



Part Number: 2202ENH

Cat 6A Cable, S/FTP, LSZH, 4 Pair, AWG 23, Indoor CPR Eca

Product Description

Category 6A (500MHz), 4-Pair, S/FTP shielded, Premise Horizontal Cable, 23 AWG Solid Bare Copper conductors, Foam Polyolefin insulation, each pair with Beldfoil® shield, tinned copper braid shield (30%), LSZH jacket, CPR Euroclass Eca

Technical Specifications

Product Overview

| | |
|------------------------|--|
| Environmental Space: | Indoor - Euroclass Eca |
| Suitable Applications: | Horizontal and building backbone cable; Support current and future Category 6A and 6 applications, such as: 10GBase-T (10 Gigabit Ethernet), 1000Base-T (Gigabit Ethernet), 100 Base-T, 10 Base-T, FDDI, ATM |

Physical Characteristics (Overall)

Conductor

| Element | AWG | Stranding | Material | No. of Pairs |
|--------------------------|-----|-----------|------------------|--------------|
| Individual shielded pair | 23 | Solid | BC - Bare Copper | 4 |

| | |
|------------------------|---|
| Conductor Count: | 8 |
| Total Number of Pairs: | 4 |

Insulation

| Element | Type | Material | Nominal Diameter |
|--------------------------|------------|---------------------------|------------------|
| Individual shielded pair | Dielectric | FPE - Foamed Polyethylene | 1.32 mm |

| | |
|--------------|----|
| Bonded-Pair: | No |
|--------------|----|

Color Chart

| Number | Color |
|--------|----------------|
| Pair 1 | White & Blue |
| Pair 2 | White & Orange |
| Pair 3 | White & Green |
| Pair 4 | White & Brown |

Inner Shield Material

| Element | Type | Material | Coverage [%] |
|--------------------------|------|----------------------|--------------|
| Individual shielded pair | Tape | Aluminum / Polyester | 100 % |

| | |
|--------------------------|-------------------------|
| InnerShield, Table Note: | Aluminum facing outside |
|--------------------------|-------------------------|

Outer Shield Material

| Type | Material | Min. Coverage [%] |
|-------|--------------------|-------------------|
| Braid | TC - Tinned Copper | 30 % |

Outer Jacket Material

| Material | Nominal Diameter | Diameter +/- Tolerance | Ripcord |
|-------------|------------------|------------------------|---------|
| LSZH / FRNC | 7.0 mm | 0.3 mm | Yes |

Construction and Dimensions

| | |
|---------------------------------------|-------|
| Min Elongation at Breakof Conductors: | 10 % |
| Min Elongation at Breakof Insulation: | 100 % |

Cabling

| Description | |
|-----------------------------------|-------|
| 4 pairs twisted together | |
| Min Elongation at Breakof Jacket: | 100 % |
| Min Tensile Strength of Jacket: | 9 MPa |

Electrical Characteristics

Conductor DCR

| Max. Conductor DCR | Max DCR Unbalanced Between Pairs [%] | Max. DCR Unbalanced Within Pair [%] |
|--------------------|--------------------------------------|-------------------------------------|
| 95 Ohm/km | 4 % | 2 % |

Capacitance

| Max. Capacitance Unbalance | Max. Mutual Capacitance |
|----------------------------|-------------------------|
| 1,600 pF/m | 56 pF/m |

Impedance

| Nominal Characteristic Impedance |
|----------------------------------|
| 100 Ohm |

Delay

| Max. Delay Skew | Nominal Velocity of Propagation (VP) [%] |
|-----------------|--|
| 45 ns/100m | 77 % |

