

# PRODUCT DATASHEET RLK114-50JFLA 1-1/4" RADIAFLEX® RLK 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.

### FEATURES / BENEFITS

- Broadband from 30 MHz to 980 MHz
- For applications in tunnels and buildings
- Low coupling loss variations



### **GENERAL SPECIFICATIONS**

Size		1-1/4			
ELECTRICAL SPECIFICATIONS					
Max. Operating Frequency	MHz	980			
Cable Type		RLK			
Impedance	Ohm	50 +/- 2			
Velocity, percent	%	89			
Capacitance	pF/m (pF/ft)	74 (22.6)			
Inductance, uH/m (uH/ft)	μH/m (μH/ft)	0.188 (0.057)			
DC-resistance inner conductor, ohm/km (ohm/1000ft)	Ω/km (Ω/1000ft)	2.4 (0.74)			
DC-resistance outer conductor, ohm/km (ohm/1000ft)	Ω/km (Ω/1000ft)	1.95 (0.59)			
Stop bands	MHz	300-375, 650-685			
Frequency Selection	MHz	600, 900			

REV DATE : 12.02.2018



picture shows generic slot pattern



470

500

800

870

900

960

RLK114-50JFLA

Jacket Description     Halogen free, non corrosive, flame and fire retardant, low smoke, polyolefin + flame barri tape above outer conductor for lowest cable loss       Slot Design     Groups of vertical slots at short intervals       Inner Conductor Material     Corrugated Copper Tube       Outer Conductor Material     Overlapping Copper Strip       Diameter Outer Conductor     mm (in)     38.2(1.5)       Diameter over Jacket Nominal     mm (in)     38.2(1.5)       Minimum Bending Radius, Single Bend     mm (in)     32.5(1.3)       Cable Weight     kg/m (lb/ft)     0.03.7(0.53)       Tensile Force     N(lb)     2000 (440)       Indication of Slot Alignment     Guides opposite to slots       Recommende / Maximum     mm (in)     80 (3.15)       TESTING AND ENVIRONMENTAL     Test methods for fire behaviour of cable : IEC 60754-1/-2 smoke emission: halogen free, non corrosive IEC 6032-3-24 fire retardant ULI 666, ATTM 6 662, NES711 and NES713       Macket Testing Methods     °C(°F)     -70 to 85 (-94 to 185)       TESTING AND ENVIRONMENTAL     Storage Temperature     °C(°F)       Testing Methods     °C(°F)     -70 to 85 (-94 to 185)       TESTING AND ENVIRONMERVAL     Storage Temperature     °C(°F)       TESTING AND ENVIRONMENTAL     Storage Temperature     °C(°F)       TESTING AND ENVIRONMENTAL     Storage Temperature     °C(°F)       TESTING	Jacket			JFL			
Cape above outer Conductor invest cabe loss           Groups of vertical slots at short intervals           Inner Conductor Material         Corrugated Copper Tube           Outer Conductor Material         Overlapping Copper Strip           Diameter over Jacket Nominal         mm (in)         33 (0.55)           Diameter over Jacket Nominal         mm (in)         34 (1.34)           Diameter over Jacket Nominal         mm (in)         33 (0.55)           Diameter over Jacket Nominal         mm (in)         33 (0.55)           Diameter over Jacket Nominal         mm (in)         33 (0.55)           Cable Weight         kg/m (b/ft)         0.87 (0.58)         Test           Cable Weight         kg/m (b/ft)         0.87 (0.58)         Test           Indication of Slot Alignment         kg/m (b/ft)         0.87 (0.58)         Test           Recommended / Maximum Clamp Spacing         m (ft)         Test methods for fire behaver         Test           Inflication of Slot Alignment         m (in)         EC 61033 (0.315)         Test methods for fire behaver data           Inflication Slot Evertorextorextorextorextorextorextorextor	-		JF∟ Halogen free, non corrosive, flame and fire retardant, low smoke, polyolefin + flame barrie				
Inner Conductor MaterialCorrugated Copper TubeOuter Conductor MaterialIDiameter Inner Conductormm (in)Diameter Outer Conductormm (in)Diameter Outer Conductormm (in)Binneter Outer Conductormm (in)Binneter Outer Conductormm (in)Cable Weightkg/m (b/t)Cable Weightkg/m (b/t)Recommended / Maximum Clamp Spacingmm (in)TESTING AND ENVIRONMENTALTest methods for fire behaviour of cable : IEC 60332-11 fame retardant UL1666, ASTM E 662, NES711 and NES713 NFPA130 (ct.21 (NFPA70) via UL16S/FT4/IEEE1202TEMEEATURE SPECIFICATIONSUL1666, ASTM E 662, NES711 and NES713 NFPA130 (ct.21 (NFPA70) via UL16S/FT4/IEEE1202TEMEEATURE SPECIFICATIONE-25 to 60 (-13 to 140)Operation Temperature°C(*F)-70 to 85 (-94 to 185)Frequency, MHzmolty in the start s			tape above outer conductor for lowest cable loss				
