Phase3™

Ultra Low Loss Cable Assemblies

- **Absolute lowest loss**
- **High shielding effectiveness**
- **Long lengths available**
- **DC-110 GHz**

Series C cable is optimized for consistent and repeatable performance where the demand is minimum attenuation, high shielding effectiveness and low VSWR. Available with phase matching, armoring and in long lengths upon request.

Electrical Data

Maximum Frequency:	C05:	110.0 GHz
	C08:	70.0 GHz
	C11:	50.0 GHz
	C12:	40.0 GHz
	C19:	26.5 GHz
	C29:	18.0 GHz
Impedance:	50 Ω nominal	
Propagation Velocity:	C05:	70% nominal
	C08:	75% nominal
	C11, 12, 19, 29:	84% nominal
Time Delay:	C05:	1.45 ns/ft (4.76 ns/m)
	C08:	1.35 ns/ft (4.43 ns/m)
	C11, 12, 19, 29:	1.21 ns/ft (3.97 ns/m)
Shielding Effectiveness:	-110 dB minimum (cable only)	
Dielectric Withstanding Voltage:	C05:	1.0 kV at 60 Hz
	C08:	2.5 kV at 60 Hz
	C11:	5.0 kV at 60 Hz
	C12:	7.0 kV at 60 Hz
	C19:	10.0 kV at 60 Hz
	C29:	15.0 kV at 60 Hz
Capacitance:	C05:	28.5 pF/ft (93.5 pF/m)
	C08:	27.0 pF/ft (88.6 pF/m)
	C11, 12, 19, 29:	24.0 pF/ft (78.7 pF/m)

Mechanical Data

Finished Outer Diameter:	C05:	0.100 in (0.254 cm)
	C08:	0.110 in (0.279 cm)
	C11:	0.140 in (0.356 cm)
	C12:	0.144 in (0.366 cm)
	C19:	0.225 in (0.572 cm)
	C29:	0.310 in (0.787 cm)
Static Bend Radius:	C05:	0.10 in (0.254 cm)
	C08:	0.50 in (1.300 cm)
	C11:	0.75 in (1.905 cm)
	C12:	0.75 in (1.905 cm)
	C19:	1.25 in (3.175 cm)
	C29:	1.75 in (4.445 cm)
Weight with Standard Jacket/Armor:	C05:	0.007 lbs/ft (0.0104 kg/m)
	C08:	0.01 lbs/ft (0.018 kg/m)
	C11:	0.019 lbs/ft (0.028 kg/m)
	C12:	0.02 lbs/ft (0.028 kg/m)
	C19:	0.04 lbs/ft (0.062 kg/m)
	C29:	0.09 lbs/ft (0.134 kg/m)
Operating Temp. Range:	85 to 392° F (-65 to 200° C) C05 ONLY: -58 to 392° F (-50 to 200° C) Above 185° F (85° C) use "T" designation and provide temperature range.	

Cable Construction

Inner Conductor:	Solid Ag-plated Cu
Dielectric:	PTFE Tape
Outer Conductor:	Ag-plated Cu Strip/ Ag-plated Cu Flat Braid
Standard Finish:	FEP

C05 ONLY

Inner Conductor:	Solid Ag-plated Cu Clad Steel
Dielectric:	Laminated PTFE
Outer Conductor:	Ag Plated Copper Tape/Braid
Jacket:	Blue Polyolefin over FEP

Available Connectors

C05: 1.0 mm
C08: 1.85mm
C11: 1.85 mm, 2.4 mm 2.9mm,3.5mm ,SMA
C12: 1.85mm, 2.4mm, 2.92mm, 3.5mm, SMA, TNC, Type N
C19: 3.5mm, BNC, SMA, TNC, Type N
C29: 7-16 DIN, SMA, TNC, Type N

(maximum frequency dependent on cable; other connectors available)

