

TCOM[®]-200 Low Loss Low Passive Intermod Coax

Ideal for...

- -155 dBc Intermodulation Distortion
- Low Loss UHF/Microwave Interconnect
- Wireless Base Station Interconnect
- Flexible for Easy Routing



• **TCOM[®]** 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.

TCOM[®]-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. TCOM-FR has a UL/NEC & CSA rating of 'CMR' and 'FT4' respectively.

Flexibility and bendability are hallmarks of the TCOM-200 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 TCOM-200. Size for size LMR has the lowest loss of any flexible cable and comparable loss to semirigid hard-line cables.

Passive Intermod is lower than -155 dBc exceed the performance levels for most wireless applications.

RF Shielding is 60 dB greater than typical single shielded coax (40 dB). The multi-ply bonded foil outer conductor is rated conservatively at > 100 dB (i.e. >200 dB between two adjacent cables).

Weatherability: TCOM-200 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 TCOM-200 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 TCOM-200 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 |
| TCOM-200 | Outdoor | PE | Black | 55001 |
| TCOM-200-FR | Indoor-Riser CMR | FRPE | Black | 55022 |
| TCOM-200-PUR-DB | Outdoor/ Watertight | PUR | Black | 55042 |

| Construction Specifications | | | |
|-----------------------------|-----------------------|-------|--------|
| Description | Material | In. | (mm) |
| Inner Conductor | Solid BC | 0.044 | (1.12) |
| Dielectric | Foam PE | 0.116 | (2.95) |
| Outer Conductor | SPC Strip Braid | 0.126 | (3.20) |
| Overall Braid | TC Braid over Al tape | 0.154 | (3.91) |
| Jacket | (see table above) | 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) | 0.2 | (0.27) |
| Weight | lb/ft (kg/m) | 0.040 | (0.06) |
| Tensile Strength | lb (kg) | 40 | (18.2) |
| Flat Plate Crush | lb/in. (kg/mm) | 15 | (0.27) |

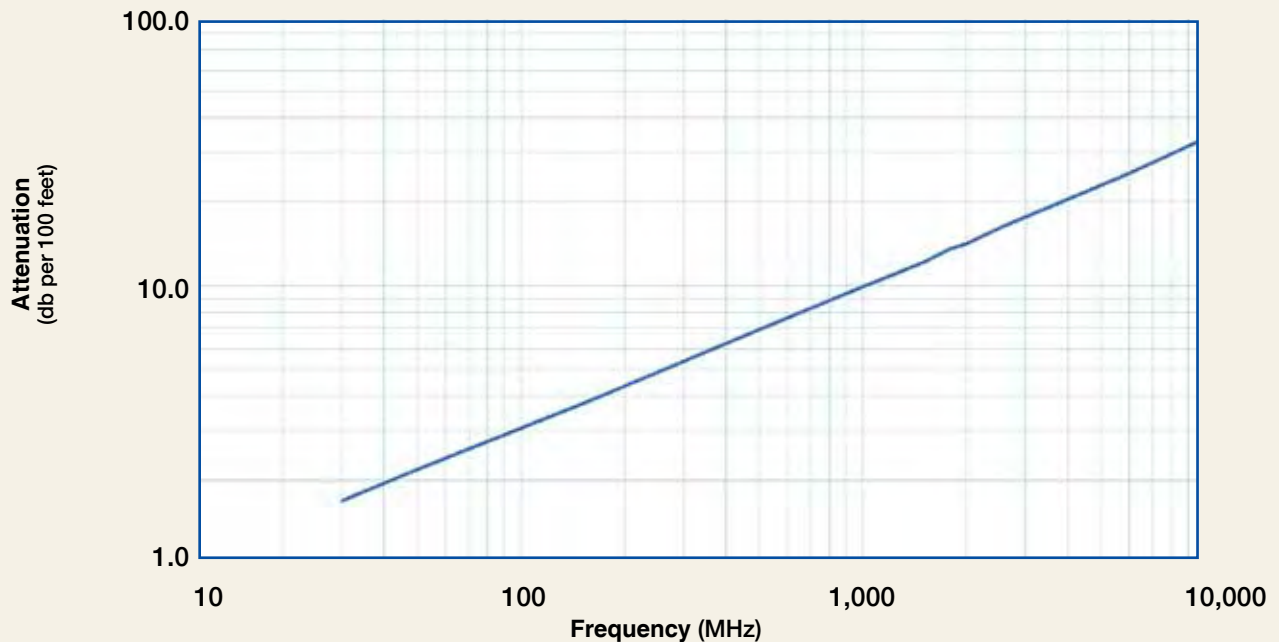
Environmental Specifications

| 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 | >100 | |
| DC Resistance | | | |
| Inner Conductor | ohms/1000ft (/km) | 5.36 | (17.6) |
| Outer Conductor | ohms/1000ft (/km) | 3.84 | (12.6) |
| Voltage Withstand | Volts DC | 1000 | |
| Jacket Spark | Volts RMS | 3000 | |
| Peak Power | kW | 2.5 | |
| Passive Intermod | dBc | -155 | |

