PRODUCT DATASHEET

RAYA114-50JFNA

1-1/4" 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.

FEATURES / BENEFITS

- Broadband from 30 MHz to 2700 MHz
- Optimized for high frequencies and digital communication solutions
- Low coupling loss variation
- Ideally suited for any kind of tunnel applications

picture shows generic slot pattern

Technical features

GENERAL SPECIFICATIONS

Size		1-1/4

ELECTRICAL SPECIFICATIONS

Max. Operating Frequency	MHz	2700
Cable Type		RAY
Impedance	Ohm	50 +/- 2
Velocity, percent	%	89
Capacitance	pF/m (pF/ft)	75 (22.9)
DC-resistance inner conductor, ohm/km (ohm/1000ft)	Ω/km (Ω/1000ft)	2.1 (0.64)
DC-resistance outer conductor, ohm/km (ohm/1000ft)	Ω/km (Ω/1000ft)	1.85 (0.56)
Stop bands	MHz	540 - 610

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

MECHANICAL SPECIFICATIONS

Jacket		JFN, EN50575:2014 + A1:2016 classified cable
Jacket Description		Halogen free, non corrosive, flame and fire retardant, low smoke, polyolefin
Slot Design		Groups of slope slots at short intervals
Inner Conductor Material		Corrugated Copper Tube
Outer Conductor Material		Overlapping Copper Strip
Diameter Inner Conductor	mm (in)	13.9 (0.55)
Diameter Outer Conductor	mm (in)	34.2 (1.346)
Diameter over Jacket Nominal	mm (in)	38.2 (1.504)
Minimum Bending Radius, Single Bend	mm (in)	500 (20)
Cable Weight	kg/m (lb/ft)	0.71 (0.48)
Tensile Force	N (lb)	2000 (450)
Indication of Slot Alignment		Guides opposite to slots
Recommended / Maximum Clamp Spacing	m (ft)	1.3 (4.3)
Minimum Distance to Wall	mm (in)	80 (3.15)

TESTING AND ENVIRONMENTAL

Jacket Testing Methods		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 EN50575:2014 + A1:2016 (Hannover production) class Dca s1 d2 a1

TEMPERATURE SPECIFICATIONS

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)

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ATTENUATION AND POWER RATING

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%, dB	Coupling Loss 95%, dB
75	0.73 (0.22)	66 (69)	77 (80)
150	1.03 (0.31)	76 (79)	87 (90)
400	1.75 (0.53)	72 (77)	76 (80)
450	1.86 (0.57)	77 (80)	86 (89)
820	2.62 (0.80)	70 (74)	77 (80)
870	2.72 (0.83)	71 (75)	80 (83)
900	2.78 (0.85)	68 (72)	73 (77)
960	2.91 (0.89)	68 (72)	74 (77)
1500	3.91 (1.19)	68 (72)	74 (77)
1700	4.43 (1.35)	65 (69)	72 (76)
1800	4.65 (1.42)	64 (67)	71 (75)
1900	4.86 (1.48)	63 (67)	70 (74)
2000	5.17 (1.58)	62 (66)	69 (73)
2200	5.78 (1.76)	62 (66)	70 (73)
2400	6.85 (2.09)	61 (64)	70 (73)
2600	9.05 (2.76)	57 (61)	65 (69)
2700	11.30 (3.44)	54 (58)	62 (66)

External Document Links

Web URL to CPR ressources with DoP and CE-label download folders

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 dipole antenna.
- The best coupling loss values correspond to the spatial orientation of dipole antenna (radial orientation for the frequencies below 400 MHz / orthogonal orientation for the frequencies above 400 MHz) and the 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%. - 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.

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