TIMES MICROWAVE SYSTEMS

LMR®-600-LLPL
Flexible Low Loss Plenum Coax

Ideal for...

- Indoor Plenum Feeder runs
- UL/NEC/CSA rated CMP/FT6
- Any wireless application (e.g. LMDS, MMDS, WLL, GPS, LMR, WLAN, WISP, WiMax, SCADA, Cellular, PCS, Paging) requiring an easily routed, low loss RF cable for in-building systems

- **LMR®- LLPL** is an indoor highly fire retarded cable intended specifically for runs within return air handling plenums (e.g. dropped ceilings, raised floors). It has a UL/NEC & CSA rating of 'CMP' and 'FT6' respectively.
- **Flexibility** and bendability are hallmarks of the LMR-600-LLPL cable design. The flexible outer conductor enables the tightest bend radius available for any cable of similar size and performance.
- **Low Loss** is another hallmark feature of LMR-600-LLPL. Size for size LMR has the lowest loss of any flexible cable and comparable loss to semirigid hard-line cables.
- **RF Shielding** is 50 dB greater than typical single shielded coax (40 dB). The multi-ply bonded foil outer conductor is rated conservatively at > 90 dB (i.e. >180 dB between two adjacent cables).
- **Weatherability**: LMR-600-LLPL cables are designed for indoor Plenum applications. Black jacketed LMR-LLPL versions can be supplied for applications that originate outdoors (e.g., rooftop) and subsequently enter the building.
- **Connectors**: A variety of connectors are available for LMR-600-LLPL cable, including the most common interface types. Most employ crimp outer attachment using standard hex crimp sizes.
- **Cable Assemblies**: All LMR-600-LLPL cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.

Part Description

Part Number	Application	Jacket	Color	Stock Code
LMR-600-LLPL	Indoor/Outdoor CMP/FT6	Plenum FRPVC	Orange	54061

Construction Specifications

Description	Material	In.	(mm)
Inner Conductor	Solid BCCAl	0.150	(3.81)
Dielectric	Low density PTFE	0.455	(11.56)
Outer Conductor	Aluminum Tape	0.461	(11.71)
Overall Braid	Tinned Copper	0.490	(12.45)
Jacket	Orange FRPVC	0.590	(14.99)

Environmental Specifications

Performance Property	°F	°C
Installation Temperature Range	+23/+167	-5/+75
Storage Temperature Range	+23/+167	-5/+75
Operating Temperature Range	+23/+167	-5/+75

