Ethernet over Copper Reference Guide

Connectivity.Assured

Ethernet Standard	Twisted Pair Cable		Data[1] Bandwidth (Mbit/s)	Bits/Hz	Spectral Bandwidth (MHz)	Data lanes per direction
	Name	Rating (MHz)				
40GBASE-T	CAT 8	2,000	40,000	6.25	1,600	4 lanes [2]
25GBASE-T			25,000	6.25	1,000	
10GBASE-T	CAT 6A	500	10,000	6.25	400	
5GBASE-T	CAT 6	250	5,000	6.25	200	
2.5GBASE-T	CAT 5e	100	2,500	6.25	100	
1000BASE-T			1,000	4	100	
100BASE-TX	CAT 5	100	100	3.2	100	1 lane [3]
10BASE-T	CAT 3	16	10	1	10	

1. Effective data bandwidth (after encoding overhead) is calculated as: **Bits/Hz × Spectral Bandwidth × Data lanes per direction**.
2. All four twisted pairs operate at full duplex (thus 4 lanes per direction)
3. One twisted pair operates TX at half duplex and another operates RX at half duplex. Two twisted pairs are unused.

Ethernet Standard	Maximum Run Length		
	<30m	<55m	<100m
40GBASE-T	CAT 8	—	—
25GBASE-T	CAT 8	—	—
10GBASE-T	CAT 5e/6	CAT 6	CAT 6A
5GBASE-T	CAT 5e	CAT 5e/6	CAT 6
2.5GBASE-T	CAT 5e	CAT 5e	CAT 5e
1000BASE-T	CAT 5e	CAT 5e	CAT 5e

Lengths as recommended by 802.3x standards. It is generally possible to use lower rated cables for shorter runs.

What About CAT 7 / 7a Cables?

These were originally intended for 10GBASE-T and higher but were supplanted by Cat 6a for 10BASE-T and bypassed by the 25 and 40GBASE-T standards.

Cat 7 is rated to 600MHz and Cat 7a is rated to 1000MHz.

The twisted pairs are individually shielded and the cables are shielded overall, providing better resistance to crosstalk.

CAT7/7a cables are not ratified by TIA/EIA & hence doesn't appear in the cable guide charts.

Copyright © 2020 Kordz Group

BROUGHT TO YOU BY: Africa's PROAV Distributor

ONE

Unterminated Network Cabling

kordz®

Connectivity.Assured

Models Available	Class	Construction		Spool Length	Jacket Options	
		Type	Conductors		Rating	Colour
ONE-CAT6	CAT 6	U/UTP	Solid OFC 24AWG	305m 1000ft	LSZH or UL CM	Blue Green Purple Yellow White
ONE-CAT6A	CAT 6A	F/UTP	Solid OFC 23AWG	152.5m 500ft		

ONE Series CAT6 Network Cable is:

Model: K13002-305M-XX

HDBT™ Recommended

Common Construction Names (ISO/IEC 11801 Annex E)		
Name	**Cable Shielding**	**Twisted Pair Shielding**
U/UTP	–	–
U/FTP	–	Foil
F/UTP	Foil	–
S/UTP	Braiding	–
SF/UTP	Braiding + Foil	–
F/FTP	Foil	Foil
S/FTP	Braiding	Foil
SF/FTP	Braiding + Foil	Foil

Compliance - LSZH models

CPR Declared Performance:

ONE-CAT 6: Dca-s2,d2,a1 (EN 50575:2014+A1:2016)

ONE-CAT 6A: Dca-s1,d2,a1 (EN 50575:2014+A1:2016)



ONE-CAT6 actual size

Copyright © 2020 Kordz Group

UPE-1.0.0

BROUGHT TO YOU BY: Africa's PRO AV Distributor