PRODUCT DATASHEET

# RLKU158-50JFNA

1-5/8" RADIAFLEX® RLKU 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

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

## Technical features

### GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| **Size** | | 1-5/8 |

### ELECTRICAL SPECIFICATIONS

| | | |
|---|---|---|
| **Max. Operating Frequency** | MHz | 2700 |
| **Cable Type** | | RLKU |
| **Impedance** | Ohm | 50 +/- 2 |
| **Velocity, percent** | % | 89 |
| **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) | 1.62 (0.49) |
| **DC-resistance outer conductor, ohm/km (ohm/1000ft)** | Ω/km (Ω/1000ft) | 1.47 (0.45) |
| **Stop bands** | MHz | 650-750, 1000-1050, 1330-1430, 2025-2100 |
| **Frequency Selection** | MHz | 600, 900, 1800/1900, 2200, 2400, 2500, 2700 |



All values nominal unless tolerances provided; information contained in the present datasheet is subject to confirmation at time of ordering

## 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** | | Corrugated Copper Tube |
| **Outer Conductor Material** | | Overlapping Copper Strip |
| **Diameter Inner Conductor** | mm (in) | 17.6 (0.69) |
| **Diameter Outer Conductor** | mm (in) | 44.2 (1.74) |
| **Diameter over Jacket Nominal** | mm (in) | 48.2 (1.9) |
| **Minimum Bending Radius, Single Bend** | mm (in) | 700 (28) |
| **Cable Weight** | kg/m (lb/ft) | 1.01 (0.68) |
| **Tensile Force** | N (lb) | 1200 (270) |
| **Indication of Slot Alignment** | | Guides opposite to slots |
| **Recommended / Maximum Clamp Spacing** | m (ft) | 1.5 (5) |
| **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 ) |



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## ATTENUATION

| Frequency, MHz | Longitudinal Loss, dB/100 m (dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|---|---|---|---|
| **75** | 0,54 (0,17) | 62 (65) | 74 (77) |
| **150** | 0,77 (0,24) | 70 (74) | 80 (84) |
| **450** | 1,43 (0,44) | 81 (84) | 89 (92) |
| **800** | 2,10 (0,64) | 67 (68) | 70 (71) |
| **870** | 2,22 (0,68) | 67 (68) | 71 (72) |
| **900** | 2,25 (0,69) | 67 (68) | 71 (72) |
| **1800** | 3,85 (1,17) | 62 (64) | 66 (69) |
| **1900** | 4,06 (1,24) | 62 (64) | 66 (70) |
| **2000** | 4,29 (1,31) | 61 (65) | 67 (71) |
| **2200** | 4,87 (1,48) | 61 (63) | 66 (68) |
| **2400** | 5,52 (1,68) | 60 (61) | 65 (66) |
| **2600** | 6,39 (1,95) | 60 (61) | 65 (66) |
| **2700** | 6,85 (2,09) | 62 (63) | 68 (69) |

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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