

# TCOM<sup>®</sup>-400 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



| Part Description |                    |        |       | Stock |
|------------------|--------------------|--------|-------|-------|
| Part Number      | Application        | Jacket | Color | Code  |
| TCOM-400         | Outdoor            | PE     | Black | 55003 |
| TCOM-400-FR      | Indoor-Riser CMR   | FRPE   | Black | 55016 |
| TCOM-400-PUR     | Indoor/Outdoor     | PUR    | Black | 55015 |
| TCOM-400-PUR-DB  | Outdoor/Watertight | PUR    | Black | 55031 |

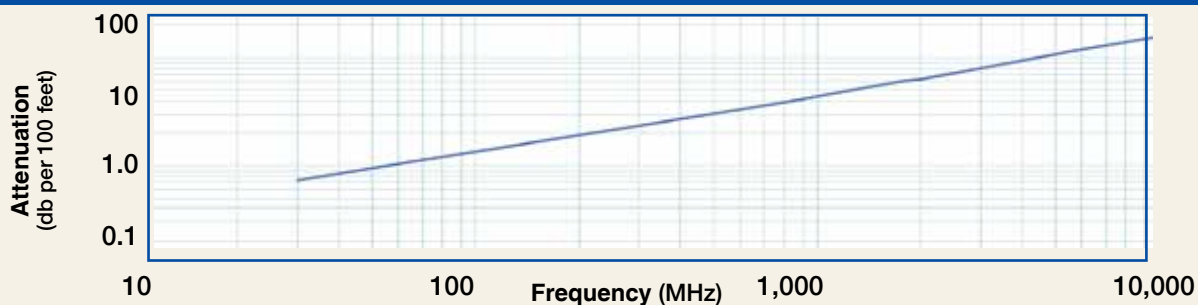
| Construction Specifications |                       |       |         |
|-----------------------------|-----------------------|-------|---------|
| Description                 | Material              | In.   | (mm)    |
| Inner Conductor             | Solid BCCAI           | 0.108 | (2.74)  |
| Dielectric                  | Foam PE               | 0.285 | (7.24)  |
| Outer Conductor             | SPC Strip Braid       | 0.295 | (7.49)  |
| Overall Braid               | TC Braid over Al tape | 0.330 | (8.38)  |
| Jacket                      | (see table)           | 0.405 | (10.29) |

| 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                | >100  |          |
| DC Resistance             |                   |       |          |
| Inner Conductor           | ohms/1000ft (/km) | 1.39  | (4.6)    |
| Outer Conductor           | ohms/1000ft (/km) | 1.47  | (4.8)    |
| Voltage Withstand         | Volts DC          | 2500  |          |
| Jacket Spark              | Volts RMS         | 8000  |          |
| Peak Power                | kW                | 16    |          |
| Passive Intermod          | dBc               | -155  |          |

| Mechanical Specifications |                |       |          |
|---------------------------|----------------|-------|----------|
| Performance Property      | Units          | US    | (metric) |
| Bend Radius: installation | in. (mm)       | 1.00  | (25.4)   |
| Bend Radius: repeated     | in. (mm)       | 4.0   | (101.6)  |
| Bending Moment            | ft-lb (N-m)    | 0.5   | (0.68)   |
| Weight                    | lb/ft (kg/m)   | 0.080 | (0.12)   |
| Tensile Strength          | lb (kg)        | 160   | (72.6)   |
| Flat Plate Crush          | lb/in. (kg/mm) | 40    | (0.71)   |

**Attenuation vs. Frequency (typical)**



| Frequency (MHz)       | 30   | 50   | 150  | 220  | 450  | 900  | 1500 | 1800 | 2000 | 2500 | 5800 | 10,000 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Attenuation dB/100 ft | 0.7  | 0.9  | 1.6  | 2.0  | 2.9  | 4.2  | 5.4  | 6.0  | 6.4  | 7.2  | 11.5 | 15.7   |
| Attenuation dB/100 m  | 2.4  | 3.1  | 5.4  | 6.5  | 9.5  | 13.6 | 17.9 | 19.7 | 20.9 | 23.6 | 37.6 | 51.4   |
| Avg. Power kW         | 3.12 | 2.41 | 1.38 | 1.13 | 0.78 | 0.54 | 0.41 | 0.37 | 0.35 | 0.31 | 0.19 | 0.14   |

