

Engineered Products:

SilverLine-TG™

TuffGrip®

ISO 9001 Certified



Coax Test Cables

For Wireless System Testing:

- Cell Site Antenna & Cable Sweep Test
- Troubleshooting
- RF Maintenance
- Field RF Test



Patented *
Anritsu SiteMaster™ courtesy of Anritsu Co.



patent pending

**TMA Bypass 7-16 Bullet TuffGrip®
Adaptor for Cell Site RF testing
PN: 3191-291**

SilverLine-TG™ (TuffGrip®) test cables are designed for sweep testing cellular infrastructure site cables and antennas. Its unique features were designed by field technicians for field technicians.

TuffGrip® employs a hefty handgrip at the system end to better withstand the rigors of field work. It meets the demands of repeated mating and unmating to cell tower cables with connectors that may have degraded from exposure.

The robust hand grip allows the user to apply as much resistance as necessary to properly torque the system cable connector, while preventing excess torque from being applied to the high performance test cable. A proper connection may now be made quickly with a single wrench.

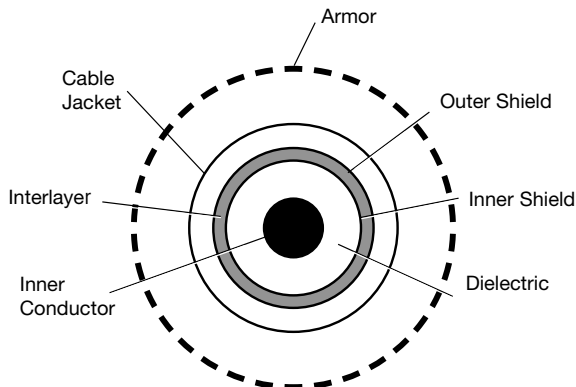
TuffGrip® test cables are double steel armored and anti-torquing, yet they are completely flexible. All connectors are stainless steel for thousands of mating cycles.

Features & Benefits:

- RF stable with flexure for accurate measurements
- Rugged Construction for long life in field use
- > 50,000 flex life cable for added assurance
- High Frequency Operation to meet future needs
- Permanently attached heavy duty protective caps

Engineered Products:

SilverLine-TG™ Specifications:



Cable Construction

Inner Conductor: Solid Silver Plated Copper Clad Steel

Dielectric: Solid PTFE

Shield: Silver-Plated Copper Flat Ribbon Braid
Aluminum-Polyimide Tape Interlayer
36 GA Silver-Plated Copper Round Braid 90%k)

Jacket: Clear FEP

Armor: Full, 100% non-interleaved spiral steel sheath overlaid with captured, opposing-force structure for anti-torque resistance. Waterproof, UV resistant, black TPE outer jacket.

Connectors

- Passivated stainless steel finish
- Captive contact
- Precision grade connectors
- 7-16 male includes retractable coupling nut with Times exclusive OneTurn™ fast mating feature
- Knurl/hex Type N coupling nut

Connector Attachment

- System side: TuffGrip® (patented)
- Analyzer side: solder/clamp/crimp

Ordering Information

SLSXX-NMXXX-XX.XXM

06 = 6 GHz
18 = 18 GHz (NMNFG only) Meters

NM = Type N male 01.50 = 1.5 m

NFG = N female TuffGrip® 03.00 = 3.0 m

7MG = 7-16 male TuffGrip® with OneTurn™

retractable coupling nut

7FG = 7-16 female TuffGrip®

Times' SilverLine-TG™ Replacement Guarantee

Times will repair or replace your SilverLine-TG test cable at its option if the connector attachment fails within one year of shipment. Excludes cable or connector interface damage from misuse or abuse.

TuffGrip®			
Mechanical Specifications			
Dimensions	in	mm	
Armored O.D.	0.430	10.92	
Minimum Bend Radius	2.50	63.5	
Connector Retention	> 290 lbs.		
Armor Crush Resistance	> 1200 lbs. per linear inch		
Mating Life Cycle	> 5,000*		
Flex Life	> 50,000**		
Temperature Range	-67°/+221°F	-55°/+105°C	
Electrical Specifications			
Impedance	50 ohms		
Velocity of Propagation	70 %		
Shielding Effectiveness	>100 dB		
Capacitance	29.4 pf/ft = 96.4 pf/m		
Phase Stability (ten, 4" radius, 180° reverse bends)	DC to 10 GHz: +/- 1.1° 10 to 18 GHz: +/- 2.0°		
VSWR Max		6 GHz	18 GHz
	Type N	1.20:1	1.35:1
	7-16	1.25:1	
Attenuation Max @ +77°F (+25°C)			
Frequency (GHz)	dB/100 ft	dB/100 m	
1.0	12.2	40.0	
2.0	18.0	59.0	
6.0	34.2	112.0	
18.0	68.4	224.0	
Power Handling @ +77°F (+25°C) (Sea Level) (Cable Only***)			
Frequency (GHz)	Watts (max.)		
1	539		
2	363		
6	180		
18	88		
3191-291 Adaptor Specifications:			
Max VSWR:	DC-800 MHz	1.03:1	
	800-1.90 GHz	1.05:1	
	1.9 - 2.6 GHz	1.05:1	
	2.6 - 5.9 GHz	1.15:1	

Specifications subject to change without notice.

**Assumes the use of a calibrated torque wrench, proper care and cleaning of interface, and mated connector is within mil spec limits.*

*** Minimum bend radius not to be exceeded.*

**** Connector configuration may limit cable assembly maximum power handling capability.*

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