Outer Conductor Material         Overlapping Copper Strip           Diameter Inner Conductor         mm (in)         3.9 (0.55)           Diameter Outer Conductor         mm (in)         3.4 (1.34)           Diameter over Jacket Nominal         mm (in)         3.8.2 (1.5)           Diameter over Jacket Nominal         mm (in)         3.8.2 (1.5)           Minimum Bending Radius, Singli         mm (in)         3.8.2 (1.5)           Gable Weight         kg/m (lb/ft)         0.87 (0.58)           Tensile Force         N (lb)         2000 (40)           Indication of Slot Alignment         Guides opposite to slots           Recommended / Maximum         m (ft)         1.3 (4.25)           Minimum Distance to Wall         mm (in)         80 (3.15)           TESTING AND ENVIRONMENTAL         Test methods for fire behaviour of cable : IEC 60754-17-2 smoke emission: halogen free, non corrosive IEC 60323-1 flam retardant UL1666, ASTM E 662, NEST11 and NEST13 NFPA130 (ed. 2014) Ch 12 (NEPA70) vis UL-168/ST41/EEE1202           TEMPERATURE SPECIFICATIONS         "C(*F)         -700 to 85 (94 to 185)           Storage Temperature         *C(*F)         -700 to 85 (94 to 185)           TESTIME AND FOWER RATURE         "C(*F)         -40 to 85 (-40 to 185)           Storage Temperature         *C(*F)         -70 to 85 (94 to 185) <t< td=""><td>Slot Design</td><td></td><td colspan="5">Groups of vertical slots at short intervals</td></t<>	Slot Design		Groups of vertical slots at short intervals				
Diameter Inner Conductor         mm (in)         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Inner Conductor Material		Corrugated Copper Tube				
Diameter Outer Conductor         mm (in)         Image: Conductor           Diameter over Jacket Nominal         mm (in)         38.2 (1.5)           Diameter over Jacket Nominal         mm (in)         38.2 (1.5)           Minimum Bending Radius, Single Bend         mm (in)         32.5 (13)           Cable Weight         kg/m (lb/ft)         0.87 (0.58)           Fensile Force         N (lb)         2000 (440)           Indication of Slot Alignment         Guides opposite to slots           Recommended / Maximum Clamp Spacing         m (in)         80 (3.15)           TESTING AND ENVIRONMENTAL         m (in)         80 (3.15)           Itest (Conductor of cable tert)         IEC 6032-12 (line tert)         Note (conductor of cable tert)           Iscaket Testing Methods         m (ft)         IEC 6032-14 (line tert)         IEC 60332-14 (line tert)           Iacket Testing Methods         ref (°F)         IEC 60332-14 (line tert)         IEC 60332-14 (line tert)           Iscaket Testing Methods         ref (°F)         -70 to 85 (-94 to 185)         IEC 60332-14 (line tert)           Ista Islation Temperature         °C(°F)         -70 to 85 (-94 to 185)         IEC 60332-14 (line tert)           Diperation Temperature         °C(°F)         -25 to 60 (-13 to 140)         S0(0)           TEREUXION AND	Outer Conductor Material		Overlapping Copper Strip				
Diameter over Jacket Nominal         mm (in)         38.2 (1.5)           Minimum Bending Radius, Single Bend         mm (in)         325 (13)           Cable Weight         kg/m (lb/ft)         0.87 (0.58)           Tensile Force         N (lb)         2000 (440)           Indication of Slot Alignmem         Guides opposite to slots           Recommended / Maximum Clamp Spacing         mm (in)         80 (3.15)           TESTING AND ENVIRONMENTAL         Test methods for fire behaviour of cable : IEC 6032-13.2 4.1/2 smoke emission: halogen free, non corrosive IEC 60332-3.24 fire retardant UL1666, ASTM E 662, NES711 and NES713 NFPA130 (ed. 2014) Ch 12 (NFPA70) via UL-1685/FT4/IEEE1202           TEMPERATURE SPECIFICATIONS         "C(°F)         -70 to 85 (-94 to 185)           Storage Temperature         °C(°F)         -25 to 60 (13 to 140)           Operation Temperature         °C(°F)         -40 to 85 (-40 to 185)           Storage Temperature         °C(°F)         -40 to 85 (-40 to 185)           Storage Temperature         °C(°F)         -40 to 85 (-40 to 185)           Storage Temperature         °C(°F)         -40 to 85 (-40 to 185)           Storage Temperature         °C(°F)         -25 to 60 (13 to 140)           Storage Temperature         °C(°F)         -20 to 85 (-90 to 185)           Storage Temperature         °C(°F)	Diameter Inner Conductor	mm (in)	13.9 (0.55)				
