Precision Calibration And Interconnect Solutions

Stability™ Microwave/RF Cable Assemblies

From

Maury Microwave

Your Calibration, Measurement & Modeling Solutions Partner!

Stability™

Maury Microwave

Model Series:

SC-185	–	1.85mm color-coded Stability™ cables
SC-24	–	2.4mm color-coded Stability™ cables
SC-292	–	2.92mm color-coded Stability™ cables
SC-35	–	3.5mm color-coded Stability™ cables
SC-N	–	Type N color-coded Stability™ cables

ISO 9001:2008 /AS9100C CERTIFIED

Maury Microwave is ISO: 9001:2008/AS9100C Certified.

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Stability™ Microwave/RF Cable Assemblies

Series SC-185, SC-24, SC-292, SC-35 and SC-N

Features and Benefits

- *Amplitude and phase stable with flexure*
- *Reliable and repeatable measurements*
- *Durable, ruggedized, crush-resistant*
- *Longer flex life*
- *Also available in 2.92mm or 3.5mm Low-Profile and Thermal Vacuum configurations.*
- *Available in 90° Swept Angle configurations.*

Typical Applications

- *Vector network analyzers (VNAs)*
- *RF and microwave instruments*
- *Bench-top testing*
- *Probe station integrations*
- *RF production testing*
- *ATE systems*

Description

Maury Microwave's Stability™ series sets the standard for high-performance ruggedized cable assemblies. Designed specifically for phase-stable and amplitude-stable applications, Stability™ offers excellent measurement repeatability even after cable flexure. With a ruggedized, durable construction, Stability™ will outlast and outperform other assemblies resulting in a reduced total cost-of-test. Stability's™ light weight, superior flexibility and small form factor make it ideal for daily use with VNA's, test instruments, bench-top testing and ATE systems.

Stability™ cable assemblies are now part of the ColorConnect™ family! Following the proposed IEEE high-frequency connector/adapter color convention, Stability™ cable assemblies are the first commercially available assemblies to offer clear indications of compatibility and intermatability. ColorConnect™ makes it a simple matter to avoid and eliminate damaged equipment, degraded equipment reliability, degraded performance and lengthy maintenance times due to improper mating (and attempted mating) of incompatible interconnects.

Stability™ Specifications

STABILITY™ Cable Type	Frequency	Typical Phase Stability with Flexure	Typical Amplitude Stability with Flexure
SC-185	67 GHz	±8.0°	±0.08 dB
SC-24	50 GHz	±6.0°	±0.05 dB
SC-292	40 GHz	±5.0°	±0.05 dB
SC-35	26.5 GHz	±3.5°	±0.02 dB
SC-N	18.0 GHz	±2.0°	±0.015 dB

STABILITY™ SC-292-MM-36
Microwave/RF Cable Assembly

Cable Assembly Specifications

Electrical Properties[1]

STABILITY™ Cable Type	SC-185	SC-24	SC-292	SC-35	SC-N
Maximum Frequency	67 GHz	50 GHz	40 GHz	26.5 GHz	18.0 GHz
VSWR	1.40 typ/ 1.50 max	1.30 typ/ 1.43 max	1.25 typ/ 1.40 max	1.25 typ/ 1.35 max	1.25 typ/ 1.30 max
Typical Insertion Loss (cable only)	1.79 dB/ft	1.52 dB/ft	0.84 dB/ft	0.67 dB/ft	0.54 dB/ft
Impedance (nominal)	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm
Phase Stability vs Bending[2]	±8° typ/ ±15.6° max	±6° typ/ ±11.8° max	±5° typ/ ±9.5° max	±3.5° typ/ ±7.0° max	±2.0° typ/ ±4.5° max
Amplitude Stability vs Bending[3]	±0.08 dB typ/ ±0.10 dB max	±0.05 dB typ/ ±0.08 dB max	±0.05 dB typ/ ±0.10 dB max	±0.02 dB typ/ ±0.04 dB max	±0.015 dB typ/ ±0.02 dB max
Phase Stability vs Temp	<4°/m/GHz (–55 ~+125°C)				
Velocity of Propagation	76% (nominal)				
Shielding Effectiveness	>90 dB (DC –18.0 GHz)				
Time Delay (nominal)	1.3ns/ft (4.4ns/m)				

[1] These specifications also apply to Stability™ Low-Profile (-LP) and Thermal Vacuum (-TV) cable assemblies (see page 5 & 7 respectively).

