

LMR[®]-900-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-900-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-900-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-900-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:** Type-N and 7-16 male and female connectors are available for LMR-900-LLPL cable. Other interface types can be provided by using a short jumper cable assembly.
- **Cable Assemblies:** All LMR-900-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-900-LLPL | Indoor/Outdoor Plenum CMP/FT6 | FRPVC | Orange | 54062 |

Construction Specifications

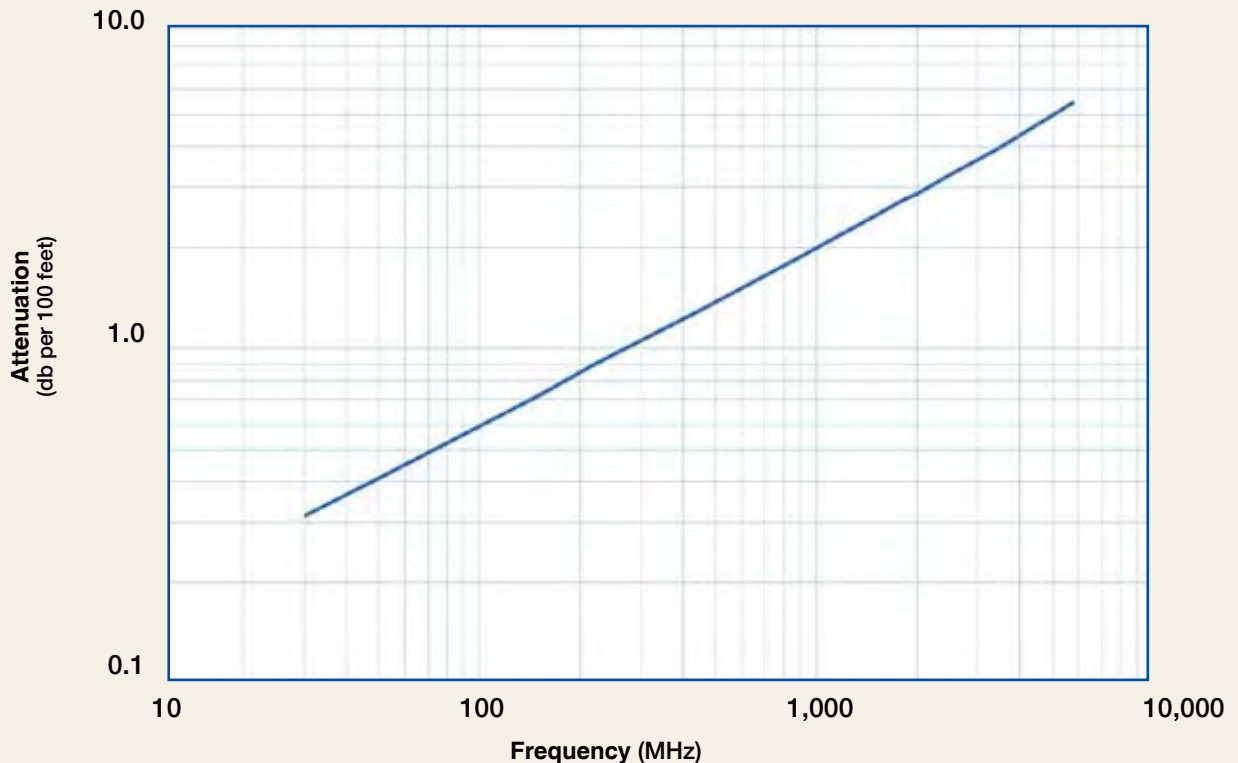
| Description | Material | In. | (mm) |
|-----------------|------------------|-------|---------|
| Inner Conductor | BC Tube | 0.227 | (5.77) |
| Dielectric | Low density PTFE | 0.680 | (17.27) |
| Outer Conductor | Aluminum Tape | 0.686 | (17.42) |
| Overall Braid | Tinned Copper | 0.732 | (18.59) |
| Jacket | Orange FRPVC | 0.870 | (22.10) |

