

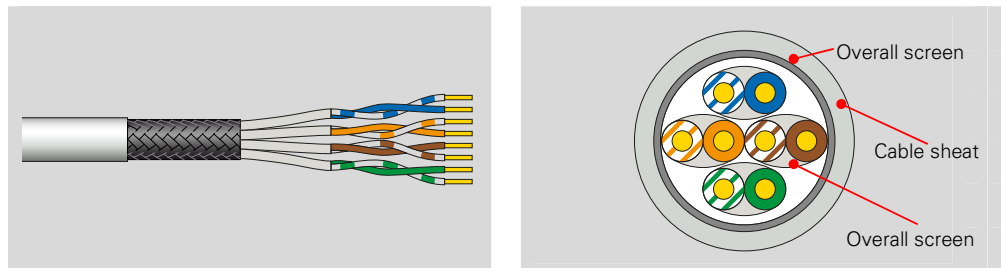
# R&Mfreenet S/FTP Cat.8.2 2000 MHz

17.03.2016 / V1.0 / Ri

R&Mfreenet S/FTP Cat. 8.2 2000MHz 1x4PxAWG22 LSFRZH NVP=73% ISO/IEC 11801 B <batch no.> <td/mm/yy> <meter> m

<b>Cable reference</b>	<b>Part number</b>	R828594
	<b>Source code</b>	B/V
	<b>R&amp;M positioning</b>	Cat.8.2

<b>Cable construction</b>	<b>Conductor</b>	Bare solid copper wire AWG22 ( $\geq \varnothing 0.64$ mm)
	<b>Insulation</b>	Polyethylene $\leq \varnothing 1.60$ mm
	<b>Twisting</b>	2 wires to the pair
	<b>Cable lay up</b>	2 times 4 pairs to the core
	<b>Pair screen</b>	Alu / polyester tape
	<b>Overall screen</b>	Copper braid (nom. 50% coverage)
	<b>Sheath</b>	LSFRZH, gray RAL 7035; acc. EN50289-2-27



**Application**

Primary (Campus), Secondary (Riser), Tertiary (Horizontal)  
 IEEE 802.3an: 10Base-T; 100Base-TX; 1000Base-T;  
 IEEE 802.3aq: 10GBASE-T over Class-EA 100 m channel; 25GBASE-T over Class-FA 30 m channel; 40GBASE-T over Class-I 30 m channel  
 IEEE 802.5 16 MB; ISDN; TPDDI; ATM; CATV; SOHO-Cabling  
 IEEE 802.3af-2002: POE; IEEE 802.3at: IEEE 802.3bt; POE+

**Standards**

ISO/IEC 11801 2<sup>nd</sup> ed.; EN 50173-1  
 IEC 61156-5; EN50288-9-1 ; IEC 61156-9 (46C/1037E/FDIS)

**Fire rating**

LSFRZH  
 IEC 60332-1; IEC 60332-3-24; IEC 60754-2; IEC 61034

<b>Technical Data</b>	<b>Cable designation</b>	S/FTP Cat.8.2 2000MHz 1x4PxAWG22
	<b>Packaging</b>	Drum 500 m
	<b>Outer diameter</b>	Nominal 8.5mm
	<b>Weight</b>	40 kg / km
	<b>Thermal load</b>	674 MJ / km
	<b>Segregation class</b>	D
	<b>Tensile force</b>	340 N

<b>Mechanical Properties</b>	<b>Bending radius</b>	$\geq 34$ mm during operation (without load)
		$\geq 68$ mm during installation (with load)
	<b>Temperature range</b>	During operation -20°C...+ 60°C
		During installation 0°C...+ 50°C



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<b>Electrical Properties</b> (at 20°C ± 5°C)	<b>DC loop residue</b>		≤ 14 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>	At 800 Hz	43 pF / m nom.
	<b>Capacitance unbalance</b>		≤ 1.2 pF / m
	<b>Mean characteristic impedance @ 100 MHz</b>		100 ± 5 Ω
	<b>Nominal velocity of propagation</b>		Approx. 76 %
	<b>Propagation delay</b>	At 1 MHz	≤ 500 ns / 100 m
	<b>Delay skew</b>		≤ 25 ns / 100 m
	<b>Coupling attenuation</b>		≥ 85 dB
	<b>Transfer impedance</b>	At 1 MHz	≤ 5 mΩ / m
		At 10 MHz	≤ 5 mΩ / m
		At 100 MHz	≤ 20 mΩ / m
<b>Balance TCL</b>	At 1 MHz	≥ 40 dB	
	At 10 MHz	≥ 35 dB	
	At 100 MHz	≥ 20 dB	
<b>PS-Alien NEXT</b>	At 100 MHz	≥ 80 dB	
		Typ. 85 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	3.7	3.0	78	102	75	99	78	98	75	95	17	33
10	5.8	4.9	78	102	75	99	78	97	75	94	25	32
20	8.2	7.0	78	102	75	99	74.6	96	71.6	93	25	31
62.5	14.5	12.5	78	100	75	97	64.7	94	61.7	91	23.6	30
100	18.5	16.1	75.4	100	72.4	97	60.6	90	57.6	87	22.2	27
250	29.7	24.2	69.4	97	66.4	94	52.6	83	49.6	83	19.4	22
600	47.1	48.0	63.7	96	60.7	93	45	80	42	77	16.8	22
1000	61.9	55.8	60.4	89	57.4	86	40.6	75	37.6	72	15.2	20
1500	77.2	67.5	57.8	83	54.8	80	37.1	66	34.1	63	14.0	19
2000	90.5	78.1	55.9	75	52.9	72	34.6	59	31.6	56	13.1	18

<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>	Perm. Link Class I
 Cat.5e/s	✓	–	–	–	–
 Cat.6 Real10/s	✓	✓	✓	–	–
 Cat.6 <sub>A</sub> EL/s	✓	✓	✓	✓	✓
 Cat.6 <sub>A</sub> /s	✓	✓	✓ Best in Class	✓ Best in Class	✓ Best in Class

(\*): see installation guide / **Third party certificate**