PFC COMMUNICATION CABLE CO.

**TECHNICAL SPECIFICTION FOR DATA CABLE**

# CAT6

# SFTP

# DJ.HDPE

SALE ENGINEERING DEPARTMENT

CODE:102071

CAT 6 | 250 MHz | SFTP | HDPE | DOUBEL JACKET

WWW.PFCCO.NET

**SPECIFICATION FOR DATA CABLE**

# CAT6 SFTPDJ.HDPE

## 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 shield aluminum foil and double jacket that inner jacket is PVC and outer jacket is HDPE. The cable is fully color coded so that each insulated conductor in the cable is distinguishable from other insulated conductor. Cat6 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), 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 form 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 ºC.
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

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.

## 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.

## 9– 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.

## 10– INNER JACKET

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

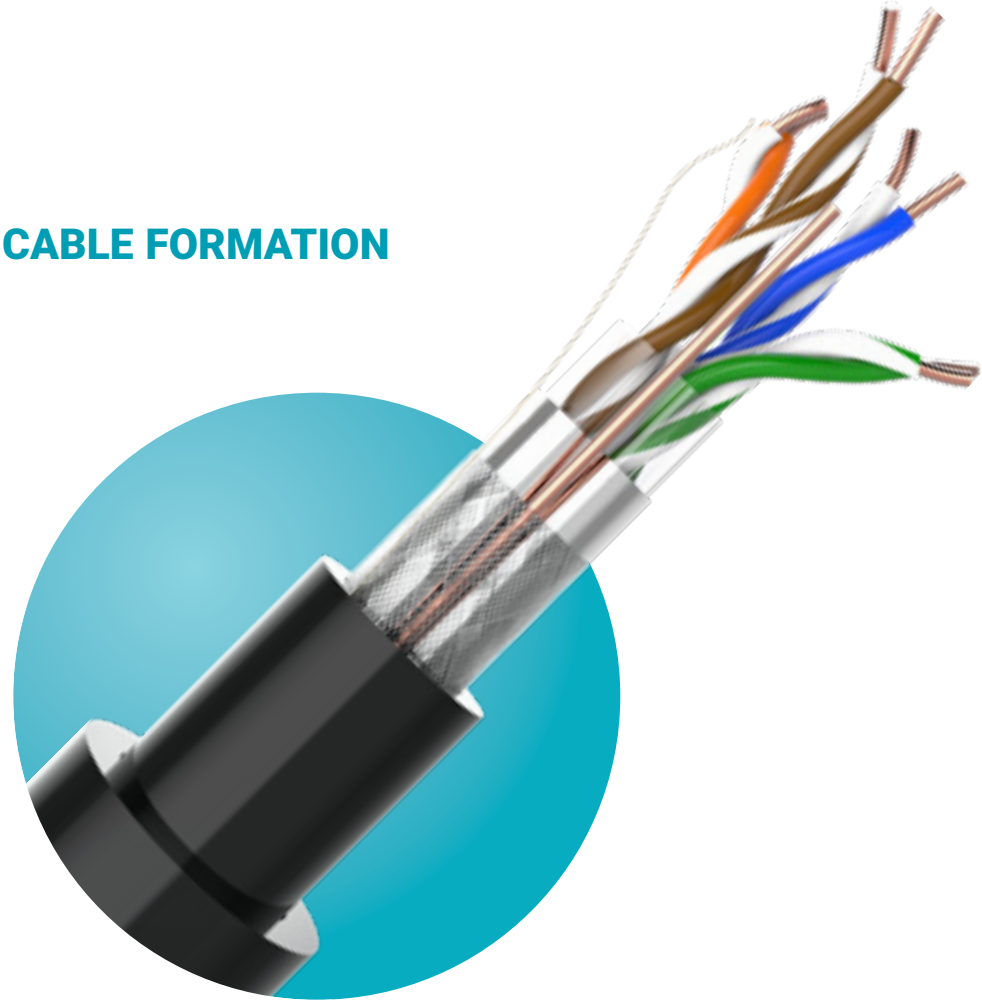
## 11- OUTER JACKET

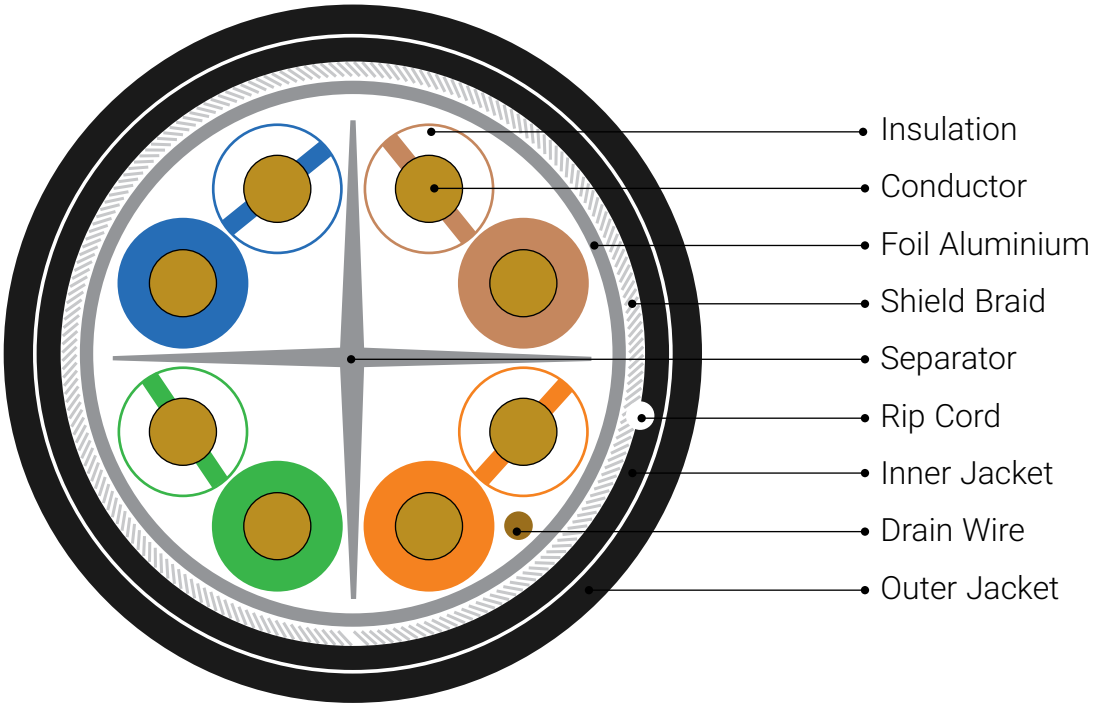
A HDPE compound will be applied on the cable core. The nominal jacket thickness will be 0.6mm.

## 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 | 19.8 | 10.1 | 3.1 | 5.6 | 7.1 | 20.7 | 20.5 |
| 250 | 3.8 | 3.7 | 5.1 | 5.4 | 16.2 | 9.9 | 9.5 |

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

## 15 – TOTAL SPECIFICATION

| Product Type | | |
|---|---|---|
| Product Code | 102071 | |
| 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 | HDPE (Complies RoHS) | |
| Thickness1 (mm) | PVC, 0.5± 0.05 | |
| Thickness2 (mm) | HDPE, 0.6± 0.05 | |
| Outer O.D. (mm) | 8.2 ± 0.4 | |
| Color | Black (Outdoor) | |
