



LMR®-195-UF UltraFlex Communications Coax

Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application that requires additional flexibility



• **LMR® - UltraFlex** has a stranded center conductor and rubber outer jacket designed for multiple bending/flexing cycles. It is used for both indoor and outdoor applications.

• **Flexibility** and bendability are hallmarks of the LMR-UF 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-UF. 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-UF cables are designed for outdoor exposure and have a life expectancy in excess of 10 years.

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

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

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Stranded BC	0.038	(0.97)
Dielectric	Foam Polyethylene	0.110	(2.79)
Outer Conductor	Aluminum Tape	0.116	(2.95)
Overall Braid	Tinned Copper	0.139	(3.53)
Jacket	Black Thermoplastic Elastomer	0.195	(4.95)

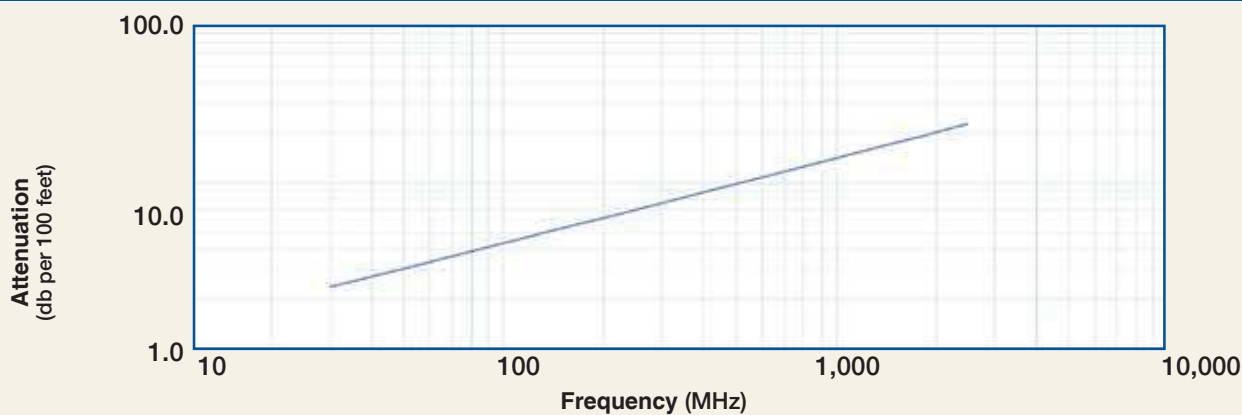
Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	0.5	(12.7)
Bend Radius: repeated	in. (mm)	2	(50.8)
Bending Moment	ft-lb (N-m)	0.1	(0.14)
Weight	lb/ft (kg/m)	0.021	(0.03)
Tensile Strength	lb (kg)	40	(18.2)
Flat Plate Crush	lb/in. (kg/mm)	10	(0.18)

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	%	74	
Dielectric Constant	NA	1.56	
Time Delay	nS/ft (nS/m)	1.27	(4.17)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	25.4	(83.3)
Inductance	uH/ft (uH/m)	0.064	(0.21)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	9.5	(31.2)
Outer Conductor	ohms/1000ft (/km)	4.9	(16.1)
Voltage Withstand	Volts DC	1000	
Jacket Spark	Volts RMS	3000	
Peak Power	kW	2.5	

Part Description				
Part Number	Application	Jacket	Color	Stock Code
LMR-195-UF	Indoor/Outdoor	TPE	Black	54212

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	2.3	3.0	5.3	6.4	9.3	13.2	17.3	19.0	20.1	22.6	35.6
Attenuation dB/100 m	7.7	9.9	17.3	21.1	30.4	43.4	56.77	62.4	65.9	74.2	116.7
Avg. Power kW	0.78	0.61	0.35	0.28	0.20	0.14	0.10	0.09	0.09	0.08	0.05

Calculate Attenuation = $(0.424232) \cdot \sqrt{\text{FMHz}} + (0.000563) \cdot \text{FMHz}$ (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

LMR[®]-200-UF UltraFlex Communications Coax

Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application that requires additional flexibility



Part Description				
Part Number	Application	Jacket	Color	Stock Code
LMR-200-UF	Indoor/Outdoor	TPE	Black	54042