Minimum Bending Radius, Single Bendmm (in)325 (13)Cable Weightkg/m (lb/t)0.87 (0.58)Fensile ForceN (lb)Could > 0.087 (0.58)Indication of Slot AlignmentM (lb)Guides opposite to slotsRecommended / Maximum Clamp Spacingm (ft)	Diameter Outer Conductor	mm (in)	34 (1.34)				
Bend         Imm (in)         Gase (13)           Cable Weight         kg/m (ib/ft)         0.87 (0.58)           Tensile Force         N (ib)         2000 (440)           Indication of Slot Alignment         Gui Guides opposite to slots           Recommended / Maximum Clamp Spacing         m (ft)         Guides opposite to slot alignment           Minimum Distance to Wall         mm (in)         30 (3.15)           TESTING AND ENVIRONMENTAL         mm (in)         EC 60754-17-2 smoke emission: halogen free, non corrosive IEC 60322-1 flame retardant IEC 60332-324 fire retardant IEC	Diameter over Jacket Nominal	mm (in)	38.2 (1.5)				
Tensile ForceN (ib)		mm (in)	325 (13)				
Indication of Slot Alignment Recommended / Maximum Clamp Spacing m (ft)	Cable Weight	kg/m (lb/ft)	0.87 (0.58)				
Recommended / Maximum Clamp Spacing         m (ft)         1.3 (4.25)           Minimum Distance to Wall         mm (in)         80 (3.15)           TESTING AND ENVIRONMENTAL         S0 (3.15)           Jacket Testing Methods         IEC 60754-1/-2 smoke emission: halogen free, non corrosive IEC 60332-1 flame retardant UEC 60332-3-24 fire retardant UL1666, ASTM E 662, NES711 and NES713 NFPA130 (ed. 2014) Ch.12 (NFPA70) via UL-1685/FT4/IEEE1202           TEMPERATURE SPECIFICATIONS         NFPA130 (ed. 2014) Ch.12 (NFPA70) via UL-1685/FT4/IEEE1202           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 (-94 to 185)           Frequency, MHz         Longitudinal Loss, dB/100 m (dB/100 ft)         Coupling Loss 50%, dB         Coupling Loss 95%, dB           75         0.73 (0.22)         59 (63)         69 (73)           150         1.05 (0.32)         59 (63)         69 (73)           380         1.84 (0.56)         51 (54)         56 (59)           400         1.97 (0.60)         51 (54)         56 (59)	Tensile Force	N (lb)	2000 (440)				
m (ft)1.3 (4.25)Minimum Distance to Wallmm (in)80 (3.15)TESTING AND ENVIRONMENTALTest methods for fire behaviour of cable : IEC 60754-1/-2 smoke emission: halogen free, non corrosive IEC 6032-1 flame retardant UL1666, ASTM E 662, NES711 and NES713 NFPA130 (ed. 2014) Ch.12 (NFPA70) via UL-1685/FT4/IEEE1202Jacket Testing Methods°C(°F)-70 to 85 (-94 to 1857)Installation Temperature°C(°F)-70 to 85 (-94 to 1857)Operation Temperature°C(°F)-25 to 60 (-13 to 140)Operation Temperature°C(°F)-40 to 85 (-40 to 1857)Frequency, MHzLongitudinal Liss, dB/100 m (dB/100) ft)Coupling Loss 50%, dBCoupling Loss 95%, dB750.73 (0.22)59 (63)69 (73)1800.73 (0.23)59 (63)69 (73)3800.73 (0.23)59 (63)69 (73)3800.1.05 (0.32)51 (54)56 (59)4201.97 (0.60)51 (54)56 (59)	Indication of Slot Alignment		Guides opposite to slots				
TESTING AND ENVIRONMENTAL         Jacket Testing Methods         Jacket SelecificAtions         Storage Temperature       °C(°F)         °C(°F)       -70 to 85 (-94 to 185)         ATTENUATION AND POWER RATINE         Frequency, MHz       Longitudinal Loss, dB/100 m (dB/100 ft) <t< td=""><td></td><td>m (ft)</td><td colspan="4">1.3 (4.25)</td></t<>		m (ft)	1.3 (4.25)				
jacket Testing Methods Jacket Testing Methods Jacke	Minimum Distance to Wall	mm (in)	80 (3.15)				
