

**RAYT114-50JFNA**

1-1/4" RADIAFLEX® RAYT 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.

**Features / Benefits**

- Superior electrical performance in 2400 to 2500 MHz
- Optimized for mission critical runs (track-to-train / signaling radio) and WiFi-based services
- Lowest system loss for long radiating cable runs, lowest total cost of solution
- Low coupling loss variations, very smooth spatial coverage
- Optimized for high data throughput (bandwidth) digital transmission
- Designed for a variety of in-tunnel applications in unlicensed ISM band 2400-2500 MHz

**Technical Features****STRUCTURE**

|                              |                                                                              |
|------------------------------|------------------------------------------------------------------------------|
| Cable Type                   | RAYT                                                                         |
| Size                         | 1-1/4                                                                        |
| Inner Conductor Material     | Corrugated Copper Tube                                                       |
| Outer Conductor Material     | Overlapping Copper Strip                                                     |
| Jacket                       | JFN                                                                          |
| Jacket Description           | Halogen free, non corrosive, flame and fire retardant, low smoke, polyolefin |
| Slot Design                  | Groups of slope slots at short intervals                                     |
| Indication of Slot Alignment | Guides opposite to slots                                                     |

**MECHANICAL SPECIFICATION**

|                                     |                      |
|-------------------------------------|----------------------|
| Diameter Inner Conductor            | 13.9mm (0.55in)      |
| Diameter Outer Conductor            | 34.2mm (1.35in)      |
| Minimum Bending Radius              | 500mm (20in)         |
| Cable Weight                        | 0.71kg/m (0.48lb/ft) |
| Tensile Force                       | 2,000N (450lb)       |
| Recommended / Maximum Clamp Spacing | 1.3m (4.25ft)        |
| Minimum Distance to Wall            | 80mm (3.15in)        |

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**ELECTRICAL SPECIFICATION**

|                               |                                             |      |
|-------------------------------|---------------------------------------------|------|
| Impedance                     | 50 +/- 2 $\Omega$                           |      |
| Max. Operating Frequency      | 2,500 MHz                                   |      |
| Velocity                      | 89 %                                        |      |
| Capacitance                   | 75pF/m (22.9pF/ft)                          |      |
| DC-resistance inner conductor | 2.1 $\Omega$ /km (0.64 $\Omega$ /kft)       |      |
| DC-resistance outer conductor | 1.85 $\Omega$ /km (0.56 $\Omega$ /kft)      |      |
| Stop bands                    | No stop bands in operational band 2400-2500 |      |
| Frequency Selection           | 2400                                        | 2500 |

**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<br>IEC 60332-3-24 fire retardant<br>UL1666, ASTM E 662, NES711 and NES713 |

**ATTENUATION AND COUPLING LOSS**

| Frequency, MHz | Longitudinal Loss, dB/100 m<br>(dB/100 ft) | Coupling Loss 50%, dB | Coupling Loss 95%, dB |
|----------------|--------------------------------------------|-----------------------|-----------------------|
| 2400           | 6.27 (1.91)                                | 63 (67)               | 65 (69)               |
| 2500           | 6.85 (2.08)                                | 62 (65)               | 64 (68)               |

@ 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.
- Coupling loss values are measured with an orthogonal (vertical) 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 for further assistance.
- As with any radiating cable, the performance in building or tunnel environments may deviate from figures based on free space method.