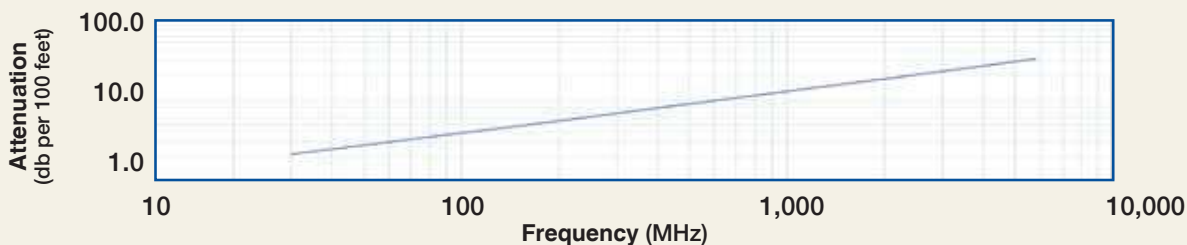
Environmental Specifications		
Performance Property	°F	°C
Installation Temperature Range	-40/+185	-40/+85
Storage Temperature Range	-94/+185	-70/+85
Operating Temperature Range	-40/+185	-40/+85

Electrical Specifications			
Performance Property	Units	US	(metric)
Velocity of Propagation	%	83	
Dielectric Constant	NA	1.45	
Time Delay	nS/ft (nS/m)	1.22	(4.02)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	24.5	(80.3)
Inductance	uH/ft (uH/m)	0.061	(0.20)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	7.5	(24.6)
Outer Conductor	ohms/1000ft (/km)	4.9	(16.1)
Voltage Withstand	Volts DC	1000	
Jacket Spark	Volts RMS	3000	
Peak Power	kW	2.5	

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Stranded BC	0.044	(1.12)
Dielectric	Foam Polyethylene	0.116	(2.95)
Outer Conductor	Aluminum Tape	0.121	(3.07)
Overall Braid	Tinned Copper	0.144	(3.66)
Jacket	Black Thermoplastic Elastomer	0.195	(4.95)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	0.5	(12.7)
Bend Radius: repeated	in. (mm)	2	(50.8)
Bending Moment	ft-lb (N-m)	0.1	(0.14)
Weight	lb/ft (kg/m)	0.022	(0.03)
Tensile Strength	lb (kg)	40	(18.2)
Flat Plate Crush	lb/in. (kg/mm)	10	(0.18)

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	2.1	2.7	4.8	5.8	8.3	11.9	15.5	17.1	18.0	20.2	31.6
Attenuation dB/100 m	7.0	9.0	15.7	19.0	27.4	39.1	50.9	55.9	59.1	66.4	103.8
Avg. Power kW	0.95	0.73	0.42	0.35	0.24	0.17	0.13	0.12	0.11	0.10	0.06

Calculate Attenuation = $(0.385082) \sqrt{FMHz} + (0.000396) \cdot FMHz$ (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

LMR[®]-240-UF UltraFlex Communications Coax

Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs (e.g. WLL, GPS, LMR, Mobile Antennas)
- Any application that requires additional flexibility



Part Description				
Part Number	Application	Jacket	Color	Stock Code
LMR-240-UF	Indoor/Outdoor	TPE	Black	54041
LMR-240-UF-FR	Indoor/Outdoor	FRPE	Black	54143

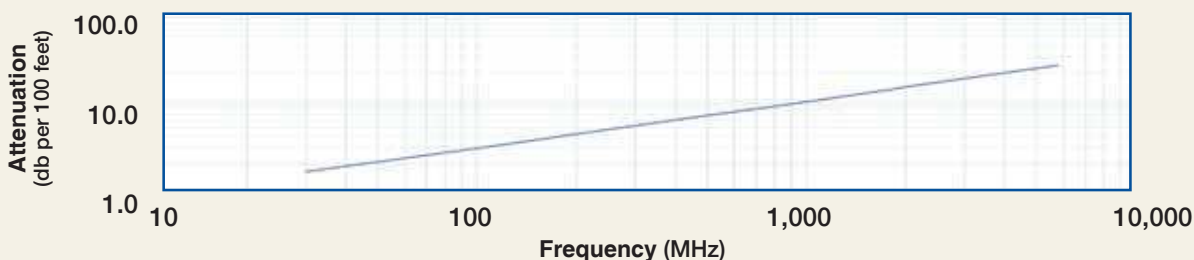
Environmental Specifications			
Performance Property	°F	°C	
Installation Temperature Range	-40/+185	-40/+85	
Storage Temperature Range	-94/+185	-70/+85	
Operating Temperature Range	-40/+185	-40/+85	

