R&M*freenet* U/UTP Cat.6 450 MHz CMP

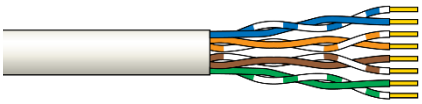
Cable reference

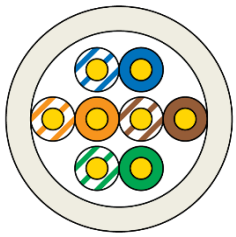
Part number	R see table
Source code	D
R&M positioning	Cat.6, Level 1

Cable construction

Conductor	Bare solid copper wire AWG23 ≥ Ø 0.022in (Ø 0.55 mm)
Insulation	FEP ≤ Ø 0.0386in (~ 0.95 mm)
Twisting	2 wires to the pair
Cable lay up	4 pairs to the core
Pair screen	Non
Overall screen	Non
Sheath	Flame Retardant, Low Smoke PVC

Article no.	Designation	Abbreviation	Colour
883508	White	wt	RAL9003
883509	Blue	bl	RAL5012
886979	Green	gn	GR-69
886980	Yellow	yl	YL-05
888251	Red	rd	RAL3000
888252	Black	bk	A00





Application

Primary (Campus), Secondary (Riser), Tertiary (Horizontal)
IEEE 802.3an: 10Base-T; 100Base-TX; 1000Base-T
IEEE 802.5 16 MB; ISDN; TPDDI; ATM
IEEE 802.3af / IEEE 802.3at / IEEE 802.3bt

Standards

ANSI/TIA-568.2, UL 444
Power over Ethernet (PoE) / Type 1-4

Fire rating

CMP

NFPA 262

Flame Test

UL Flame Test: NFPA 262 Plenum Flame Test (UL910)(FT6)
C(UL) Flame Test: FT6
CSA Flame Test: FT6

Technical Data

Cable designation	U/UTP Cat.6 450MHz 4PxAWG23
Packaging	Box 1000ft (305m)
Outer diameter	Nominal 0.21in (5.1mm)
Weight	23.47 lbs / Box (11.09kg)
Tensile force	22.046 lb (≤ 110 N)

Mechanical Properties

Bending radius	≥ 0.90in (23mm) during operation (without load)	
	≥ 2.12in (54mm) during installation (with load)	
Temperature range	During operation	-20°C…+ 75°C
	During installation	0°C…+ 60°C

Electrical Properties (at 20°C ± 5°C)

DC loop resistance		≤ 9.38 Ω / 100 m
Resistance unbalance		≤ 5 %
Test voltage	DC, 1 min, core/core	1000 V
Insulation resistance	500 V	≥ 5'000 MΩ * km
Capacitance		≤ 5.6 nF / 100m
Capacitance unbalance		≤ 3.3 pF /m
Mean characteristic impedance		100 ± 15 Ω
Nominal velocity of propagation		Approx. 70%
Propagation delay	At 1 MHz	≤ 570 ns / 100m
Delay skew		≤ 45 ns / 100m
Balance TCL	At 1 MHz	≥ 40 dB
	At 10 MHz	≥ 40 dB
	At 100 MHz	≥ 30 dB
	At 250 MHz	≥ 26 dB

Typical transmission characteristics (at 20°C)

f (MHz)	Attenuation (dB/100m)		NEXT (dB)		PS-NEXT (dB)		ACR-F [1] (dB/100m)		PS-ACR-F [1] (dB/100m)		Return loss (dB)	
	Max	**Typ**	**Min**	**Typ**	**Min**	**Typ**	**Min**	**Typ**	**Min**	**Typ**	**Min**	**Typ**
4	3.8	3.4	65.3	85	63.3	83	55.8	74	52.8	73	23	33
10	6.0	5.4	59.3	78	57.3	76	47.8	67	44.8	65	25	35
20	8.5	7.7	54.8	74	52.8	72	41.8	61	38.8	59	25	35
62.5	15.	14.1	47.4	66	45.4	64	31.9	51	28.9	49	21.5	36
100	19.	18.1	44.3	64	42.3	62	27.8	48	24.8	45	20.1	35
250	32.	29.8	38.3	58	36.3	55	19.8	40	16.8	37	17.3	32
450	46		34.5		32.5		14.7		11.7		15.5	

[1] ACR-F was formerly known as ELFEXT.

Recommended connection technique

Module		Perm. Link Class D	Perm. Link Class E	Channel Class E_A	Perm. Link Class E_A	Short Link Class E_A
	Cat.6EL /u	✓	✓	–	–	–
	Cat.6_A EL /u	✓	✓	–	–	–

Third party certificate ETL Verified Category 6 to ANSI/TIA-568.2