Attenuation vs. Frequency (typical)

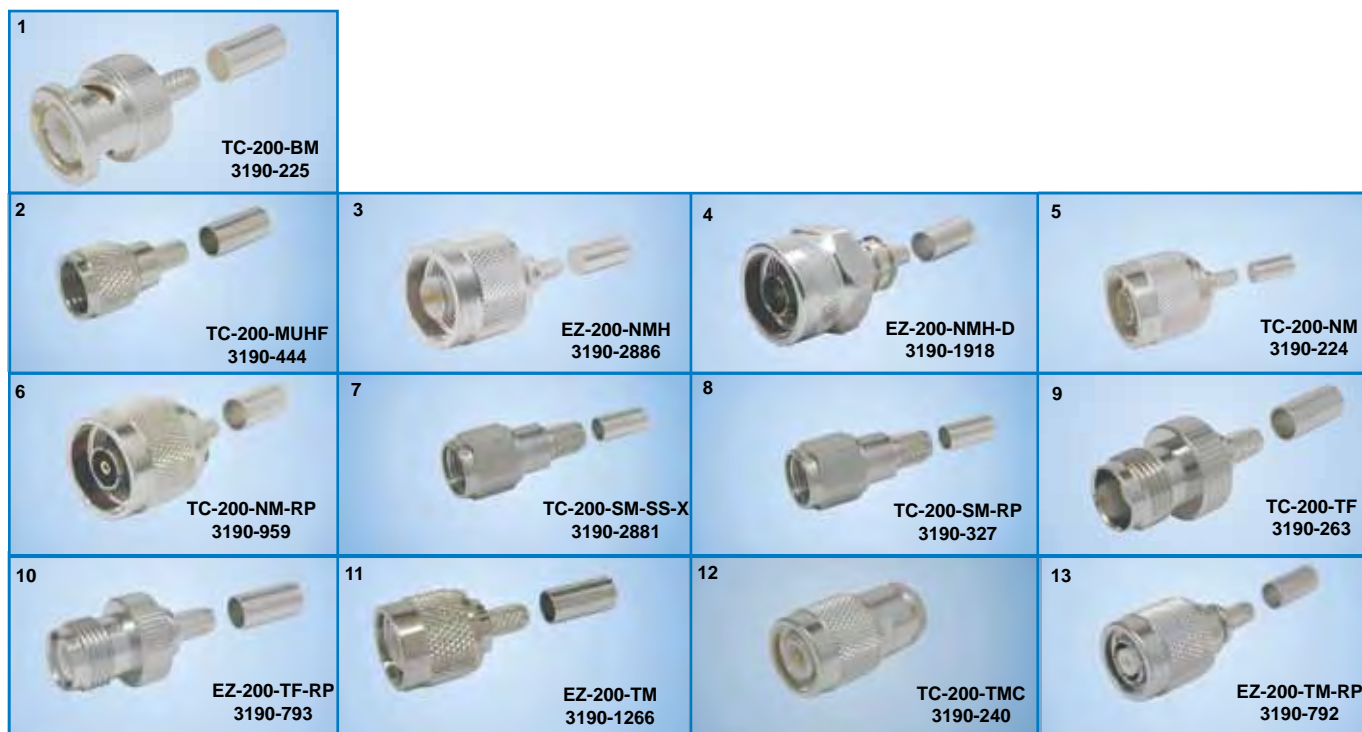


| Frequency (MHz) | 30 | 50 | 150 | 220 | 450 | 900 | 1500 | 1800 | 2000 | 2500 | 5800 | 10,000 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Attenuation dB/100 ft | 1.7 | 2.2 | 3.8 | 4.6 | 6.6 | 9.4 | 12.3 | 13.5 | 14.2 | 16.0 | 25.0 | 33.7 |
| Attenuation dB/100 m | 5.5 | 7.1 | 12.4 | 15.0 | 21.6 | 30.9 | 40.2 | 44.2 | 46.7 | 52.5 | 82.2 | 110.5 |
| Avg. Power kW | 1.08 | 0.84 | 0.48 | 0.39 | 0.27 | 0.19 | 0.15 | 0.13 | 0.13 | 0.11 | 0.07 | 0.05 |

