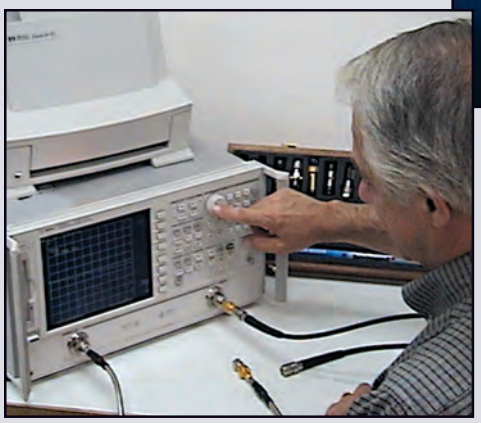
SilverLine®

Test Cables

ISO 9001 Certified

Coax Test Cables for:

- *High Volume Production Test Stations*
- *Research & Development Labs*
- *Environmental & Temperature Test Chambers*
- *Replacement for OEM Test Port Cables*
- *Field RF Testing*
- *Cellular Infrastructure Site Testing*



SilverLine® Test Cables are cost effective, durable, high-performance cable assemblies designed for use in a broad range of test and interconnect applications. Fabricated from rugged, solid PTFE dielectric cable with stainless steel connectors and a proven strain relief system, these cables provide long life and excellent stability in applications where they are repeatedly flexed and mated/unmated. SilverLine® test cables are ideal for use in production, field and laboratory test environments. They are also economical enough to be used as interconnects in test systems.

Features & Benefits:

- Phase & Loss Stable
- Long Flex Life
- Triple Shielded Cable
- High Mating Cycle, Stainless Steel Connectors
- Rugged, Solder-Clamp Attachment
- Redundant, Long Life Strain Relief System
- ROHS Compliant

Time's ***Silverline***® Product Guarantee

Times will repair or replace your SilverLine test cable at its option if the connector attachment fails within four months of shipment. This guarantee excludes cable or connector interface damage from misuse or abuse.

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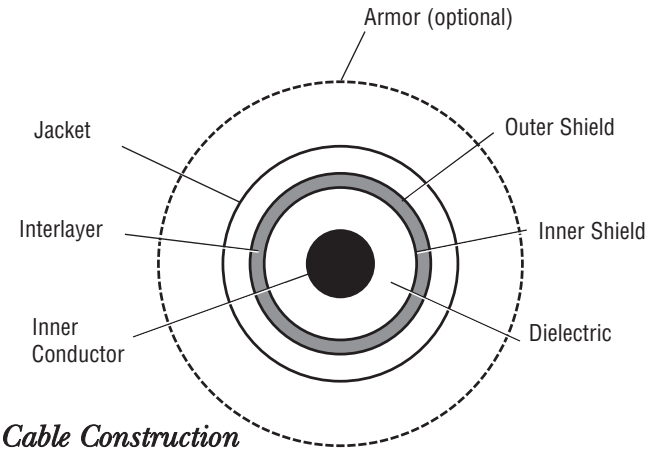

Cable Construction

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 braid (90%k)

Jacket: Clear FEP

Armor (Optional):

PVC Style: Steel wire reinforced, thick wall, high flex life clear PVC

Steel Style:100% coverage, square locked, galvanized steel hose, high angle steel braid and TPR jacket

Connectors

- Passivated stainless steel finish (QMA coupling nut is nickel plated brass)
- QMA SureGrip™ coupling nut design
- Captive contact
- Thick wall interface (SMA)
- Gold plated beryllium copper center contacts
- PTFE dielectric
- Type N & SMA OneTurn™ (1 full rotation to mate)
- High temperature 7mm
- Knurl/hex coupling nut (Type N and TNC)
- Precision grade 7-16

Connector Attachment/Strain Relief

- Rugged, solder-clamp to braid. 175-300 lb pull force. Additional crimp system on armored version.
- Redundant triple layer strain relief system (Dual layer on armored version)

Physical & Mechanical Specifications

Dimensions	in	mm
Inner Conductor	0.037	0.94
Dielectric	0.116	2.95
Inner Shield	0.126	3.20
Interlayer	0.132	3.35
Outer Shield	0.154	3.91
Jacket	0.195	4.95
Armor (optional)	0.450	11.50
Weight lbs./ft (kg/m)	Cable: 0.043 (0.064)	Armor: 0.066 (0.098)
Armor Crush Resistance	PVC:1200 lbs. per linear inch - Steel: 1500 lbs. per linear inch	
Bend Radius: minimum	1	25
Connector Retention	Unarmored & Armored PVC > 175 lbs - Steel Armored > 300 lbs	
Mating Life Cycle	QMA, SMA, Type N: > 5000*	
Length Tolerances	≤ 2 ft. or 0.75m, -0, +0.50" (12.7mm) > 2 ft. or 0.75m, -0, +2% of length	
Temperature Range	-67°/+221°F	-55°/+105°C