Electrical Specifications			
Performance Property	Units	US	(metric)
Velocity of Propagation	%	80	
Dielectric Constant	NA	1.42	
Time Delay	nS/ft (nS/m)	1.21	(3.97)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	24.2	(79.4)
Inductance	uH/ft (uH/m)	0.060	(0.20)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	4.28	(14.1)
Outer Conductor	ohms/1000ft (/km)	3.89	(12.8)
Voltage Withstand	Volts DC	1500	
Jacket Spark	Volts RMS	5000	
Peak Power	kW	5.6	

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Stranded BC	0.056	(1.42)
Dielectric	Foam Polyethylene	0.150	(3.81)
Outer Conductor	Aluminum Tape	0.155	(3.94)
Overall Braid	Tinned Copper	0.178	(4.52)
Jacket	(See Table)	0.240	(6.10)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	0.75	(19.1)
Bend Radius: repeated	in. (mm)	2.5	(63.5)
Bending Moment	ft-lb (N-m)	0.125	(0.17)
Weight	lb/ft (kg/m)	0.034	(0.05)
Tensile Strength	lb (kg)	80	(36.3)
Flat Plate Crush	lb/in. (kg/mm)	13	(0.23)

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	1.6	2.1	3.6	4.4	6.3	9.1	11.8	13.0	13.8	15.5	24.4
Attenuation dB/100 m	5.3	6.8	11.9	14.4	20.8	29.8	38.9	42.8	45.2	50.9	80.1
Avg. Power kW	1.24	0.96	0.55	0.45	0.31	0.22	0.17	0.15	0.14	0.13	0.08

Calculate Attenuation = (0.290501) * √FMHz + (0.000396) * 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

LMR®-300-UF UltraFlex Communications Coax

Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application that requires additional flexibility



Part Description				
Part Number	Application	Jacket	Color	Stock Code
LMR-300-UF	Indoor/Outdoor	TPE	Black	54088

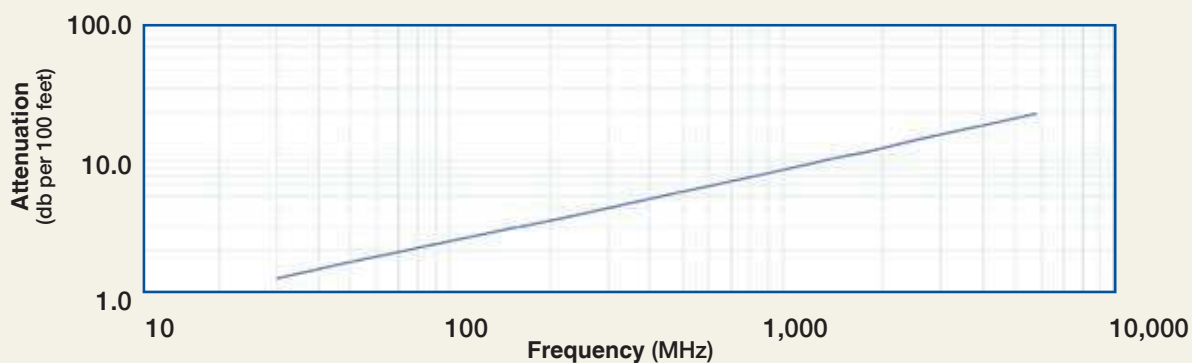
Environmental Specifications			
Performance Property	°F	°C	
Installation Temperature Range	-40/+185	-40/+85	
Storage Temperature Range	-94/+185	-70/+85	
Operating Temperature Range	-40/+185	-40/+85	

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Stranded BC	0.070	(1.78)
Dielectric	Foam Polyethylene	0.190	(4.83)
Outer Conductor	Aluminum Tape	0.196	(4.98)
Overall Braid	Tinned Copper	0.225	(5.72)
Jacket	Black Thermoplastic Elastomer	0.300	(7.62)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	0.88	(22.2)
Bend Radius: repeated	in. (mm)	3.0	(76.2)
Bending Moment	ft-lb (N-m)	0.2	(0.27)
Weight	lb/ft (kg/m)	0.055	(0.08)
Tensile Strength	lb (kg)	120	(54.5)
Flat Plate Crush	lb/in. (kg/mm)	20	(0.36)

