Part Number: 2149A

Category 6 Indoor/Outdoor CMR/CMX F/UTP Cable

Product Description

CAT6+ (350MHz), 4-Pair, F/UTP-Foil Shielded, Riser-CMR-CMX Outdoor, Premise Horizontal Cable, 23 AWG Solid Bare Copper Conductors, Polyolefin Insulation, Patented X-Spline, Overall Beldfoil Shield, PVC Jacket

Technical Specifications

Product Overview

Environmental Space:	Indoor/Outdoor
Suitable Applications:	OSP-Outdoor, Networking Horizontal Cable, HDBaseT, 1000Base-T (Gigabit Ethernet), 100Base-T (Fast Ethernet), 10Base-T (Ethernet), 100BaseVG, ANYLAN, 155ATM, 622ATM, ANSI.X3.263 FDDI TP-PMD, NTSC/PAL Component or Composite Video, AES/EBU, Digital Video RS-422, Noisy Environments

Physical Characteristics (Overall)

Conductor

AWG	Stranding	Material	No. of Pairs
23	Solid	BC - Bare Copper	4

Conductor Count:	8
Total Number of Pairs:	4
Conductor Size:	23 AWG

Insulation

Material
3 x PO - Polyolefin, 1 x FEP - Fluorinated Ethylene Propylene

Bonded-Pair:	N/A

Color Chart

Number	Color
1	White/Blue Stripe and Blue
2	White/Orange Stripe and Orange
3	White/Green Stripe and Green
4	White/Brown Stripe and Brown

Outer Shield Material

Type	Material	Material Trade Name	Coverage [%]	Drainwire Material	Drainwire AWG
Tape	Aluminum/Polyester	Beldfoil®	100 %	TC - Tinned Copper	24

Outer Jacket Material

Material	Nominal Diameter	Ripcord
PVC - Polyvinyl Chloride	0.296 in	No

Electrical Characteristics

Conductor DCR

Max. Conductor DCR	Max. DCR Unbalance
93.8 Ohm/km	5 %

Capacitance

Max. Capacitance Unbalance	Nom.Mutual Capacitance
330 pF/100m	14 pF/ft

Delay

Frequency [MHz]	Max. Delay	Max. Delay Skew	Nominal Velocity of Propagation (VP) [%]
100 MHz	537.6 ns/100m	45 ns/100m	68 %

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]	Max./Min. Input Impedance (unFitted)	Min. TCL [dB]	Min. ELTCTL [dB]
0.772 MHz	1.8 dB/100m	77.0 dB	77.0 dB	75.2 dB	76.2 dB	73.0 dB	70.0 dB	19.4 dB	100 +/- 15	40.0 dB	37.2 dB
1 MHz	2.0 dB/100m	75.3 dB	75.3 dB	73.3 dB	74.3 dB	70.8 dB	67.8 dB	20.0 dB	100 +/- 15	40.0 dB	35.0 dB
4 MHz	3.7 dB/100m	66.3 dB	66.3 dB	62.6 dB	63.6 dB	58.8 dB	55.8 dB	23.0 dB	100 +/- 15	40.0 dB	23.0 dB
8 MHz	5.2 dB/100m	61.8 dB	61.8 dB	56.6 dB	57.6 dB	52.7 dB	49.7 dB	24.5 dB	100 +/- 15	40.0 dB	16.9 dB
10 MHz	5.8 dB/100m	60.3 dB	60.3 dB	54.5 dB	55.5 dB	50.8 dB	47.8 dB	25.0 dB	100 +/- 15	40.0 dB	15.0 dB
16 MHz	7.4 dB/100m	57.2 dB	57.2 dB	49.9 dB	50.9 dB	46.7 dB	43.7 dB	25.0 dB	100 +/- 15	38.0 dB	10.9 dB
20 MHz	8.3 dB/100m	55.8 dB	55.8 dB	47.5 dB	48.5 dB	44.8 dB	41.8 dB	25.0 dB	100 +/- 15	37.0 dB	9.0 dB
25 MHz	9.3 dB/100m	54.3 dB	54.3 dB	45.1 dB	46.1 dB	42.8 dB	39.8 dB	24.3 dB	100 +/- 15	36.0 dB	7.0 dB
31.25 MHz	10.4 dB/100m	52.9 dB	52.9 dB	42.5 dB	43.5 dB	40.9 dB	37.9 dB	23.6 dB	100 +/- 15	35.1 dB	5.1 dB
62.5 MHz	15.0 dB/100m	48.4 dB	48.4 dB	33.4 dB	34.4 dB	34.9 dB	31.9 dB	21.5 dB	100 +/- 15	32.0 dB	
100 MHz	19.3 dB/100m	45.3 dB	45.3 dB	26.0 dB	27.0 dB	30.8 dB	27.8 dB	20.1 dB	100 +/- 15	30.0 dB	
155 MHz	24.6 dB/100m	42.4 dB	42.4 dB	17.9 dB	18.9 dB	27.0 dB	24.0 dB	19.5 dB	100 +/- 22	28.1 dB	
200 MHz	28.3 dB/100m	40.8 dB	40.8 dB	12.5 dB	13.5 dB	24.8 dB	21.8 dB	18.7 dB	100 +/- 22	27.0 dB	
250 MHz	32.1 dB/100m	39.3 dB	39.3 dB	7.2 dB	8.2 dB	22.8 dB	19.8 dB	18.0 dB	100 +/- 32	26.0 dB	
300 MHz	35.6 dB/100m	38.1 dB	36.1 dB	2.5 dB	1.5 dB	21.3 dB	18.3 dB	17.5 dB	100 +/- 32	25.2 dB	
350 MHz	38.9 dB/100m	37.1 dB	35.1 dB			19.9 dB	16.9 dB	17.0 dB	100 +/- 32	24.6 dB	
400 MHz	42.0 dB/100m	36.3 dB	34.3 dB			18.8 dB	15.8 dB	16.6 dB	100 +/- 32	24.0 dB	
450 MHz	45.0 dB/100m	35.5 dB	33.5 dB			17.7 dB	14.7 dB	16.2 dB	100 +/- 32	23.5 dB	
500 MHz	47.9 dB/100m	34.8 dB	32.8 dB			16.8 dB	13.8 dB	15.9 dB	100 +/- 32	23.0 dB	
550 MHz	50.6 dB/100m	34.2 dB	32.2 dB			16.0 dB	13.0 dB	15.6 dB	100 +/- 32	22.6 dB	