Electrical Specifications

		4 GHz	6 GHz	18 GHz	26.5 GHz
VSWR Max	BNC	1.20:1			
	7-16 DIN		1.25:1		
	SMA, QMA, 3.5mm, Type N, TNC, Swept R/A		1.20:1 1.30:1 (cube R/A)	1.30:1 1.35:1 (cube R/A)	1.35:1
	7mm		1.25:1	1.35:1	

Impedance	50 ohms
Velocity of Propagation	70 %
Shielding Effectiveness	>100 dB
Capacitance	29.4 pf/ft = 96.4 pf/meter
Phase Stability (50,000 cycles)***	+/-2° through 18 GHz +/- 3° through 26.5 GHz

Attenuation Max @ +77°F (+25°C)

Attenuation (GHz)	dB/100 ft	dB/100 m
1	12	40
2	18	59
6	34	112
12	53	174
18	68	224
26.5	89	290

Attenuation at any frequency formula: $(K1 * \sqrt{F(MHz)}) + (K2 * F(MHz))$

K1	0.348
K2	0.0012

Power Handling @ +77°F (+25°C) (Sea Level) (Cable Only**)

Power Handling (GHz)	Watts (max.)
0.4	891
1	539
2	363
6	180
12	117
18	88
26.5	65

* SMA Male & Type N: Assumes use of calibrated torque wrench, proper care and cleaning of interface and mated connector is within mil spec limits. QMA: Assumes proper use, care and cleaning.
** Connector configuration may limit cable assembly maximum power handling capability.
*** See SilverLine-VNA data sheet for flex test conditions. A brand new cable can have a break-in period of several hundred flexes.
**Specifications subject to change without notice*

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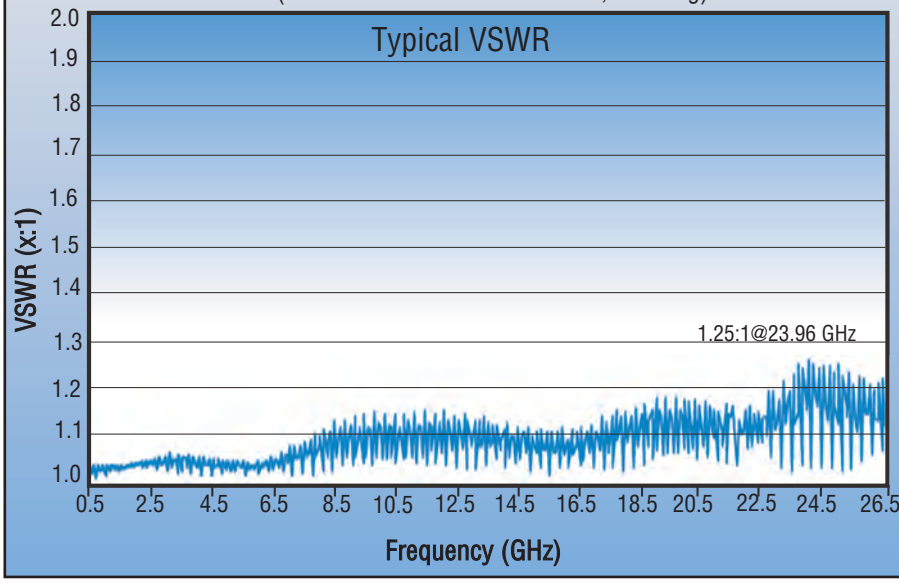
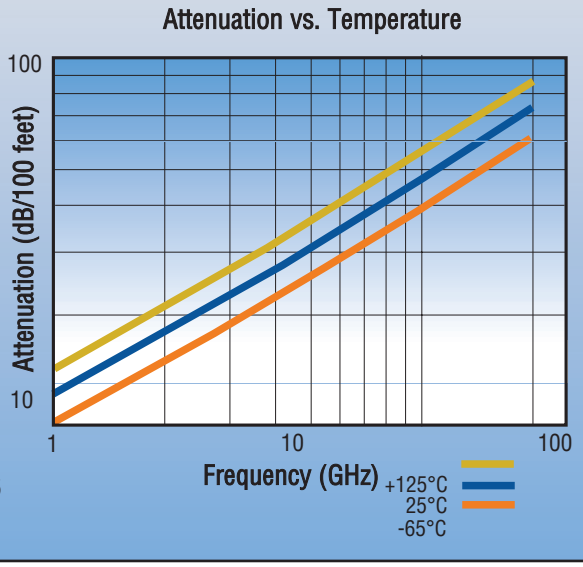
Silverline® Test Cables

