



RFS Technologies' air dielectric cables are air filled coaxial cables which consist of an inner conductor and an outer conductor. A dielectric helix is used to center the inner conductor to the outer conductor. Air dielectric cables have low attenuation and high power rating which make them perfect choice of high RF power transmission lines, such as in FM, TV and radar systems and networks. Air cables also have better flexibility and crush resistance than other solutions such as rigid lines.



7/8" Air Dielectric Coaxial Cable

**FEATURES / BENEFITS**

- **Low Attenuation**  
The low attenuation of this coaxial cable results in highly efficient signal transfer in your RF system.
- **Complete Shielding**  
The solid outer conductor of this coaxial cable creates a continuous RFI/EMI shield that minimizes system interference.
- **Low VSWR**  
Standard and low VSWR versions of this coaxial cables contribute to low system noise.
- **Outstanding Intermodulation Performance**  
Coaxial cable's solid inner and outer conductors virtually eliminate intermods. Intermodulation performance is also guaranteed by the state-of-the-art manufacturing process at the factory.
- **High Power Rating**  
Low attenuation, outstanding heat transfer properties and temperature stabilized dielectric materials enable cable to provide long operating life at high transmit power levels.
- **Wide Range of Application**  
Air cables are good choices for telecom, broadcasting, radar and HF defense applications.
- **Reinforced Jacket to Sustain Outdoor Applications**  
Polyethylene is proven to be strong and reliable even in extreme environmental conditions.

**Technical features**

**APPLICATIONS**

<b>Applications</b>		Wireless Communication	TV & Radio	HF Defense	Mobile Radio	Cable Solutions
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**STRUCTURE**

<b>Size</b>			7/8
<b>Jacket Option</b>			Black
<b>Inner Conductor Diameter</b>	mm (in)		9 (0.35)
<b>Inner Conductor Material</b>			Copper Tube
<b>Dielectric Diameter</b>	mm (in)		20.2 (0.79)
<b>Dielectric Material</b>			Helical Polyethylene Spacer
<b>Outer Conductor Diameter</b>	mm (in)		25.5 (1)
<b>Outer Conductor Material</b>			Corrugated Copper
<b>Jacket Diameter</b>	mm (in)		28 (1.103)
<b>Jacket Material</b>			PE (Polyethylene), Medium Density
<b>Cable Type</b>			Air-Dielectric, Corrugated



**TESTING AND ENVIRONMENTAL**

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

**ELECTRICAL SPECIFICATIONS**

<b>Impedance</b>	Ω	50 +/- 0.5
<b>Maximum Frequency</b>	GHz	3
<b>Velocity</b>	%	93
<b>Capacitance</b>	pF/m (pF/ft)	71 (21.6)
<b>Inductance</b>	uH/m (uH/ft)	0.178 (0.054)
<b>Peak Power Rating</b>	kW	73
<b>RF Peak Voltage</b>	Volts	2700
<b>Jacket Spark</b>	Volt RMS	8000
<b>Inner Conductor dc Resistance</b>	Ω/1000 m (Ω/1000 ft)	1.1 (0.34)
<b>Outer Conductor dc Resistance</b>	Ω/1000 m (Ω/1000 ft)	0.88 (0.27)
<b>Return Loss (VSWR) Performance</b>		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.
<b>Phase Stabilized</b>		Phase stabilized and phase matched cables and assemblies are available upon request.
<b>Temperature &amp; Power</b>		Standard

**MECHANICAL SPECIFICATIONS**

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



**HCA78-50JM**

7/8" Air-Dielectric Coaxial Cable, 50 ohm, Low Loss and High Power Rating

**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



External Document Links

[Air-Dielectric Cables Leaflet](#)

Notes