

TCOM[®]-300 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.
- TCOM[®]-PUR** has a polyurethane outer jacket designed for multiple bending/flexing cycles in rugged tactical applications.

Flexibility and bendability are hallmarks of the TCOM-300 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-300. 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-300 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-300 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-300 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-300 | Outdoor | PE | Black | 55011 |
| TCOM-300-FR | Indoor-Riser CMR | FRPE | Black | 55013 |
| TCOM-300-PUR-DB | Outdoor/ Watertight | PUR | Black | 55038 |

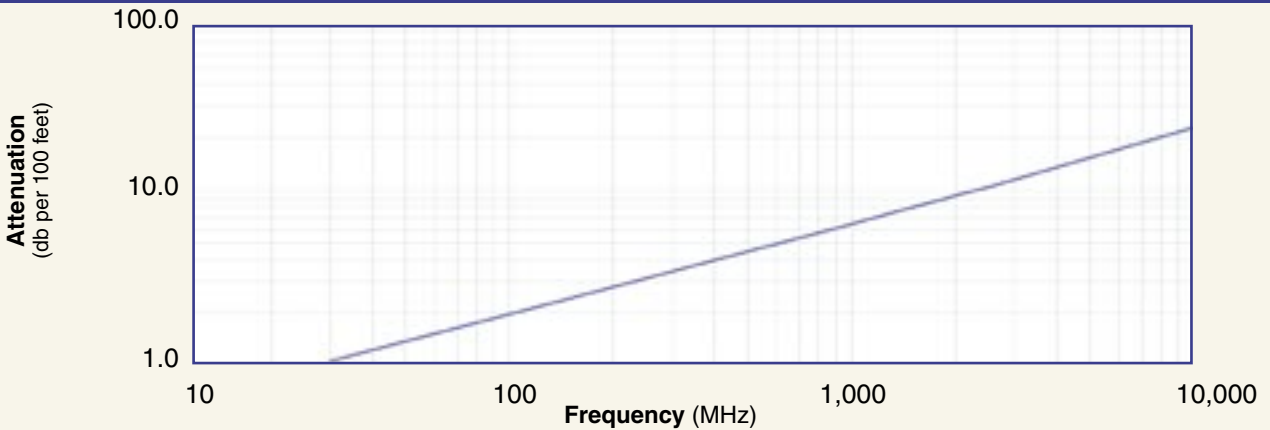
| Construction Specifications | | | |
|-----------------------------|-----------------------|-------|--------|
| Description | Material | In. | (mm) |
| Inner Conductor | Solid BC | 0.070 | (1.78) |
| Dielectric | Foam PE | 0.190 | (4.83) |
| Outer Conductor | SPC Strip Braid | 0.200 | (5.08) |
| Overall Braid | TC Braid over Al tape | 0.234 | (5.94) |
| Jacket | (see table above) | 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) | 0.38 | (0.52) |
| Weight | lb/ft (kg/m) | 0.055 | (0.08) |
| Tensile Strength | lb (kg) | 120 | (54.5) |
| Flat Plate Crush | lb/in. (kg/mm) | 30 | (0.54) |

| 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) |
| Cutoff Frequency | GHz | | 24.5 |
| 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 | | >100 |
| DC Resistance | | | |
| Inner Conductor | ohms/1000ft (/km) | 2.12 | (7.0) |
| Outer Conductor | ohms/1000ft (/km) | 2.10 | (6.9) |
| Voltage Withstand | Volts DC | | 2000 |
| Jacket Spark | Volts RMS | | 5000 |
| Peak Power | kW | | 10 |
| 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 | 1.1 | 1.4 | 2.4 | 3.0 | 4.3 | 6.1 | 8.0 | 8.8 | 9.3 | 10.5 | 16.7 | 22.7 |
| Attenuation dB/100 m | 3.5 | 4.6 | 8.0 | 9.7 | 14.0 | 20.1 | 26.3 | 29.0 | 30.7 | 34.6 | 54.8 | 74.5 |
| Avg. Power kW | 2.07 | 1.60 | 0.91 | 0.75 | 0.52 | 0.36 | 0.28 | 0.25 | 0.24 | 0.21 | 0.13 | 0.10 |

Calculate Attenuation = $(0.194337) \cdot \sqrt{\text{FMHz}} + (0.000327) \cdot \text{FMHz}$ (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



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) |
|------------|---------------|--------------|------------|-----------------------|-----------------|----------------------------|----------------------------|-------------------------|-------------------|------------------|------------------|
| N Male | Straight Plug | TC-300-NM | 3190-498 | <1.25:1 (6) | Hex/Knurl | Solder | Crimp | N/S | 1.6 (41) | 0.85(21.6) | 0.074 (33.8) |
| N Male | Right Angle | TC-300-NM-RA | 3190-499 | <1.35:1 (2.5) | Hex/Knurl | Solder | Crimp | N/S | 1.5 (38) | 0.85(21.6) | 0.101 (45.8) |
| TNC Male | Straight Plug | TC-300-TM | 3190-500 | <1.25:1 (2.5) | Knurl | Solder | Crimp | N/S | 1.7 (43) | 0.59(15.0) | 0.050 (22.7) |
| SMA Male | Straight Plug | TC-300-SM | 3190-501 | <1.25:1 (2.5) | Hex | Solder | Crimp | SS/G | 1.0 (25) | 0.35(8.9) | 0.018(8.2) |
| SMA Female | Bulkhead Jack | TC-300-SF-BH | 3190-590 | <1.25:1 (2.5) | NA | Solder | Crimp | SS/G | 1.1 (28) | 0.31(7.9) | 0.022(10.0) |

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

Hardware Accessories



| Type | Part Number | Stock Code | Description |
|------------|-------------|------------|----------------------------|
| Ground Kit | GK-S300TT | GK-S300TT | Standard Ground Kit (each) |



Install Tools

| Type | Part Number | Stock Code | Description |
|-------------------|-------------|------------|--------------------------------------|
| Crimp Tool | CT-400/300 | 3190-666 | Crimp tool for LMR 300 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 |