| **Electrical Characteristics (20°C)** | | |
| Distance | Max 90 Meter | Max 55 Meter |
| Data Rate Support | 10/100/1000Base-T | 10GB Base-T |
| Standard Bandwidth (MHz) | 250 | 250 - 350 |
| Reference Bandwidth (MHz) | 550 | 550 |
| 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 | White | |
| **Others** | | |
| Rip Cord | Yes | |
| Drain Wire | Yes | |
| Separator | Yes | |
| Packaging | Wooden Reel | |

# 16- FLUKE TEST

This test is a random from 30000 meter cable production

LINKWARE™ PC
CABLE TEST MANAGEMENT SOFTWARE

**Cable ID: CAT6-SFTP-PER-90M**
**Test Limit: TIA Cat 6 Perm. Link**
Limits Version: V7.5
Date / Time: 2020/09/29 14:37:46
Operator: www.iranfluke.ir
**Headroom 5.1 dB (NEXT 3,6-7,8)**
Cable Type: Cat 6 F/UTP
NVP: 70.0%

Main: Versiv
S/N: 1719045
Software Version: V6.5 Build 5
Calibration Date: 2020/08/17
Adapter: DSX-8000 (DSX-PLA804)
S/N: 3883021

**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: 3883022

| | | |
|---|---|---|
| Length (m), Limit 90.0 | [Pair 7,8] | 90.2 |
| Prop. Delay (ns), Limit 498 | [Pair 4,5] | 461 |
| Delay Skew (ns), Limit 44 | [Pair 4,5] | 31 |
| Resistance (ohms) | [Pair 1,2] | 15.07 |
| Insertion Loss Margin (dB) | [Pair 4,5] | 3.8 |
| Frequency (MHz) | [Pair 4,5] | 250.0 |
| Limit (dB) | [Pair 4,5] | 31.1 |

| | Worst Case Margin | | Worst Case Value | |
|---|---|---|---|---|
| **PASS** | MAIN | SR | MAIN | SR |
| Worst Pair | 3,6-7,8 | 3,6-7,8 | 1,2-3,6 | 3,6-7,8 |
| **NEXT (dB)** | 6.6 | 5.1 | 6.7 | 5.1 |
| Freq. (MHz) | 226.5 | 211.5 | 232.0 | 211.5 |
| Limit (dB) | 36.0 | 36.5 | 35.9 | 36.5 |
| Worst Pair | 3,6 | 3,6 | 3,6 | 3,6 |
| **PS NEXT (dB)** | 6.1 | 5.4 | 6.1 | 5.7 |
| Freq. (MHz) | 234.5 | 213.0 | 234.5 | 245.0 |
| Limit (dB) | 33.2 | 33.9 | 33.2 | 32.9 |