Electrical Specifications			
Performance Property	Units	US	(metric)
Velocity of Propagation	%	85	
Dielectric Constant	NA	1.38	
Time Delay	nS/ft (nS/m)	1.20	(3.92)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	23.9	(78.4)
Inductance	uH/ft (uH/m)	0.060	(0.20)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	2.96	(9.7)
Outer Conductor	ohms/1000ft (/km)	2.21	(7.3)
Voltage Withstand	Volts DC	2000	
Jacket Spark	Volts RMS	5000	
Peak Power	kW	10	

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	1.3	1.6	2.9	3.5	5.1	7.3	9.5	10.5	11.1	12.5	19.8
Attenuation dB/100 m	4.2	5.4	9.4	11.5	16.6	23.8	31.2	34.4	36.4	41.0	65.0
Avg. Power kW	1.74	1.35	0.77	0.63	0.44	0.30	0.23	0.21	0.20	0.18	0.11

Calculate Attenuation = $(0.230316) \cdot \sqrt{\text{FMHz}} + (0.000392) \cdot \text{FMHz}$ (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

LMR-[®]400-UF UltraFlex Communications Coax

Ideal for...

- Drop-in replacement for RG-8/9913 Air-Dielectric type Cable
- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application that requires additional flexibility



Part Description				
Part Number	Application	Jacket	Color	Stock Code
LMR-400-UF	Indoor/Outdoor	TPE	Black	54040
LMR-400-UF-FR	Indoor/Outdoor	FRPE	Black	54270

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	

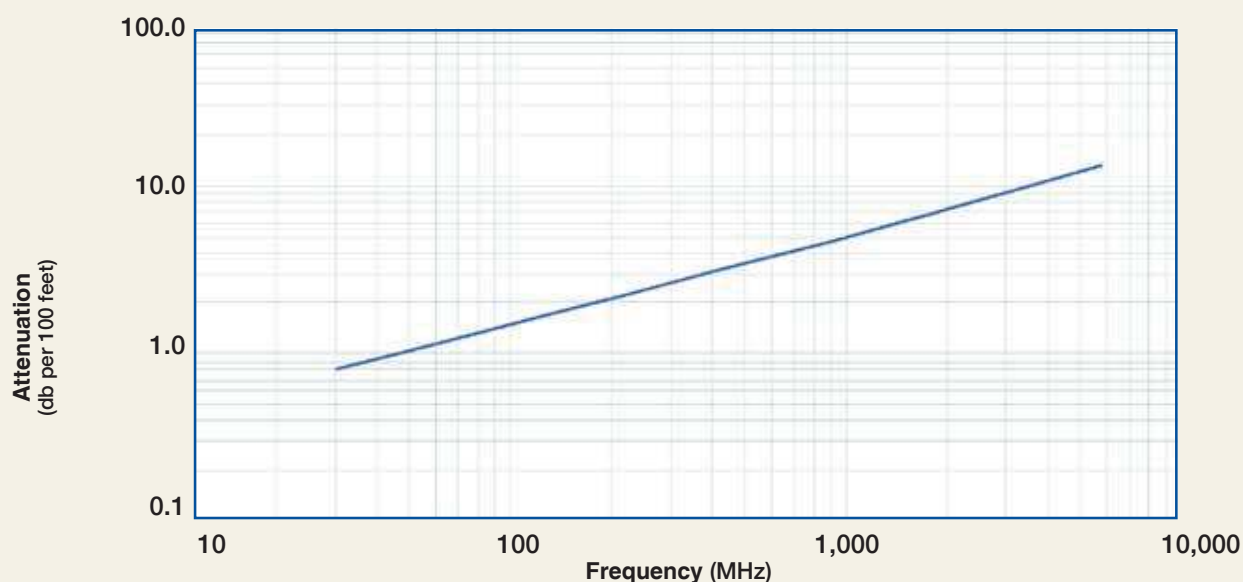
Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Stranded BC	0.108	(2.74)
Dielectric	Foam Polyethylene	0.285	(7.24)
Outer Conductor	Aluminum Tape	0.291	(7.39)
Overall Braid	Tinned Copper	0.320	(8.13)
Jacket	(See table)	0.405	(10.29)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	1.0	(25.4)
Bend Radius: repeated	in. (mm)	4.0	(101.6)
Bending Moment	ft-lb (N-m)	0.375	(0.51)
Weight	lb/ft (kg/m)	.088	(0.131)
Tensile Strength	lb (kg)	160	(72.6)
Flat Plate Crush	lb/in. (kg/mm)	20	(0.36)

