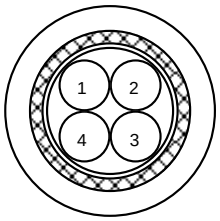
BRAND-REX LTD

GPS-HF3-LUL



PRIMARY

Conductor:	24 AWG solid bare copper.
Insulation:	Polyolefin.
Diameter:	1.07mm nominal.

PAIR: 2) of the above primaries.

CABLE CONSTRUCTION: 4) of the above pairs (Items 1-4).

Binder:	Wrapped with polyester tape, 100% coverage.
Tape screen:	Aluminised polyester tape, 100% coverage.
Braid screen:	0.127mm tin copper, 65% minimum coverage.
Sheath:	RAL 7037 Grey flame retardant halogen free elastomer. 0.8mm nominal radial thickness
Diameter:	7.0mm nominal.

COLOUR CODE:

Pair 1 - WHITE/BLUE	BLUE
Pair 2 - WHITE/ORANGE	ORANGE
Pair 3 - WHITE/GREEN	GREEN
Pair 4 - WHITE/BROWN	BROWN

PHYSICAL PARAMETERS

Minimum bending radius:	8 x Cable OD (During Installation) 4 x Cable OD (Installed)
Temperature Range:	0ºC to + 50ºC (Installation) -20ºC to + 75ºC (Operational)

FIRE PERFORMANCE The cable meets the London Underground Code of Practice for Fire Safety of Materials used in the Underground.

				Drawn by	Date	Checked	Approved
1	PS	11/99	Electricals				
2	IW	03/06	Logo, data	Iain Wilson	21/06/96	PS	JW
3	IW	11/06	Part No.				

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Drawing Number 5191

Revision Level : 3

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Mechanical characteristics

Minimum bend radius:	8 x Outer Diameter (installation) & 4 x Outer Diameter (operational)
Temperature range:	0 to 50 °C (installation) & -20 to 75 °C (operational)
Max Tensile load:	10kg simplex cable (installation)

Electrical Characteristics @ 20°C

Characteristic	Specification	Typical performance
Conductor Loop Resistance	Max 19 Ω/100m	16 Ω/100m
Conductor Resistance Unbalance	Max 2 %	0.5 %
Dielectric Strength	1.0kV d.c. or 0.7kV a.c. for 1min	100% in process test
Insulation resistance	>500 MΩ.km @ 100-500V test voltage	>5 GΩ.km
Capacitance Unbalance to Earth	Max 160 pF/100m	40 pF/100m
Velocity of Propagation	<537.6 nS/100m @100MHz	496 nS/100m @100MHz (NVP for hand held testers = 0.68)
Skew	Max 40 nsec/100m @100MHz	25 nsec/100m @100MHz
Mean Characteristic Impedance	100 Ω ± 5Ω @ 100 MHz	100 Ω ± 3Ω @ 100 MHz
Surface Transfer Impedance	Max 100 mΩ/m @ 10MHz	20 mΩ/m @ 10MHz (ISO 61156 grade 2 cable - see fig 2)
Coupling Attenuation up to 1GHz (ffs)	Min 55dB	80dB

frequency (MHz)		1	4	10	16	20	31.25	62.5	100	155	200	250
Insertion Loss (dB/100m)	Spec*	2.1	4.0	6.3	8.0	9.0	11.4	16.5	21.4	na	na	na
	Typical	2.0	3.8	6.0	7.6	8.6	10.8	15.8	20.4	26.1	30.3	34.5
NEXT (dB)	Spec*	65.3	56.3	50.3	47.2	45.8	42.9	38.4	35.3	na	na	na
	Typical	73.3	64.3	58.3	55.2	53.8	50.9	46.4	43.3	40.4	38.8	37.3
PSNEXT (dB)	Spec*	62.3	53.3	47.3	44.2	42.8	39.9	35.4	32.3	na	na	na
	Typical	70.3	61.3	55.3	52.2	50.8	47.9	43.4	40.3	37.4	35.8	34.3
ELFEXT (dB/100m)	Spec*	63.8	51.8	43.8	39.7	37.8	33.9	27.9	23.8	na	na	na
	Typical	78.8	66.8	58.8	54.7	52.8	48.9	42.9	38.8	35.0	32.8	30.8
PSELFEXT (dB/100m)	Spec*	60.8	48.8	40.8	36.7	34.8	30.9	24.9	20.8	na	na	na
	Typical	76.8	64.8	56.8	52.7	50.8	46.9	40.9	36.8	33.0	30.8	28.8
Return loss (dB)	Spec*	na	23.0	25.0	25.0	25.0	23.6	21.5	20.1	na	na	na
	Typical	25.0	28.0	30.0	30.0	30.0	28.6	26.5	25.1	23.8	23.0	22.3
ACR (dB/100m)	Typical	71.3	60.5	52.3	47.6	45.2	40.0	30.6	22.9	14.3	8.5	2.9
PSACR (dB/100m)	Typical	68.3	57.5	49.3	44.6	42.2	37.0	27.6	19.9	11.3	5.5	-0.1

EN50288-2-1: 2002

Figure 1: ACR chart

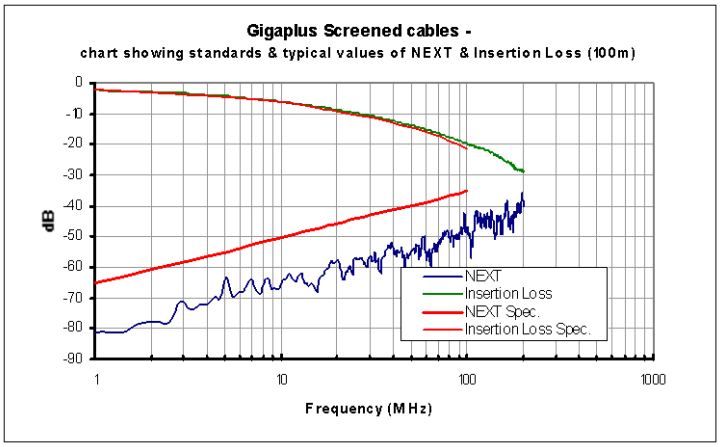
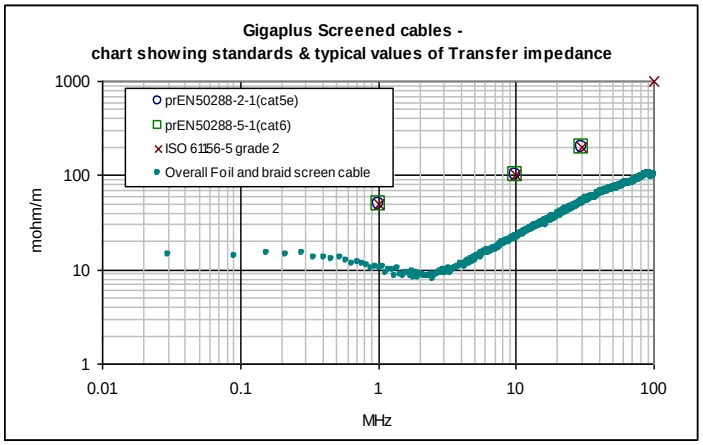
Figure 2: STI chart