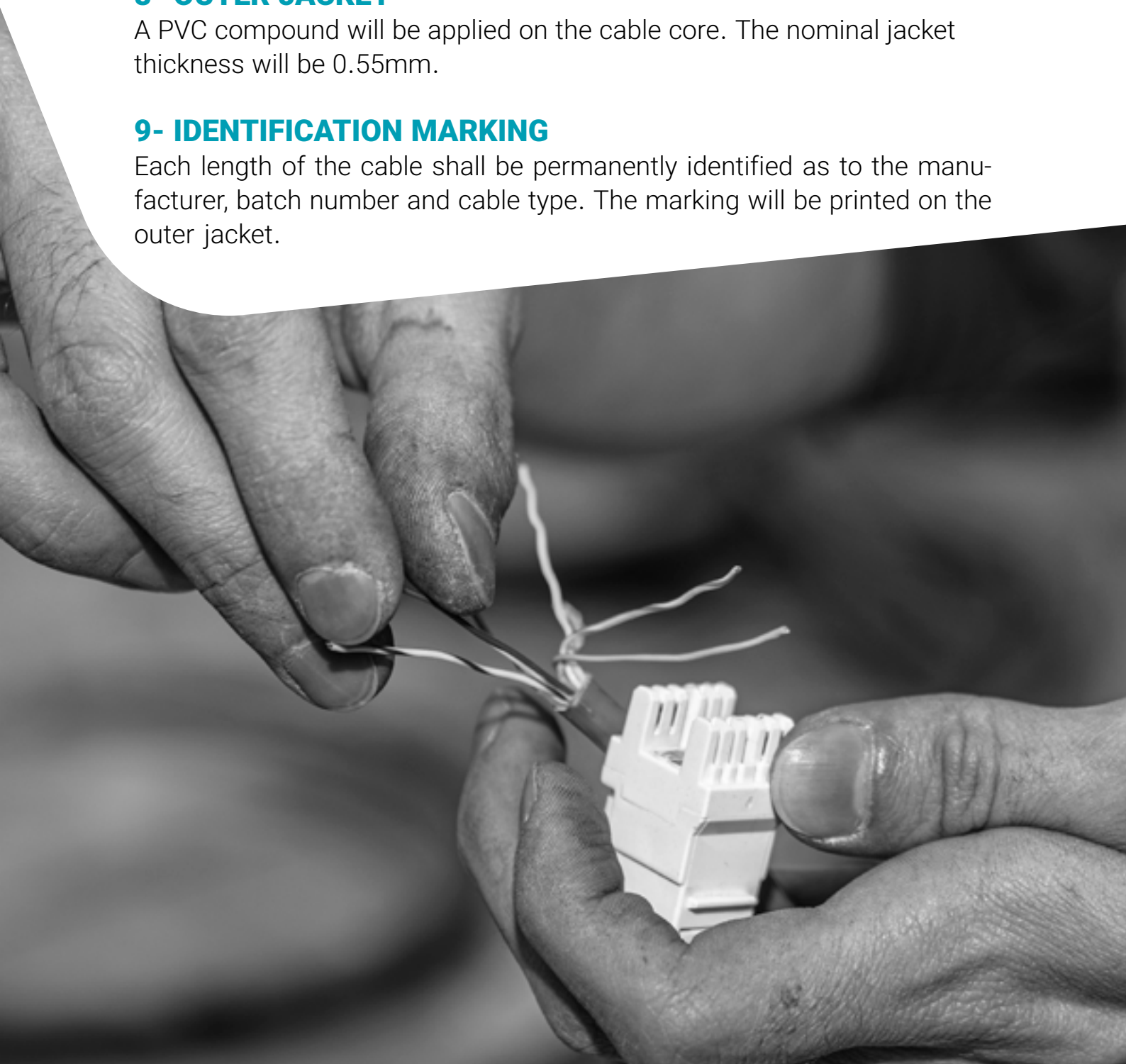
The rip cords will be placed over the core under the jacket and must be strong and flexible enough to be able to strip or the jackets easily.