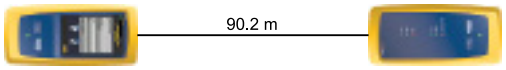
| **PASS** | MAIN | SR | MAIN | SR |
|---|---|---|---|---|
| Worst Pair | 3,6-4,5 | 3,6-4,5 | 1,2-4,5 | 1,2-4,5 |
| **ACR-F (dB)** | 16.0 | 16.0 | 17.2 | 17.3 |
| Freq. (MHz) | 72.8 | 15.4 | 231.5 | 223.0 |
| Limit (dB) | 27.0 | 40.5 | 16.9 | 17.2 |
| Worst Pair | 4,5 | 4,5 | 4,5 | 4,5 |
| **PS ACR-F (dB)** | 16.7 | 16.2 | 17.8 | 18.7 |
| Freq. (MHz) | 4.6 | 4.1 | 227.0 | 227.0 |
| Limit (dB) | 47.9 | 48.9 | 14.1 | 14.1 |

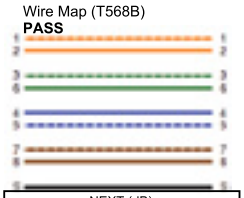
| **N/A** | MAIN | SR | MAIN | SR |
|---|---|---|---|---|
| Worst Pair | 3,6-4,5 | 3,6-4,5 | 1,2-3,6 | 1,2-3,6 |
| **ACR-N (dB)** | 7.9 | 7.7 | 10.9 | 11.8 |
| Freq. (MHz) | 7.9 | 23.9 | 232.5 | 250.0 |
| Limit (dB) | 54.5 | 43.2 | 6.0 | 4.2 |
| Worst Pair | 3,6 | 3,6 | 3,6 | 3,6 |
| **PS ACR-N (dB)** | 9.1 | 8.6 | 10.2 | 10.3 |
| Freq. (MHz) | 23.9 | 23.9 | 234.5 | 250.0 |
| Limit (dB) | 40.8 | 40.8 | 3.2 | 1.6 |

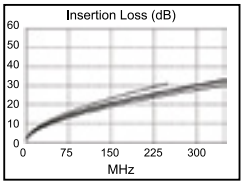
| **PASS** | MAIN | SR | MAIN | SR |
|---|---|---|---|---|
| Worst Pair | 1,2 | 4,5 | 7,8 | 7,8 |
| **RL (dB)** | 3.7 | 2.0 | 3.9 | 3.4 |
| Freq. (MHz) | 123.5 | 75.0 | 137.0 | 174.5 |
| Limit (dB) | 13.1 | 15.2 | 12.6 | 11.6 |

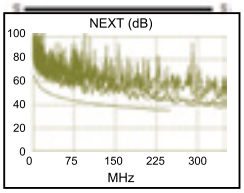
Compliant Network Standards:

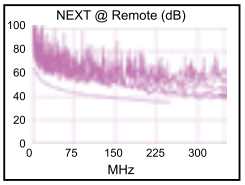
| | | |
|---|---|---|
| 10BASE-T | 100BASE-TX | 100BASE-T4 |
| 1000BASE-T | 2.5GBASE-T | 5GBASE-T |
| ATM-25 | ATM-51 | ATM-155 |
| 100VG-AnyLan | TR-4 | TR-16 Active |
| TR-16 Passive | | |

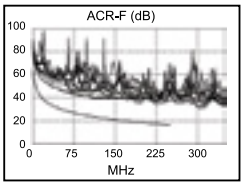


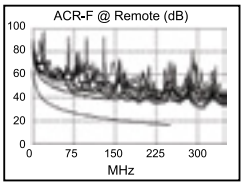



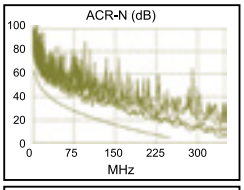



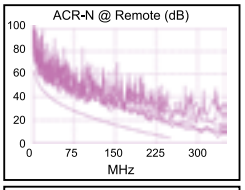



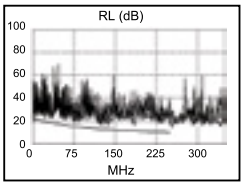



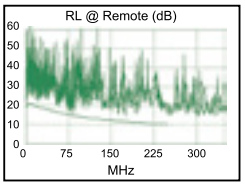




LinkWare™ PC Version 10.7

Project: PFC
PFC 990708.flw

Page 3

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