Electrical Specifications			
Performance Property	Units	US	(metric)
Velocity of Propagation	%	83	
Dielectric Constant	NA	1.38	
Time Delay	nS/ft (nS/m)	1.20	(3.92)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	23.9	(78.40)
Inductance	uH/ft (uH/m)	0.060	(0.21)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	1.07	(3.51)
Outer Conductor	ohms/1000ft (/km)	1.65	(5.4)
Voltage Withstand	Volts DC	2500	
Jacket Spark	Volts RMS	8000	
Peak Power	kW	16	

MICROWAVE

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	0.8	1.1	1.8	2.2	3.3	4.7	6.2	6.8	7.2	8.1	13.0
Attenuation dB/100 m	2.7	3.5	6.1	7.4	10.7	15.4	20.2	22.3	23.6	26.6	42.6
Avg. Power kW	2.77	2.14	1.22	1.00	0.69	0.48	0.36	0.33	0.31	0.28	0.17

Calculate Attenuation = $(0.146748) \cdot \sqrt{FMHz} + (0.000312) \cdot FMHz$ (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



LMR®-500-UF UltraFlex Communications Coax

Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application that requires additional flexibility



Part Description				
Part Number	Application	Jacket	Color	Stock Code
LMR-500-UF	Indoor/Outdoor	TPE	Black	54043

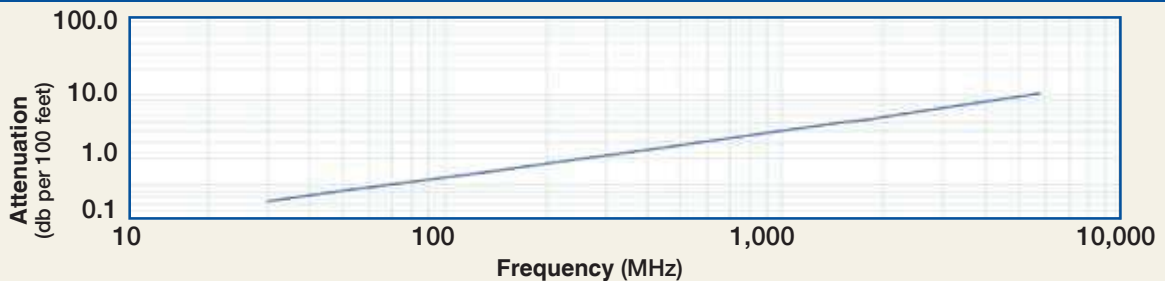
Environmental Specifications		
Performance Property	°F	°C
Installation Temperature Range	-40/+185	-40/+85
Storage Temperature Range	-94/+185	-70/+85
Operating Temperature Range	-40/+185	-40/+85

Electrical Specifications			
Performance Property	Units	US	(metric)
Velocity of Propagation	%	85	
Dielectric Constant	NA	1.38	
Time Delay	nS/ft (nS/m)	1.20	(3.92)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	23.9	(78.4)
Inductance	uH/ft (uH/m)	0.060	(0.20)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	0.68	(2.21)
Outer Conductor	ohms/1000ft (/km)	1.27	(4.2)
Voltage Withstand	Volts DC	2500	
Jacket Spark	Volts RMS	8000	
Peak Power	kW	22	

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Stranded BC	0.142	(3.61)
Dielectric	Foam Polyethylene	0.370	(9.40)
Outer Conductor	Aluminum Tape	0.376	(9.55)
Overall Braid	Tinned Copper	0.405	(10.29)
Jacket	Black Thermoplastic Elastomer	0.500	(12.70)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	1.25	(31.8)
Bend Radius: repeated	in. (mm)	5.0	(127.0)
Bending Moment	ft-lb (N-m)	1.25	(1.69)
Weight	lb/ft (kg/m)	0.1	(0.15)
Tensile Strength	lb (kg)	260	(118.0)
Flat Plate Crush	lb/in. (kg/mm)	35	(0.63)

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	0.6	0.8	1.5	1.8	2.6	3.8	5.0	5.5	5.8	6.6	10.6
Attenuation dB/100 m	2.1	2.7	4.8	5.9	8.5	12.3	16.3	18.0	19.1	21.6	34.9
Avg. Power kW	3.68	2.84	1.61	1.32	0.91	0.63	0.48	0.43	0.41	0.36	0.22