[2] Per IEC 60966-1, section 8.6, method 1.

[3] Per IEC 60966-1, section 8.4.

Mechanical/Environmental Properties

STABILITY™ Cable Type	SC-185, SC-24, SC-292, SC-35 and SC-N	
Center Conductor Material	Silver-Plated Copper-Clad Steel	
Maximum Outer Diameter	SC-292/SC-35/SC-N 0.277 in (7.04mm)	SC-185/SC-24 0.244 (6.20mm)
Nominal Weight	1.61 oz/ft (150g/m)	1.02 oz/ft (95g/m)
Min. Static Bend Radius/ Min. Dynamic Bend Radius	1.0 in. (25.4mm)/ 2.0 in. (50.8mm)	
Flex Life Cycles[4]	>20,000	
Crush Resistance	>254 lb/inch (44 kN/m)	
Operating Temperature Range	–67 ~ +257°F (–55 ~ +125°C)	
Fire Resistance[5]	Yes	
Abrasion Resistance[6]	Yes	
RoHS/REACH	Yes	

[4] Per IEC 60966-1, section 9.3.

[5] Per MIL-C-87104.

[6] Per SAE AS5756.

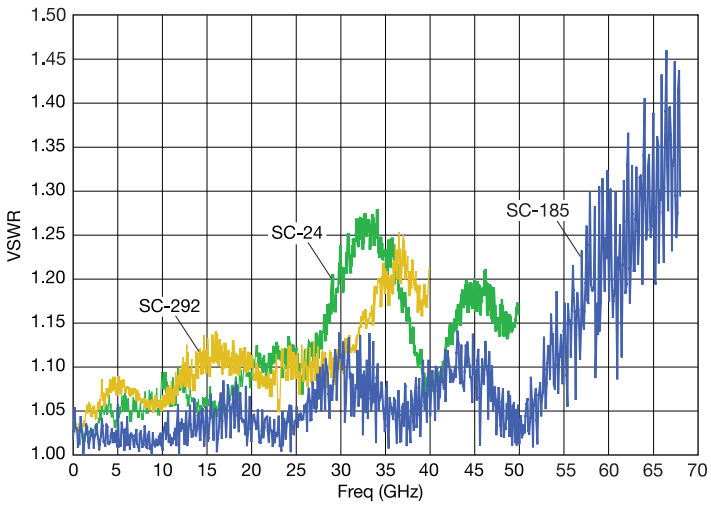
Typical Configurations

Part Number	Length[7]	Connector 1	Connector 2	Frequency
SC-185-MM-24	24 in.	1.85mm male	1.85mm male	67 GHz
SC-185-MM-36	36 in.			
SC-185-MM-48	48 in.			
SC-24-MM-24	24 in.	2.4mm male	2.4mm male	50 GHz
SC-24-MM-36	36 in.			
SC-24-MM-48	48 in.			
SC-292-MM-24	24 in.	2.92mm male	2.92mm male	40 GHz
SC-292-MM-36	36 in.			
SC-292-MM-48	48 in.			
SC-292-MM-60	60 in.			
SC-292-MM-78	78 in.			
SC-35-MM-24	24 in.	3.5mm male	3.5mm male	26.5 GHz
SC-35-MM-36	36 in.			
SC-35-MM-48	48 in.			
SC-35-MM-60	60 in.			
SC-35-MM-78	78 in.			
SC-N-MM-24	24 in.	N male	N male	18 GHz
SC-N-MM-36	36 in.			
SC-N-MM-48	48 in.			
SC-N-MM-60	60 in.			
SC-N-MM-78	78 in.			