| Mechanical Specifications | | | |
|---------------------------|-----------------|-------|----------|
| Performance Property | Units | US | (metric) |
| Bend Radius: installation | in. (mm) | 3.00 | (76.2) |
| Bend Radius: repeated | in. (mm) | 9.0 | (228.6) |
| Bending Moment | ft-lbs (N-m) | 9.0 | (12.20) |
| Weight | lbs/ft (kg/m) | 0.542 | (0.81) |
| Tensile Strength | lbs (kg) | 660 | (299.6) |
| Flat Plate Crush | lbs/in. (kg/mm) | 300 | (5.36) |

| 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) | 0.63 | (2.07) |
| Outer Conductor | ohms/1000ft (/km) | 0.55 | (1.8) |
| Voltage Withstand | Volts DC | 5000 | |
| Jacket Spark | Volts RMS | 8000 | |
| Peak Power | kW | 62 | |

| 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 |

Attenuation vs. Frequency (typical)



| Frequency (MHz) | 30 | 50 | 150 | 220 | 450 | 900 | 1500 | 1800 | 2000 | 2500 | 3400 | 5800 |
|-----------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| Attenuation dB/100 ft | 0.3 | 0.4 | 0.7 | 0.9 | 1.3 | 1.9 | 2.5 | 2.8 | 2.9 | 3.3 | 4.0 | 5.4 |
| Attenuation dB/100 m | 1.0 | 1.4 | 2.4 | 2.9 | 4.3 | 6.2 | 8.2 | 9.0 | 9.6 | 10.9 | 13.0 | 17.8 |
| Avg. Power kW | 13.21 | 10.18 | 5.77 | 4.74 | 3.25 | 2.24 | 1.69 | 1.52 | 1.44 | 1.26 | 1.06 | 0.77 |

Calculate Attenuation = $(0.057220) \cdot \sqrt{\text{FMHz}} + (0.000183) \cdot \text{FMHz}$ (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; Jacket = +75°C (167°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 (mm) | Width in (mm) | Weight lb (g) | | |
| 1. 7-16 Male | Straight Plug | EZ-900-716-MC-PL-2 | 3190-1549 | <1.25:1 | (2.5) | Hex | Press Fit | Clamp | S/S | 2.0 | (51) | 1.44 | (36.6) | 0.485 (220.0) |
| 2. N Female | Straight Jack | EZ-900-NFC-PL-2 | 3190-1586 | <1.25:1 | (2.5) | NA | Press Fit | Clamp | S/G | 2.0 | (51) | 1.38 | (35.1) | 0.443 (200.9) |
| 3. N Male | Straight Plug | EZ-900-NMC-PL-2 | 3190-1585 | <1.25:1 | (2.5) | Hex/Knurl | Press Fit | Clamp | S/S | 2.0 | (51) | 1.38 | (35.1) | 0.463 (210.0) |

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



Install Tools

| Type | Part Number | Stock Code | Description |
|--------------------|-------------|------------|------------------------------------|
| Strip Tool | ST-900C | 3190-1310 | For LMR 900 Clamp Style Connectors |
| Midspan Strip Tool | GST-900A | 3190-435 | For Ground Strap Attachment |
| Wrenches | WR-900 | 3190-510 | 1-1/4" Box Wrench (2 required) |
| Cutting Tool | CCT-01 | 3190-1544 | Cable end flush cut tool |
| Replacement Blade | RB-01 | 3190-1609 | Replacement blade for cutting tool |



Hardware Accessories

| Type | Part Number | Stock Code | Description |
|----------------------------------|-------------|------------|--|
| Ground Kit | GK-S900TT | GK-S900TT | Standard Grounding Kit (each) |
| Hoisting Grip | HG-900T | HG-900T | Split/Laced Type (each) |
| Cold Shrink | CS-A900T | CS-A900T | Cable to Antenna Junction (each) |
| Cold Shrink | CS-90120T | CS-90120T | LMR-900 to -1200 Junction (each) |
| Cold Shrink | CS-90170T | CS-90170T | LMR-900 to -1700 Junction (each) |
| Port Cushion | SC-900T-3 | SC-900T-3 | Three Cables (each) |
| Standard Entry Panels | | | Full Range of Port Styles/Combinations Available |
| Hanger Blocks | CB-900T | CB-900T | Dual Cable Support Block (kit of 10) |
| Hanger Block Supporting Hardware | | | Complete Range of Supporting Hardware and Adapters Available |
| Snap-in Hangers | SH-U900T | SH-U900T | Snap-in Hanger (Kit of 10) |