|   |  |  |  |
|---|--|--|--|
| 1<br><br>EZ-400-4195M-X<br>3190-2969     | 2<br><br>TC-400-716FC<br>3190-376         | 3<br><br>TC-400-716MC<br>3190-279        | 4<br><br>TC-400-716M-X<br>3190-2597     |
| 5<br><br>TC-400-BM<br>3190-318           | 6<br><br>TC-400-BM-X<br>3190-6232         | 7<br><br>TC-400-MUHF<br>3190-520         | 8<br><br>TC-400-NFC<br>3190-299         |
| 9<br><br>EZ-400-NF-X<br>3190-2818       | 10<br><br>EZ-400-NF-BH<br>3190-518       | 11<br><br>TC-400-NFC-BH (A)<br>3190-872 | 12<br><br>SC-400-NM<br>3190-1454       |
| 13<br><br>TC-400-NMC<br>3190-277       | 14<br><br>EZ-400-NMH-X<br>3190-2590     | 15<br><br>TC-400-NMH-X<br>3190-2626    | 16<br><br>EZ-400-NMK<br>3190-661      |
| 17<br><br>EZ-400-NMH-RA-X<br>3190-2638 | 18<br><br>TC-400-NMC-RA (A)<br>3190-870 | 19<br><br>TC-400-NM-RP<br>3190-960     | 20<br><br>TC-400-SM<br>3190-439       |
| 21<br><br>TC-400-SF-X<br>3190-6174     | 22<br><br>EZ-400-TF-X<br>3190-3049      | 23<br><br>TC-400-TF-X<br>3190-3051     | 24<br><br>EZ-400-TF-RP<br>3190-795    |
| 25<br><br>EZ-400-TM-RP<br>3190-794     | 26<br><br>TC-400-TM-X<br>3190-2532      | 27<br><br>EZ-400-TM-X<br>3190-2533     | 28<br><br>TC-400-TM-RA-D<br>3190-2671 |

**Calculate Attenuation =**

$(0.130555) \cdot \sqrt{\text{FMHz}} + (0.000262) \cdot \text{FMHz}$  (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

