RADIO FREQUENCY SYSTEMS
The Clear Choice®

1-1/4" RADIAFLEX® RLKL Cable, A-series

- RADIAFLEX® functions as a distributed antenna to provide communications in tunnels, mines and large building complexes and is the solution for any application in confined areas.
- Slots in the copper outer conductor allow a controlled portion of the internal RF energy to be radiated into the surrounding environment. Conversely, a signal transmitted near the cable will couple into the slots and be carried along the cable length.
- RADIAFLEX® is used for both one-way and two-way communication systems and because of its broadband capability, a single radiating cable can handle multiple communication systems simultaneously.
- This RADIAFLEX® radiating cable utilize a low-loss cellular polyethylene foam dielectric and a smooth copper outer conductor which offers a superior electrical performance together with good bending properties.

RLK cable, A-series

FEATURES / BENEFITS

- TETRA optimized cable
- Wideband from 30 MHz to 520 MHz
- For applications in tunnels and buildings
- Low coupling loss variations

Technical Features

GENERAL SPECIFICATIONS		
Size		1-1/4"
ELECTRICAL SPECIFICATIONS		
Max. Operating Frequency	MHz	520
Cable Type		RLKL
Impedance	Ohm	50 +/- 2
Velocity	%	91
Capacitance	pF/m (pF/ft)	73 (22.25)
DC-resistance inner conductor	Ω/km (Ω/1000ft)	0.84 (0.256)
DC-resistance outer conductor	Ω/km (Ω/1000ft)	1.85 (0.564)
Stop bands	MHz	34-37, 41-44, 82-86
MECHANICAL SPECIFICATIONS		
Jacket		JFN
Jacket Description		Halogen free, non corrosive, flame and fire retardant, low smoke, polyolefin
Slot Design		Groups of vertical slots at short intervals
Inner Conductor Material		Copper Tube
Outer Conductor Material		Overlapping Copper Foil
Diameter Inner Conductor	mm (in)	13.45 (0.53)
Diameter Outer Conductor	mm (in)	34 (1.34)
Diameter over Jacket	mm (in)	38.1 (1.5)
Minimum Bending Radius, Single Bend	mm (in)	500 (20)
Cable Weight	kg/m (lb/ft)	0.87 (0.58)
Tensile Force	N (lb)	2000 (440)
Indication of Slot Alignment		Guides opposite to slots
Recommended Clamp Spacing	m (ft)	1.3 (4.25)
Minimum Distance to Wall	mm (in)	80 (3.15)
TEMPERATURE SPECIFICATIONS		
Storage Temperature	°C(°F)	-70 to 85 (-94 to 185)
Installation Temperature	°C(°F)	-25 to 60 (-13 to 140)
Operation Temperature	°C(°F)	-40 to 85 (-40 to 185)

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ATTENUATION AND POWER RATING

Frequency	Longitudinal loss	Coupling Loss	
MHz	dB/100m (dB/100ft)	50%, dB	95%, dB
IN FREE SPACE			
75	0.79 (0.24)	49 (52)	60 (62)
150	1.12 (0.34)	57 (59)	60 (65)
225	1.37 (0.42)	57 (59)	61 (65)
380	1.95 (0.60)	54 (57)	58 (62)
400	2.00 (0.61)	53 (56)	56 (60)
420	2.12 (0.65)	53 (56)	55 (59)
450	2.18 (0.67)	52 (56)	54 (58)
470	2.30 (0.70)	52 (56)	54 (58)
500	2.41 (0.74)	51 (55)	53 (57)
IN TYPICAL TUNNEL			
75	1.24 (0.38)	52 (53)	60 (62)
150	1.53 (0.47)	55 (58)	61 (65)
225	1.80 (0.55)	56 (58)	61 (64)
380	2.31 (0.71)	51 (55)	54 (58)
400	2.38 (0.73)	50 (54)	53 (57)
420	2.44 (0.75)	50 (54)	53 (57)
450	2.54 (0.77)	49 (53)	51 (55)
470	2.62 (0.80)	49 (53)	51 (55)
500	2.73 (0.83)	49 (53)	51 (55)

TESTING AND ENVIRONMENTAL

Jacket Testing Methods		Test methods for fire behaviour of cable : IEC 60754-1/-2 smoke emission: halogen free, non corrosive IEC 61034 low smoke IEC 60332-1 flame retardant IEC 60332-3-24 fire retardant UL1666, ASTM E 662, NES711 and NES713

External Document Links

Notes

- Coupling loss and longitudinal attenuation of RADIAFLEX® cables are measured according to IEC 61196-4. The cable tests are performed under tunnel conditions (ground level method) and free space method (cable in 2 m height).
- Coupling loss values are measured with dipole antenna.
- The coupling loss values given in brackets are average values of all three spatial orientations (radial, parallel and orthogonal). The best values among the three spatial orientations are stated as well.
- Coupling loss values are given with a manufacturing tolerance of +3dB (typ.) and longitudinal loss values with a manufacturing tolerance of +5% (typ.). Values are stated for a typical in-tunnel application as well as for the IEC norm free-space environment.
- In case of a conflict of operational and stop band, please contact RFS for further assistance.
- As with any radiating cable, the performance in actual building or tunnel environments may deviate from figures based on ground level method in tunnel or from the free space method.