

SHAHID GHANDI COMMUNICATION CABLE CO.

**TECHNICAL SPECIFICATION FOR
DATA CABLE
(CAT 6)**

CODE: 0301-001



S . G . C . C

**SALE ENGINEERING DEPARTMENT
MAY 2010**

E-Mail: Info@sgccir.com

SPECIFICATION FOR DATA CABLE (CAT 6)

1. GENERAL
2. ASSOCIATED DOCUMENTS
3. TEMPERATURE AND ENVIRONMENT
4. CONDUCTOR
5. CONDUCTOR INSULATION
6. TWISTING
7. STRANDING
8. RIPCORDER
9. JACKET
10. IDENTIFICATION MARKING
11. CABLE FORMATION
12. ELECTRICAL PARAMETERS

1 - GENERAL

This specification details the construction of **Category 6** 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. Cat-6 cable supports frequencies up to 250 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) and ISO (International Organization for Standardization) have 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 0.56mm (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 EB. 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 - STRANDING

The pairs colored according to the table (1) are stranded to form a cylindrical core. Stranding may be accomplished by using a concentric stranding where the pairs will change positions according to the change in direction of lay.

8 - 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.

9 - JACKET

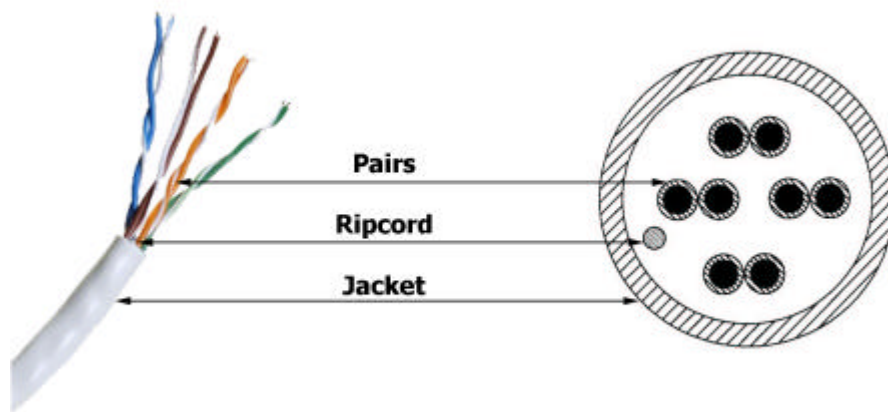
A polyvinyl chloride jacket in accordance with polyvinyl chloride (PVC) conforming to DIN VDE 0207 part 4 designating YI3.. The nominal jacket thickness will be 0.5mm for all cables. The outer jacket color is grey or white.

10 - IDENTIFICATION MARKING

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

NOTE: Other method as request

11 - CABLE FORMATION



12 – 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	19.8	20.1	46.3	44.3	24.5	24.8	27.8
155	25.1	18.8	43.5	41.5	16.4	20.9	23.9
200	29.0	18.0	41.8	39.8	10.8	18.7	21.7
250	32.8	17.3	40.3	38.3	5.5	16.8	19.8



Cable ID: 86-6-B

Test Summary: PASS

Date / Time: 07/11/2007 10:17:07am
 Headroom: 11.1 dB (NEXT 36-45)
 Test Limit: TIA Cat 5e Channel
 Cable Type: Cat 5e UTP

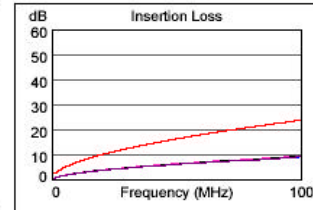
Operator: M.H-600
 Software Version: 1.4100
 Limits Version: 1.0400
 NVP: 69.0%

Model: DTX-1800
 Main S/N: 9338023
 Remote S/N: 9338026
 Main Adapter: DTX-CHA001
 Remote Adapter: DTX-CHA001

