TIMES MICROWAVE SYSTEMS

LMR®-600
Flexible Low Loss Communications Coax

Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application (e.g. WLL, GPS, LMR, WLAN, WISP, WiMax, SCADA, Mobile Antennas) requiring an easily routed, low loss RF cable



• **LMR®** standard is a UV Resistant Polyethylene jacketed cable designed for 20-year service outdoor use. The bending and handling characteristics are significantly better than air-dielectric and corrugated hard-line cables.

• **LMR®- DB** is identical to standard LMR plus has the advantage of being watertight. The addition of waterproofing compound in and around the foil/braid insures continuous reliable service should the jacket be inadvertently damaged during installation or in the future.

• **LMR®- FR** is a non-halogen (non-toxic), low smoke, fire retardant cable designed for in-building runs that can be routed anywhere except air handling plenums. LMR-FR is UL/NEC & CSA rated'CMR' and 'FT4' respectively, meets FAA FAR25 requirements and is MSHA-P for mining operations.

• **LMR®- FR-PVC** is a general-purpose indoor cable and has a UL/NEC & CSA rating of 'CMR' and 'FT4' respectively. It is less expensive than LMR-FR, however it emits toxic fumes (HCL) and greater smoke density when burned.

• **LMR®- PVC** is designed for low loss general-purpose applications and is somewhat more flexible than the standard polyethylene jacketed LMR.

• **LMR®- PVC-W** is a white-jacketed version of LMR-PVC for marine and other applications where color compatibility is desired.

• **Flexibility** and bendability are hallmarks of the LMR-600 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. 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 cables designed for outdoor exposure incorporate the best materials for UV resistance and have life expectancy in excess of 20 years.

• **Connectors**: A wide variety of connectors are available for LMR-600 cable, including all common interface types, reverse polarity, and a choice of solder or non-solder center pins. Most LMR connectors employ crimp outer attachment using standard hex crimp sizes.

• **Cable Assemblies**: All LMR-600 cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.

Part Description				Stock
Part Number	Application	Jacket	Color	Code
LMR-600	Outdoor	PE	Black	54003
LMR-600-DB	Outdoor/Watertight	PE	Black	54093
LMR-600-FR	Indoor -Riser CMR	FRPE	Black	54032
LMR-600-FR-PVC	Indoor -Riser CMR	FRPVC	Black	54074
LMR-600-PVC	General Purpose	PVC	Black	54219
LMR-600-PVC-W	General Purpose	PVC	White	54206

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Solid BCCAl	0.176	(4.47)
Dielectric	Foam PE	0.455	(11.56)
Outer Conductor	Aluminum Tape	0.461	(11.71)
Overall Braid	Tinned Copper	0.490	(12.45)
Jacket	(see table above)	0.590	(14.99)

Mechanical Specifications

Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	1.50	(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)	0.131	(0.20)
Tensile Strength	lb (kg)	350	(158.9)
Flat Plate Crush	lb/in. (kg/mm)	60	(1.07)