8- OUTER JACKET

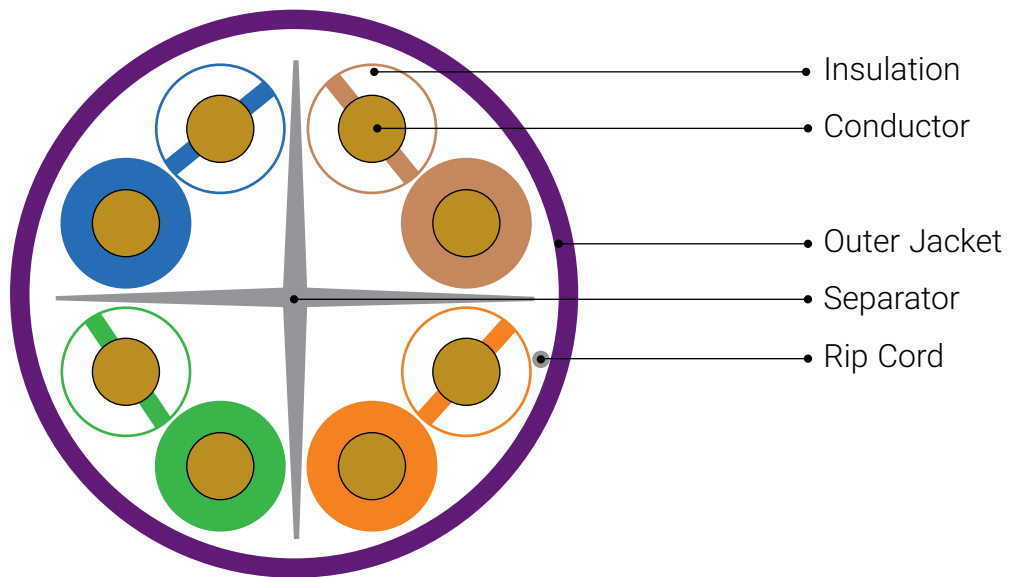
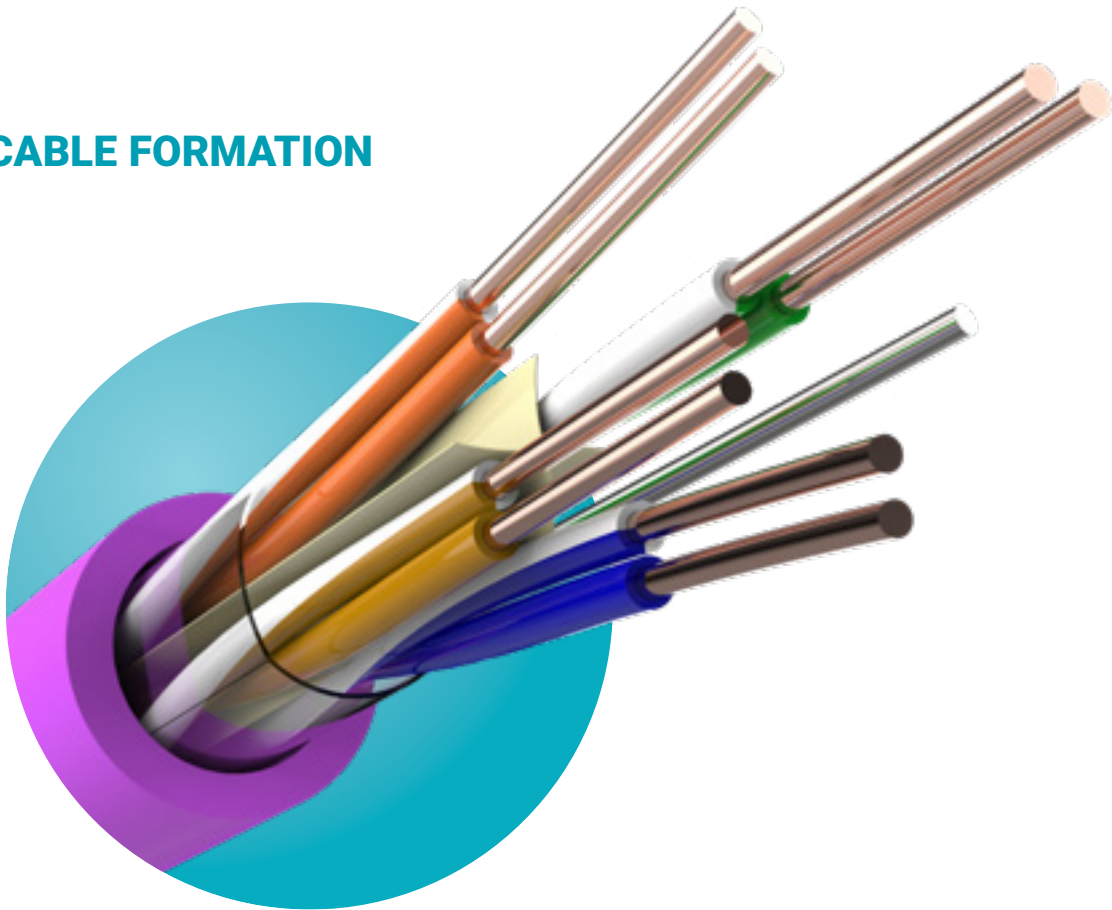
A PVC compound will be applied on the cable core. The nominal jacket thickness will be 0.55mm.