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Specifications

Frequency		C05 Series Attenuation		C08 Series Attenuation		C11 Series Attenuation		C12 Series Attenuation		C19 Series Attenuation		VSWR	Conn. Loss dB
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	0.187	0.614	0.107	0.352	0.074	0.242	0.060	0.196	0.034	0.113	1.10	0.006
0.5		0.243	0.797	0.139	0.457	0.095	0.313	0.077	0.254	0.044	0.146		0.009
0.8		0.309	1.015	0.178	0.584	0.121	0.396	0.098	0.323	0.056	0.185		0.012
1.0	L	0.347	1.140	0.200	0.656	0.135	0.443	0.110	0.362	0.063	0.207		0.014
2.0	S	0.499	1.637	0.288	0.946	0.192	0.629	0.158	0.518	0.090	0.294	1.15	0.024
2.4		0.549	1.802	0.318	1.043	0.210	0.690	0.174	0.570	0.098	0.322		0.027
3.0		0.618	2.029	0.359	1.176	0.2235	0.772	0.195	0.640	0.110	0.361		0.032
4.0	C	0.721	2.365	0.419	1.375	0.272	0.893	0.227	0.745	0.127	0.418		0.040
6.0		0.897	2.944	0.524	1.719	0.335	1.098	0.281	0.923	0.157	0.515		0.055
8.0	X	1.050	3.446	0.615	2.018	0.388	1.272	0.328	1.077	0.182	0.597	1.20	0.070
10.0		1.188	3.898	0.698	2.290	0.434	1.425	0.370	1.215	0.204	0.670	1.25	0.084
12.4		1.340	4.395	0.789	2.589	0.485	1.592	0.416	1.366	0.228	0.749	1.30	0.101
15.0	Ku	1.491	4.893	0.881	2.891	0.535	1.755	0.462	1.516	0.252	0.827		0.118
18.0		1.654	5.427	0.980	3.216	0.588	1.928	0.511	1.677	0.277	0.910	1.35	0.139
20.0	K	1.757	5.765	1.043	3.422	0.620	2.036	0.542	1.778	0.293	0.962		0.152
22.0		1.856	6.090	1.104	3.621	0.652	2.138	0.571	1.875	0.308	1.011		0.165
24.0		1.952	6.405	1.163	3.814	0.682	2.237	0.600	1.969	0.323	1.059		0.178
26.5		2.068	6.785	1.234	4.048	0.718	2.355	0.635	2.082	0.340	1.115	1.40	0.194
28.0	Ka	2.136	7.007	1.276	4.185	0.739	2.423	0.655	2.148	-	-		0.204
30.0		2.224	7.297	1.330	4.364	0.766	2.512	0.681	2.233	-	-		0.217
32.0		2.310	7.580	1.383	4.539	0.792	2.598	0.706	2.317	-	-		0.230
34.0		2.395	7.857	1.436	4.711	0.817	2.681	0.731	2.398	-	-	1.45	0.243
36.0		2.477	8.128	1.487	4.879	0.842	2.762	0.755	2.478	-	-		0.256
40.0	V	2.638	8.656	1.587	5.207	0.890	2.919	0.803	2.633	-	-	1.50	0.281
45.0		2.832	9.292	1.708	5.604	0.946	3.104	-	-	-	-		0.313
50.0		3.019	9.904	1.825	5.988	1.000	3.281	-	-	-	-	1.55	0.344
60.0		3.375	11.074	1.939	6.360	-	-	-	-	-	-		0406
67.0		3.614	11.857	2.049	6.723	-	-	-	-	-	-	1.60	0.450
75.0		3.878	12.722	2.157	7.078	-	-	-	-	-	-		0.499
80.0	W	4.038	13.248	2.200	7.218	-	-	-	-	-	-		0.530
90.0		4.350	14.273	2.263	7.425	-	-	-	-	-	-		0.591
100.0		4.653	15.266	-	-	-	-	-	-	-	-		0.652
110.0		4.947	16.231	-	-	-	-	-	-	-	-		0.713

Note: Typical Insertion Loss dB = (Attenuation)(Length) + 2(Conn. Loss)
Attenuationatanyfrequency=C08:(0.19043x√freqGHz)+(0.00957xfreqGHz); C12:(0.1073x√freqGHz)+(0.0031xfreqGHz); C19:(0.06227x√freqGHz)+(0.00073xfreqGHz); C29:(0.04687x√freqGHz)+(0.00173xfreqGHz

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Specifications

Frequency		C29 Series			Conn. Loss dB
		Attenuation		VSWR	
GHz	Band	dB/ft	dB/m		
0.3	UHF	0.026	0.086	1.10	0.006
0.5		0.034	0.112		0.009
0.8		0.043	0.142		0.012
1.0	L	0.049	0.159		0.014
2.0	S	0.070	0.229	1.15	0.024
2.4		0.077	0.252		0.027
3.0		0.086	0.283		0.032
4.0	C	0.101	0.330	1.20	0.040
6.0		0.125	0.411		0.055
8.0	X	0.146	0.480	1.25	0.070
10.0		0.166	0.543		0.084
12.4		0.186	0.612	1.30	0.101
15.0	Ku	0.207	0.681		0.118
18.0		0.230	0.755	1.35	0.139