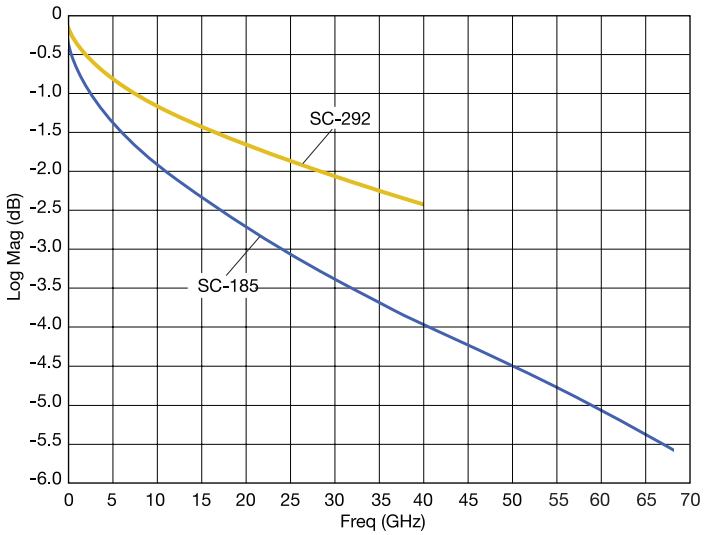
[7] Custom lengths are available by special order.

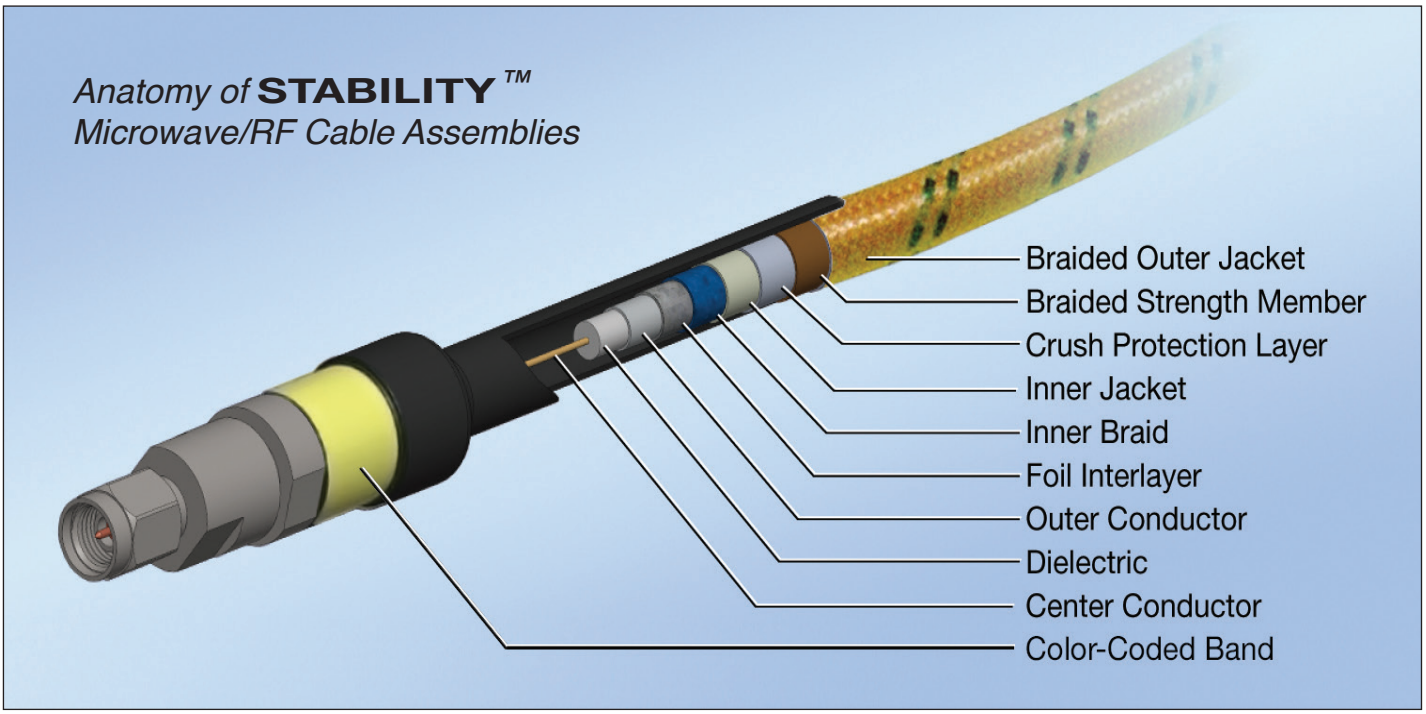
Maury Stability™ Cable Assembly Typical Performance

