

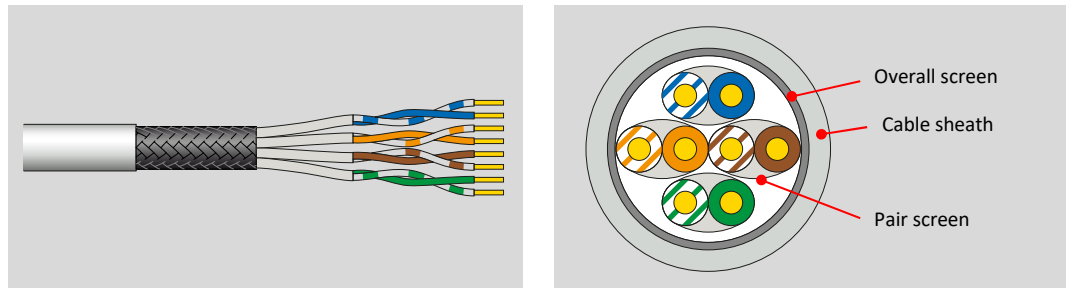
# R&Mfreenet S/FTP Cat.6A 650 MHz



R&Mfreenet S/FTP Cat.6A 650MHz 4PxAWG23 LSZH Dca NVP=82% ISO/IEC 11801 ANSI/TIA-568-C.2 R <batch no.> <dd/mm/yy> <meter> m

<b>Cable reference</b>	<b>Part number</b>	R305649
	<b>Source code</b>	R
	<b>R&amp;M positioning</b>	Cat.6A, Level 2

<b>Cable construction</b>	<b>Conductor</b>	Bare solid copper wire AWG23 ( $\geq \varnothing 0.56$ mm)
	<b>Insulation</b>	Polyethylene $\leq \varnothing 1.45$ mm
	<b>Twisting</b>	2 wires to the pair
	<b>Cable lay up</b>	4 paires to the core
	<b>Pair screen</b>	Alu / polyester tape
	<b>Overall screen</b>	Tin plated copper braid ( $\geq 25$ % coverage)
	<b>Sheath</b>	LSZH, gray RAL 7035



<b>Application</b>	<p>Primary (Campus), Secondary (Riser), Tertiary (Horizontal)          IEEE 802.3an: 10Base-T; 100Base-TX; 1000Base-T; 10GBase-T          IEEE 802.5 16 MB; ISDN; TPDDI; ATM          IEEE 802.3af / IEEE 802.3at / IEEE 802.3bt Power over Ethernet (PoE) / Type 1-4          Confirming to European regulation "CPR" EN 50575</p>
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<b>Standards</b>	ISO/IEC 11801 2 <sup>nd</sup> ed.; EN 50173-1; ANSI/TIA-568-C.2 IEC 61156-5 2 <sup>nd</sup> ed.
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<b>Fire rating</b>	LSZH IEC 60332-1; IEC 60754-1; IEC 60754-2; IEC 61034 EN50575; Dca s2-d1-a1; DOP C6571
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<b>Technical Data</b>	<b>Cable designation</b>	S/FTP Cat.6A 650MHz 4PxAWG23
	<b>Packaging</b>	Drum 500 m
	<b>Outer diameter</b>	Nominal 7.0 mm
	<b>Weight</b>	48 kg / km
	<b>Thermal load</b>	525 MJ / km
	<b>Segregation class</b>	D
	<b>Tensile force</b>	100 N

<b>Mechanical Properties</b>	<b>Bending radius</b>	$\geq 30$ mm during operation (without load)
		$\geq 60$ mm during installation (with load)
	<b>Temperature range</b>	During operation -20°C...+ 70°C
	During installation 0°C...+ 50°C	



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





<b>DC loop resistance</b>		≤ 14.6 Ω / 100 m	
<b>Resistance unbalance</b>		≤ 2 %	
<b>Test voltage</b>	DC, 1 min, core/core	1000 V	
<b>Insulation resistance</b>	500 V	≥ 5000 MΩ * km	
<b>Capacitance</b>		50 pF / m max.	
<b>Capacitance unbalance</b>		≤ 1600 pF / km	
<b>Mean characteristic impedance</b>		100 ± 5 Ω	
<b>Nominal velocity of propagation</b>		Approx. 82 %	
<b>Propagation delay</b>		≤ 538 ns / 100 m	
<b>Delay skew</b>		≤ 40 ns / 100 m	
<b>Coupling attenuation</b>		≥ 80 dB	Type 1b
<b>Transfer impedance</b>	At 1 MHz	≤ 10 mΩ / m	Grade 1
	At 10 MHz	≤ 10 mΩ / m	
	At 100 MHz	≤ 30 mΩ / m	
<b>Balance TCL</b>	At 1 MHz	≥ 50 dB	Level 2
	At 10 MHz	≥ 40 dB	
	At 100 MHz	≥ 30 dB	
<b>PS-Alien NEXT</b>	At 100 MHz	Min. 62.5 dB	
		Typ. 80 dB	

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

f (MHz)	Attenuation (dB/100 m)		NEXT (dB)		PS-NEXT (dB)		ACR-F <sup>1)</sup> (dB/100 m)		PS-ACR-F <sup>1)</sup> (dB/100 m)		Return loss (dB)	
	Max	Typ	Min	Typ	Min	Typ	Min	Typ	Min	Typ	Min	Typ
4	3.8	3.6	66.3	100	63.3	100	56	91.2	53	88.2	23	28
10	5.9	5.7	60.3	100	57.3	100	48	90.2	45	87.2	25	30
20	8.4	8.0	55.8	100	52.8	100	42	89	39	86	25	30
62.5	15	14.2	48.4	100	45.4	97.5	32.1	85.9	29.1	82.9	21.5	26.5
100	19.1	18.1	45.3	97.4	42.3	94.4	28	84	25	81	20.1	25.1
250	34.3	31.9	39.3	91.4	36.3	88.4	20	75.7	17	75.5	17.3	22.3
500	45.3	41.8	34.8	86.9	31.8	83.9	14	72.1	11	69.1	17.3	22.3
600	-	46.0	-	85.7	-	82.7	-	70.2	-	67.2	-	22.3
650	-	49.0	-	84.4	-	81.4	-	68	-	65.4	-	21.5

<sup>1)</sup> ACR-F was formerly known as ELFEXT

**Recommended connection technique**

Module		Perm. Link Class D	Perm. Link Class E	Channel Class E <sub>A</sub>	Perm. Link Class E <sub>A</sub>	Short Link Class E <sub>A</sub>
	Cat.5e/s	✓	-	-	-	-
	Cat.6 Real10/s	✓	✓	✓	-	-
	Cat.6A/s	✓	✓	✓	✓	✓
	Cat.6A EL/s	✓	✓	✓	✓	✓

**Third party certificate**

3P Third Party Testing