Note: Typical Insertion Loss dB = (Attenuation)(Length) + 2(Conn. Loss)
Attenuationatanyfrequency=C08:(0.19043x√freqGHz)+(0.00957xfreqGHz); C12:(0.1073x√freqGHz)+(0.0031xfreqGHz); C19:(0.06227x√freqGHz)+(0.00073xfreqGHz); C29:(0.04687x√freqGHz)+(0.00173xfreqGHz

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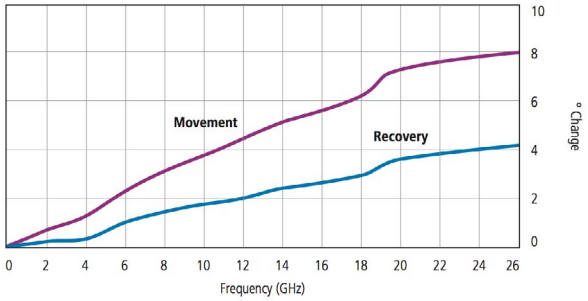
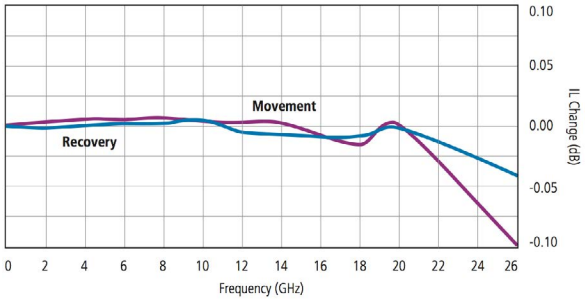
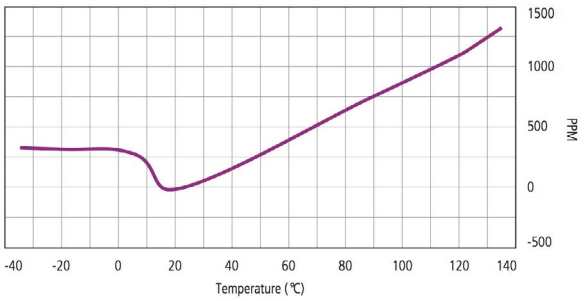
Phase Change vs. Flexure



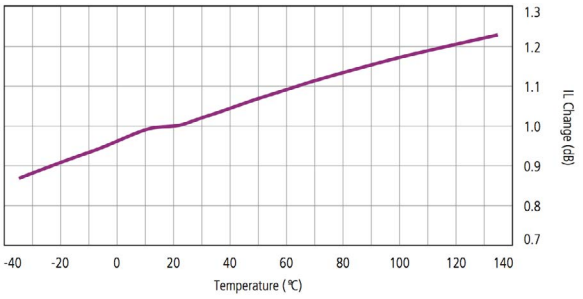
Insertion Loss vs. Flexure



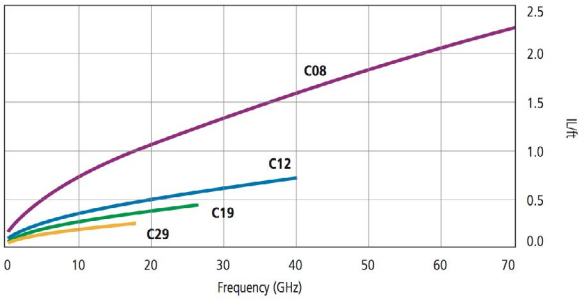
Phase Change vs. Temperature



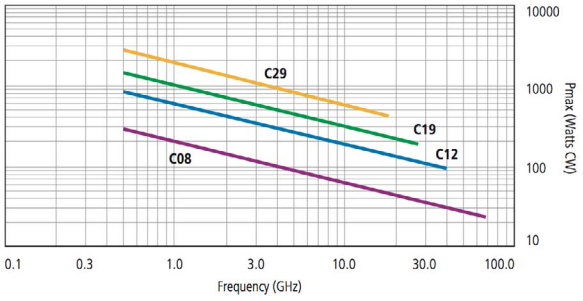
Insertion Loss vs. Temperature



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.

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