

AT&T CopperLine Technical Specification

Cable Type: 4x2x22# S/FTP Category 8
100 Ohm LSOH Data Cable

AT&T P/N: 11S08HC004N-GY

Revision: 3 Date: 28 April 2017

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Category 8 S/FTP indoor cable, conforming to ANSI/TIA-568-C.2-1 Category 8 and to IEC 61156-9 Category 8.1 and 8.2 horizontal cable limits. The cable contains 4 individually foil-shielded twisted pairs cabled together, overall braid shielded and jacketed with LSOH compound for indoor use. The cable conforms to EU Regulation 305/2011 (CPR) Class Cca, EU Directive 2011/65/EU (RoHS-II), to IEC 60332-3-24 and it supports IEEE 802.3at (PoE+), UPoE and Class I and Class II permanent links & channels as specified in ISO/IEC 11801.

Physical Description

Basic Conductor	Solid 22AWG (UL444) bare annealed copper.
Insulation	SFS-PO.
Insulated conductors	8
Twisted pairs	4
Color code	Blue x White, Orange x White, Green x White, Brown x White.
Individual pair shield	Aluminum foil, providing 100% coverage, foil face out.
Overall shield	Tin-coated copper braid.
Drain wire	Per request.
Outer jacket	Low-smoke, Zero-halogen, Flame-retardant compound for indoor use.
Outer jacket thickness	0.75 mm nom.
Color	Light Gray RAL 9002.
Overall Diameter	8.0 mm nom.
Surface Marking	AT&T CopperLine 4P 22AWG CAT8 S/FTP LSOH IEC 60332-3-24 ETL VERIFIED to ANSI/TIA-568-C.2-1 & IEC 61156-9 CAT 8.2 CE EU 305/2011 (CPR) Class Cca 2011/65/EU (RoHS) [Batch Number] [Meter Mark] METER --- P/N 11S08HC004N ---

Mechanical Properties

Bend Radius	Dynamic: 8xD mm min. Static: 4xD mm min
Storage Temperature	-20 to +60C
Temperature installation range	0 to +50C
Temperature operating range	-20 to +60C
Flame Tests	IEC 60332-3-24 (Flame propagation), IEC 60754 (Acid gas) & IEC 61034 (Smoke density).
EU Regulation 305/2011 (CPR) conformance	CENELEC EN 13501 Class Cca-s1a,d1,a1. NB 0099.
Pulling force	150 N max.
Total Weight	67 kg/km nom.

Electrical Properties @ 20C TIA-568-C.2-1 and IEC 61156-9 FDIS CAT 8.2 (Sample length: 30m.)

Characteristic Impedance	TIA: NS IEC: 100±5 Ohm @ 100MHz.
Vp	75-77% nom.
Capacitance	NS
Capacitance unbalance to ground	1.2 pF/m max. @ 1 kHz
Insulation Resistance	0.5 GOhm·km min.
DC Resistance	TIA: 80 Ohm/km max. IEC: 70 Ohm/km max
TIA DC resistance unbalance	4% max inside pairs. 5% max between pairs.
IEC DC resistance unbalance	2% max inside pairs. 5% max between pairs
Voltage rating	72Vdc max.
Insertion Loss	1.8·f ^{1/2} +0.005·f+0.25/f ^{1/2} dB max. f=1-2000MHz dB/100m
NEXT	TIA: 45.3-15Log(f/100) dB min. f=1-2000MHz IEC: 105.4-15Log(f) dB min. f=1-2000MHz 78 dB max.
PS-NEXT	TIA: 42.3-15Log(f/100) dB min. f=1-2000MHz IEC: 102.4-15Log(f) dB min. f=1-2000MHz 75 dB max.
ACRF	TIA: 39.0-20Log(f/100) dB min. f=1-2000MHz IEC: 100.6-20Log(f) dB min. f=1-2000MHz 78 dB max.
PS-ACRF	TIA: 36.0-20Log(f/100) dB min. f=1-2000MHz IEC: 97.6-20Log(f) dB min. f=1-2000MHz 78 dB max.
IEC 61156-9 note	If FEXT loss >90 dB up to 1 000 MHz and >80 dB up to 2 000 MHz, ACR-F loss may not be calculated.
RL (TIA & IEC)	20+5Log(f) dB min. f=1-10MHz 25 dB min. f=10-40MHz 25-7Log(f/40) dB min. f=40-2000MHz
Coupling attenuation	IEC Type I: 85dB min @ 30-100 MHz. 85-20Log(f/100) dB min. @ 100-2000 MHz.
Transfer impedance	IEC Grade 1: 10 mOhm/m max. @ 1-10MHz. 30 mOhm/m max. @ 30MHz. 100 mOhm/m max. @ 100MHz.
Phase delay	534+36/f ^{1/2} ns/100m max. @ f=1-2000 MHz.
Delay Skew	25 ns/100m max. @ f= 1-2000MHz
TCL	50-15Log(f) @ 1-2000MHz - 7dB min. 40dB max.
EL-TCTL	40-20Log(f) min. @ 1-2000MHz 5dB min.
PS-ANEXT	117.5-15Log(f/100) min. @ 1-2000MHz 80 dB max.
PS-AACRF	102.2-20Log(f) min. @ 1-2000MHz 80 dB max.

