

## TCOM-500

## 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/MPR' 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-500 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-500. 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-500 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-500 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-500 cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.



Part Description				Stock
Part No.	Application	Jacket	Color	Code
TCOM-500	Outdoor	PE	Black	55004
TCOM-500-FR	Indoor-Riser CMR	FRPE	Black	55024

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Solid BCCAl	0.142	(3.61)
Dielectric	Foam PE	0.370	(9.40)
Outer Conductor	SPC Strip Braid	0.380	(9.65)
Overall Braid	TC Braid over Al tape	0.415	(10.54)
Jacket	(see table above)	0.500	(12.70)

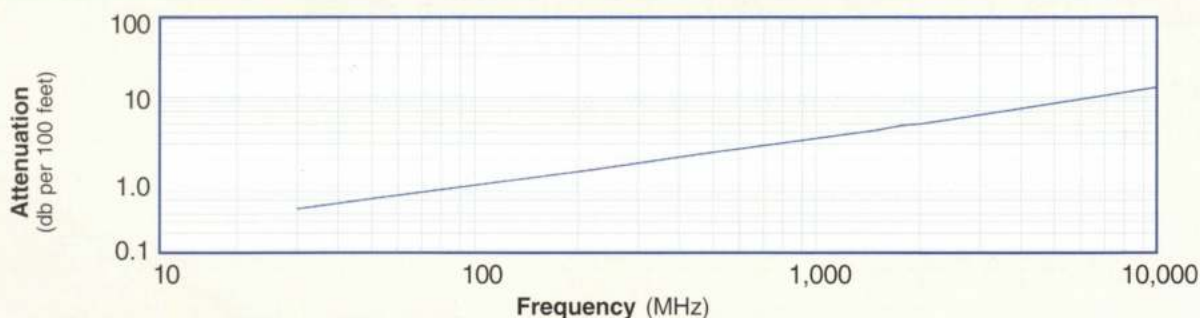
Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	1.25	(31.8)
Bend Radius: repeated	in. (mm)	5.0	(127.0)
Bending Moment	ft-lb (N-m)	1.75	(2.37)
Weight	lb/ft (kg/m)	0.097	(0.14)
Tensile Strength	lb (kg)	260	(118.0)
Flat Plate Crush	lb/in. (kg/mm)	50	(0.89)

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		12.6
Velocity of Propagation	%		86
Dielectric Constant	NA		1.35
Time Delay	nS/ft (nS/m)	1.18	(3.88)
Impedance	ohms		50
Capacitance	pF/ft (pF/m)	23.6	(77.5)
Inductance	uH/ft (uH/m)	0.059	(0.19)
Shielding Effectiveness	dB		>100
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	0.82	(2.7)
Outer Conductor	ohms/1000ft (/km)	1.32	(4.3)
Voltage Withstand	Volts DC		3000
Jacket Spark	Volts RMS		8000
Peak Power	kW		22
Passive Intermod	dBc		-155



### Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5000	10,000
Attenuation dB/100 ft	0.6	0.7	1.3	1.6	2.3	3.3	4.3	4.8	5.0	5.7	9.2	12.7
Attenuation dB/100 m	1.8	2.4	4.2	5.1	7.4	10.7	14.1	15.6	16.5	18.7	30.2	41.7
Avg. Power kW	4.21	3.25	1.85	1.52	1.04	0.72	0.55	0.49	0.47	0.41	0.25	0.18

Calculate Attenuation =  $(0.100972) \cdot \sqrt{\text{FMHz}} + (0.000262) \cdot \text{FMHz}$  (interactive calculator available at <http://www.timesmicrowave.com>)  
 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



TC-500-NMC



TC-500-NMC-RA



TC-500-NFC



BHA-KIT



TC-500-TM



TC-500-UMC

## Connectors

Interface	Description	Part Number	Stock Code	VSWR**	Coupling	Inner Contact Attach	Outer Contact Attach	Finish* Body /Pin	Length in (mm)	Width in (mm)	Weight lb (g)
N Male	Straight Plug	TC-500-NMC	3190-271	<1.25:1 (2.5)	Hex	Solder	Clamp	S/G	2.1 (53)	0.92 (23.4)	0.228 (103.4)
	Right Angle	TC-500-NMC-RA	3190-227	<1.35:1 (2.5)	Hex	Solder	Clamp	S/G	2.4 (61)	1.5 (38.1)	0.275 (124.7)
N Female	Straight Jack	TC-500-NFC	3190-215	<1.25:1 (2.5)	NA	Solder	Clamp	S/G	2.2 (56)	0.94 (23.9)	0.215 (97.5)
	Bulkhead Kit	BHA-KIT	3190-223	<1.25:1 (2.5)	NA	NA	NA	NA	NA	NA	0.014 (6.4)
TNC Male	Straight Plug	TC-500-TM	3190-464	<1.25:1 (2.5)	Hex	Solder	Crimp	N/G	1.5 (38)	0.62 (15.7)	0.082 (28.1)
UHF Male	Straight Plug	TC-500-UMC	3190-354	<1.25:1 (2.5)	Knurl	Solder	Clamp	S/G	2.1 (53)	0.88 (22.4)	0.215 (97.5)

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



Y151



HX-4



ST-500C



DBT-01



CCT-01

## Install Tools

Type	Part Number	Stock Code	Description
Crimp Tool	HX-4	3190-200	Crimp Handle
Crimp Dies	Y151	3190-465	.532" Hex Dies
Strip Tool	ST-500C	3190-229	For Clamp Style Connectors
Deburr Tool	DBT-01	3190-406	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