

**RLK114-50CPR**

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 965 MHz
- For applications in tunnels and buildings
- Low coupling loss variations

**Technical Features****STRUCTURE**

|                              |                                                                                                                                               |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Cable Type                   | RLK                                                                                                                                           |
| Size                         | 1-1/4                                                                                                                                         |
| Inner Conductor Material     | Corrugated Copper Tube                                                                                                                        |
| Outer Conductor Material     | Overlapping Copper Strip                                                                                                                      |
| Jacket                       | CPR, EN50575:2014 + A1:2016 classified cable                                                                                                  |
| Jacket Description           | Halogen free, non corrosive, flame and fire retardant, low smoke, polyolefin + flame barrier tape above outer conductor for lowest cable loss |
| Slot Design                  | Groups of vertical slots at short intervals                                                                                                   |
| Indication of Slot Alignment | Guides opposite to slots                                                                                                                      |

**MECHANICAL SPECIFICATION**

|                                     |                      |
|-------------------------------------|----------------------|
| Diameter Inner Conductor            | 13.9mm (0.55in)      |
| Diameter Outer Conductor            | 34mm (1.34in)        |
| Minimum Bending Radius              | 325mm (13in)         |
| Cable Weight                        | 0.87kg/m (0.58lb/ft) |
| Tensile Force                       | 2,000N (440lb)       |
| Recommended / Maximum Clamp Spacing | 1.3m (4.25ft)        |
| Minimum Distance to Wall            | 80mm (3.15in)        |

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**ELECTRICAL SPECIFICATION**

|                               |                                        |     |     |
|-------------------------------|----------------------------------------|-----|-----|
| Impedance                     | 50 +/- 2 $\Omega$                      |     |     |
| Max. Operating Frequency      | 965 MHz                                |     |     |
| Velocity                      | 89 %                                   |     |     |
| Capacitance                   | 74pF/m (22.6pF/ft)                     |     |     |
| Inductance                    | 0.188 $\mu$ H/m (0.057 $\mu$ H/ft)     |     |     |
| DC-resistance inner conductor | 2.4 $\Omega$ /km (0.74 $\Omega$ /kft)  |     |     |
| DC-resistance outer conductor | 1.95 $\Omega$ /km (0.59 $\Omega$ /kft) |     |     |
| Stop bands                    | 300-350, 635 – 695, 965 and above      |     |     |
| Frequency Selection           | 400                                    | 800 | 900 |

**TESTING AND ENVIRONMENTAL**

|                          |                                                                                                                                                                                                                                                                                                                |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation Temperature    | -40 - 85 °C (-40 - 185°F)                                                                                                                                                                                                                                                                                      |
| Installation Temperature | -15 - 60 °C (5 - 140°F)                                                                                                                                                                                                                                                                                        |
| Storage Temperature      | -70 - 85 °C (-94 - 185°F)                                                                                                                                                                                                                                                                                      |
| Compliance               | Test methods for fire behaviour of cable :<br>IEC 60754-1/-2 smoke emission: halogen free, non corrosive<br>IEC 61034 low smoke<br>IEC 60332-1 flame retardant<br>IEC 60332-3-24 fire retardant<br>UL1666, ASTM E 662, NES711 and NES713<br>CPR: EN50575:2014 + A1:2016 classified cable, class B2ca s1a do a1 |

**ATTENUATION AND COUPLING LOSS**

| Frequency, MHz | Longitudinal Loss, dB/100 m<br>(dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|----------------|--------------------------------------------|-----------------------|-----------------------|
| 75             | 0.73 (0.22)                                | 53 (57)               | 66 (69)               |
| 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)               |
| 450            | 2.07 (0.63)                                | 51 (54)               | 56 (59)               |
| 470            | 2.14 (0.65)                                | 51 (54)               | 56 (59)               |
| 500            | 2.24 (0.68)                                | 51 (54)               | 56 (59)               |
| 700            | 3.79 (1.16)                                | 51 (54)               | 61 (64)               |
| 800            | 3.83 (1.17)                                | 51 (54)               | 61 (64)               |
| 870            | 4.29 (1.31)                                | 51 (54)               | 61 (64)               |
| 900            | 4.58 (1.40)                                | 51 (54)               | 61 (64)               |
| 960            | 4.93 (1.50)                                | 51 (54)               | 61 (64)               |

@ 20°C (68°F)

**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%.



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- 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.

**Related Documents**



Construction Products Regulation (CPR) classification and product related information available on RFS webpage.  
Other Documents