(26.5 GHz SMA Male/SMA Male, 3 ft long)





SilverLine Material Key

U = Unarmored 1ft (0.25m) minimum assembly length
A = Armored 2 ft (0.5m) minimum assembly length
S = Steel, torque & crush resistant armor 3 ft (1.0m) min. length

Feet: 0.50 ft increments
Example: -04.50F = 4.50 ft

Meters: 0.25 m increments
Example: -00.75M = 0.75 m

SW suffix: Swept Right Angle

SLXXX-XXXXXXXXXX-XX.XXX

F= Feet **M** = Meters

Maximum Frequency

04 = 4.0 GHz (BNC one or both ends)
06 = 6.0 GHz
18 = 18.0 GHz
26 = 26.5 GHz (use MIO5805 cable)

Connector Codes (2 or 3 Characters)

BM	=	BNC Male
SM	=	SMA Male
S1T	=	SMA Male OneTurn™
SF	=	SMA Female
SMR	=	SMA Right Angle
35M	=	3.5mm Male
35F	=	3.5mm Female
3RF	=	3.5mm Ruggedized Female
NM	=	Type N Male
N1T	=	Type N Male OneTurn™
NF	=	Type N Female
NMR	=	Type N Right Angle
70M	=	7mm
76F	=	7-16 Female
TM	=	ETNC Male (**E**xtended range)
TF	=	ETNC Female (**E**xtended range)
QMM	=	QMA Male

First Connector

Second

3.5mm Female (L)
Ruggedized 3.5mm Female (R)

Times QMA SureGrip™

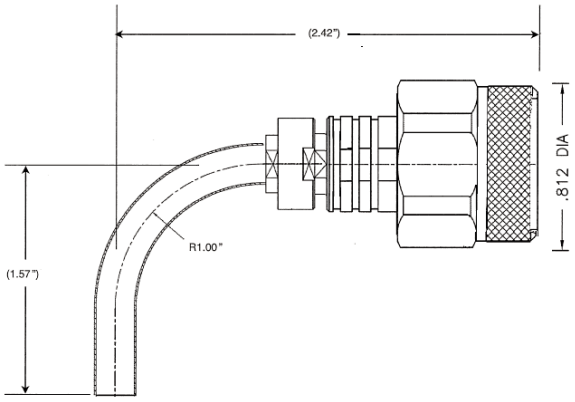
Labels on unarmored assemblies under 1.5 feet (0.5m) long remain loose to increase flexibility.
Some connector combinations and / or lengths may be unavailable.
Please contact Times or your Times authorized representative.

SilverLine®

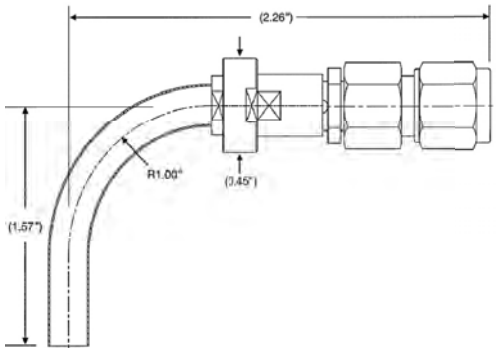
Now there is a SilverLine® Test Cable available for almost every application:

- SilverLine® for high volume production RF testing
- SilverLine®- TG (TuffGrip) for cell site distance to fault testing
- SilverLine®- LP (Low PIM) for cell site Passive Intermodulation testing
- SilverLine®- VNA for 40 GHz R&D testing
- SilverLine®- SF (Super Flex) for more flexibility
- SilverLine®- XF (Extra Flex) for tight areas and breadboard development
- SilverLine®- LL (Low Loss) 30% lower loss
- SilverLine®- DAS (Distributed Antenna System) for in-building wireless radio testing
- SilverLine®-75 for 75 Ohm OEM replacement test port cables
- SilverLine®-TT for phase critical RF/microwave measurements

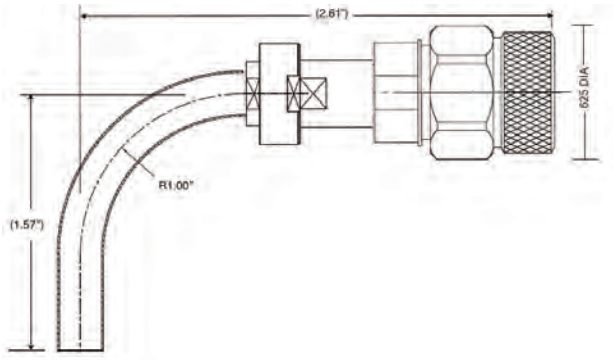
Visit our website or contact your Times local representative for more information.



Swept r/a Type N



Swept r/a SMA



Swept r/a TNC

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