Maury Stability™ 36" Cable Assembly Typical VSWR



Maury Stability™ 36" Cable Assembly Typical Insertion Loss





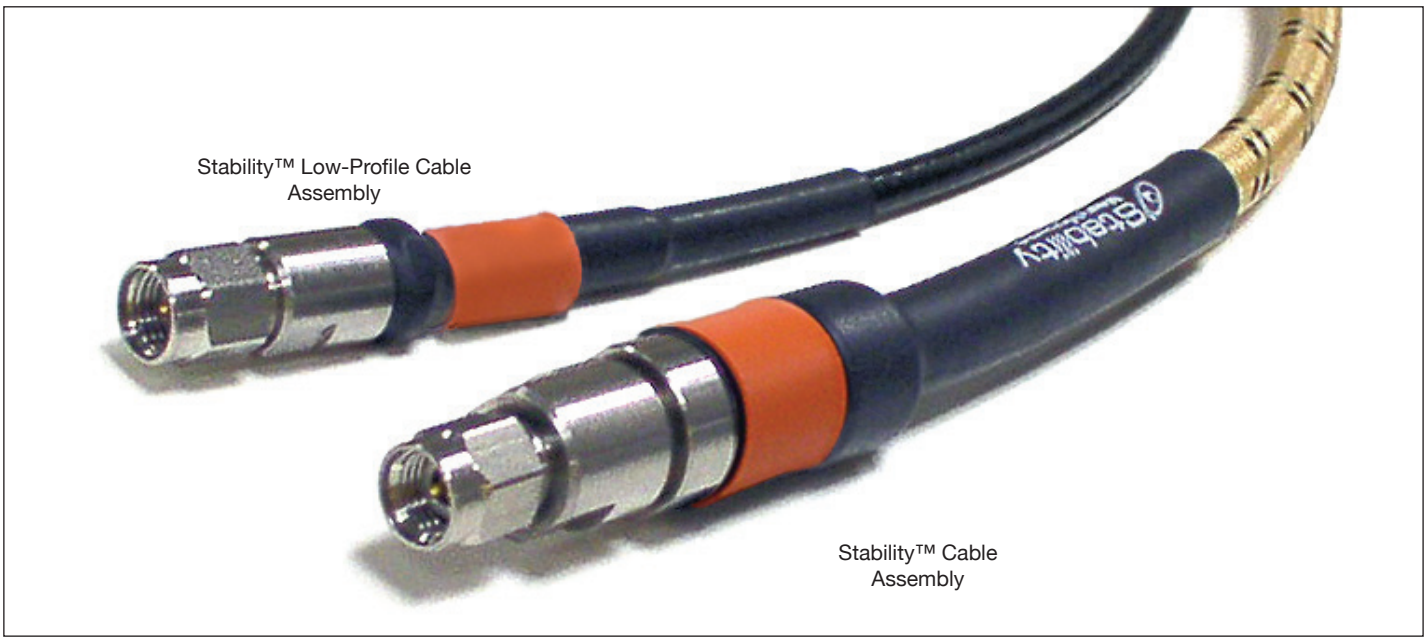
Stability™ Low-Profile Cable Assemblies (-LP)