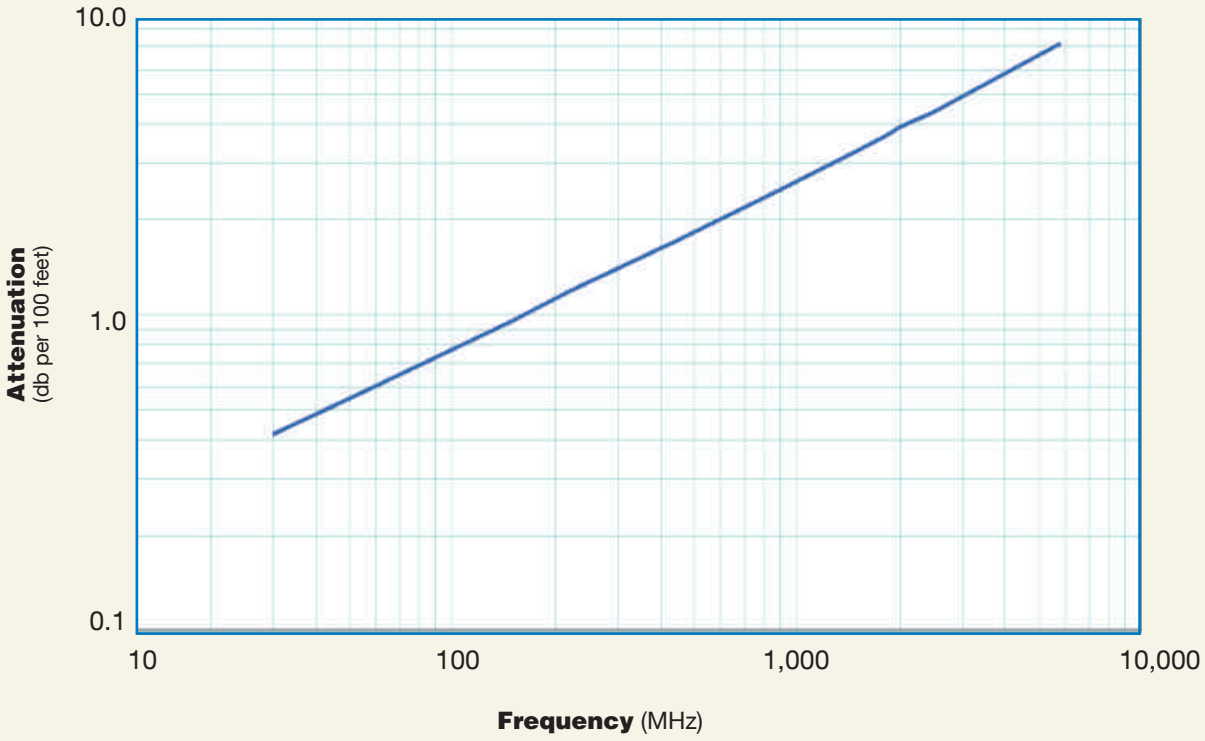
Environmental Specifications

Performance Property	°F	°C
Installation Temperature Range	-40/+185	-40/+85
Storage Temperature Range	-94/+185	-70/+85
Operating Temperature Range	-40/+185	-40/+85

Electrical Specifications

Performance Property	Units	US	(metric)
Velocity of Propagation	%	87	
Dielectric Constant	NA	1.32	
Time Delay	nS/ft (nS/m)	1.17	(3.83)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	23.4	(76.6)
Inductance	uH/ft (uH/m)	0.058	(0.19)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	0.53	(1.7)
Outer Conductor	ohms/1000ft (/km)	1.2	(3.9)
Voltage Withstand	Volts DC	4000	
Jacket Spark	Volts RMS	8000	
Peak Power	kW	40	

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	0.4	0.5	1.0	1.2	1.7	2.5	3.3	3.7	3.9	4.4	7.3
Attenuation dB/100 m	1.4	1.8	3.2	3.9	5.6	8.2	10.9	12.1	12.8	14.5	23.8
Avg. Power kW	5.51	4.24	2.41	1.97	1.35	0.93	0.70	0.63	0.59	0.52	0.32

