

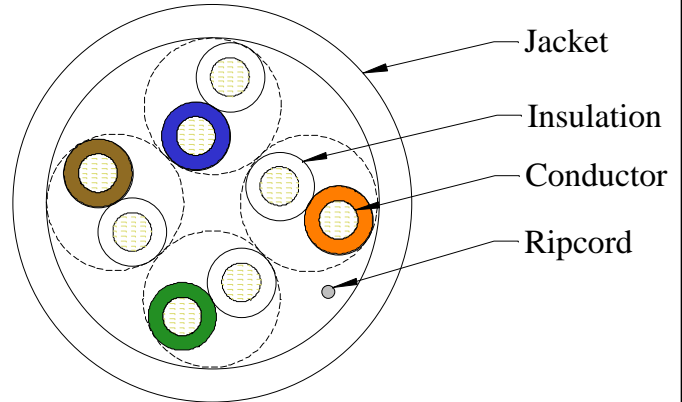
**MASTER SPECIFICATION**  
**6 LAN™ CABLE**  
**4 PAIR #23 AWG UTP CATEGORY 6 PLENUM**

Design Number:  
**HT49156**

**DESCRIPTION**

UNSHIELDED TWISTED PAIR (UTP) 6 LAN CABLE FOR USE IN HORIZONTAL CABLING SYSTEMS PER ANSI/TIA-568-C AND ISO/IEC 11801 ed 2.2 (2011) CLASS E. THE CABLE MEETS ANSI/TIA-568-C.2 & ISO/IEC 11801 ed 2.2 (2011) CATEGORY 6 ELECTRICAL CHARACTERISTICS. THE CABLE CONSISTS OF #23 AWG SOLID BARE COPPER INSULATED CONDUCTORS, ASSEMBLED INTO FOUR TIGHTLY TWISTED PAIRS, WITH A RIPCORD, UNDER AN OVERALL JACKET. PRINT INCLUDES DESCENDING FOOTAGE MARKERS FROM 1000 TO 0 ON EACH 1000 FT REEL OR BOX. SEE BELDEN.COM/P FOR ANY/ALL APPLICABLE PATENT DETAILS.

THE CABLE IS PLENUM RATED FOR USE IN AIR HANDLING DUCTS AND SPACES IN ACCORDANCE WITH ARTICLE 800 OF THE NATIONAL ELECTRICAL CODE (NEC). THE CABLE IS ETL (USA) & cETL (CANADA) LISTED FOR THIS APPLICATION BY PASSING NFPA 262 (FT6 OR PREVIOUSLY UL 910 STEINER TUNNEL) TEST.



**SUPPORTED APPLICATIONS**

IEEE 802.3 10BASE-T (ETHERNET), 100BASE-T (FAST ETHERNET), AND 1000BASE-T (GIGABIT ETHERNET), IEEE 802.3af POE, IEEE 802.3at-2009 POE+, ANSI.X3.263 FDDI TP-PMD, IEEE 802.5 4 AND 16 Mbps TOKEN RING, 550 MHz BROADBAND VIDEO & ATM UP TO 2.4 Gbps.