# TCOM-400

## Low Loss Low Passive Intermod Coax



| Connectors                  |                  |                   |            |                       |                 |                            |                            |                         |                   |                  |                  |  |  |
|-----------------------------|------------------|-------------------|------------|-----------------------|-----------------|----------------------------|----------------------------|-------------------------|-------------------|------------------|------------------|--|--|
| Interface                   | Description      | Part Number       | Stock Code | VSWR**<br>Freq. (GHz) | Coupling<br>Nut | Inner<br>Contact<br>Attach | Outer<br>Contact<br>Attach | Finish*<br>Body<br>/Pin | Length<br>in (mm) | Width<br>in (mm) | Weight<br>lb (g) |  |  |
| 1. 4.1-9.5 mini<br>DIN Male | Straight Plug    | EZ-400-4195M-X    | 3190-2969  | <1.25:1 (6)           | Hex             | Spring Finger              | Crimp                      | A/G                     | 1.5 (38.1)        | 0.89 (22.6)      | 0.103 (46.8)     |  |  |
| 2. 7-16 DIN Female          | Straight Jack    | TC-400-716-FC     | 3190-376   | <1.25:1 (2.5)         | NA              | Solder                     | Clamp                      | S/S                     | 1.6 (41)          | 1.13 (28.7)      | 0.281 (127.5)    |  |  |
| 3. 7-16 DIN Male            | Straight Plug    | TC-400-716-MC     | 3190-279   | <1.25:1 (2.5)         | Hex             | Solder                     | Clamp                      | S/S                     | 1.4 (36)          | 1.40 (35.6)      | 0.268 (121.6)    |  |  |
| 4. 7-16 DIN Male            | Straight Plug    | TC-400-716M-X     | 3190-2597  | <1.25:1 (6)           | Hex             | Solder                     | Crimp                      | A/S                     | 1.6 (39.5)        | 1.42 (36.0)      | 0.320 (145.0)    |  |  |
| 5. BNC Male                 | Straight Plug    | TC-400-BM         | 3190-318   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/S                     | 1.7 (43)          | 0.56 (14.2)      | 0.063 (28.6)     |  |  |
| 6. BNC Male                 | Straight Plug    | TC-400-BM-X       | 3190-6232  | <1.30:1 (4)           | Knurl           | Solder                     | Crimp                      | A/G                     | 1.8 (46.8)        | 0.60 (14.5)      | 0.630 (28.6)     |  |  |
| 7. Mini-UHF                 | Straight Plug    | TC-400-MUHF       | 3190-520   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                     | 1.1 (28)          | 0.50 (12.7)      | 0.020 (9.1)      |  |  |
| 8. N Female                 | Straight Jack    | TC-400-NFC        | 3190-299   | <1.25:1 (2.5)         | NA              | Solder                     | Clamp                      | N/S                     | 1.6 (41)          | 0.75 (19.1)      | 0.119 (54.0)     |  |  |
| 9. N Female                 | Straight Jack    | EZ-400-NF-X       | 3190-2818  | <1.25:1 (2.5)         | NA              | Spring Finger              | Crimp                      | N/G                     | 1.8 (45)          | 0.66 (16.8)      | 0.105 (47.6)     |  |  |
| 10. N Female                | Bulkhead Jack    | EZ-400-NF-BH      | 3190-518   | <1.25:1 (2.5)         | NA              | Spring Finger              | Crimp                      | N/G                     | 1.8 (46)          | 0.88 (22.4)      | 0.102 (46.3)     |  |  |
| 11. N Female                | Bulkhead Jack    | TC-400-NFC-BH (A) | 3190-872   | <1.25:1 (2.5)         | NA              | Solder                     | Clamp                      | A/G                     | 1.8 (46)          | 0.88 (22.4)      | 0.145 (65.8)     |  |  |
| 12. N Male                  | Straight Plug    | SC-400-NM         | 3190-1454  | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                     | 1.5 (38)          | 0.75 (19.1)      | 0.090 (40.8)     |  |  |
| 13. N Male                  | Straight Plug    | TC-400-NMC        | 3190-277   | <1.25:1 (2.5)         | Knurl           | Solder                     | Clamp                      | N/G                     | 1.5 (38)          | 0.75 (19.1)      | 0.121 (54.9)     |  |  |
| 14. N Male                  | Straight Plug    | EZ-400-NMH-X      | 3190-2590  | <1.25:1 (10)          | Hex/Knurl       | Spring Finger              | Crimp                      | A/G                     | 1.5 (38)          | 0.89 (22.6)      | 0.103 (46.8)     |  |  |
| 15. N Male                  | Straight Plug    | TC-400-NMH-X      | 3190-2626  | <1.25:1 (10)          | Hex/Knurl       | Solder                     | Crimp                      | A/G                     | 1.5 (38)          | 0.89 (22.6)      | 0.113 (51.3)     |  |  |
| 16. N Male                  | Straight Plug    | EZ-400-NMK        | 3190-661   | <1.25:1 (10)          | Knurl           | Spring Finger              | Crimp                      | S/G                     | 1.5 (38)          | 0.89 (22.6)      | 0.113 (51.3)     |  |  |
| 17. N Male                  | Right Angle      | EZ-400-NMH-RA-X   | 3190-2638  | <1.35:1 (6)           | Hex/Knurl       | Spring Finger              | Crimp                      | A/G                     | 1.87 (47)         | 1.42 (36.0)      | 0.177 (80.2)     |  |  |
| 18. N Male                  | Right Angle      | TC-400-NMC-RA (A) | 3190-870   | <1.35:1 (2.5)         | Hex             | Solder                     | Clamp                      | A/G                     | 1.8 (46)          | 1.25 (31.8)      | 0.150 (68.0)     |  |  |
| 19. N Male                  | Reverse Polarity | TC-400-NM-RP      | 3190-960   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                     | 1.5 (38)          | 0.75 (19.1)      | 0.090 (40.8)     |  |  |
| 20. SMA Male                | Straight Plug    | TC-400-SM         | 3190-439   | <1.25:1 (8)           | Hex             | Solder                     | Crimp                      | N/G                     | 1.2 (29)          | 0.50 (12.7)      | 0.032 (14.5)     |  |  |
| 21. SMA Female              | Straight Jack    | TC-400-SF-X       | 3190-6174  | <1.35:1 (6)           | NA              | Solder                     | Crimp                      | A/G                     | 1.2 (29.7)        | 0.50 (12.7)      | 0.026 (12.0)     |  |  |
| 22. TNC Female              | Straight Jack    | EZ-400-TF-X       | 3190-3049  | <1.25:1 (6)           | NA              | Solder                     | Crimp                      | A/G                     | 1.8 (45.0)        | 0.55 (14.0)      | 0.074 (33.6)     |  |  |
| 23. TNC Female              | Straight Jack    | TC-400-TF-X       | 3190-3051  | <1.25:1 (6)           | Knurl           | Solder                     | Crimp                      | A/G                     | 1.8 (46.8)        | 0.60 (14.5)      | 0.630 (28.6)     |  |  |
| 24. TNC Female              | Reverse Polarity | EZ-400-TF-RP      | 3190-795   | <1.25:1 (2.5)         | NA              | Spring Finger              | Crimp                      | A/G                     | 1.8 (46)          | 0.55 (14.0)      | 0.074 (33.6)     |  |  |
| 25. TNC Male                | Reverse Polarity | EZ-400-TM-RP      | 3190-794   | <1.25:1 (2.5)         | NA              | Spring Finger              | Crimp                      | A/G                     | 1.7 (43)          | 0.59 (15.0)      | 0.074 (33.6)     |  |  |
| 26. TNC Male                | Straight Plug    | TC-400-TM-X       | 3190-2532  | <1.25:1 (6)           | Hex/Knurl       | Solder                     | Crimp                      | A/G                     | 1.9 (48)          | 0.67 (17.5)      | 0.075 (34.3)     |  |  |
| 27. TNC Male                | Straight Plug    | EZ-400-TM-X       | 3190-2533  | <1.25:1 (6)           | Hex/Knurl       | Spring Finger              | Crimp                      | A/G                     | 1.9 (48)          | 0.67 (17.5)      | 0.075 (34.3)     |  |  |
| 28. TNC Male                | Right Angle      | TC-400-TM-RA-D    | 3190-2671  | <1.35:1 (6)           | Hex/Knurl       | Solder                     | Crimp                      | A/G                     | 1.4 (35)          | 1.41 (35.8)      | 0.130 (59.0)     |  |  |
| 29. TNC Male                | Reverse Polarity | TC-400-TM-RP-RA-D | 3190-6147  | <1.35:1 (6)           | Hex             | Solder                     | Crimp                      | A/G                     | 1.4 (36.0)        | 1.20 (30.3)      | 0.130 (59.0)     |  |  |
| 30. UHF Male                | Straight Plug    | EZ-400-UM         | 3190-997   | <1.25:1 (2.5)         | Knurl           | Spring Finger              | Crimp                      | N/G                     | 1.9 (48)          | 0.80 (20.3)      | 0.090 (40.8)     |  |  |
| 31. QN Female               | Straight Jack    | EZ-400-QNF-X      | 3190-2980  | <1.25:1 (6)           | NA              | Spring Finger              | Crimp                      | A/G                     | 1.8 (45.0)        | 0.66 (16.8)      | 0.105 (47.6)     |  |  |
| 32. QN Male                 | Straight Plug    | EZ-400-QNM-X      | 3190-2979  | <1.25:1 (6)           | Hex             | Spring Finger              | Crimp                      | A/G                     | 1.5 (38.1)        | 0.89 (22.6)      | 0.103 (46.8)     |  |  |
| 33. QN Male                 | Right Angle      | EZ-400-QNM-RA-X   | 3190-2981  | <1.25:1 (6)           | Hex             | Spring Finger              | Crimp                      | A/G                     | 1.9 (47.0)        | 1.42 (36.0)      | 0.177 (80.2)     |  |  |
| 34. QN Male                 | Straight Plug    | TC-400-QNM-X      | 3190-6212  | <1.25:1 (6)           | Hex             | Solder                     | Crimp                      | A/G                     | 2.0 (50.2)        | 0.74 (18.9)      | 0.103 (46.8)     |  |  |