Stability™ Low-Profile Cable Assemblies are designed for high-density applications such as switch matrices and PXI/PXIe/AXIe cards, as well as wafer-probe applications where traditional cable assemblies might cause interference due to cable and connector size. Stability™ Low-Profile Cable Assemblies offer the same electrical performance as Stability™ Microwave/RF Cable Assemblies in an configuration that is 44% smaller and 66% lighter, and are available with 3.5mm and 2.92mm connectors.

Mechanical/Environmental Properties (-LP)

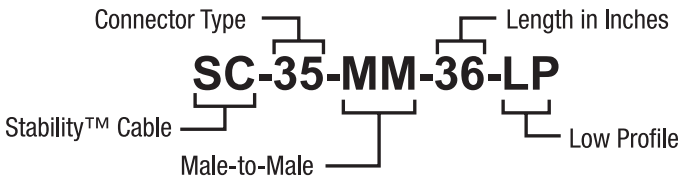
STABILITY™ Cable Type	SC-292 and SC-35
Center Conductor Material	Silver-Plated Copper-Clad Steel
Maximum Outer Diameter	0.156 in (3.95mm)
Nominal Weight	0.54 oz/ft (50g/m)
Minimum Bend Radius	1.0 in. (25.4mm)
Flex Life Cycles[4]	>20,000
Crush Resistance	>23 lb/inch (4kN/m)
Operating Temperature Range	–67 ~ +257°F (–55 ~ +125°C)
Fire Resistance[5]	Yes
RoHS/REACH	Yes

[4] Per IEC 60966-1, section 9.3. [5] Per MIL-C-87104.



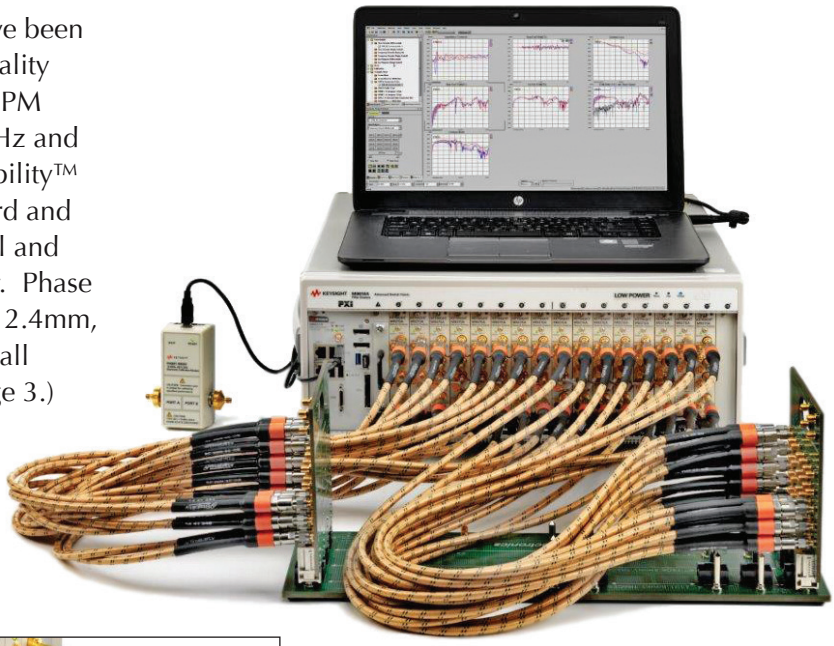
Ordering Instructions for Stability™ Low Profile (-LP) Cable Assemblies

