Coppersol® CLL

Low Loss Semirigid Coax

- **Low Loss Microwave Interconnect**
- **Wireless Base Station Interconnect**

Features & Benefits

- **Lower Loss than Standard Semi-rigid**
- **Excellent Shielding Effectiveness**
- **Low Passive Intermod (PIM)**
- **Stable Loss, Phase and VSWR**

Coppersol-CLL employs a thin tubular copper outer conductor and low-density PTFE dielectric which provide the lowest loss and highest shielding giving it significant performance advantages over semirigid coax of similar size.

Coppersol-CLL was developed 25 years ago and have been widely adopted by the military OEM's.

Some of the key characteristics of Coppersol-CLL are:

Shielding Effectiveness – the highest achievable for any cable and is estimated at > 165 dB, well below measurable limits.

Small/Lightweight – same size but lighter weight than standard CL semirigid coax.

Phase Stable – the solid outer conductor and low density PTFE minimizes electrical length change with temperature to yield 100 % improvement over standard CL semirigid coax.

Low Loss – can achieve up to 30 % less loss than standard CL semirigid coax.

Attenuation Stability – impervious outer conductor prevents oxidation of the conductors thereby minimizing attenuation change vs time.

Power Handling – higher operating temperature provides 200% increase in power handling vs standard CL semirigid.

Corrosion Resistance – jacketing of the bare copper tube or plating with tin or silver is recommended when cable is deployed in a corrosive environment.

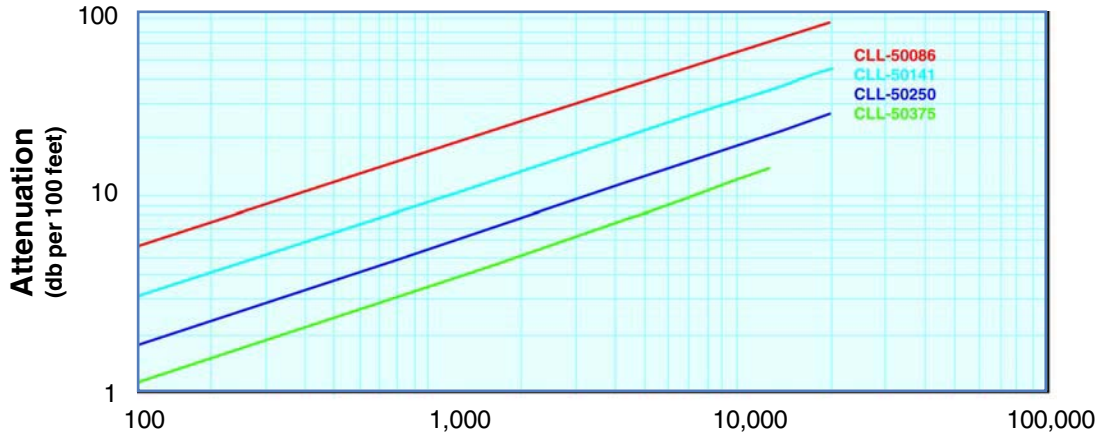
Formability – the solid copper tube enables the cable to be bent to any 3 dimensional configuration and have it retain its shape.

Connectors – are available from a variety of sources to fit Coppersol-CLL.

TMS Number	TMS Spec Sheet	Conductor inches (mm)	Dielectric inches (mm)	Shield inches (mm)	Weight lbs/foot (kg/m)	Impedance ohms Vp (%)	Capacitance pF/foot (pF/m)	Max. Op. Voltage. vrms	Temperature Range F (C)	Cutoff Frequency (GHz)	Minimum Bend Radius inches (mm)
CLL-50375	AA-8921	SC 0.1120 (2.84)	LD PTFE 0.335 (8.51)	BC Tube 0.375 (9.53)	0.187 (0.279)	50 +/- 1 76	26.8 (87.9)	3,000	-65 +250 (-85 +482)	12	2.00 (50.8)
CLL-50250	AA-5199	SC 0.0700 (1.78)	LD PTFE 0.210 (5.33)	BC Tube 0.250 (6.35)	0.091 (0.136)	50 +/- 1 76	26.8 (87.9)	2,200	-65 +250 (-85 +482)	20	1.25 (31.8)
CLL-50141	AA-5187	SC 0.039 (0.99)	LD PTFE 0.1180 (3.00)	BC Tube 0.141 (3.58)	0.0290 (0.043)	50 +/- 1 76	26.8 (87.9)	1,300	-65 +250 (-85 +482)	36	.250 (6.4)
CLL-50086	AA-5186	SCCS 0.022 (0.56)	LD PTFE 0.066 (1.68)	BC Tube 0.0860 (2.18)	0.0130 (0.019)	50 +/- 1 76	26.8 (87.9)	600	-65 +250 (-85 +482)	64	.125 (3.2)

- **Low Passive Intermod**
- **High Temperature**
- **High Power**

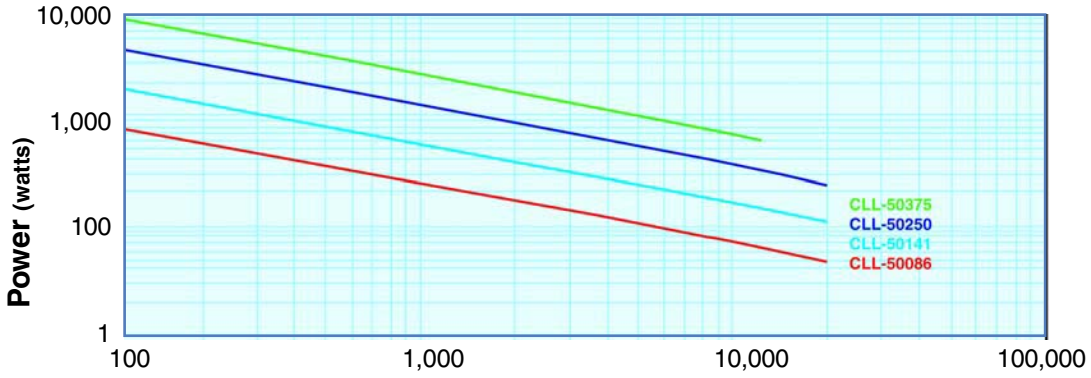
Attenuation vs. Frequency (Typical)



Frequency (MHz)	100	400	1,000	3,000	10,000	12,000	16,000	18,000	20,000	k1	k2
CLL-50086	5.3	10.6	16.8	29	54	60	69	74	78	0.525	0.00018
CLL-50141	3.0	5.9	9.5	16.6	31	34	40	43	45	0.293	0.00018
CLL-50250	1.7	3.4	5.4	9.6	18	20	24	25	27	0.165	0.00018
CLL-50375	1.1	2.1	3.5	6.2	12	14				0.104	0.00018

Attenuation at Any Frequency = [k1 x $\sqrt{\text{Fmhz}}$] + [k2 x Fmhz]; dB per 100 feet

Power Handling vs. Frequency (Maximum)



Frequency (MHz)	100	400	1,000	3,000	10,000	12,000	16,000	18,000	20,000
CLL-50375	8317	4080	2525	1397	707	635			
CLL-50250	4338	2140	1332	745	384	347	294	274	257
CLL-50141	1891	935	584	329	171	155	131	123	116
CLL-50086	824	407	254	143	74	67	56	53	50

Watts; Sea Level; Ambient +40C; VSWR 1:1; Center Conductor +250C