



RAYA114-50CPR

1-1/4" RADIAFLEX® RAYA 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

Technical Features

STRUCTURE

Cable Type	RAY
Size	1-1/4
Inner Conductor Material	Corrugated Copper Tube
Outer Conductor Material	Overlapping Copper Strip
Jacket	CPR, EN50575:2014 + A1:2016 classified cable
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
Indication of Slot Alignment	Guides opposite to slots

MECHANICAL SPECIFICATION

Diameter Inner Conductor	13.9mm (0.55in)
Diameter Outer Conductor	34.2mm (1.346in)
Minimum Bending Radius	500mm (20in)
Cable Weight	0.87kg/m (0.58lb/ft)
Tensile Force	2,000N (450lb)
Recommended / Maximum Clamp Spacing	1.3m (4.3ft)
Minimum Distance to Wall	80mm (3.15in)

ELECTRICAL SPECIFICATION

Impedance	50 +/- 2 Ω
Max. Operating Frequency	2,700 MHz
Velocity	89 %
Capacitance	75pF/m (22.9pF/ft)
DC-resistance inner conductor	2.1Ω/km (0.64Ω/kft)
DC-resistance outer conductor	1.85Ω/km (0.56Ω/kft)
Stop bands	540 - 610



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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 : 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 B2ca s1b d0 a1

ATTENUATION AND COUPLING LOSS

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)

@ 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 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.

Related Documents



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Web URL to CPR resources
Other Documents



Solution Overview_4.pdf folders
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