PRODUCT DATASHEET

HCA158-50J

1-5/8" Air Dielectric Cable

1-5/8" low loss air dielectric cable



1-5/8" Air Dielectric Coaxial Cable

FEATURES / BENEFITS

- **Low Attenuation**
  The low attenuation of air dielectric coaxial cable results in highly efficient signal transfer in your RF system.
- **Complete Shielding**
  The solid outer conductor of air dielectric coaxial cable creates a continuous RFI/EMI shield that minimizes system interference.
- **Low VSWR**
  Special low VSWR versions of air dielectric coaxial cables contribute to low system noise.
- **Outstanding Intermodulation Performance**
  Air dielectric coaxial cable's solid inner and outer conductors virtually eliminate intermods. Intermodulation performance is also confirmed with state-of-the-art equipment at the RFS Technologies factory.
- **High Power Rating**
  Due to their low attenuation, outstanding heat transfer properties and temperature stabilized dielectric materials, air dielectric coaxial cable provides safe long term operating life at high transmit power levels.
- **Wide Range of Application**
  Typical areas of application are: feedlines for broadcast and terrestrial microwave antennas, wireless cellular, PCS and ESMR base stations, cabling of antenna arrays, and radio equipment interconnects.

Technical features

APPLICATIONS

Applications		Wireless Communication	TV & Radio	HF Defense	Mobile Radio	Cable Solutions

STRUCTURE

Size		1-5/8
Jacket Option		Black
Inner Conductor Diameter	mm (in)	18.6 (0.73)
Inner Conductor Material		Corrugated Copper Tube
Dielectric Diameter	mm (in)	39.8 (1.56)
Dielectric Material		Helical Polyethylene Spacer
Outer Conductor Diameter	mm (in)	46.6 (1.83)
Outer Conductor Material		Corrugated Copper
Jacket Diameter	mm (in)	50.4 (1.984)
Jacket Material		Polyethylene, PE
Cable Type		Air-Dielectric, Corrugated

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

TESTING AND ENVIRONMENTAL

Fire Performance		Halogene Free
Flame Retardant Jacket Specifications		Meets the requirements according to: IEC60754-1, IEC60754-2
Installation Temperature	°C(°F)	-40 to 60 (-40 to 140)
Storage Temperature	°C (°F)	-70 to 85 (-94 to 185)
Operation Temperature	°C(°F)	-50 to 85 (-58 to 185)

ELECTRICAL SPECIFICATIONS

Impedance	Ω	50 +/- 0.5
Maximum Frequency	GHz	3
Velocity	%	95
Capacitance	pF/m (pF/ft)	70 (21.3)
Inductance	uH/m (uH/ft)	0.175 (0.053)
Peak Power Rating	kW	270
RF Peak Voltage	Volts	5200
Jacket Spark	Volt RMS	8000
Inner Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	1.06 (0.33)
Outer Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	0.39 (0.13)
Return Loss (VSWR) Performance		Typical 20.8dB (1.2 VSWR) or better within the operation bands of most global frequency ranges. Premium also available. Contact factory for options in your specific frequency band.
Phase Stabilized		Phase stabilized and phase matched cables and assemblies are available upon request.
Temperature & Power		Standard

MECHANICAL SPECIFICATIONS

Cable Weight, Nominal	kg/m (lb/ft)	1.3 (0.89)
Minimum Bending Radius, Single Bend	mm (in)	180 (7)
Minimum Bending Radius, Repeated Bends	mm (in)	550 (22)
Bending Moment	Nm (lb-ft)	42 (31)
Tensile Strength	N (lb)	1500 (337)
Recommended / Maximum Clamp Spacing	m (ft)	0.8 / 1.2 (2.75 / 4)

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ATTENUATION @ 20°C (68°F) AND POWER RATING @ 40°C (104°F)

Frequency, MHz	dB per 100m	dB per 100ft	Power, kW
0.5	0.04	0.01	270
1	0.06	0.02	196
1.5	0.08	0.02	160
2	0.09	0.03	138
10	0.20	0.06	61.40
20	0.28	0.09	43.40
30	0.34	0.10	35.40
50	0.44	0.14	27.30
88	0.59	0.18	20.50
100	0.63	0.19	19.20
108	0.66	0.20	18.40
150	0.78	0.24	15.60
174	0.84	0.26	14.40
200	0.90	0.28	13.50
300	1.11	0.34	11
400	1.29	0.39	9.44
450	1.38	0.42	8.83
500	1.45	0.44	8.41
512	1.47	0.45	8.30
600	1.60	0.49	7.64
700	1.74	0.53	7.03
800	1.86	0.57	6.59
824	1.89	0.58	6.49
894	1.98	0.60	6.20
900	1.98	0.61	6.20
925	2.01	0.61	6.11
960	2.05	0.63	6
1000	2.10	0.64	5.86
1250	2.37	0.72	5.21
1500	2.61	0.80	4.75
1700	2.80	0.85	4.44
1800	2.89	0.88	4.31
2000	3.06	0.93	4.08
2200	3.22	0.98	3.89
2300	3.30	1.01	3.81
3000	3.83	1.17	3.32

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External Document Links	Notes

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