

## Maury Interconnects Overview

Measurement uncertainty can be seen as the potential variability between measurements caused by all aspects of a measurement system. Objectively, the two largest contributors to measurement uncertainty are cables and connectors as they impact the repeatability of a measurement.

The signal passing through a cable assembly will change in magnitude and phase as the cable is moved. Measuring a device with the cable in a certain position may yield different results from the same measurement with the cable in a second, third and fourth position. The more the measurement changes with flexure, the higher the cable's measurement uncertainty contribution.

Similarly, signal changes caused by connector mating repeatability will directly impact measurement uncertainty. A connector's ability to offer repeatable connections stems from pin depth and concentricity, and mating force. Recessed or non-concentric center pins lead to reduced measurement accuracy and repeatability and hence an increased uncertainty. Protruding center pins will damage your mating connector. Hand-threading an RF connector often leads to inconsistent mating between connectors and an increased measurement uncertainty.

Maury Microwave's Interconnect Solutions offering consists of cable assemblies, adapters and attenuators developed specifically to reduce measurement uncertainty, and gages and torque wrenches to ensure accurate and repeatable measurements.

## Color-Coded Interconnects

Maury is the pioneer in color-coded interconnects! Following the proposed IEEE high-frequency connector/adaptor color convention, our cables, adapters, attenuators and torque wrenches are among the first commercially available products to offer clear indications of compatibility and intermatability. Maury's interconnects make 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.



Maury Microwave's StabilityVNA™ Microwave/RF Cable Assemblies provide the industry's best phase stability with flexure resulting in improved measurement accuracy and ensuring the most repeatable and reliable measurements. StabilityVNA™ cables are extremely durable with excellent crush resistance while remaining very flexible leading to enhanced longevity and to years of uninterrupted use. StabilityVNA™ is the ideal cable for critical VNA measurements in R&D and lab environments.



Maury Microwave's StabilityPlus™ series sets the standard for high performance ruggedized cable assemblies. Designed specifically for phase-stable and amplitude-stable applications, StabilityPlus™ offers excellent measurement repeatability even after cable flexure. StabilityPlus™ 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.



Maury Microwave's StabilityPlus™ Low Profile Microwave/RF Cable Assemblies feature the same excellent electrical performance as our ruggedized StabilityPlus™ cables, but with a more compact and flexible design. StabilityPlus™ Low Profile cables provide excellent phase and amplitude stability with flexure resulting in highly reliable, repeatable measurements. They are ideal for applications that require lighter weight or tighter spacing such as wafer probing, ATE systems and switch matrices.



Maury Microwave's Stability Bench™ series sets the standard for high-end all-purpose test and measurement cable assemblies. Designed for general testing applications, Stability Bench™ offers excellent value with its low cost, low insertion loss, excellent return loss, flexibility, and amplitude and phase stability. Stability Bench™ is the ideal interconnection for reliable and repeatable measurements when mated with test instruments including bench-top testing, on-wafer characterization and ATE systems.

# Adapters



## Calibration-Grade / Metrology Adapters



Maury Microwave's comprehensive line of calibration-grade (metrology) adapters have been designed as an integral part of its renowned Vector Network Analyzer (VNA) Calibration Kits and are also available separately where calibration-grade precision is demanded. Calibration-grade adapters make ideal port savers to prevent damage to expensive instrumentation test ports.



ColorConnect™ Precision Adapters have been designed for lab and field use where quality, performance, ease-of-identification and ease-of-use are critical. New manufacturing techniques have given ColorConnect™ Precision Adapters improved VSWR specifications bridging the gap between calibration-grade metrology adapters and daily-use lab adapters.



Test Essentials™ Lab Adapters have been designed for daily use in microwave/ RF labs and production facilities and offer one of the industry's best price/ performance values. Test Essentials™ Lab Adapters feature excellent electrical performance, rugged construction for durability, repeatable mating and high reliability.

## Color-Coded Precision Attenuators



Maury Microwave's AT-series of fixed coaxial attenuators are used to reduce the power of a RF, MW or mmW signal without distorting its signal quality/ waveform. Attenuators are often used to lower the amplitude of a signal to a measurable level or to protect a measurement instrument from damage. Attenuators are also used to improve matching between components by improving the return loss (twice insertion loss) and effectively reducing the VSWR seen by adjacent components. Key attenuator parameters include attenuation, frequency bandwidth, power handling, VSWR and quality/ repeatability of connector.

## Connector Gages



Connector gages are an essential tool to ensure connector pins are flush and concentric. Maury's connector gage kits provide an easy to use, direct reading, self-checking, and accurate way to measure the critical linear interface dimensions of most coaxial connectors. These kits consist of gages with specially adapted dial indicators, plus the correct bushings and pins needed to mate with specified connectors. A master setting gage is used to adjust the dial indicator to zero, before a push-on or thread-on gage is mated with a connector to measure the distance from a given interface (female or male contact location) to the outer conductor mating plane.

## Torque Wrenches



Torque wrenches are a simple and inexpensive tool to ensure repeatable force is applied to the connection each time, thereby ensuring a proper and secure connection and reducing measurement uncertainty. Maury torque wrenches employ a "break" design so it is impossible to over-torque a coupled junction, and torque can be applied in either direction. Each Maury torque wrench is factory preset to the proper in/lbs for tightening its coaxial connector type, and the color-coded handles make it easy to select the correct wrench from your toolbox at a glance.



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