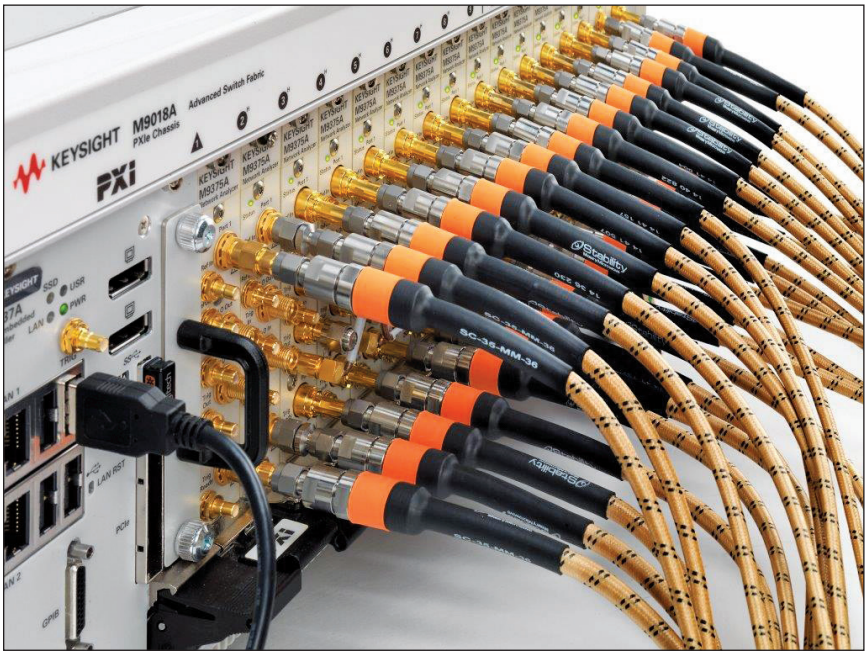
To specify a Stability™ Low Profile Cable Assembly, add "-LP" at the end of the SC model number, as shown in the example below.



Stability™ Phase-Matched (PM) Cable Assembly Sets

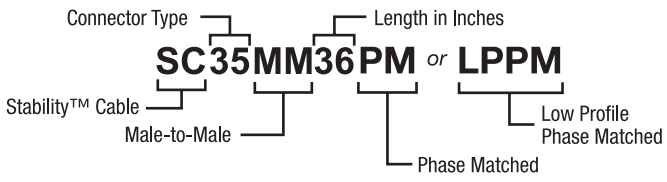
Stability™ Phase-Matched Cable Assemblies have been designed for applications where strict phase equality between multiple paths are required. Stability™ PM Cable Assemblies are matched within ±0.63°/GHz and available as sets of two or more assemblies. Stability™ PM Cable Assemblies are offered in both standard and low-profile formats and maintain the mechanical and electrical characteristics of the original assembly. Phase matched assemblies are available with 1.85mm, 2.4mm, 2.92mm, 3.5mm and Type-N connectors and in all lengths. (See *Typical Configurations* table on page 3.)





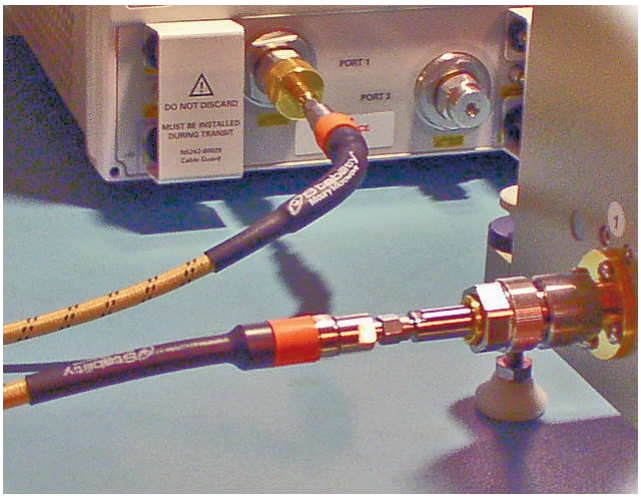
Ordering Instructions for Stability™ Phase-Matched (PM) Cable Assembly Sets

