



**RAY78-50JFLA**  
7/8" RADIAFLEX® RAY 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.

**Feature / Benefits**

- Broadband from 30 MHz to 1000 MHz
- Optimized for high frequencies and digital transmission
- Low coupling loss variation
- For tunnel applications

**Technical features**

**GENERAL SPECIFICATIONS**

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

**ELECTRICAL SPECIFICATIONS**

|                               |                                  |
|-------------------------------|----------------------------------|
| Max. Operating Frequency      | 1000 MHz                         |
| Cable Type                    | RAY                              |
| Impedance                     | 50 +/- 2                         |
| Velocity                      | 89 percent                       |
| Capacitance                   | 75pF/m (22.9pF/ft)               |
| Inductance                    | 0.188µH/m (0.057µH/ft)           |
| DC-resistance inner conductor | 1.74ohm/1000 m (0.53ohm/1000 ft) |
| DC-resistance outer conductor | 2.52ohm/1000 m (0.77ohm/1000 ft) |
| Stop bands                    | 240-300, 500-590, 750-860        |
| Frequency Selection           | 600, 900                         |

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**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 slope slots at short intervals                                                                                                      |
| Inner Conductor Material            | Copper Tube                                                                                                                                   |
| Outer Conductor Material            | Overlapping Copper Strip                                                                                                                      |
| Diameter Inner Conductor            | 9.3mm (0.37in)                                                                                                                                |
| Diameter Outer Conductor            | 23.8mm (0.94in)                                                                                                                               |
| Minimum Bending Radius              | 350mm (13.8in)                                                                                                                                |
| Cable Weight                        | 0.55kg/m (0.37lb/ft)                                                                                                                          |
| Tensile Force                       | 2300N (507lb)                                                                                                                                 |
| Indication of Slot Alignment        | Bulge atop slots                                                                                                                              |
| Recommended / Maximum Clamp Spacing | 0.9m (3ft)                                                                                                                                    |
| Minimum Distance to Wall            | 80mm (3.15in)                                                                                                                                 |

**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      | -70°C to 85°C (-94°F to 185°F) |
| Installation Temperature | -25°C to 60°C (-13°F to 140°F) |
| Operation Temperature    | -40°C to 85°C (-40°F to 185°F) |

**ATTENUATION AND POWER RATING**

| Frequency, MHz | Longitudinal Loss, dB/100 m<br>(dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|----------------|--------------------------------------------|-----------------------|-----------------------|
| 75             | 1,04 (0,32)                                | 53 (57)               | 62 (66)               |
| 150            | 1,48 (0,45)                                | 58 (62)               | 69 (73)               |
| 450            | 2,67 (0,81)                                | 60 (62)               | 67 (69)               |
| 870            | 5,41 (1,65)                                | 54 (56)               | 63 (65)               |
| 900            | 5,70 (1,74)                                | 54 (56)               | 61 (63)               |
| 960            | 6,46 (1,97)                                | 54 (56)               | 60 (62)               |

**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 300 MHz) or orthogonal (above 300 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.



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- 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.
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**Related Documents**



**WINS Value Proposition**  
Value Propositions