High Freq

| Frequency [MHz] | Max. Insertion Loss (Attenuation) | Min. NEXT [dB] | Min. PSNEXT [dB] | Min. ACR [dB] | Min. PSACR [dB] | Min. ACRF (ELFEXT) [dB] | Min. PSACRF (PSELFEXT) [dB] | Min. RL (Return Loss) [dB] | Min. PSANEXT | Min. PSAACRF | Min. TCL [dB] | Min. ELTCTL [dB] |
|-----------------|-----------------------------------|----------------|------------------|---------------|-----------------|-------------------------|-----------------------------|----------------------------|--------------|--------------|---------------|------------------|
| 1 MHz | 2.1 dB/100m | 75.3 dB | 72.3 dB | 73.2 dB | 70.2 dB | 68 dB | 65 dB | 20 dB | 67 dB | 67 dB | 40 dB | 35 dB |
| 4 MHz | 3.8 dB/100m | 66.3 dB | 63.3 dB | 62.5 dB | 59.5 dB | 56 dB | 53 dB | 23 dB | 67 dB | 66.2 dB | 34 dB | 23 dB |
| 10 MHz | 5.9 dB/100m | 60.3 dB | 57.3 dB | 54.4 dB | 51.4 dB | 48 dB | 45 dB | 25 dB | 67 dB | 58.2 dB | 30 dB | 15 dB |
| 16 MHz | 7.5 dB/100m | 57.2 dB | 54.2 dB | 49.8 dB | 46.8 dB | 43.9 dB | 40.9 dB | 25 dB | 67 dB | 54.1 dB | 28 dB | 10.9 dB |
| 31.2 MHz | 10.5 dB/100m | 52.9 dB | 49.9 dB | 42.4 dB | 39.4 dB | 38.1 dB | 35.1 dB | 23.6 dB | 67 dB | 48.3 dB | 25.1 dB | 5.1 dB |
| 62.5 MHz | 15 dB/100m | 48.4 dB | 45.4 dB | 33.4 dB | 30.4 dB | 32.1 dB | 29.1 dB | 21.5 dB | 65.6 dB | 42.3 dB | 22 dB | |
| 100 MHz | 19.1 dB/100m | 45.3 dB | 42.3 dB | 26.2 dB | 23.2 dB | 28 dB | 25 dB | 20.1 dB | 62.5 dB | 38.2 dB | 20 dB | |
| 125 MHz | 21.5 dB/100m | 43.8 dB | 40.8 dB | 22.3 dB | 19.3 dB | 26.1 dB | 23.1 dB | 19.4 dB | 61 dB | 36.3 dB | 19 dB | |
| 200 MHz | 27.6 dB/100m | 40.8 dB | 37.8 dB | 13.2 dB | 10.2 dB | 22 dB | 19 dB | 18 dB | 58 dB | 32.2 dB | 17 dB | |
| 250 MHz | 31.1 dB/100m | 39.3 dB | 36.3 dB | 8.3 dB | 5.3 dB | 20 dB | 17 dB | 17.3 dB | 56.5 dB | 30.2 dB | 16 dB | |
| 300 MHz | 34.3 dB/100m | 38.1 dB | 35.1 dB | 3.9 dB | 0.9 dB | 18.5 dB | 15.5 dB | 17.3 dB | 55.3 dB | 28.7 dB | | |
| 500 MHz | 45.3 dB/100m | 34.8 dB | 31.8 dB | -10.4 dB | -13.4 dB | 14 dB | 11 dB | 17.3 dB | 52 dB | 24.2 dB | | |

| | |
|--|--|
| High Freq Table Note: | Limits below 4 MHz and at 625 MHz are for information only. Reference standard: ISO/IEC 61156-5 ed. 2.0 (2009) |
| Coupling Attenuation Class: | Type Ib |
| Segregation class according EN50174-2: | c |

Transfer Impedance

| Frequency [MHz] | Description | Transfer Impedance |
|-----------------|-------------|--------------------|
| 1 Mhz | Grade 2 | Max. 50 mOhm/m |
| 10 Mhz | | Max. 100 mOhm/m |
| 30 Mhz | | Max. 200 mOhm/m |
| 100 Mhz | | Max. 1000 mOhm/m |

| | |
|---------------------------|---------|
| Transfer Impedance Class: | Grade 2 |
|---------------------------|---------|

Current

| Max. Recommended Current [A] |
|------------------------------|
| 1.5 A |

Voltage

| Voltage Rating [V] |
|--------------------|
| 72 V |

Temperature Range

| | |
|--------------------------|----------------|
| Installation Temp Range: | 0°C To +50°C |
| Operating Temp Range: | -30°C To +60°C |

Mechanical Characteristics

| | |
|--------------------------------------|----------|
| Bulk Cable Weight: | 52 kg/km |
| Max Recommended Pulling Tension: | 85 N |
| Min Bend Radius During Installation: | 58 mm |
| Min Bend Radius During Operation: | 29 mm |

Standards

| | |
|---------------------|--|
| ISO/IEC Compliance: | ISO/IEC 11801 Ed. 2.2:2002/A2:2010/C1:2011 |
| CPR Euroclass: | Eca |
| CENELEC Compliance: | EN 50173-1 Ed. 3:2011 |
| Data Category: | Category 6A |
| ANSI Compliance: | ANSI/TIA 568.2-D (2018) |
| IEEE Specification: | PoE: IEEE 802.3bt Type 1, Type 2, Type 3, Type 4 |

Applicable Environmental and Other Programs

| | |
|---------------------------------------|------------|
| EU RoHS Compliance Date (yyyy-mm-dd): | 2018-01-03 |
|---------------------------------------|------------|

Flammability, LSOH, Toxicity Testing

| | |
|--|---------------|
| ISO/IEC Flammability: | IEC 60332-1-2 |
| Burning Load: | 500 kJ/m |
| Amount of Halogen acc. to IEC 60754-1 & EN50267-1: | Zero |

Part Number

Variants

| Item # | Color | Length |
|---------------|-------|--------|
| 2202ENH.00500 | Blue | 500 m |

| | |
|---------|---|
| Patent: | https://www.belden.com/resources/patents |
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History

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|----------------------|---|
| Update and Revision: | Revision Number: 0.71 Revision Date: 09-17-2019 |
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