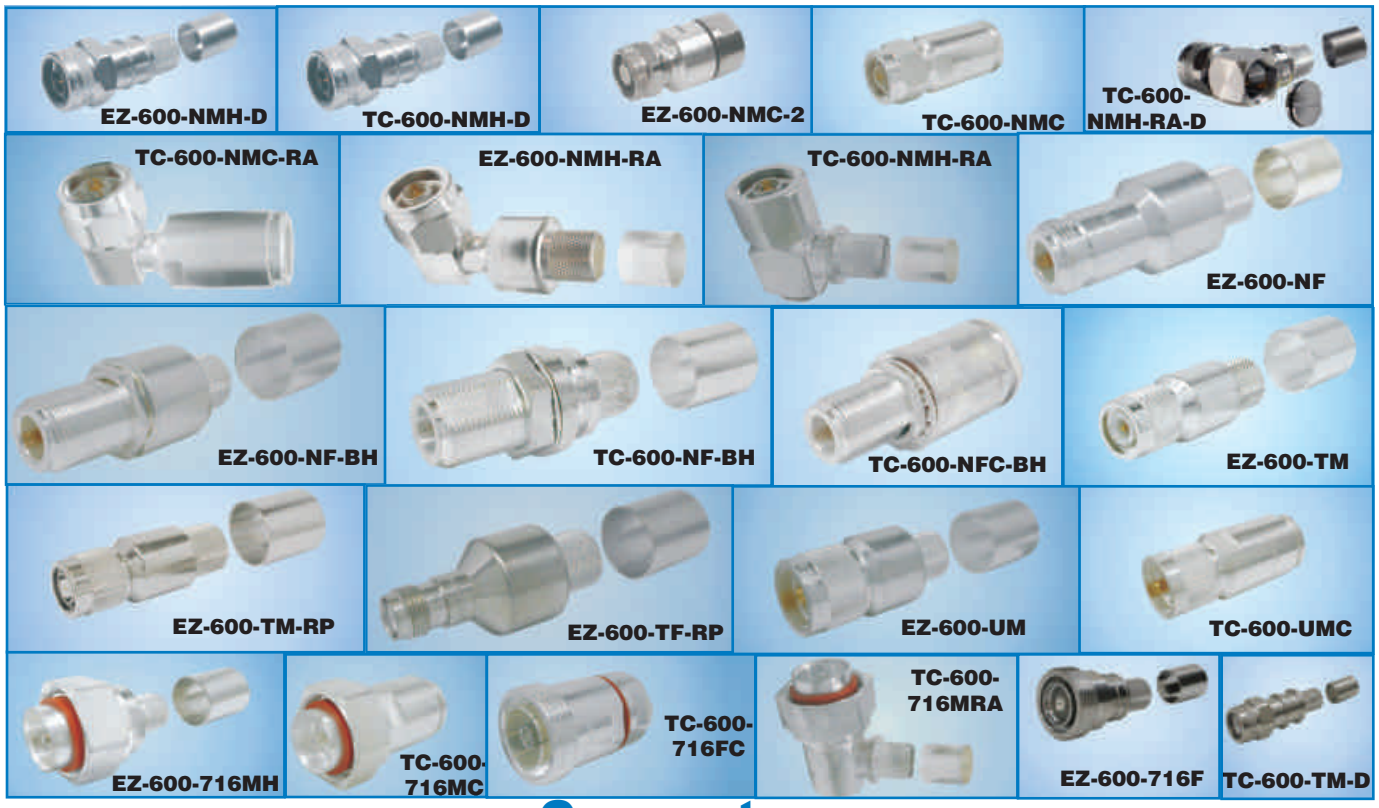
Calculate Attenuation =
(0.075550) • $\sqrt{\text{FMHz}}$ + (0.000260) • FMHz (interactive calculator available at http://www.timesmicrowave.com/cable_calculators)

Attenuation:
VSWR=1.0; Ambient = +25°C (77°F)

Power:
VSWR=1.0; Ambient = +40°C; Inner Conductor = 100°C (212°F); Sea Level; dry air; atmospheric pressure; no solar loading

