PRODUCT DATASHEET

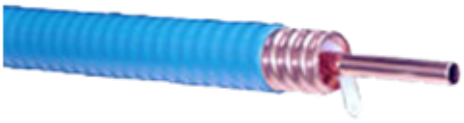
HCA78-50JPL

7/8" Air Dielectric Cable

7/8" low loss air dielectric cable; Plenum-rated

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.



7/8" Air Dielectric Coaxial Cable

Technical features

APPLICATIONS

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

STRUCTURE

Size		7/8
Jacket Option		Blue
Inner Conductor Diameter	mm (in)	9 (0.35)
Inner Conductor Material		Copper Tube
Dielectric Diameter	mm (in)	20.2 (0.79)
Dielectric Material		Helical Polyethylene Spacer
Outer Conductor Diameter	mm (in)	25.5 (1)
Outer Conductor Material		Corrugated Copper
Jacket Diameter	mm (in)	28 (1.103)
Jacket Material		Polyvinylidene Fluoride, PVDF
Cable Type		Air-Dielectric, Corrugated

TESTING AND ENVIRONMENTAL

Fire Performance		Flame Retardant, Plenum Rated
Flame Retardant Jacket Specifications		Meets/Exceeds Steiner Tunnel Test Method UL 910, NEC 820-53 (a) CATVP, NFPA-262.
Installation Temperature	°C(°F)	-40 to 60 (-40 to 140)
Storage Temperature	°C (°F)	-40 to 85 (-40 to 185)
Operation Temperature	°C(°F)	-50 to 85 (-58 to 185)

ELECTRICAL SPECIFICATIONS

Impedance	Ω	50 +/- 0.5
Maximum Frequency	GHz	4.2
Velocity	%	93
Capacitance	pF/m (pF/ft)	71 (21.6)
Inductance	uH/m (uH/ft)	0.178 (0.054)
Peak Power Rating	kW	73
RF Peak Voltage	Volts	2700
Jacket Spark	Volt RMS	8000
Inner Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	1.1 (0.34)
Outer Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	0.88 (0.27)
Return Loss (VSWR) Performance		Standard
Min. Return Loss (Max. VSWR)	dB (VSWR)	21 (1.195) @ 698-798 MHz 21 (1.195) @ 824-960 MHz 21 (1.195) @ 1695-1780 MHz 21 (1.195) @ 1850-2020 MHz 21 (1.195) @ 2110-2200 MHz 21 (1.195) @ 2305-2320 MHz 21 (1.195) @ 2345-2360 MHz 21 (1.195) @ 2496-2700 MHz 18 (1.288) @ 2700-3000 MHz 15 (1.432) @ 3550-3700 MHz 13 (1.576) @ 3700-3900 MHz 11 (1.784) @ 3980-4200 MHz
Temperature & Power		Standard

MECHANICAL SPECIFICATIONS

Cable Weight, Nominal	kg/m (lb/ft)	0.68 (0.46)
Minimum Bending Radius, Single Bend	mm (in)	100 (4)
Minimum Bending Radius, Repeated Bends	mm (in)	250 (10)
Bending Moment	Nm (lb-ft)	27 (20)
Tensile Strength	N (lb)	1600 (360)
Recommended / Maximum Clamp Spacing	m (ft)	0.5 / 0.9 (1.8 / 3)

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

Frequency, MHz	dB per 100m	dB per 100ft	Power, kW
0.5	0.08	0.03	73
1	0.12	0.04	73
1.5	0.14	0.04	70.90
2	0.16	0.05	61.40
10	0.37	0.11	27.30
20	0.52	0.16	19.20
30	0.64	0.19	15.70
50	0.83	0.25	12.10
88	1.10	0.34	9.11
100	1.18	0.36	8.49
108	1.23	0.37	8.15
150	1.45	0.44	6.92
174	1.57	0.48	6.39
200	1.69	0.51	5.94
300	2.08	0.63	4.84
400	2.42	0.74	4.17
450	2.57	0.79	3.93
500	2.72	0.83	3.71
512	2.76	0.84	3.66
600	3	0.91	3.37
700	3.25	0.99	3.12
800	3.49	1.07	2.91
824	3.55	1.08	2.86
894	3.71	1.13	2.74
900	3.72	1.13	2.74
925	3.78	1.15	2.69
960	3.85	1.17	2.65
1000	3.94	1.20	2.59
1250	4.45	1.36	2.30
1500	4.91	1.50	2.10
1700	5.26	1.60	1.97
1800	5.43	1.65	1.91
2000	5.75	1.75	1.81
2200	6.07	1.85	1.72
2300	6.22	1.90	1.68
3000	7.22	2.20	1.47

3550	8.33	2.54	1.35
3700	8.53	2.60	1.32
3900	8.79	2.68	1.29
3980	8.89	2.71	1.27
4000	8.92	2.72	1.27
4200	9.17	2.79	1.24

External Document Links

Notes