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.



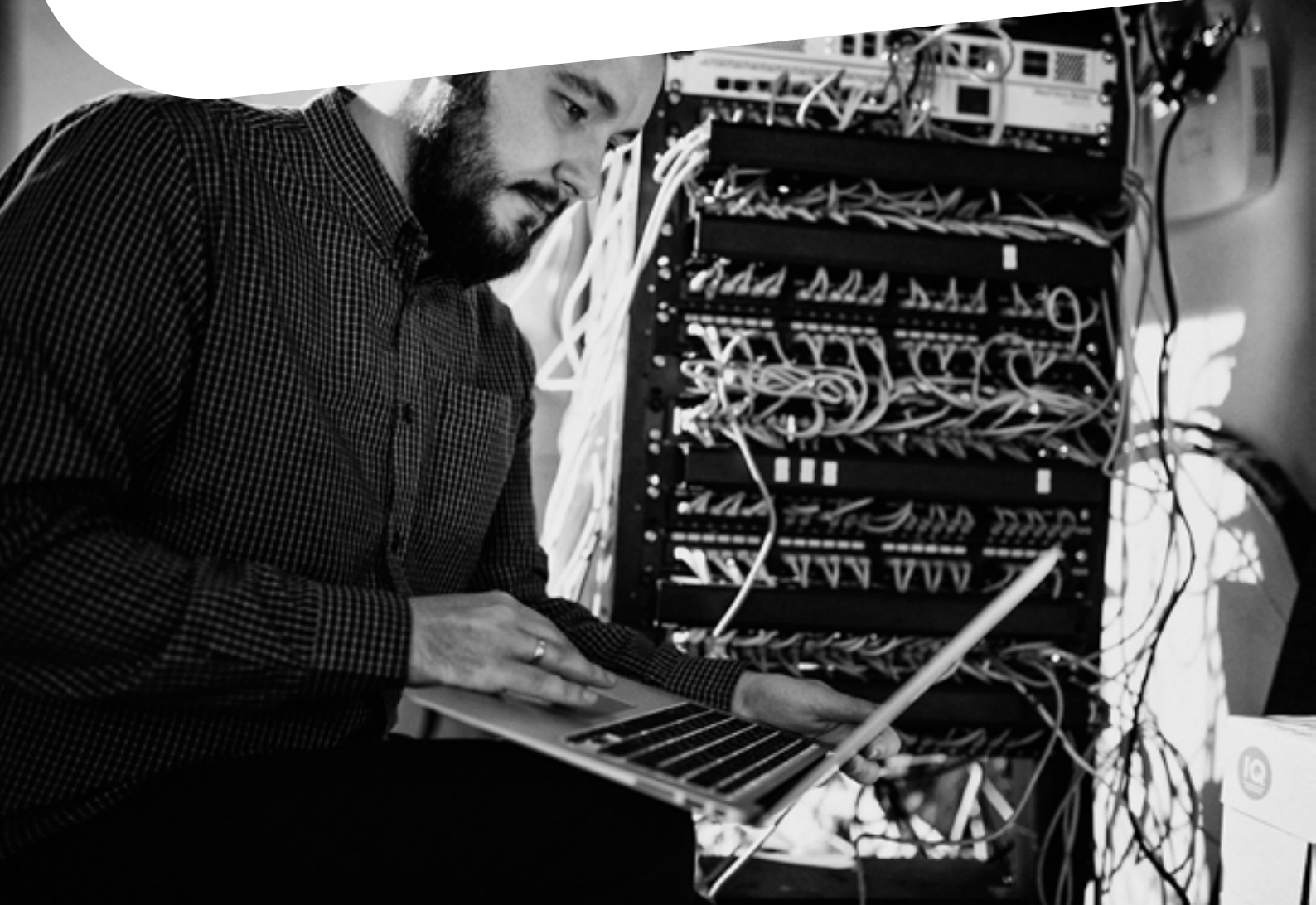
10- CABLE FORMATION



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	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	3.5	4.0	4.2	5.4	10.5	13.9	8.6

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



12 – TOTAL SPECIFICATION

Product Type	
Product Code	102064
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)	23
Conductor Qty.	4 Twisted Pairs
Insulation	
Insulation Material	Polyethylene(HDPE)
Insulation Diameter (mm)	0.92 ± 0.05
Structure	
Aluminum Foil	No
Shield Braid	No
Sheath	
Material	PVC (Complies RoHS)
Thickness (mm)	0.55 ± 0.05
Outer O.D. (mm)	6.7 ± 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	No
Separator	Yes
Packaging	Carton

13- FLUKE TEST

This test is a random from 30000 meter cable process production



Cable ID: CAT6A-UTP-PER-90M

Date / Time: 09/16/2020 02:41:56 PM

Headroom 4.2 dB (NEXT 45-78)

Test Limit: TIA Cat 6A Perm. Link

Cable Type: Cat 6A U/UTP

NVP: 69.0%

