

**RCF12-50JFN**

1/2" RADIAFLEX® RCF Cable



- 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 corrugated copper 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 75 MHz to 6000 MHz
- Ideally suited for application that require low bending radii
- Robust radiating cable operational under all enviromental conditions as e.g. harsh tunnels or mines

**Technical Features****STRUCTURE**

|                              |                                                                     |
|------------------------------|---------------------------------------------------------------------|
| Cable Type                   | RCF                                                                 |
| Size                         | 1/2                                                                 |
| Inner Conductor Material     | Copper Clad Aluminum Wire                                           |
| Outer Conductor Material     | Corrugated Copper Tube                                              |
| Jacket                       | JFN                                                                 |
| Jacket Color                 | Standard Black, other colors on request                             |
| Jacket Description           | Halogen free, non corrosive, flame retardant, low smoke, polyolefin |
| Slot Design                  | Milled (Two-Row)                                                    |
| Indication of Slot Alignment | None                                                                |

**MECHANICAL SPECIFICATION**

|                                     |                      |
|-------------------------------------|----------------------|
| Diameter Inner Conductor            | 4.8mm (0.19in)       |
| Diameter Outer Conductor            | 13.8mm (0.54in)      |
| Minimum Bending Radius              | 125mm (4.9in)        |
| Cable Weight                        | 0.22kg/m (0.15lb/ft) |
| Tensile Force                       | 1,100N (247lb)       |
| Recommended / Maximum Clamp Spacing | 0.6m (2ft)           |
| Minimum Distance to Wall            | 50mm (1.97in)        |

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**ELECTRICAL SPECIFICATION**

|                               |                                        |     |           |      |      |      |      |      |
|-------------------------------|----------------------------------------|-----|-----------|------|------|------|------|------|
| Impedance                     | 50 +/- 2 $\Omega$                      |     |           |      |      |      |      |      |
| Max. Operating Frequency      | 6,000 MHz                              |     |           |      |      |      |      |      |
| Velocity                      | 88 %                                   |     |           |      |      |      |      |      |
| Capacitance                   | 76pF/m (23.2pF/ft)                     |     |           |      |      |      |      |      |
| Inductance                    | 0.19 $\mu$ H/m (0.058 $\mu$ H/ft)      |     |           |      |      |      |      |      |
| DC-resistance inner conductor | 1.57 $\Omega$ /km (0.48 $\Omega$ /kft) |     |           |      |      |      |      |      |
| DC-resistance outer conductor | 3.48 $\Omega$ /km (1.06 $\Omega$ /kft) |     |           |      |      |      |      |      |
| Stop bands                    | None                                   |     |           |      |      |      |      |      |
| Frequency Selection           | 600                                    | 900 | 1800/1900 | 2200 | 2400 | 2500 | 2700 | 6000 |

**TESTING AND ENVIRONMENTAL**

|                          |                                                                                                                                                                |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation Temperature    | -40 - 85 °C (-40 - 185°F)                                                                                                                                      |
| Installation Temperature | -25 - 60 °C (-13 - 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 |

**ATTENUATION AND COUPLING LOSS**

| Frequency, MHz | Longitudinal Loss, dB/100 m<br>(dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|----------------|--------------------------------------------|-----------------------|-----------------------|
| 75             | 2.20 (0.67)                                | 50                    | 62                    |
| 150            | 3.15 (0.96)                                | 59                    | 71                    |
| 450            | 5.70 (1.74)                                | 67                    | 79                    |
| 800            | 7.83 (2.39)                                | 67                    | 79                    |
| 870            | 8.25 (2.51)                                | 66                    | 79                    |
| 900            | 8.40 (2.56)                                | 66                    | 78                    |
| 960            | 8.65 (2.64)                                | 66                    | 78                    |
| 1800           | 13.1 (3.99)                                | 68                    | 80                    |
| 1900           | 13.6 (4.15)                                | 69                    | 81                    |
| 2000           | 14.0 (4.27)                                | 72                    | 84                    |
| 2200           | 14.7 (4.48)                                | 70                    | 82                    |
| 2400           | 15.3 (4.66)                                | 70                    | 82                    |
| 2600           | 15.9 (4.85)                                | 70                    | 82                    |
| 5000           | 24.8 (7.56)                                | 75                    | 87                    |
| 5200           | 25.7 (7.83)                                | 75                    | 87                    |
| 5800           | 27.6 (8.41)                                | 75                    | 87                    |
| 6000           | 29.9 (8.81)                                | 75                    | 87                    |

@ 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.



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- 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.