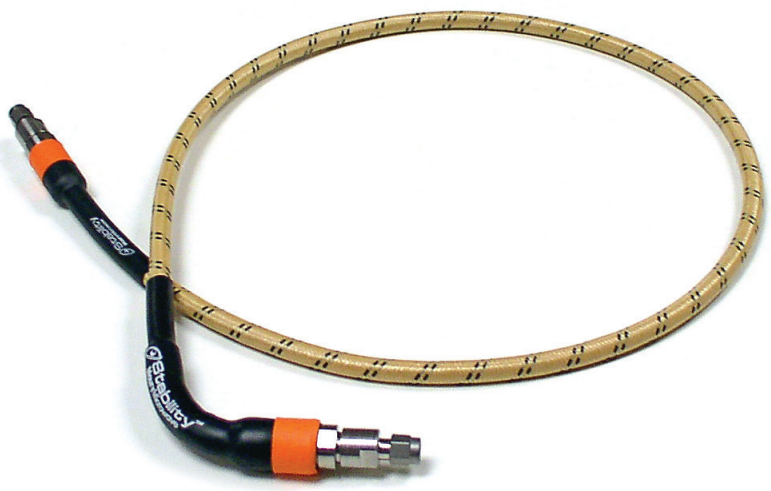
To specify a Stability™ Phase-Matched Cable Assembly set, add "PM" or "LPPM" at the end of the SC model number, as shown in the example below. "PM" indicates standard configuration Phase-Matched sets; "LPPM" indicates Low Profile configuration, Phase-Matched sets.



Stability™ Swept 90° Cable Assemblies (-RT)

Stability™ Swept 90° Cable Assemblies are designed for applications requiring a fixed and stable bend where traditional cable assemblies may be inconvenient. With a bend radius of 1.43 inches and a cable-to-connector length of 3.3 inches, Stability™ Swept 90° Cable Assemblies retain the electrical and mechanical specifications of the traditional assembly while removing stresses related to hand-formed bends. Stability™ Swept 90° Cable Assemblies are built on demand and are available with 2.92mm, 3.5mm and Type-N connectors.

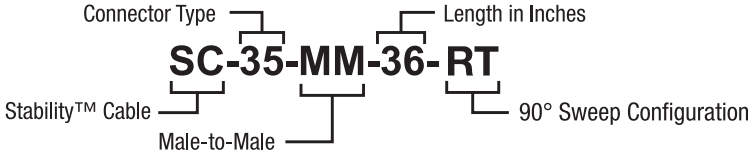




Stability™ Swept 90° Cable Assemblies are available in all the lengths offered for the standard Stability™ Microwave/RF Cable Assemblies.

Ordering Instructions for Stability™ Swept 90° Cable Assemblies (-RT)

To specify a Stability™ Swept 90° Cable Assembly, add "-RT" at the end of the SC model number, as shown in the example at the right.

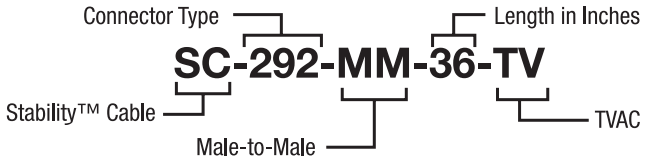


Stability™ Thermal Vacuum Cable Assemblies (-TV)

Stability™ TVAC Cable Assemblies have been designed for measurements in a thermal vacuum environment for space product testing. TVAC cable assemblies connect components or satellites located in thermal test chambers to systems and instruments outside. Stability™ TVAC Cable Assemblies offer the same electrical and mechanical performance as Stability™ Microwave/RF Cable Assemblies with specialized vented 2.92mm connectors that meet low outgassing requirements of ESA-PSS-01-702 with a TML < 1% and CVCM < 0.1%.

Ordering Instructions for Stability™ Thermal Vacuum (-TV) Cable Assemblies

To specify a Stability™ Thermal Vacuum Cable Assembly, add "-TV" at the end of the SC model number, as shown in the example at the right.