**CONSTRUCTION**

**PRIMARIES:** CONDUCTOR: 23 AWG (.6 mm) SOLID BARE COPPER  
 DUAL INSULATION, FEP ON ALL 4 PAIRS

**PAIR ASSEMBLY:** 2 PRIMARIES TWISTED IN VARIED LAYS

**COLOR CODE:** SEE TABLE 1

**CABLE ASSEMBLY:** 4 PAIRS CABLED TOGETHER

**JACKET:** NO LEAD PLENUM RATED THERMOPLASTIC  
 JACKET COLOR: SEE TABLE 2  
 NOMINAL CABLE OD: .224" (5.69 mm)

**LISTINGS:** C(UL)US CMP, (UL) CMP-LP (0.5A) OR CL3P-LP (0.5A)  
 UL OR ETL VERIFIED TO CAT 6

**PHYSICAL CHARACTERISTICS**

**CABLE WEIGHT w/reel:** 27 lbs/1000ft (40 kg/km)

**BENDING RADIUS:** 1" (25 mm) MIN (4 x CABLE OD)

**PULLING TENSION:** 25 lbf (110 N) MAX

**OPERATING TEMP.:** -20°C to +75°C (-4°F to +167°F)

**STORAGE TEMP.:** -20°C to +75°C (-4°F to +167°F)

**\*INSTALLATION TEMP.:** 0°C to +50°C (+32°F to +122°F)

**TABLE 1**

| PAIR NUMBER | PAIR COLOR CODE |        |
|-------------|-----------------|--------|
| 1           | WHITE-BLUE      | BLUE   |
| 2           | WHITE-ORANGE    | ORANGE |
| 3           | WHITE-GREEN     | GREEN  |
| 4           | WHITE-BROWN     | BROWN  |

**TABLE 2**

| MOHAWK PART NUMBER | MOHAWK DESIGN NUMBER | JACKET COLOR |
|--------------------|----------------------|--------------|
| M58280             | HT49423              | WHITE        |
| M58281             | HT49424              | BLUE         |
| M58282             | HT49425              | PINK         |
| M58283             | HT49426              | YELLOW       |
| M58285             | HT49427              | GRAY         |
| M58286             | HT49428              | GREEN        |
| M58287             | HT49429              | RED          |
| M58288             | HT49430              | ORANGE       |
| M58289             | HT49431              | BLACK        |
| M58290             | HT49432              | VIOLET       |
| M58756             | HT55007              | BROWN        |
| M59082             | HT57643              | LIME GREEN   |

\* THE INSTALLATION TEMPERATURE REFERS TO THE TEMPERATURE OF THE CABLE WHILE BEING INSTALLED OR PULLED. DO NOT INSTALL BELOW 0°C (+32°F).



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| Rev            | Description                           | Date        | Init.                            |
|----------------|---------------------------------------|-------------|----------------------------------|
| Z              | UPDATE DIAMETER & PATENT INFO         | 12/09/15    | JS                               |
| AA             | UPDATE ELECTRICALS                    | 12/11/15    | JS                               |
| AB             | UPDATE FOOTER                         | 01/27/17    | JS                               |
| AC             | UPD DESC, APPS, LISTINGS, TEMPS, STDS | 07/06/17    | JS                               |
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**ELECTRICAL CHARACTERISTICS** (REF TABLE 3)

**STANDARDS:** MEETS ANSI/TIA-568-C.2 CAT 6,  
 ICEA S-116-732-2013 CAT 6 &  
 ISO/IEC 11801 ed 2.2 (2011) CLASS E  
 HORIZONTAL CABLE

**CONDUCTOR DCR:** 9.38 Ω/100m (28.6 Ω/Mft) MAX

**DCR UNBALANCE:** 5% MAX

**MUTUAL CAPACITANCE:** 46 pF/m NOM

**CAPACITANCE UNBALANCE PAIR/GROUND:** 66 pF/100m MAX

**CHARACTERISTIC IMPEDANCE:** 100 Ω ± 15% (1-250 MHz)

**INPUT IMPEDANCE:** 100 Ω ± 15% (1-100 MHz)  
 100 Ω ± 20% (>100-200 MHz)  
 100 Ω ± 25% (>200 MHz)

**RETURN LOSS (RL):** 20 + 5 log<sub>10</sub>(f) dB MIN (1-10 MHz)  
 25 dB MIN (>10-20 MHz)  
 25 - 7 log<sub>10</sub>(f/20) dB MIN (>20 MHz)

**INSERTION LOSS:**  $1.808\sqrt{f} + .017f + \frac{.20}{\sqrt{f}}$  dB/100m MAX

**NEAR END CROSSTALK (NEXT):** 44.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM NEAR END CROSSTALK (PS-NEXT):** 42.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**EQUAL LEVEL FAR END CROSSTALK (ELFEXT):** 27.8 - 20 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM EQUAL LEVEL FAR END CROSSTALK (PS-ELFEXT):** 24.8 - 20 log<sub>10</sub>(f/100) dB/100m MIN

**PROPAGATION DELAY:** 534 + 36 / √f ns/100m MAX

**DELTA DELAY (SKEW):** 45 ns/100m MAX

**NOMINAL VELOCITY OF PROPAGATION (NVP):** 72%

WHERE f = FREQUENCY IN MHz from .772 to 250 MHz.