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]	3.5
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
NEXT (dB)	4.2	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
PS NEXT (dB)	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

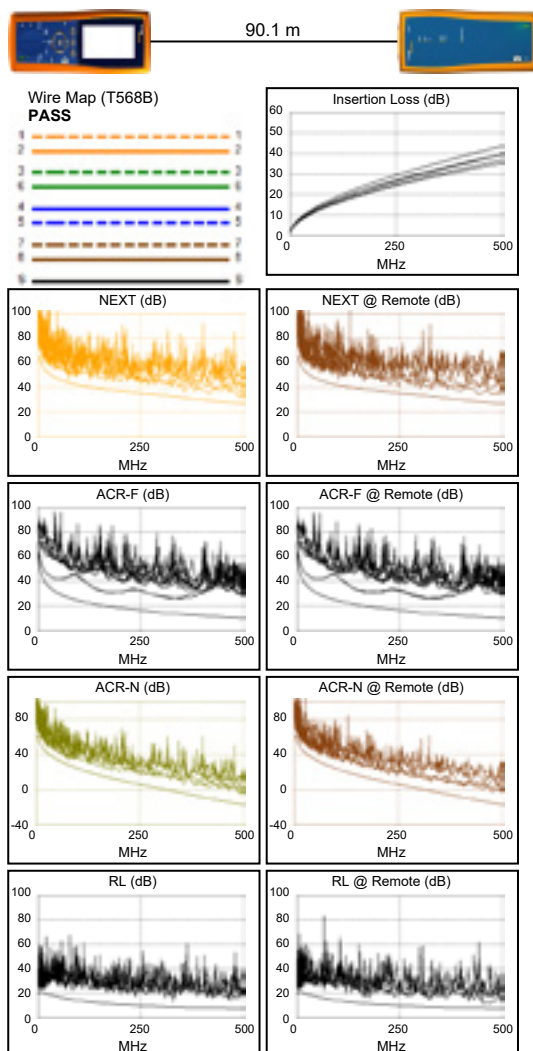
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	8.0	8.0	11.6	11.2
Freq. (MHz)	2.8	2.6	317.0	317.0
Limit (dB)	55.4	55.8	14.2	14.2
Worst Pair	45	45	45	78
PS ACR-F (dB)	10.5	10.6	14.7	17.9
Freq. (MHz)	1.0	1.0	344.0	499.0
Limit (dB)	61.2	61.2	10.5	7.2

N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	45-78	45-78
ACR-N (dB)	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
PS ACR-N (dB)	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
RL (dB)	4.0	2.4	5.7	3.6
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	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive



LinkWare™ PC Version 9.7

Project: PFC/CABLE
PFC6A.flw

Site: TEST

FLUKE
networks.



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