



MEGAPHASE SEMI-RIGID CABLES TO 110 GHZ



Semi-Rigid Cables to 110 GHz

Custom and Standard Designs with Precision CNC Bending

- High-reliability semi-rigid cable assemblies available in standard, build-to-print, and custom-engineered configurations
- Precision CNC bending and MIL-DTL-17 qualified construction ensure consistent electrical and mechanical performance
- Offered in sizes from 0.034" to 0.25" with a wide range of connector options for instrumentation, test fixtures, delay lines, switch matrices and integrated systems

Electrical Data

Maximum Frequency	Impedance	Propagation Velocity	Time Delay
SR047: 110 GHz SR034, SR086: 50.0 GHz SR141: 34.0 GHz SR250: 18.0 GHz	50 Ω nominal	69% nominal	1.47 ns/ft (4.82 ns/m)
Shielding Effectiveness	Dielectric Withstanding Voltage	Capacitance	
-110 dB minimum (cable only)	SR034 & SR047: 2.0 kV at 60 Hz SR086 & SR141: 5.0 kV at 60 Hz SR250: 7.5 kV at 60 Hz	9 pF/ft (95.1 pF/m)	

Mechanical Data

Finished Outer Diameter	Static Bend Radius	Weight with Standard Jacket/ Armor	Operating Temp. Range
SR034: 0.034 in (0.086 cm) SR141: 0.141 in (0.358 cm) SR047: 0.047 in (0.119 cm) SR250: 0.250 in (0.635 cm) SR086: 0.086 in (0.218 cm)	SR034: 0.05 in (0.127 cm) SR141: 0.25 in (0.635 cm) SR047: 0.08 in (0.191 cm) SR250: 0.50 in (1.270 cm) SR086: 0.13 in (0.318 cm)	SR034: 0.003 lbs/ft (0.004 kg/m) SR047: 0.005 lbs/ft (0.007 kg/m) SR086: 0.016 lbs/ft (0.024 kg/m) SR141: 0.035 lbs/ft (0.052 kg/m) SR250: 0.106 lbs/ft (0.158 kg/m)	SR034 & SR047: -40 to 212°F (-40 to 100°C) SR086 & SR141: -40 to 257°F (-40 to 125°C) SR250: -40 to 194°F (-40 to 90°C)

Cable Construction

Inner Conductor	Dielectric	Outer Conductor
SR034, SR047, SR086 & SR141: Solid Ag-plated Cu-clad Steel SR250: Solid Ag-plated Cu	PTFE	Sn-plated Cu Tube

Available Connectors

SR034: MMCX, SMA, SSMA
 SR047: 1.0 mm, 2.4 mm, 2.92 mm, 3.5 mm, SMA
 SR086: 2.4 mm, 2.92 mm, 3.5 mm, MMCX, OSP, OSSP, SMA, SMB, SMC, SMP, SSMA, SSMB, SSMP, TNC, Type N, ZMA
 SR141: 2.92 mm, 3.5 mm, SMA, TNC, Type N
 SR250: SMA, Type N
 (maximum frequency dependent on cable; other connectors available)