## Hardware Accessories

| Type          | Part Number | Stock Code | Description                   |
|---------------|-------------|------------|-------------------------------|
| Ground Kit    | GK-S400TT   | GK-S400TT  | Standard Grounding Kit (each) |
| Hoisting Grip | HG-400T     | HG-400T    | Laced Type (each)             |



## Install Tools

| Type                  | Part Number | Stock Code | Description   |
|-----------------------|-------------|------------|---|
| Crimp Tool            | CT-U        | 3192-181   | Crimp Handle (Dies Required)  |
| Crimp Dies            | Y1719       | 3190-202   | .429" Hex Dies  |
| Crimp Tool            | CT-400/300  | 3190-666   | Crimp tool for LMR 400 connectors   |
| Crimp Rings           | CR-400      | 3190-830   | Crimp rings for TC/EZ-400 connectors (package of 10)  |
| Deburr Tool           | DBT-U       | 3192-001   | Removes center conductor rough edges  |
| Cutting Tool          | CCT-02      | 3192-165   | Cable end flush cut tool  |
| Strip Tool            | CST-400     | 3192-004   | Combination prep tool for TCOM-400 crimp and clamp style connectors                                 |
| Replacement Blades    | RB-02       | 3192-166   | Replacement blades for cutting tool   |
| Replacement Blade Kit | RB-CST      | 3192-086   | Replacement blade kit for all CST strip tools   |
| Tool Kit              | TK-400EZ    | 3190-1602  | Tool kit for crimp and clamp style connectors<br>(includes CCT-02, CST-400, CT-400/300, Tool Pouch) |