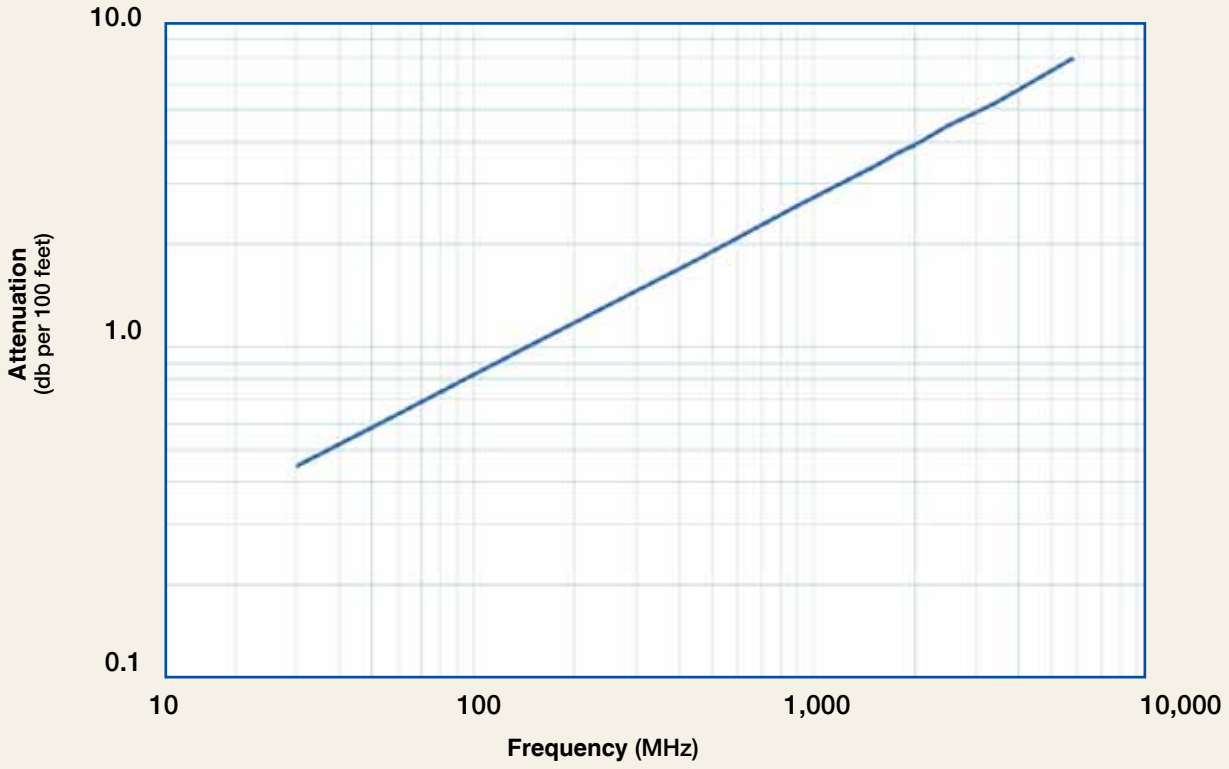
Electrical Specifications

Performance Property	Units	US	(metric)
Velocity of Propagation	%	76	
Dielectric Constant	NA	1.73	
Time Delay	nS/ft (nS/m)	1.34	(4.40)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	26.7	(87.6)
Inductance	uH/ft (uH/m)	0.067	(0.22)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	0.73	(2.40)
Outer Conductor	ohms/1000ft (/km)	1.20	(3.9)
Voltage Withstand	Volts DC	4000	
Jacket Spark	Volts RMS	8000	
Peak Power	kW	40	

Mechanical Specifications

Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	1.5	(38.1)
Bend Radius: repeated	in (mm)	6.0	(152.4)
Bending Moment	ft-lb (N-m)	2.75	(3.73)
Weight	lb/ft (kg/m)	0.24	(0.36)
Tensile Strength	lb (kg)	265	(120.3)
Flat Plate Crush	lb/in. (kg/mm)	210	(3.75)

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	3400	5800
Attenuation dB/100 ft	0.5	0.6	1.0	1.2	1.8	2.6	3.4	3.7	3.9	4.4	5.3	7.1
Attenuation dB/100 m	1.5	1.9	3.3	4.1	5.9	8.5	11.1	12.2	12.9	14.5	17.2	23.2
Avg. Power kW	6.97	5.39	3.08	2.53	1.75	1.22	0.93	0.84	0.79	0.70	0.59	0.44

Calculate Attenuation =
$(0.081390) \bullet \sqrt{FMHz} + (0.000150) \bullet FMHz$ (interactive calculator available at http://www.timesmicrowave.com/cable_calculators)
Attenuation:
VSWR=1.0 ; Ambient = +25°C (77°F)
Power:
VSWR=1.0; Ambient = +40°C; Jacket = +75°C (167°F); Sea Level; dry air; atmospheric pressure; no solar loading

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LMR®-600-LLPL
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TC-600-LCM-PL


