

Network Rail Telecommunications Cable

PACW/ solid polyethylene insulation/moisture barrier/HFFR sheath External Telephone Cable – suitable for tunnel and sub-surface applications (Complies with Specifications NR/PS/TEL/00015 and BR1916) Network Rail certificate of acceptance - PA05/06233



HFFR trackside telecom cable Duct grade (for tunnels and platforms)

Application

The cable is designed primarily for underground track-side railway installation. It is suitable for installation in ducts and on cable trays in tunnel wall. It is a twisted pair cable with fire barrier tapes and Moisture barrier bonded to a Thermoplastic HFFR Sheath.

The cable is also available with protection against crushing and rodent attack by the inclusion of a corrugates steel tape armour bonded to the outer HFFR sheath. The product satisfies the requirements of Network Rail Specification NR/PS/TEL/00015 (formerly TR/E/PS/00015 & BR1916/BR1822)

Construction

Twisted pairs in 10 Pair Units. The pair range is 2 – 100.

Product description

Plain annealed solid copper wire, solid polyethylene insulation, twisted pairs, fire barrier tapes, black HFFR thermoplastic sheath incorporating a longitudinally applied aluminium/polyethylene moisture barrier.



Number Pairs	BCC P/N	Nominal Cdr Size (mm)	Minimum Elongation (%)	Nominal Ins. Diameter (mm)	Duct / Inner Sheath Cable		Min Bend Radius (mm)	Cable Weight (kg/km)
					Min. Radial (mm)	Diameter Max. (mm)		
2	10187110	0.63	15	1.15	2.5	12.3	148	120
5	10187111	0.63	15	1.15	2.5	13.8	166	172
10	10187112	0.63	15	1.15	2.5	15.6	188	240
20	10180865	0.63	15	1.15	2.5	18.1	218	351
30	10181531	0.63	15	1.15	2.5	20.4	245	454
50	10187113	0.63	15	1.15	2.5	24.2	291	643
75	10187114	0.63	15	1.15	2.5	28.2	339	865
100	10187115	0.63	15	1.15	2.5	31.0	372	1080
2	10188109	0.90	15	1.50	2.5	13.3	160	146
5	10188110	0.90	15	1.50	2.5	16.1	194	234
10	10188111	0.90	15	1.50	2.5	18.0	216	343
20	10188112	0.90	15	1.50	2.5	21.9	263	537
30	10188113	0.90	15	1.50	2.5	25.2	303	718
50	10188144	0.90	15	1.50	2.5	30.0	360	1064
75	10188115	0.90	15	1.50	2.5	35.8	430	1479
100	10188116	0.90	15	1.50	2.5	39.1	470	1882

Cu Size (mm)	Mutual Capacitance (nF/km)		Conductor Resistance @ 20°C (ohms)	
	Max Average	99%	Max Average	99%
0.63	61	68	58.0	60.0
0.90	65	70	28.0	30.0

Attenuation & Near -End Crosstalk	Cu Size (mm)	Measurement Frequency		
		1.0 kHz	2.4 kHz	1.024 MHz
Attenuation dB/km (Max Ave)	0.63	1.40	2.15	18.70
	0.90	0.95	1.46	14.60
NEXTA (dB Minimum)		70.00	65.00	Within Unit
				40.00
				Between Unit
				47.00

Insulation resistance

Insulation resistance measurements shall be made with not less than 500 volts D.C. After steady electrification for one minute the insulation resistance measured between each conductor and the remaining conductors connected together shall be not less than 1500 megohms per 1000 metres at 20°C.

Capacitance unbalance

Not more than 1% of the corrected capacitance unbalance measurements between adjacent pairs shall exceed the following values: Two-Pair (Quad) Cable 800pF. All other sizes 275pF.

Fire Test Performance

Smoke Emission

Compliant with BS6853, Appendix B and IEC 61034.

Flammability

Sheath materials has Temperature Index \geq 260°C (BS6853 Appendix A).

Low Smoke Sheath

\leq 0.05% Halogenated material.

Pair colour scheme, unit binder colours and cable make-up

Cabling Element No.	a-wire	b-wire	Unit Number	Binder Colour	Cable Size	No. and Pair Size of Unit in Centre and 1st Layer	
						Centre	1st layer
1	WHITE	BLUE	1	BLUE	2	1 x 2	-
2	WHITE	ORANGE	2	ORANGE	5	1 x 5	-
3	WHITE	GREEN	3	GREEN	10	1 x 10	-
4	WHITE	BROWN	4	BROWN	20	4 x 5	-
5	WHITE	Grey	5	Grey		2 x 10	-
6	RED	BLUE	6	WHITE	30	6 x 5	-
7	RED	ORANGE	7	RED		3 x 10	-
8	RED	GREEN	8	BLACK	50	5 x 10	-
9	RED	BROWN	9	YELLOW		1 x 10	4 x 10
10	RED	Grey	10	VIOLET	75	3 x 5	6 x 10
					100	2 x 10	8 x 10
						3 x 10	7 x 10
						4 x 5	8 x 10



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