

區域網路電纜規格介紹 LAN cable specification

5.2 Category 5E

5.2.1 特色：

Category 5E 電纜適用於傳送語音及速率高至每秒1.0 GBPS 之數據傳輸，其電纜特性須符合頻率達100MHz及以下時之各項電性需求。適用於T1、ISDN、10BASE-T(IEEE 802.3)、100BASE-T(IEEE 802.3)、Fast Ethernet、100VG-any LAN(IEEE 802.12)、155/622 MBPS ATM、550MHZ Broadband Vedio、1000BASE-T Gigabit Ethernet網路。

5.2.2 規格：

TYPE CMP 75°C/300V 24AWG
TYPE CMR 75°C/300V 24AWG
TYPE CM 75°C/300V 24AWG

5.2.3 構造：

導體：24AWG軟銅單線。
絕緣：PE、FRPE或FEP系列。
被覆：耐燃PVC或耐燃PE(附加剝離繩)。

| 對別 | 絕緣厚度 (mm) | 被覆厚度 (mm) | 完成外徑 (mm) | 最大電阻不平衡 (%) | 特性阻抗 (Ω) | 頻率 (MHz) | 最大衰減量 (dB/100M) | 最小近端串音 (dB) |
|----|-----------|-----------|-----------|-------------|---------------|----------|-----------------|-------------|
| 4 | 0.15 | 0.4 | 4.0 | 5 | 100±15 | 1 | 2.0 | 65.3 |
| | | | | | | 4 | 4.1 | 56.3 |
| | | | | | | 8 | 5.8 | 51.8 |
| | | | | | | 10 | 6.5 | 50.3 |
| 25 | 0.25 | 0.8 | 15.0 | 5 | (1MHz~100MHz) | 16 | 8.2 | 47.3 |
| | | | | | | 20 | 9.3 | 45.8 |
| | | | | | | 25 | 10.4 | 44.3 |
| | | | | | | 31.25 | 11.7 | 42.9 |
| | | | | | | 62.5 | 17.0 | 36.4 |
| | | | | | | 100 | 22.0 | 35.3 |

| 對別 | 頻率 (MHz) | 最小多重近端串音 (dB) | 最小遠端串音 (dB) | 最小多重遠端串音 (dB) | 最小反射損失 (dB) | 最大傳播延遲 (ns/100M) | 最大傳播延遲偏移 (ns/100M) | |
|----|----------|---------------|-------------|---------------|-------------|------------------|--------------------|-------|
| 4 | 1 | 62.3 | 63.8 | 60.8 | 20+5Log(f) | 570 | 45 | |
| | 4 | 53.3 | 51.7 | 48.7 |  | ..... | ..... |  |
| | 8 | 48.8 | 45.7 | 42.7 |  | ..... | ..... |  |
| | 10 | 47.3 | 43.8 | 40.8 | | 545 | 45 | |
| 25 | 16 | 44.4 | 39.7 | 36.7 | 25 | ..... | ..... |  |
| | 20 | 42.8 | 37.7 | 34.7 |  | ..... | ..... |  |
| | 25 | 41.3 | 35.8 | 32.8 | | | | |
| | 31.25 | 39.9 | 33.9 | 30.9 | | 20-7Log(f/20) | | |
| | 62.5 | 35.4 | 27.8 | 24.6 | | | | |
| | 100 | 32.3 | 23.8 | 20.8 | | 538 | 45 | |

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5.2 Category 5E

5.2.1 Characteristic:

Category 5E cables are suitable for the transmission of analog voice and high-speed up to 1.0 GBPS of digital data, cable character specification meet up to 100MHz of electrical performance. For example, T1、ISDN、10BASE-T (IEEE 802.3)、100BASE-T(IEEE 802.3)、Fast Ethernet、100VG - any LAN(IEEE 802.12)、155/622 MBPS ATM、550MHZ Broadband Vedio、1000BASE-T Gigabit Ethernet.

5.2.2 Specification:

TYPE CMP 75°C/300V 24AWG
TYPE CMR 75°C/300V 24AWG
TYPE CM 75°C/300V 24AWG

5.2.3 Construction:

Conductor: 24AWG solid copper conductor.
Insulation: PE、FRPE or FEP compound.
Jacket: Flame retardant PVC jacket or flame retardant PE jacket with rip-cord.

| Pairs | Insulation Thickness (mm) | Jacket Thickness (mm) | O.D (mm) | D-C Resistance Unbalance (max.) (%) | Characteristic Impedance | Test Frequency (MHz) | Insertion Loss (max.) (dB/100M) | Near-end Crosstalk Loss (min.) (dB) |
|-------|---------------------------|-----------------------|----------|-------------------------------------|--------------------------|----------------------|---------------------------------|-------------------------------------|
| 4 | 0.15 | 0.4 | 4.0 | 5 | 100±15 | 1 | 2.0 | 65.3 |
| | | | | | | 4 | 4.1 | 56.3 |
| | | | | | | 8 | 5.8 | 51.8 |
| | | | | | | 10 | 6.5 | 50.3 |
| 25 | 0.25 | 0.8 | 15.0 | (1MHZ~100MHZ) | | 16 | 8.2 | 47.3 |
| | | | | | | 20 | 9.3 | 45.8 |
| | | | | | | 25 | 10.4 | 44.3 |
| | | | | | | 31.25 | 11.7 | 42.9 |
| | | | | | | 62.5 | 17.0 | 36.4 |
| | | | | | | 100 | 22.0 | 35.3 |

| Pairs | Test Frequency (MHz) | Power-sun Near-end Crosstalk Loss (min.) (dB) | Far-end Crosstalk Loss (min.) (dB) | Power-sun Far-end Crosstalk (min.) (dB) | Return Loss (min.) (dB) | Propagation Delay (max.) (ns/100M) | Propagation Delay Skew (max.) (ns/100M) | |
|-------|----------------------|---|------------------------------------|---|-------------------------|------------------------------------|---|-------|
| 4 | 1 | 62.3 | 63.8 | 60.8 | 20+5Log(f) | 570 | 45 | |
| | 4 | 53.3 | 51.7 | 48.7 |  | ..... | ..... |  |
| | 8 | 48.8 | 45.7 | 42.7 |  | ..... | ..... |  |
| | 10 | 47.3 | 43.8 | 40.8 | | 545 | 45 | |
| 25 | 16 | 44.4 | 39.7 | 36.7 | 25 | ..... | ..... |  |
| | 20 | 42.8 | 37.7 | 34.7 |  | ..... | ..... |  |
| | 25 | 41.3 | 35.8 | 32.8 |  | ..... | ..... |  |
| | 31.25 | 39.9 | 33.9 | 30.9 | | 20-7Log(f/20) | | |
| | 62.5 | 35.4 | 27.8 | 24.6 | | | | |
| | 100 | 32.3 | 23.8 | 20.8 | | | 538 | 45 |