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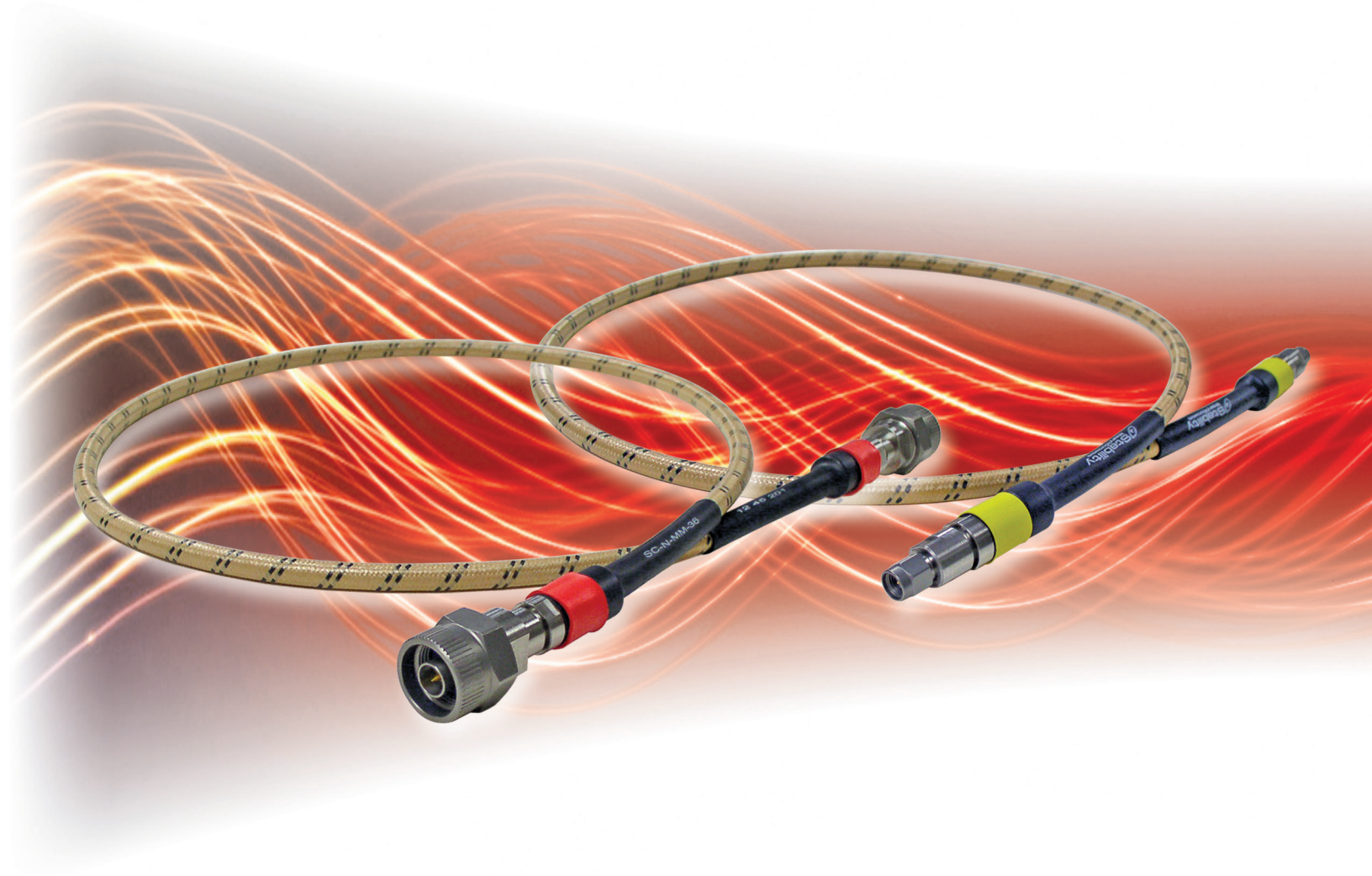

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