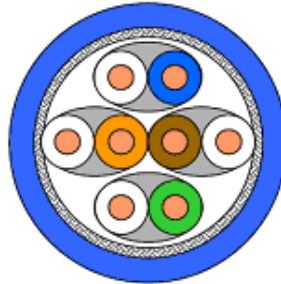


# R&M freenet Real10 S/FTP Cat.6A 650MHz

Source Code: A



**Application:** Primary (Campus), Secondary (Riser), Tertiary (Horizontal)  
IEEE 802.3: 10Base-T; 100Base-T; 1000Base-T; 10GBase-T  
IEEE 802.5 16 MB; ISDN; TPDDI; ATM

**Standards:** ISO/IEC 11801 2<sup>nd</sup> ed.; IEC 61156-5 2<sup>nd</sup> ed.  
EN 50173-1; EN 50288-x-1

**Fire rating:**  
**LSZH:** IEC 60332-1; IEC 60754-2; IEC 61034;  
**LSFRZH:** IEC 60332-3-24; IEC 60754-2; IEC 61034;

## Construction

Conductor	bare copper wire Ø 0.55 mm (AWG23)
Insulation	Polyethylene, Ø 1.25 mm
Twisting	2 cores to the pair
Cable lay up	4 pairs to the core
Pair screen	Aluminium/polyester tape
Screen	Copper Braid (approx. 50% coverage)
Sheath	LSZH, grey RAL 7035

## Technical Data

Product code	Designation	Brand name	Outer diameter mm	Tensile force N
R305649	4x2x0.55	R&M freenet Real10 Cat.6A 650MHz S/FTP 4P LSZH	7.0	80
R310488	4x2x0.55	R&M freenet Real10 Cat.6A 650MHz S/FTP 4P LSFRZH	7.1	80



Convincing cabling solutions

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### Mechanical Properties

Bending radius		≥ 35 mm without load ≥ 60 mm with load
Temperature range	during operation	-20°C...+ 60°C
	during installation	0°C...+ 50°C

### Electrical Properties (at 20°C ± 5°C)

DC loop resistance	≤ 16.5 Ω/100m
Resistance unbalance	≤ 2 %
Insulation resistance (500 V)	≥ 5000 MΩ.km
Capacitance	43 pF/m max.
Capacitance unbalance (pair to ground)	≤ 1500 pF/km max.
Mean characteristic impedance	(100 ± 15) Ω
Nominal velocity of propagation	approx. 76%
Propagation delay	≤ 534 ns/100m
Delay skew	≤ 40 ns/100m
Test voltage (DC, 1 min) Core/Core	1000 V
Transfer impedance	At 1MHz ≤ 10 mΩ/m
	At 10MHz ≤ 10 mΩ/m
	At 30MHz ≤ 20 mΩ/m

### Typical transmission characteristics (at 20 °C)

f (MHz)	Attenuation (dB/100m)		NEXT (dB)		PS-NEXT (dB)		ELFEXT (dB/100m)		PS-ELFEXT (dB/100m)		Return loss (dB)	
	Max	Typ	Min	Typ	Min	Typ	Min	Typ	Min	Typ	Min	Typ
1	2.0	1.8	80	100	77	97	80.0	105	77.0	105	20	-
10	5.7	5.4	80	100	77	97	74.0	97	71.0	94	25	30
16	7.2	6.8	80	100	77	97	69.9	93	66.9	90	25.0	30
31.2	10.1	9.6	80	100	77	97	64.1	87	61.1	84	23.6	30
62.5	14.5	13.7	75.1	100	72.1	97	58.1	81	55.1	78	21.5	30
100	18.5	17.4	72.4	100	69.4	97	54.0	77	51.0	74	20.1	30
155	23.4	21.9	69.6	94	66.6	91	50.2	73	47.2	70	18.8	26
200	26.8	25.0	67.9	92	64.9	89	48.0	71	45.0	68	18.0	25
250	30.2	28.1	66.5	90	63.5	87	46.0	69	43.0	66	17.3	24
300	33.3	30.9	65.3	87	62.3	86	44.5	67	41.5	64	17.3	24
600	48.9	44.8	60.8	85	57.8	82	38.4	61	35.4	58	17.3	22
650	-	47.9	-	85	-	81	-	60	-	57	-	22



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