Calculate Attenuation = $(0.303670) \cdot \sqrt{\text{FMHz}} + (0.000331) \cdot \text{FMHz}$ (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

TCOM-200

Low Loss Low Passive Intermod Coax



| 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. BNC male | Straight Plug | TC-200-BM | 3190-225 | <1.25:1 (2.5) | Knurl | Solder | Crimp | S/G | 1.7 (43.2) | 0.56 (14.2) | 0.045 (20.4) | |
| 2. Mini-UHF | Straight Plug | TC-200-MUHF | 3190-444 | <1.25:1 (2.5) | Knurl | Solder | Crimp | NG | 1.1 (27.9) | 0.45 (11.4) | 0.015 (6.8) | |
| 3. N male | Straight Plug | EZ-200-NMH-X | 3190-2886 | <1.25:1 (8) | Knurl | Spring Fit | Crimp | S/G | 1.5 (38.1) | 0.75 (19.1) | 0.073 (33.1) | |
| 4. N male | Straight Plug | EZ-200-NMH-D | 3190-1918 | <1.25:1 (8) | Hex/Knurl | Spring Fit | Crimp | A/G | 1.5 (38.1) | 0.75 (19.1) | 0.073 (33.1) | |
| 5. N male | Straight Plug | TC-200-NM | 3190-224 | <1.25:1 (2.5) | Knurl | Solder | Crimp | S/G | 1.5 (38.1) | 0.75 (19.1) | 0.073 (33.1) | |
| 6. N male | Reverse Polarity | TC-200-NM-RP | 3190-959 | <1.25:1 (2.5) | Knurl | Solder | Crimp | N/G | 1.5 (38.1) | 0.75 (19.1) | 0.073 (33.1) | |
| 7. SMA male | Straight Plug | TC-200-SM-SS-X | 3190-2881 | <1.25:1 (8) | Hex | Solder | Crimp | SS/G | 1.0 (25.4) | 0.32 (8.1) | 0.015 (6.8) | |
| 8. SMA male | Reverse Polarity | TC-200-SM-RP | 3190-327 | <1.25:1 (2.5) | Hex | Solder | Crimp | SS/G | 1.0 (25.4) | 0.32 (8.1) | 0.015 (6.8) | |
| 9. TNC female | Straight Jack | TC-200-TF | 3190-263 | <1.25:1 (2.5) | NA | Solder | Crimp | N/G | 1.3 (33.0) | 0.57 (14.5) | 0.033 (15.0) | |
| 10. TNC female | Reverse Polarity | EZ-200-TF-RP | 3190-793 | <1.25:1 (2.5) | NA | Spring Fit | Crimp | A/G | 1.3 (33.0) | 0.57 (14.5) | 0.033 (15.0) | |
| 11. TNC male | Straight Plug | EZ-200-TM | 3190-1266 | <1.25:1 (2.5) | Knurl | Spring Fit | Crimp | S/G | 1.4 (35.6) | 0.59 (15.0) | 0.045 (20.4) | |
| 12. TNC male | Straight Plug | TC-200-TMC | 3190-240 | <1.25:1 (2.5) | Knurl | Solder | Clamp | S/G | 1.7 (43.2) | 0.59 (15.0) | 0.045 (20.4) | |
| 13. TNC male | Reverse Polarity | EZ-200-TM-RP | 3190-792 | <1.25:1 (2.5) | Knurl | Spring Fit | Crimp | A/G | 1.4 (35.6) | 0.32 (8.1) | 0.045 (20.4) | |

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



Hardware Accessories

| Type | Part Number | Stock Code | Description |
|------------|-------------|------------|----------------------------|
| Ground Kit | GK-S200TT | GK-S200TT | 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 |
| Deburr Tool | DBT-U | 3192-001 | Removes center conductor rough edges |
| Cutting Tool | CCT-01 | 3190-1544 | Cable end flush cut tool |
| Replacement Blade | RB-01 | 3190-1609 | Replacement blade for cutting tool |
| Strip Tool | CST-195/200 | 3192-102 | Combination prep tool for LMR-195 and LMR-200 |
| Replacement Blade Kit | RB-CST | 3192-086 | Replacement blade kit for all strip tools |