

# 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 periodic/repeated flexing



• **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-240-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-240-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-240-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-240-UF 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-240-UF 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-240-UF       | Indoor/Outdoor | TPE    | Black | 54041      |

## 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          | Black Thermoplastic Elastomer | 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)   |

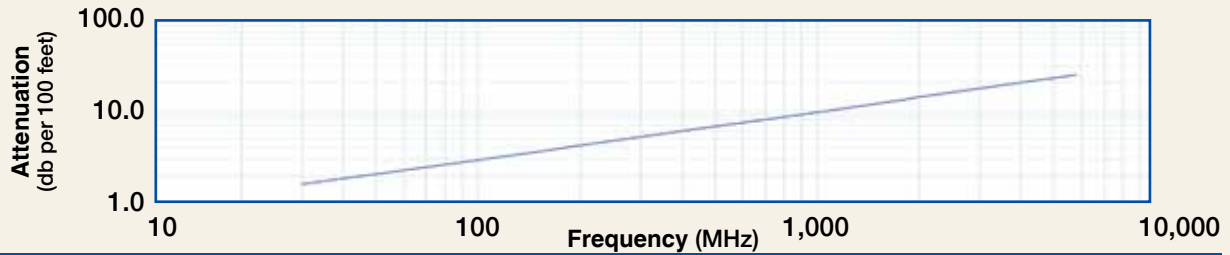
## Environmental Specifications

| 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 | %                 | 84    |          |
| 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   |          |

### 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 =  $(0.290501) \cdot \sqrt{\text{FMHz}} + (0.000396) \cdot \text{FMHz}$  (interactive calculator available at [http://www.timesmicrowave.com/cable\\_calculators](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



## Connectors

| Interface | Description      | Part Number  | Stock Code | VSWR** Freq. (GHz) | Coupling Nut | Inner Contact Attach | Outer Contact Attach | Finish* /Pin | Length in (mm) | Width in (mm) | Weight lb (g) |
|-----------|------------------|--------------|------------|--------------------|--------------|----------------------|----------------------|--------------|----------------|---------------|---------------|
| BNC Male  | Straight Plug    | TC-240-BMC   | 3190-242   | <1.25:1 (2.5)      | Knurl        | Solder               | Clamp                | S/G          | 1.7 (43)       | 0.56(14.2)    | 0.040 (18.1)  |
| Mini-UHF  | Straight Plug    | TC-240-MUHF  | 3190-445   | <1.25:1 (2.5)      | Knurl        | Solder               | Crimp                | N/G          | 1.1 (28)       | 0.45(11.4)    | 0.014 (6.4)   |
| N Female  | Bulkhead Jack    | TC-240-NF-BH | 3190-419   | <1.25:1 (2.5)      | NA           | Solder               | Crimp                | A/G          | 1.7 (44)       | 0.88(22.2)    | 0.115 (52.2)  |
| N Male    | Straight Plug    | TC-240-NMH   | 3190-382*  | <1.25:1 (2.5)      | Hex          | Solder               | Crimp                | N/S          | 1.5 (38)       | 0.75(19.1)    | 0.086 (39.0)  |
| N Male    | Straight Plug    | TC-240-NMC   | 3190-244   | <1.25:1 (2.5)      | Knurl        | Solder               | Clamp                | S/G          | 1.5 (38)       | 0.75(19.1)    | 0.082 (37.2)  |
| SMA Male  | Straight Plug    | TC-240-SM    | 3190-380*  | <1.25:1 (10)       | Hex          | Solder               | Crimp                | SS/G         | 1.0 (25)       | 0.32(8.1)     | 0.016 (7.3)   |
| SMA Male  | Reverse Polarity | TC-240-SM-RP | 3190-326   | <1.25:1 (2.5)      | Hex          | Solder               | Crimp                | SS/G         | 1.0 (25)       | 0.32(8.1)     | 0.016 (7.3)   |
| TNC Male  | Straight Plug    | TC-240-TM    | 3190-275   | <1.25:1 (2.5)      | Knurl        | Solder               | Crimp                | N/S          | 1.7 (43)       | 0.59(15.0)    | 0.043 (19.5)  |
| TNC Male  | Right Angle      | TC-240-TM-RA | 3190-604   | <1.35:1 (6)        | Knurl        | Solder               | Crimp                | N/G          | 1.3 (33)       | 0.57(14.5)    | 0.055 (24.9)  |

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

## Hardware Accessories

| Type       | Part Number | Stock Code | Description                |
|------------|-------------|------------|----------------------------|
| Ground Kit | GK-S240TT   | GK-S240TT  | Standard Ground Kit (each) |

## Install Tools

| Type              | Part Number        | Stock Code | Description                                         |
|-------------------|--------------------|------------|-----------------------------------------------------|
| Crimp Tool        | CT-240/200/195/100 | 3190-667   | Crimp tool for LMR-100, 195, 200 and 240 connectors |
| Cutting Tool      | CCT-01             | 3190-1544  | Cable end flush cut tool                            |
| Replacement Blade | RB-01              | 3190-1609  | Replacement blade for cutting tool                  |