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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)           ATTENUATION AND POWER RATING         -40 to 85 (-40 to 185)           Frequency, MHz         Longitudinal Loss, dB/100 m (dB/100 ft)         Coupling Loss 50%, dB         Coupling Loss 95%, dB           75         0.73 (0.22)         59 (63)         69 (73)           150         1.05 (0.32)         59 (63)         69 (73)           380         1.84 (0.56)         51 (54)         56 (59)           400         1.90 (0.58)         51 (54)         56 (59)           420         1.97 (0.60)         51 (54)         56 (59)	Jacket Testing Methods		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				
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Operation Temperature°C(°F)-40 to 85 (-40 to 185 )ATTENUATION AND POWER RATIUSFrequency, MHzLongitudinal SS, dB/100 m (dB/100 ft)Coupling Loss 50%, dBCoupling Loss 95%, dB750.73 (0.22)59 (63)69 (73)1501.05 (0.32)59 (63)69 (73)3801.05 (0.52)51 (54)56 (59)4001.90 (0.58)51 (54)56 (59)4201.97 (0.60)51 (54)56 (59)	Storage Temperature	°C(°F)	-70 to 85 (-94 to 185 )				
ATTENUATION AND POWER RATING       Longitudinal Loss, dB/100 m (dB/100 ft)       Coupling Loss 50%, dB       Coupling Loss 95%, dB         75       0.73 (0.22)       59 (63)       69 (73)         150       1.05 (0.32)       59 (63)       69 (73)         380       1.84 (0.56)       51 (54)       56 (59)         400       1.90 (0.58)       51 (54)       56 (59)         420       1.97 (0.60)       51 (54)       56 (59)	Installation Temperature	°C(°F)	-25 to 60 (-13 to 140 )				
Frequency, MHzLongitudinal Loss, dB/100 m (dB/100 ft)Coupling Loss 50%, dBCoupling Loss 95%, dB750.073 (0.22)59 (63)69 (73)1501.05 (0.32)59 (63)69 (73)3801.84 (0.56)51 (54)56 (59)4001.90 (0.58)51 (54)56 (59)4201.97 (0.60)51 (54)56 (59)	Operation Temperature	°C(°F)	-40 to 85 (-40 to 185 )				
Frequency, MHz         Coupling Loss 50%, dB         Coupling Loss 50%, dB         Coupling Loss 95%, dB           75         0.73 (0.22)         59 (63)         69 (73)           150         1.05 (0.32)         59 (63)         69 (73)           380         1.84 (0.56)         51 (54)         56 (59)           400         1.90 (0.58)         51 (54)         56 (59)           420         1.97 (0.60)         51 (54)         56 (59)	ATTENUATION AND POWER RATIN	IG					
150       1.05 (0.32)       59 (63)       69 (73)         380       1.84 (0.56)       51 (54)       56 (59)         400       1.90 (0.58)       51 (54)       56 (59)         420       1.97 (0.60)       51 (54)       56 (59)	Frequency, MHz	0		Coupling Loss 50%, dB	Coupling Loss 95%, dB		
380         1.84 (0.56)         51 (54)         56 (59)           400         1.90 (0.58)         51 (54)         56 (59)           420         1.97 (0.60)         51 (54)         56 (59)	75	0.73 (0.22)		59 (63)	69 (73)		
400         1.90 (0.58)         51 (54)         56 (59)           420         1.97 (0.60)         51 (54)         56 (59)	150	1.05 (0.32)		59 (63)	69 (73)		
<b>420</b> 1.97 (0.60) 51 (54) 56 (59)	380	1.84 (0.56)		51 (54)	56 (59)		
<b>420</b> 1.97 (0.60) 51 (54) 56 (59)	400	1.90 (0.58)		51 (54)	56 (59)		
	420	1.97 (0.60)		51 (54)	56 (59)		
	450	2.07 (0.63)					

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2.14 (0.65)

2.24 (0.68)

3.83 (1.17)

4.29 (1.31)

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## External Document Links

Web URL to CPR ressources with DoP and CE-label download folders

#### Notes

- Coupling loss as well as longitudinal attenuation of RADIAFLEX® cables are measured by the free space method according to IEC 61196-4.
- Coupling loss values are measured with a radial (below 330 MHz) or parallel (above 330 MHz) orientated dipole antenna.
- The coupling loss values given in brackets are average values of all three spatial orientations (radial, parallel and orthogonal) of dipole antenna.
- Coupling loss values are given with a tolerance of +10 dB and longitudinal loss values with a tolerance of +5%.
- In case of a conflict of operational and stop band, please contact RFS for further assistance.
- As with any radiating cable, the performance in building or tunnel environments may deviate from figures based on free space method.