Calculate Attenuation = $(0.115908) \cdot \sqrt{\text{FMHz}} + (0.000312) \cdot \text{FMHz}$ (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



LMR[®]-600-UF UltraFlex Communications Coax

Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application that requires periodic/repeated flexing



Part Description				
Part Number	Application	Jacket	Color	Stock Code
LMR-600-UF	Indoor/Outdoor	TPE	Black	54044

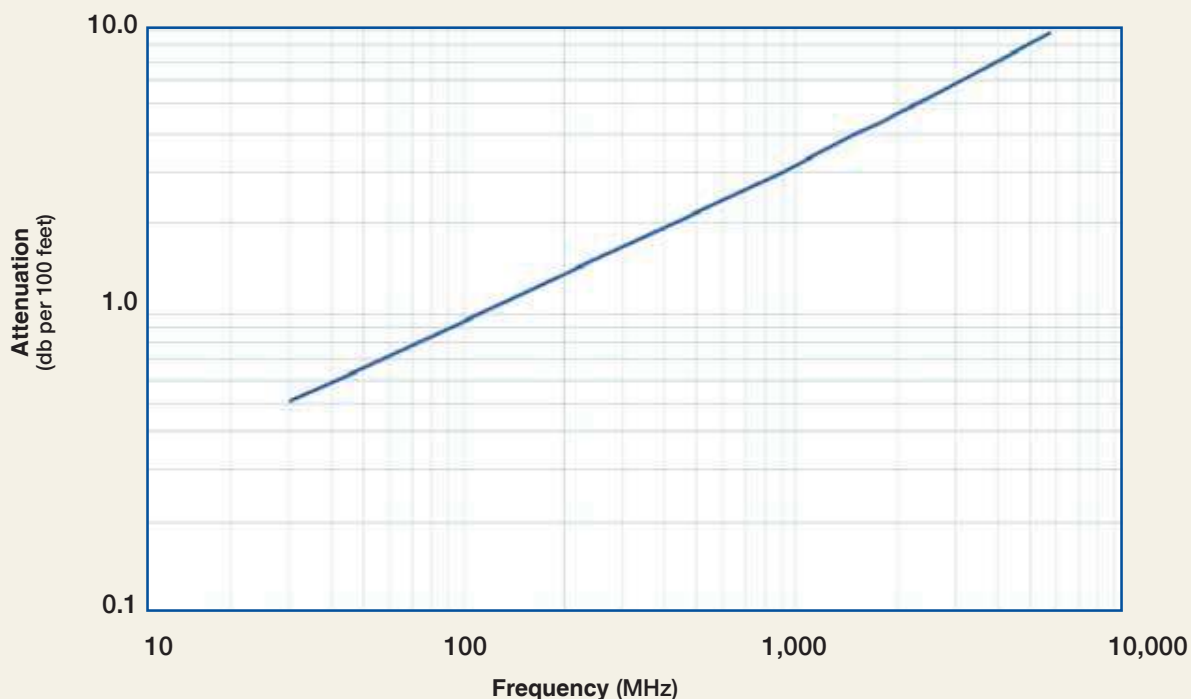
Environmental Specifications			
Performance Property	°F	°C	
Installation Temperature Range	-40/+185	-40/+85	
Storage Temperature Range	-94/+185	-70/+85	
Operating Temperature Range	-40/+185	-40/+85	

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Stranded BC	0.176	(4.47)
Dielectric	Foam Polyethylene	0.455	(11.56)
Outer Conductor	Aluminum Tape	0.461	(11.71)
Overall Braid	Tinned Copper	0.490	(12.45)
Jacket	Black Thermoplastic Elastomer	0.590	(14.99)

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)	1.75	(2.37)
Weight	lb/ft (kg/m)	0.165	(0.25)
Tensile Strength	lb (kg)	350	(158.9)
Flat Plate Crush	lb/in. (kg/mm)	40	(0.71)

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)	0.43	(1.42)
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	0.5	0.7	1.2	1.4	2.1	3.0	4.0	4.4	4.7	5.3	8.7
Attenuation dB/100 m	1.7	2.2	3.8	4.6	6.8	9.8	13.1	14.5	15.3	17.4	28.6
Avg. Power kW	4.59	3.53	2.00	1.64	1.12	0.77	0.58	0.52	0.49	0.43	0.26

Calculate Attenuation =

$(0.090660) \cdot \sqrt{FMHz} + (0.000312) \cdot FMHz$ (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