Voltage

UL Voltage Rating
300 V RMS

Temperature Range

Installation Temp Range:	-20°C To +75°C
UL Temp Rating:	90°C
Storage Temp Range:	-40°C To +75°C
Operating Temp Range:	-40°C To +75°C

Mechanical Characteristics

Cold Bend Test:	-40°C Compliance Per UL 1581
Bulk Cable Weight:	41 lbs/1000ft
Max Recommended Pulling Tension:	25 lbs
Min Bend Radius/Minor Axis:	2.5 in
Min Bend Radius/Installation:	3.0 in

Standards

NEC/(UL) Specification:	CMG, CMR, CMX-Outdoor
CEC/C(UL) Specification:	CMR-CMX OUTDOOR OR CMG
ISO/IEC Compliance:	11801 ed 2.2 (2011) Class E
CPR Euroclass:	Eca
Data Category:	Category 6
ANSI Compliance:	S-116-732-2013 Category 6, ANSI/NEMA WC-66 Category 6
Telecommunications Standards:	ANSI/TIA-568-C.2 Category 6
IEEE Specification:	IEEE 802.3bt Type 1, Type 2, Type 3, Type 4
Other Specification:	Outdoor Use ANSI/ICEA S56434, Broadband Outdoor Use ANSI/ICEA S99689, Indoor/Outdoor Use ANSI/ICEA S100685
Third Party Performance Verification:	Category 6

Applicable Environmental and Other Programs

EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
EU Directive 2003/96/EC (BFR):	Yes
EU Directive 2011/65/EU (ROHS II):	Yes
EU Directive 2012/19/EU (WEEE):	Yes
EU Directive 2015/863/EU:	Yes
EU Directive Compliance:	Yes
EU CE Mark:	Yes
EU REACH SVHC Compliance (yyyy-mm-dd):	2017-07-10
EU RoHS Compliance Date (yyyy-mm-dd):	2016-04-04
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes

Suitability

Suitability - Aerial:	Yes - When supported by messenger wire
Suitability - Burial:	No
Suitability - Hazardous Locations:	No
Suitability - Indoor:	Yes
Suitability - Non-Halogenated:	No
Suitability - Oil Resistance:	Yes
Suitability - Outdoor:	Yes
Suitability - Sunlight Resistance:	Yes

Flammability, LS0H, Toxicity Testing

UL Flammability:	UL 1666 Riser
CSA Flammability:	FT4
ISO/IEC Flammability:	60332-1
IEEE Flammability:	1202 Vertical Tray
UL voltage rating:	300 V RMS

Plenum/Non-Plenum

Plenum (Y/N):	No
Plenum Number:	2413F / 1351A

Part Number

Non-Plenum Number:	2412F / 1352A

Variants

Item #	Color
2149A 0101000	Black

Patent:	https://www.belden.com/resources/patents

Product Notes

Notes:	Values above 300 MHz are for Engineering Information Only. Print Includes Descending Footage/Meter Markings from Max. Put-Up Length to 0.