PRODUCT DATASHEET

# RLK78-50JFLA

7/8" 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.

RLK cable, A-series

FEATURES / BENEFITS

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

## Technical features

| | | |
|---|---|---|
| **GENERAL SPECIFICATIONS** | | |
| **Size** | | 7/8 |
| **ELECTRICAL SPECIFICATIONS** | | |
| **Max. Operating Frequency** | MHz | 980 |
| **Cable Type** | | RLK |
| **Impedance** | Ohm | 50 +/- 2 |
| **Velocity, percent** | % | 89 |
| **Capacitance** | pF/m (pF/ft) | 75 (22.9) |
| **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) | 1.74 (0.53) |
| **DC-resistance outer conductor, ohm/km (ohm/1000ft)** | Ω/km (Ω/1000ft) | 2.52 (0.77) |
| **Stop bands** | MHz | 300-375, 650-685 |
| **Frequency Selection** | MHz | 600, 900 |

## MECHANICAL SPECIFICATIONS

| | | |
|---|---|---|
| **Jacket** | | JFL |
| **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 |
| **Inner Conductor Material** | | Copper Tube |
| **Outer Conductor Material** | | Overlapping Copper Strip |
| **Diameter Inner Conductor** | mm (in) | 9.3 (0.37) |
| **Diameter Outer Conductor** | mm (in) | 23.8 (0.94) |
| **Diameter over Jacket Nominal** | mm (in) | 28.5 (1.12) |
| **Minimum Bending Radius, Single Bend** | mm (in) | 350 (13.8) |
| **Cable Weight** | kg/m (lb/ft) | 0.55 (0.37) |
| **Tensile Force** | N (lb) | 2300 (507) |
| **Indication of Slot Alignment** | | Bulge atop slots |
| **Recommended / Maximum Clamp Spacing** | m (ft) | 0.9 (3) |
| **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<br>NFPA130 (ed. 2014) Ch.12 (NFPA70 ) via UL-1685/FT4/IEEE1202 |

## 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 AND POWER RATING

| Frequency, MHz | Longitudinal Loss, dB/100 m (dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|---|---|---|---|
| **75** | 1,08 (0,33) | 46 (50) | 58 (60) |
| **150** | 1,56 (0,48) | 54 (58) | 66 (69) |
| **380** | 2,69 (0,81) | 53 (55) | 57 (59) |
| **400** | 2,70 (0,82) | 53 (55) | 57 (59) |
| **450** | 2,90 (0,88) | 52 (55) | 56 (59) |
| **470** | 2,97 (0,91) | 52 (55) | 56 (59) |
| **500** | 3,10 (0,94) | 52 (55) | 56 (59) |
| **800** | 4,35 (1,33) | 55 (58) | 59 (62) |
| **870** | 4,90 (1,49) | 56 (59) | 61 (64) |
| **900** | 5,05 (1,54) | 57 (60) | 62 (65) |
| **960** | 5,19 (1,58) | 57 (60) | 62 (65) |

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 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%. 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 for further assistance.
- As with any radiating cable, the performance in building or tunnel environments may deviate from figures based on free space method.