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Connectors

Interface	Description	Part Number	Stock Code	VSWR** Freq. (GHz)		Coupling Nut	Inner Contact Attach	Outer Contact Attach	Finish* Body /Pin	Length in	Length (mm)	Width in	Width (mm)	Weight lb	Weight (g)
7/8 EIA	Flange	EZ-600-78EIA	3190-1373	<1.25:1	(2.5)	NA	Spring Finger	Clamp	S/S	2.3	(58)	2.60	(66.0)	0.873	(396.0)
7-16 DIN Female	Straight Jack	TC-600-716FC	3190-375	<1.25:1	(2.5)	NA	Solder	Clamp	S/S	1.1	(28)	1.00	(25.4)	0.249	(112.9)
7-16 DIN Male	Straight Plug	EZ-600-716MH	3190-503	<1.25:1	(2.5)	Hex	Spring Finger	Crimp	S/S	2.0	(51)	1.30	(33.0)	0.254	(115.2)
	Straight Plug	TC-600-716MC	3190-502	<1.25:1	(2.5)	Hex	Solder	Clamp	S/S	2.0	(51)	1.30	(33.0)	0.347	(157.4)
	Right Angle	TC-600-716M-RA	3190-395	<1.35:1	(2.5)	Hex	Solder	Crimp	S/S	1.4	(36)	1.40	(35.6)	0.354	(160.8)
7/16 Male	Right Angle	EZ-600-716M-RA	3190-2546	<1.35:1	(6)	Hex	Spring Finger	Crimp	A/G	1.6	(40)	1.38	(35.0)	0.462	(210.0)
	Straight Jack	EZ-600-716F	3190-2447	<1.25:1	(6)	Hex	Spring Finger	Crimp	A/G	1.8	(45)	1.32	(33.6)	0.158	(71.7)
HN Male	Straight Plug	TC-600-HNM	3190-1429	<1.25:1	(<1)	Knurl	Solder	Clamp	S/g	2.3	(59.2)	0.88	(22.4)	0.25	(113)
LC Male	Straight Plug	TC-600-LCM	3190-1406	<1.25:1	(<1)	Hex	Solder	Clamp	N/S	3.1	(78.0)	1.62	(41.1)	1.20	(544)
N Female	Straight Jack	EZ-600-NF	3190-955	<1.25:1	(2.5)	NA	Spring Finger	Crimp	S/G	2.3	(59)	0.87	(22.1)	0.150	(68.0)
	Bulkhead Jack	EZ-600-NF-BH	3190-616	<1.25:1	(2.5)	NA	Spring Finger	Crimp	S/G	2.4	(61)	0.88	(22.4)	0.195	(88.5)
	Bulkhead Jack	TC-600-NF-BH	3190-589#	<1.25:1	(2.5)	NA	Solder	Crimp	S/G	2.4	(61)	0.88	(22.4)	0.195	(88.5)
	Bulkhead Jack	TC-600-NFC-BH	3190-466	<1.25:1	(2.5)	NA	Solder	Clamp	S/G	2.2	(56)	0.94	(23.9)	0.214	(97.1)
N Male	Straight Plug	EZ-600-NMH-D	3190-1268	<1.25:1	(8)	Hex/Knurl	Spring Finger	Crimp	A/G	2.1	(53)	0.92	(23.4)	0.164	(74.4)
	Straight Plug	EZ-600-NMK	3190-669	<1.25:1	(2.5)	Knurl	Spring Finger	Crimp	S/G	2.1	(53)	0.92	(23.4)	0.164	(74.4)
	Straight Plug	TC-600-NMH-D	3190-208#	<1.25:1	(2.5)	Hex/Knurl	Solder	Crimp	A/G	2.1	(53)	0.92	(23.4)	0.166	(75.3)
	Straight Plug	EZ-600-NMC-2	3190-1387	<1.25:1	(6)	Hex/Knurl	Spring Finger	Clamp	S/G	2.1	(53)	0.92	(23.4)	0.202	(91.6)
	Straight Plug	TC-600-NMC	3190-357#	<1.25:1	(2.5)	Hex	Solder	Clamp	S/G	2.1	(53)	0.92	(23.4)	0.208	(93.4)
	Right Angle	5NCM11R-A22-001	3190-2427	<1.35:1	(6)	Hex	Solder	Crimp	A/G	1.8	(46.5)	1.62	(41.2)	0.185	(84.3)
	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	(117.9
	Right Angle	EZ-600-NMH-RA	3190-762	<1.35:1	(2.5)	Hex	Spring Finger	Crimp	S/G	2.1	(53)	0.92	(23.4)	0.185	(83.9)
	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)
	Right Angle	TC-600-NMH-RA-D	3190-2427	<1.35:1	(6)	Hex	Solder	Crimp	A/G	1.8	(46.5)	1.62	(41.2)	0.185	(84.3)
QDS Male	Straight Plug	TC-600-QDSM	3190-846	<1.25:1	(<1)	Knurl	Solder	Clamp	A/G	2.2	(55.6)	1.00	(25.4)	0.25	(113)
	Right Angle	TC-600-QDSM-RA	3190-847	<1.25:1	(<1)	Knurl	Solder	Clamp	A/G	2.4	(61.5)	1.88	(47.8)	0.35	(159)
TNC Male	Straight Plug	EZ-600-TM	3190-418#	<1.25:1	(2.5)	Knurl	Spring Finger	Crimp	S/G	1.7	(43)	0.59	(15.0)	0.112	(50.8)
	Straight Plug	TC-600-TM-D	3190-2530	<1.25:1	(6)	Hex/Knurl	Solder	Crimp	A/G	2.3	(57.6)	0.75	(19.0)	0.100	(45.6)
	Straight Plug	EZ-600-TM-D	3190-2531	<1.25:1	(6)	Hex/Knurl	Spring Finger	Crimp	A/G	2.3	(57.6	0.75	(19.0)	0.100	(45.6)
	Reverse Polarity	EZ-600-TM-RP	3190-796	<1.25:1	(2.5)	Knurl	Spring Finger	Crimp	A/G	2.2	(56)	0.87	(22.0)	0.112	(50.8)
TNC Female	Reverse Polarity	EZ-600-TF-RP	3190-797	<1.25:1	(2.5)	NA	Spring Finger	Crimp	A/G	2.3	(58)	0.87	(22.0)	0.100	(45.4)
UHF Male	Straight Plug	EZ-600-UM	3190-615	<1.25:1	(2.5)	Knurl	Spring Finger	Crimp	S/G	1.7	(43)	0.88	(22.4)	0.164	(74.4)
	Straight Plug	TC-600-UMC	3190-213	<1.25:1	(2.5)	Knurl	Solder	Clamp	S/G	1.7	(43)	0.88	(22.4)	0.198	(89.8)