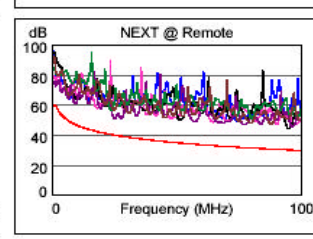
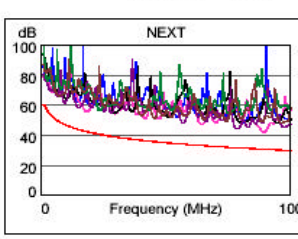
Wire Map (T568B) PASS

1	1
2	2
3	3
6	6
4	4
5	5
7	7
8	8
S	S

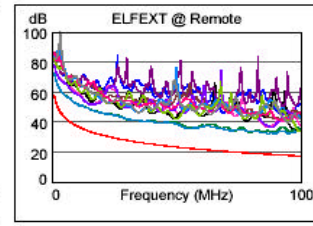
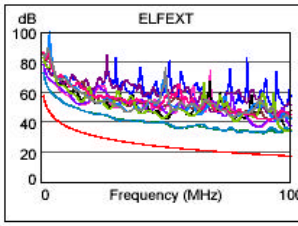
Length (m), Limit 100.0	[Pair 78]	42.2
Prop. Delay (ns), Limit 555	[Pair 36]	210
Delay Skew (ns), Limit 50	[Pair 36]	6
Resistance (ohms)	[Pair 36]	7.9
Insertion Loss Margin (dB)	[Pair 36]	14.3
Frequency (MHz)	[Pair 36]	100.0
Limit (dB)	[Pair 36]	24.0



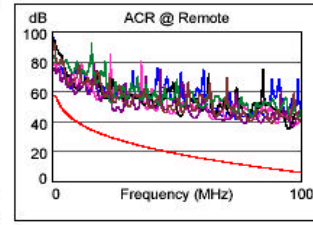
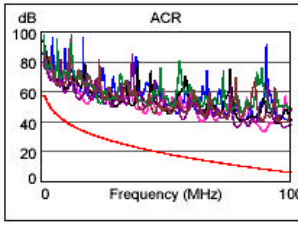
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-45	36-45	12-45	12-78
NEXT (dB)	11.5	11.1	11.5	14.0
Freq. (MHz)	89.0	24.9	89.3	94.8
Limit (dB)	31.0	40.4	30.9	30.5
Worst Pair	45	45	45	78
PSNEXT (dB)	13.0	12.7	13.0	15.8
Freq. (MHz)	88.8	24.9	88.8	94.8
Limit (dB)	28.0	37.4	28.0	27.5



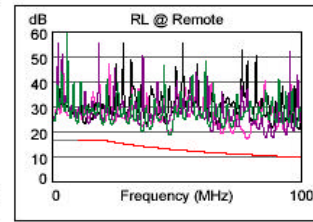
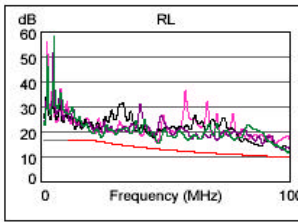
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ELFEXT (dB)	13.1	12.9	14.1	13.9
Freq. (MHz)	54.0	54.0	89.3	89.0
Limit (dB)	22.8	22.8	18.4	18.4
Worst Pair	45	45	45	45
PSELFEXT (dB)	15.5	15.8	15.8	16.3
Freq. (MHz)	53.8	31.5	88.5	87.3
Limit (dB)	19.8	24.4	15.5	15.6



N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-45	12-78
ACR (dB)	18.2	15.1	25.1	28.3
Freq. (MHz)	3.6	1.6	89.3	94.8
Limit (dB)	50.0	56.9	8.4	7.2
Worst Pair	45	45	45	78
PSACR (dB)	18.6	16.3	26.7	30.1
Freq. (MHz)	1.6	1.6	88.8	94.8
Limit (dB)	53.9	53.9	5.5	4.2



PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	78	12
RL (dB)	1.7	5.5	2.0	6.3
Freq. (MHz)	24.3	47.3	98.5	78.3
Limit (dB)	16.2	13.3	10.1	11.1



Compliant Network Standards:
 10BASE-T
 100BASE-T
 ATM-155
 TR-16 Active

100BASE-TX
 ATM-25
 100VG-AnyLan
 TR-16 Passive

100BASE-T4
 ATM-51
 TR-4