PRODUCT DATASHEET

# RCF78-50JFNAL

7/8" RCF RADIAFLEX Cable, Halogen Free, Flame/Fire Retardant, Low Smoke, Aluminum Outer Conductor

- 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 aluminum 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 corrugated copper or aluminum outer conductor which offers a combination of remarkable flexibility, high strength and excellent electrical performance.



FEATURES / BENEFITS

- Broadband radiating cable supporting all wireless application between 30 MHz to 3800 MHz
- Ideally suited for application that require low bending radius
- Robust radiating cable operational under all enviromental conditions as e.g. harsh tunnels or mines

## Technical features

### GENERAL SPECIFICATIONS

| | | |
|---|---|---|
| **Size** | | 7/8 |

### ELECTRICAL SPECIFICATIONS

| | | |
|---|---|---|
| **Max. Operating Frequency** | MHz | 3800 |
| **Cable Type** | | RCF |
| **Impedance** | Ohm | 50 +/- 2 |
| **Velocity, percent** | % | 88 |
| **Capacitance** | pF/m (pF/ft) | 75 (22.9) |
| **DC-resistance inner conductor, ohm/km (ohm/1000ft)** | Ω/km (Ω/1000ft) | 2.3 (0.7) |
| **DC-resistance outer conductor, ohm/km (ohm/1000ft)** | Ω/km (Ω/1000ft) | 1.9 (0.58) |
| **Stop bands** | MHz | None |
| **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

# RCF78-50JFNAL

7/8" RCF RADIAFLEX Cable, Halogen Free, Flame/Fire Retardant, Low Smoke, Aluminum Outer Conductor

## MECHANICAL SPECIFICATIONS

| | | |
|---|---|---|
| **Jacket** | | Flame Retardant |
| **Jacket Color** | | Standard Black, other colors on request |
| **Jacket Description** | | Halogen free, non corrosive, flame retardant, low smoke |
| **Slot Design** | | Milled (Two-Row) |
| **Inner Conductor Material** | | Copper Tube |
| **Outer Conductor Material** | | Annularly Corrugated Aluminum |
| **Diameter Inner Conductor** | mm (in) | 9.4 (0.37) |
| **Diameter Outer Conductor** | mm (in) | 25.2 (0.99) |
| **Diameter over Jacket Nominal** | mm (in) | 28 (1.1) |
| **Minimum Bending Radius, Single Bend** | mm (in) | 250 (10) |
| **Cable Weight** | kg/m (lb/ft) | 0.42 (0.29) |
| **Tensile Force** | N (lb) | 1400 (315) |
| **Recommended / Maximum Clamp Spacing** | m (ft) | 0.9 (3) |
| **Minimum Distance to Wall** | mm (in) | 50 (2) |

## 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 |

## TEMPERATURE SPECIFICATIONS

| | | |
|---|---|---|
| **Storage Temperature** | °C(°F) | -10 to 50 (14 to 122 ) |
| **Installation Temperature** | °C(°F) | -25 to 60 (-13 to 140 ) |
| **Operation Temperature** | °C(°F) | -40 to 85 (-40 to 185 ) |



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

## ATTENUATION

| Frequency, MHz | Longitudinal Loss, dB/100 m (dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|---|---|---|---|
| **75** | 1.23 (0.37) | 60 | 69.8 |
| **150** | 1.85 (0.56) | 71.3 | 80.5 |
| **450** | 3.52 (1.07) | 60.2 | 69.9 |
| **800** | 4.87 (1.48) | 76.7 | 88.3 |
| **870** | 5.09 (1.55) | 73.2 | 84.6 |
| **900** | 4.71 (1.44) | 72.7 | 83.9 |
| **960** | 5.38 (1.64) | 72.1 | 83.2 |
| **1800** | 7.79 (2.37) | 77.1 | 88.8 |
| **1900** | 8.04 (2.45) | 74.2 | 86.1 |
| **2000** | 78.31 (2.53) | 72.7 | 84.8 |
| **2200** | 8.85 (2.7) | 70.5 | 83.3 |
| **2400** | 9.44 (2.88) | 70.3 | 83 |
| **2600** | 10.03 (3.06) | 69.8 | 81.9 |
| **2700** | 10.28 (3.13) | 69 | 80.8 |
| **3200** | 11.84 (3.61) | 64 | 78.8 |
| **3300** | 12.57 (3.83) | 65.5 | 79.2 |
| **3400** | 12.51 (3.81) | 67.6 | 81.1 |
| **3500** | 11.62 (3.54) | 67.6 | 80.5 |
| **3600** | 12.07 (3.68) | 66.1 | 79.8 |
| **3700** | 12.21 (3.72) | 66.4 | 79.7 |
| **3800** | 12.15 (3.7) | 66.7 | 79.8 |

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



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