



- 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**

- Ultra wideband from 30 MHz to 2700 MHz
- For applications in tunnels and buildings
- Low coupling loss variations



RLK12-50JFNA

**Technical features****GENERAL SPECIFICATIONS**

|      |  |     |
|------|--|-----|
| Size |  | 1/2 |
|------|--|-----|

**ELECTRICAL SPECIFICATIONS**

|                                                    |                 |                                             |
|----------------------------------------------------|-----------------|---------------------------------------------|
| Max. Operating Frequency                           | MHz             | 2700                                        |
| Cable Type                                         |                 | RLKU                                        |
| Impedance                                          | Ohm             | 50 +/- 2                                    |
| Velocity, percent                                  | %               | 88                                          |
| Capacitance                                        | pF/m (pF/ft)    | 76 (23.2)                                   |
| Inductance, uH/m (uH/ft)                           | μH/m (μH/ft)    | 0.19 (0.058)                                |
| DC-resistance inner conductor, ohm/km (ohm/1000ft) | Ω/km (Ω/1000ft) | 1.97 (0.6)                                  |
| DC-resistance outer conductor, ohm/km (ohm/1000ft) | Ω/km (Ω/1000ft) | 4.84 (1.48)                                 |
| Stop bands                                         | MHz             | 650-750, 1330-1430, 2025-2100               |
| Frequency Selection                                | MHz             | 600, 900, 1800/1900, 2200, 2400, 2500, 2700 |



## 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 Clad Aluminum Wire                                                    |
| Outer Conductor Material            |              | Overlapping Copper Strip                                                     |
| Diameter Inner Conductor            | mm (in)      | 4.4 (0.17)                                                                   |
| Diameter Outer Conductor            | mm (in)      | 11.4 (0.45)                                                                  |
| Diameter over Jacket Nominal        | mm (in)      | 14.7 (0.58)                                                                  |
| Minimum Bending Radius, Single Bend | mm (in)      | 200 (7.9)                                                                    |
| Cable Weight                        | kg/m (lb/ft) | 0.23 (0.16)                                                                  |
| Tensile Force                       | N (lb)       | 1300 (292)                                                                   |
| Indication of Slot Alignment        |              | Bulge atop slots                                                             |
| Recommended / Maximum Clamp Spacing | m (ft)       | 0.5 (1.6)                                                                    |
| Minimum Distance to Wall            | mm (in)      | 80 (3.15)                                                                    |

## TESTING AND ENVIRONMENTAL

|                        |  |                                                                                                                                                                                                                                          |
|------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jacket Testing Methods |  | 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 |
|------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 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 ) |



## ATTENUATION

| Frequency, MHz | Longitudinal Loss, dB/100 m (dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|----------------|-----------------------------------------|-----------------------|-----------------------|
| 75             | 2.17 (0.66)                             | 49 (53)               | 59 (63)               |
| 150            | 3.10 (0.94)                             | 57 (61)               | 68 (72)               |
| 450            | 5.74 (1.75)                             | 65 (68)               | 76 (79)               |
| 800            | 8.75 (2.67)                             | 57 (59)               | 63 (65)               |
| 870            | 9.21 (2.81)                             | 58 (60)               | 64 (66)               |
| 900            | 9.40 (2.86)                             | 58 (60)               | 63 (66)               |
| 960            | 9.73 (2.97)                             | 58 (60)               | 64 (66)               |
| 1800           | 21.97 (6.70)                            | 55 (57)               | 65 (67)               |
| 1900           | 22.71 (6.92)                            | 55 (57)               | 65 (67)               |
| 2000           | 23.48 (7.16)                            | 53 (56)               | 65 (66)               |
| 2200           | 25.47 (7.76)                            | 52 (55)               | 60 (63)               |
| 2400           | 27.93 (8.51)                            | 52 (54)               | 60 (63)               |
| 2600           | 30.50 (9.30)                            | 52 (54)               | 60 (63)               |

## External Document Links

## 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 650 MHz) or parallel (above 650 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 +5 dB and longitudinal loss values with a tolerance of +5%. Note: Measured values below nominal are better. They are not limited by any tolerance-range.
- In case of a conflict of operational and stop band, please contact RFS Technologies for further assistance.
- As with any radiating cable, the performance in building or tunnel environments may deviate from figures based on free space method.

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