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Specifications

Frequency		SR034		SR047		SR086		SR141		SR250		Conn. Loss dB	VSWR
		Attenuation		Attenuation		Attenuation		Attenuation		Attenuation			
GHz	Band	dB/ft	dB/m	dB/ft	dB/m	dB/ft	dB/m	dB/ft	dB/m	dB/ft	dB/m		
0.3	UHF	0.327	1.072	0.217	0.713	0.117	0.384	0.063	0.207	0.039	0.127	0.006	1.10
0.5		0.423	1.387	0.281	0.923	0.153	0.501	0.083	0.271	0.051	0.168	0.009	
0.8		0.536	1.758	0.357	1.172	0.195	0.641	0.106	0.349	0.066	0.217	0.012	
1.0	L	0.600	1.969	0.400	1.312	0.220	0.722	0.120	0.394	0.075	0.246	0.014	
2.0	S	0.853	2.798	0.570	1.870	0.319	1.048	0.176	0.577	0.112	0.366	0.024	1.15
2.4		0.963	3.071	0.626	2.053	0.353	1.157	0.195	0.639	0.124	0.407	0.027	
3.0		1.049	3.441	0.702	2.303	0.399	1.308	0.221	0.726	0.142	0.465	0.032	
4.0	C	1.215	3.986	0.814	2.672	0.468	1.535	0.261	0.856	0.169	0.553	0.040	
6.0		1.496	4.909	1.005	3.298	0.588	1.930	0.331	1.087	0.217	0.711	0.055	
8.0	X	1.736	5.695	1.168	3.833	0.694	2.278	0.394	1.292	0.260	0.854	0.070	1.20
10.0		1.949	6.394	1.314	4.311	0.791	2.595	0.451	1.481	0.301	0.987	0.084	1.25
12.4		2.180	7.151	1.472	4.830	0.898	2.947	0.516	1.693	0.347	1.138	0.101	1.30
15.0	Ku	2.407	7.899	1.629	5.344	1.007	3.304	0.582	1.909	0.394	1.293	0.118	
18.0		2.649	8.691	1.769	5.891	1.125	3.691	0.654	2.145	0.446	1.464	0.139	
20.0	K	2.800	9.187	1.900	6.234	1.200	3.937	0.700	2.297	-	-	0.152	1.30
22.0		2.944	9.660	2.000	6.562	1.273	4.176	0.745	2.444	-	-	0.165	
24.0		3.083	10.115	2.096	6.878	1.344	4.408	0.789	2.588	-	-	0.178	
26.5		3.249	10.660	2.212	7.257	1.430	4.691	0.842	2.764	-	-	0.194	
28.0	Ka	3.346	10.977	2.279	7.478	1.480	4.856	0.874	2.867	-	-	0.204	1.40
30.0		3.471	11.387	2.366	7.764	1.546	5.073	0.915	3.003	-	-	0.217	
32.0		3.592	11.785	2.451	8.043	1.611	5.286	0.956	3.136	-	-	0.230	
34.0		3.710	12.173	2.534	8.314	1.675	5.495	0.996	3.268	-	-	0.243	1.45
36.0		3.286	12.551	2.615	8.579	1.738	5.701	-	-	-	-	0.256	
40.0		4.048	13.281	2.771	9.091	1.860	6.103	-	-	-	-	0.281	
45.0	V	4.313	14.150	2.957	9.703	2.009	6.591	-	-	-	-	0.313	1.50
50.0		4.565	14.979	3.136	10.288	2.153	7.064	-	-	-	-	0.344	
60.0		-	-	3.473	11.393	-	-	-	-	-	-	0.406	1.55
67.0		-	-	3.695	12.124	-	-	-	-	-	-	0.450	
75.0		-	-	3.939	12.924	-	-	-	-	-	-	0.499	
80.0	W	-	-	4.086	13.407	-	-	-	-	-	-	0.530	
90.0		-	-	4.371	14.341	-	-	-	-	-	-	0.591	
100.0		-	-	4.644	15.238	-	-	-	-	-	-	0.652	
110.0		-	-	4.908	16.102	-	-	-	-	-	-	0.713	

Note: Typical Insertion Loss dB = (Attenuation)(Length) +2(Conn. Loss)

Attenuation at any frequency =

SR034: $(0.59248 \times \sqrt{\text{freq GHz}}) + (0.00752 \times \text{freq GHz})$

SR047: $(0.39284 \times \sqrt{\text{freq GHz}}) + (0.00716 \times \text{freq GHz})$

SR086: $(0.20608 \times \sqrt{\text{freq GHz}}) + (0.01392 \times \text{freq GHz})$

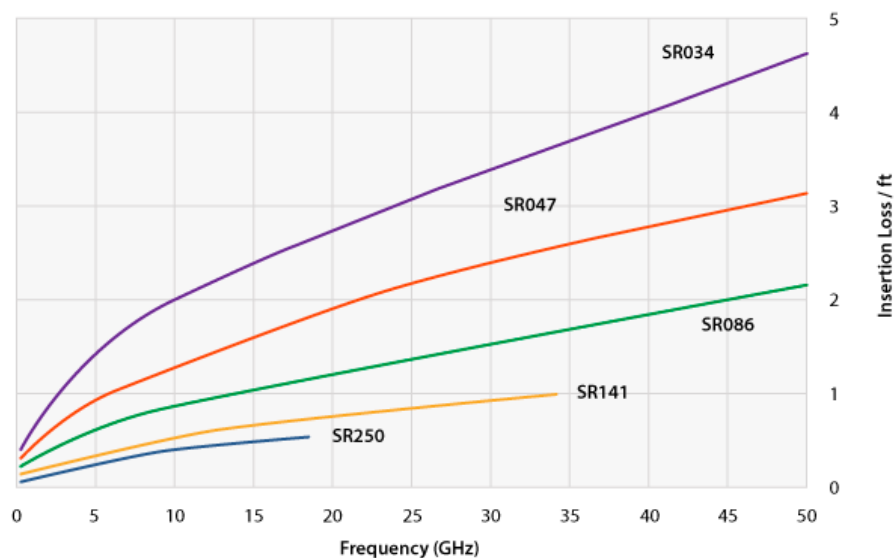
SR141: $(0.10948 \times \sqrt{\text{freq GHz}}) + (0.01052 \times \text{freq GHz})$

SR250: $(0.06569 \times \sqrt{\text{freq GHz}}) + (0.00931 \times \text{freq GHz})$