EZ-600-NMH-PL-D


TC-600-NMH-PL


TC-600-NMC-RA


TC-600-NMH-RA

Connectors

Interface	Description	Part Number	Stock Code	VSWR** Freq. (GHz)	Coupling Nut	Inner Contact Attach	Outer Contact Attach	Finish* Body /Pin	Length in (mm)	Width in (mm)	Weight lb (g)
LC Male	Straight plug	TC-600-LCM-PL	3190-1221	<1.25:1 (1)	Hex	Solder	Clamp	N/S	3.1 (78.7)	1.62 (41.1)	1.20 (544)
N Male	Straight Plug	EZ-600-NMH-PL-D	3190-603	<1.25:1 (2.5)	Hex/Knurl	Spring Finger	Crimp	A/G	2.1 (53)	0.92 (23.4)	0.166 (75.3)
	Straight Plug	TC-600-NMH-PL	3190-760	<1.25:1 (2.5)	Hex	Solder	Crimp	S/G	2.1 (53)	0.92 (23.4)	0.208 (93.4)
	Right Angle	TC-600-NMC-RA	3190-233	<1.35:1 (2.5)	Hex	Solder	Clamp	S/G	2.1 (53)	0.92 (23.4)	0.280 (17.9)
	Right Angle	TC-600-NMH-RA	3190-785	<1.35:1 (6)	Hex	Solder	Crimp	S/G	2.1 (53)	0.92 (23.4)	0.185 (83.9)

* Finish metals: N=Nickel, S=Silver, G=Gold, SS=Stainless Steel, A=Alballoy **VSWR spec based on 3 foot cable with a connector pair


GK-S600TT


HG-600T


CS-A600T,
CS-60120T, CS-60170T


CB-600T


Hanger Block Hardware

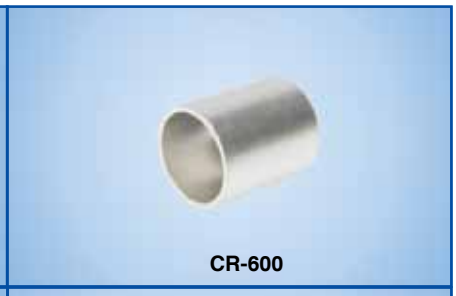

SH-U600T

Hardware Accessories

Type	Part Number	Stock Code	Description
Ground Kit	GK-S600TT	GK-S600TT	Standard Grounding Kit (each)
Hoisting Grip	HG-600T	HG-600T	Split/Laced Type (each)
Cold Shrink	CS-A600T	CS-A600T	Cable to Antenna Junction (each)
Cold Shrink	CS-60120T	CS-60120T	LMR-600 to -1200 Junction (each)
Cold Shrink	CS-60170T	CS-60170T	LMR-600 to -1700 Junction (each)
Hanger Blocks	CB-600T	CB-600T	Dual Cable Support Block (kit of 10)
Hanger Block Supporting Hardware			Complete Range of Supporting Hardware & Adapters Available
Snap-In Hangers	SH-U600T	SH-U600T	Snap-In Hangers (Kit of 10)

HX-4

Y1720


CR-600


TK-600EZ


RB-CST

DBT-U


GST-600A


CCT-01

Install Tools

Type	Part Number	Stock Code	Description
Crimp Tool	HX-4	3190-200	Crimp Handle
Crimp Dies	Y1720	3190-203	.610" Hex Dies
Crimp Rings	CR-600	3190-831	Crimp Rings for TC/EZ-600 connectors (pkg of 10)
Strip Tool	ST-600C	3190-230	For Clamp Style Connectors
Strip Tool	ST-600EZ	3190-310	For Crimp Style Connectors
Deburr Tool	DBT-U	3192-001	Removes center conductor rough edges
Midspan Strip Tool	GST-600A	3190-1051	For ground strap attachment
Cutting Tool	CCT-01	3190-1544	Cable end flush cut tool
Replacement Blade	RB-01	3190-1609	Replacement blade for cutting tool
Replacemnt Blade	RB-CST	3192-086	Replacement blade kit for all CST strip tools
Replacement Blades	RB-456	3190-421	Replacement blades for CST-600C and ST-600EZ
Tool Kit	TK-600EZ	3190-1602	Tool kit for LMR-600 crimp/clamp connectors (includes CCT-01, CST-600, HX-4, Y1720, Tool Pouch)