

## 1-1/4" RADIAFLEX® RAYT Cable A-series

**Product Description**

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 Specifications**

Size:	[ in ]	1-1/4"
Max. operating frequency:	[MHz]	2500
Cable Type:		RAY
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 Test methods for fire behaviour of cable : IEC 60754-1/-2 smoke emission: halogen free, non corrosive IEC 61034 low smoke IEC 60332-1 flame retardant IEC 60332-3-24 fire retardant UL1666, ASTM E 662, NES711 and NES713	
Slot Design	Groups of slope slots at short intervals	
Impedance	[Ω]	50 +/-2
Relative propagation velocity	[%]	89
Capacitance	[pF/m (pF/ft)]	75 (22.9)
Inductance	[μH/m (μH/ft)]	0.1875 (0.057)
DC-resistance inner conductor	[Ω/km (Ω/1000ft)]	0.84 (0.26)
DC-resistance outer conductor	[Ω/km (Ω/1000ft)]	1.85 (0.56)
Outer Conductor Material	Overlapping Copper Foil	
Inner Conductor Material	Copper Tube	
Diameter over Jacket	[mm (in)]	38.1 (1.50)
Diameter Outer Conductor	[mm (in)]	34.0 (1.34)
Diameter Inner Conductor	[mm (in)]	13.1 (0.52)
Minimum Bending Radius, Single Bend	[mm (in)]	500 (20.0)
Cable Weight	[kg/m (lb/ft)]	0.87 (0.58)
Max. tensile force	[N (lb)]	2000 (440)
Indication of Slot Alignment	Guides opposite to slots	
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)
Stop bands	[MHz]	No stop bands in operational band 2400-2500
Recommended / maximum clamp spacing	[m (ft)]	1.3 (4.25)
Minimum Distance to Wall	[mm (in)]	80 (3.15)
Length	[m (ft)]	

**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%.
- 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.

**Rev.**

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RAY cable, A-series

Frequency, MHz	PERFORMANCE		
	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss, dB	Coupling Loss, dB
2400	5.86 (1.78)	64 (68)	67 (71)
2500	6.36 (1.94)	63 (66)	66 (70)

Standard conditions