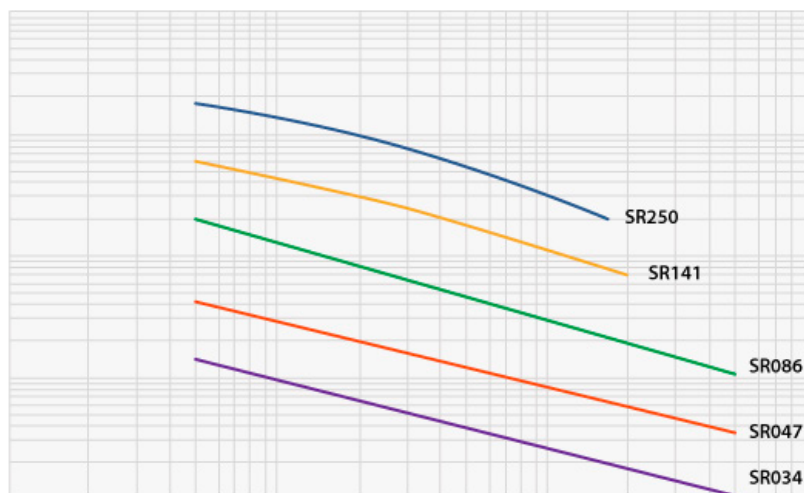


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Insertion Loss



Cable CW Power Handling



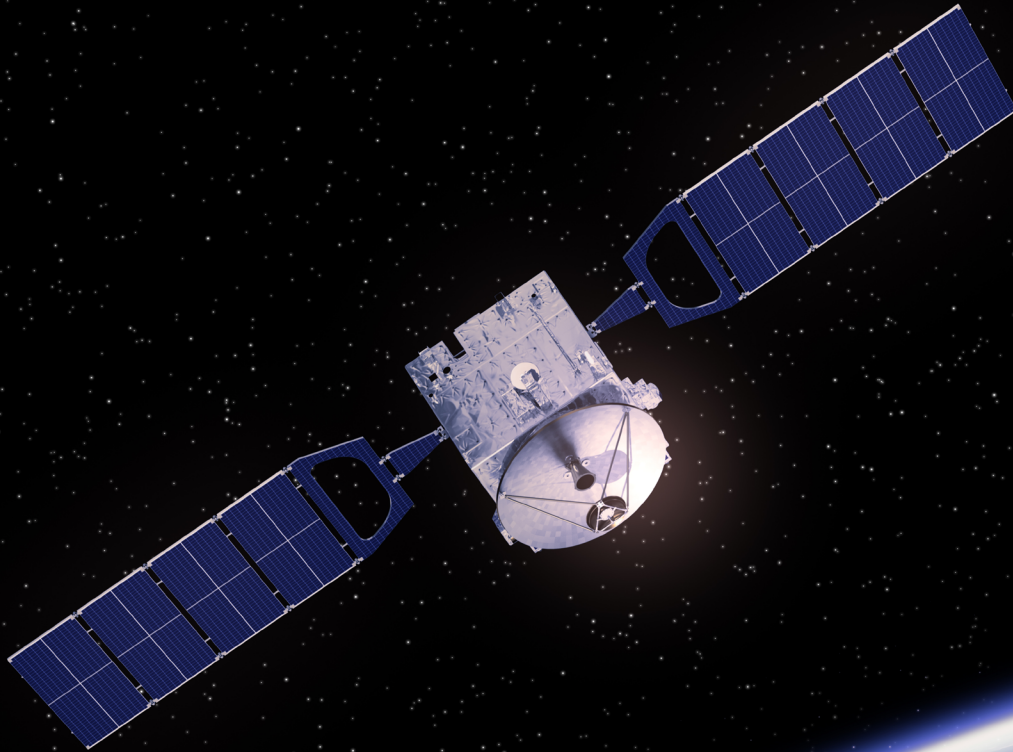
Note: Data at ambient temperature and sea level. Power handling of a cable assembly is also connector dependent and includes variables such as altitude, temperature and system VSWR. See website for connector power handling standards, including altitude, temperature and VSWR derating.





MegaPhase®

With the right connection anything is possible



Visit us at megaphase.com

About us

Founded in 1998 and headquartered in Stroudsburg, Pennsylvania, MegaPhase designs and manufactures high-performance RF coaxial cables and connectors for OEMs in critical markets including test instrumentation, defense, aerospace, telecommunications, and satellite systems. Serving more than 500 customers in 30 countries—including major technology leaders and the U.S. government—MegaPhase is best known for its industry-leading GrooveTube® technology, a breakthrough flexible cable design used in high-reliability, high-power, and phase-defined applications across ground, sea, air, and space platforms. All products are manufactured in-house, tested 100% in a state-of-the-art RF lab up to 110 GHz, and engineered to deliver exceptional phase stability, low loss, and long-term measurement repeatability, helping customers achieve more reliable results at a lower cost per measurement.

MegaPhase

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