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Transmission Properties @ 20C TIA-568-C.2-1 Category 8

FREQ.	Insertion Loss	NEXT	PS NEXT	ACR-F	PS ACR-F	RL	SKEW	Delay	TCL	EL-TCTL	PS ANEXT	PS AACRF
	dB/100m	dB	dB	dB/30m	dB/30m	dB	nS/100m	nS/100m	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Max	Max	Min	Min	Min	Min
1	2.06	75.30	72.30	75.00	75.00	20.00	25.00	570.00	50.00	40.00	80.00	80.00
4	3.75	66.27	63.27	66.96	63.96	23.01	25.00	552.00	40.97	27.96	80.00	80.00
10	5.82	60.30	57.30	59.00	56.00	25.00	25.00	545.38	35.00	20.00	80.00	80.00
25	9.18	54.33	51.33	51.04	48.04	25.00	25.00	541.20	29.03	12.04	80.00	74.24
31.25	10.26	52.88	49.88	49.10	46.10	25.00	25.00	540.44	27.58	10.10	80.00	72.30
62.5	14.57	48.36	45.36	43.08	40.08	23.64	25.00	538.55	23.06	5.00	80.00	66.28
100	18.53	45.30	42.30	39.00	36.00	22.21	25.00	537.60	20.00	5.00	80.00	62.20
250	29.73	39.33	36.33	31.04	28.04	19.43	25.00	536.28	14.03	5.00	80.00	54.24
500	42.76	34.82	31.82	25.02	22.02	17.32	25.00	535.61	9.52	5.00	77.02	48.22
1000	61.93	30.30	27.30	19.00	16.00	15.21	25.00	535.14	7.00	5.00	72.50	42.20
1500	77.22	27.66	24.66	15.48	12.48	13.98	25.00	534.93	7.00	5.00	69.86	38.68
2000	90.50	25.78	22.78	12.98	9.98	13.11	25.00	534.80	7.00	5.00	67.98	36.18

Transmission Properties @ 20C Category 8.2 IEC 61156-9 (FDIS)

FREQ.	Insertion Loss	NEXT	PS NEXT	ACR-F	PS ACR-F	RL	SKEW	Delay	TCL	EL-TCTL	PS-ANEXT	PS-AACRF
	dB/100m	dB	dB	dB/30m	dB/30m	dB	nS/100m	nS/100m	dB	dB	dB	dB
	Max	Min	Min	Min	Min	Min	Max	Max	Min	Min	Min	Min
1	2.06	78.00	75.00	78.00	75.00	20.00	25.00	570.00	40.00	40.00	80.00	80.00
4	3.75	78.00	75.00	78.00	75.00	23.01	25.00	552.00	40.00	27.96	80.00	80.00
10	5.82	78.00	75.00	78.00	75.00	25.00	25.00	545.38	35.00	20.00	80.00	80.00
25	9.18	78.00	75.00	72.64	69.64	25.00	25.00	541.20	29.03	12.04	80.00	74.24
31.25	10.26	78.00	75.00	70.70	67.70	25.00	25.00	540.44	27.58	10.10	80.00	72.30
62.5	14.57	78.00	75.00	64.68	61.68	23.64	25.00	538.55	23.06	5.00	80.00	66.28
100	18.53	75.40	72.40	60.60	57.60	22.21	25.00	537.60	20.00	5.00	80.00	62.20
250	29.73	69.43	66.43	52.64	49.64	19.43	25.00	536.28	14.03	5.00	80.00	54.24
500	42.76	64.92	61.92	46.62	43.62	17.32	25.00	535.61	9.52	5.00	77.02	48.22
1000	61.93	60.40	57.40	40.60	37.60	15.21	25.00	535.14	7.00	5.00	72.50	42.20
1500	77.22	57.76	54.76	37.08	34.08	13.98	25.00	534.93	7.00	5.00	69.86	38.68
2000	90.50	55.88	52.88	34.58	31.58	13.11	25.00	534.80	7.00	5.00	67.98	36.18