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


EZ-600-78EIA


EZ-600-NMK


TC-600-HNM


TC-600-QDSM


TC-600-QDSM-RA


TC-600-LCM


EZ-600-716M-RA


HX-4


ST-600C ST-600EZ


WR-600


GST-600A


CR-600


DBT-U


CCT-01


TK-600EZ


Y1720


RB-456

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
Replacement Blades	RB-456	3190-421	Replacement Blades for Strip Tools
Deburr Tool	DBT-U	3192-001	Removes center conductor rough edges
Midspan Strip Tool	GST-600A	3190-1051	For ground strap attachment
Wrench	WR600	3190-1435	15/16" Box Wrench (2 required for EZ-600-NMC-2)
Cutting Tool	CCT-01	3190-1544	Cable end flush cut tool
Replacement Blade	RB-01	3190-1609	Replacement blade for cutting tool
Tool Kit	TK-600EZ	3190-1602	Tool kit for LMR-600 Crimp Connectors (includes CCT-01, ST-600EZ, HX-4, Y1720, DBT-U, Tool Pouch)


SH-U600T


HG-600T


Hanger Support Hardware


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


CB-600T


SC-600T


GK-S600TT

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)
Standard Entry Port Cushion	SC-600T-3	SC-600T-3	Three cables (each)
Snap-In Hangers	SH-U600T	SH-U600T	Snap-In Hangers (Kit of 10)
Hanger Block Supporting Hardware			Complete Range of Supporting Hardware & Adapters Available