**TABLE 3**

**REFERENCE ELECTRICAL CHARACTERISTICS**

| FREQ (MHz) | INSERTION LOSS (dB/100m) |      | NEXT (dB/100m) |      | ACR (dB/100m) | PS-NEXT (dB/100m) |      | PS-ACR (dB/100m) | ELFEXT (dB/100m) | PS-ELFEXT (dB/100m) | RL (dB) |
|------------|--------------------------|------|----------------|------|---------------|-------------------|------|------------------|------------------|---------------------|---------|
|            | avg                      | max  | avg            | min  | min           | avg               | min  | min              | min              | min                 | min     |
| .772       | 1.7                      | 1.8  | 82             | 76.0 | 74.2          | 77                | 74.0 | 72.2             | -                | -                   | -       |
| 1.0        | 1.9                      | 2.0  | 80             | 74.3 | 72.3          | 75                | 72.3 | 70.3             | 67.8             | 64.8                | 20.0    |
| 4.0        | 3.6                      | 3.8  | 71             | 65.3 | 61.5          | 66                | 63.3 | 59.5             | 55.8             | 52.8                | 23.0    |
| 8.0        | 5.1                      | 5.3  | 67             | 60.8 | 55.5          | 62                | 58.8 | 53.5             | 49.7             | 46.7                | 24.5    |
| 10.0       | 5.7                      | 6.0  | 65             | 59.3 | 53.3          | 60                | 57.3 | 51.3             | 47.8             | 44.8                | 25.0    |
| 16.0       | 7.3                      | 7.6  | 62             | 56.2 | 48.6          | 57                | 54.2 | 46.6             | 43.7             | 40.7                | 25.0    |
| 20.0       | 8.1                      | 8.5  | 61             | 54.8 | 46.3          | 56                | 52.8 | 44.3             | 41.8             | 38.8                | 25.0    |
| 25.0       | 9.1                      | 9.5  | 59             | 53.3 | 43.8          | 54                | 51.3 | 41.8             | 39.8             | 36.8                | 24.3    |
| 31.25      | 10.2                     | 10.7 | 58             | 51.9 | 41.2          | 53                | 49.9 | 39.2             | 37.9             | 34.9                | 23.6    |
| 62.5       | 14.8                     | 15.4 | 53             | 47.4 | 32.0          | 48                | 45.4 | 30.0             | 31.9             | 28.9                | 21.5    |
| 100.0      | 19.0                     | 19.8 | 50             | 44.3 | 24.5          | 45                | 42.3 | 22.5             | 27.8             | 24.8                | 20.1    |
| 155.0      | 24.2                     | 25.2 | 47             | 41.4 | 16.3          | 42                | 39.4 | 14.3             | 24.0             | 21.0                | 18.8    |
| 200.0      | 27.8                     | 29.0 | 46             | 39.8 | 10.8          | 41                | 37.8 | 8.8              | 21.8             | 18.8                | 18.0    |
| 250.0      | 31.5                     | 32.8 | 44             | 38.3 | 5.5           | 39                | 36.3 | 3.5              | 19.8             | 16.8                | 17.3    |
| 300.0      | 35.0                     | 36.4 | 43             | 37.1 | 0.7           | 38                | 35.1 | --               | 18.3             | 15.3                | 16.8    |
| 350.0      | 38.2                     | 39.8 | 42             | 36.1 | --            | 37                | 34.1 | --               | 16.9             | 13.9                | 16.3    |
| 400.0      | 41.3                     | 43.0 | 41             | 35.3 | --            | 36                | 33.3 | --               | 15.8             | 12.8                | 15.9    |
| 500.0      | 47.0                     | 48.9 | 40             | 33.8 | --            | 35                | 31.8 | --               | 13.8             | 10.8                | 15.2    |
| 550.0      | 49.7                     | 51.8 | 39             | 33.2 | --            | 34                | 31.2 | --               | 13.0             | 10.0                | 14.9    |

SWEEP TESTED TO 550 MHz; VALUES ABOVE 250 MHz ARE FOR ENGINEERING INFORMATION ONLY.



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