

Maury Microwave Device Characterization Solutions

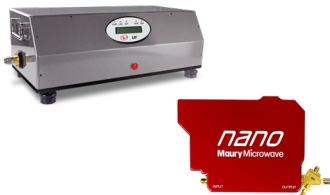
Maury Microwave device characterization solutions support on-wafer and connectorized passive, active, and hybrid-active load pull to 1.1 THz, as well as noise parameter extraction to 330 GHz for evaluating DUT noise performance. From specially designed hardware to advanced software platforms, Maury delivers end-to-end solutions supporting transistor characterization, behavior model extraction, and the design and validation of PAs and LNAs.

Vector-Receiver Load Pull

Vector-receiver load pull is an advanced load pull methodology that uses a vector receiver, typically a VNA, to directly measure both the magnitude and phase of RF signals at the DUT reference plane. Maury automated impedance tuners (coaxial benches up to 110 GHz) vary impedance conditions at the source and/or load, while low-loss couplers sample the incident and reflected waves for measurement. By providing full complex wave information, vector-receiver load pull accurately calculates input and output power, gain, efficiency, and true PAE for CW or pulsed-CW, single-tone, and two-tone signals.



Featured Maury Products



Automated Impedance Tuners

- > Faster, more accurate impedance control
- > High power handling
- > Up to -50 dB repeatability
- > On-wafer tuners maximize VSWR at probe tip



MPA-series Solid-State Power Amplifiers

- > Broadband frequency coverage up to 98 GHz
- > High linearity
- > High continuous power across the band
- > Variable gain adjustment



Bidirectional Airline Couplers

- > High directivity
- > Low insertion loss

More from Maury

- > Upgradeable to a hybrid-active system
- > InsightPro software for optimized VRLP measurement workflows
- > Phase-stable cables
- > Measurement accessories
- > Calibration kits, verification kits, and automated calibration modules



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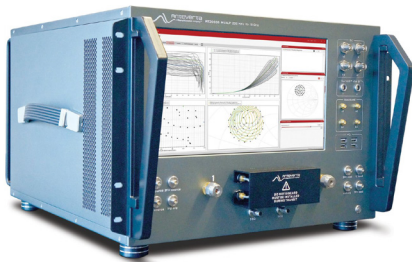
Mixed-Signal Active Load Pull with the MT2000

Active load pull using the MT2000 overcomes the loss and electrical delay limitations of passive tuners by actively synthesizing source and load impedance at the DUT reference plane. The MT2000 enables precise device characterization of CW, pulsed, and wideband modulated signals, optimizing the evaluation of output power, efficiency, linearity, noise, and dynamic behavior under realistic operating conditions. The system supports up to 1000 impedance/ power states per minute with no limitation on Smith chart coverage.



Featured Maury Products

MT2000 Mixed-Signal Active Load Pull System



- > Frequencies up to 67 GHz
- > Modulation bandwidth up to 1000 MHz
- > Up to 6 active tuning loops
- > Up to 1000 impedance/ power states per minute
- > Single-tone, pulsed, and time-domain NVNA
- > Compatible with 1-port and 2-port DUTs
- > Using ACPR and EVM measurement data in the design of wideband PA circuits
- > Improve PA linearity based on controlled baseband terminations
- > Reduce time-to market due to faster measurement speeds

MPA-series Solid-State Power Amplifiers



- > State-of-the-art GaN PA modules
- > Broadband frequency coverage up to 98 GHz
- > High continuous power across the band
- > High linearity
- > Variable gain adjustment
- > Integrated protection circuitry
- > Low noise floor
- > Remote control TCPIP/ RS485

More from Maury

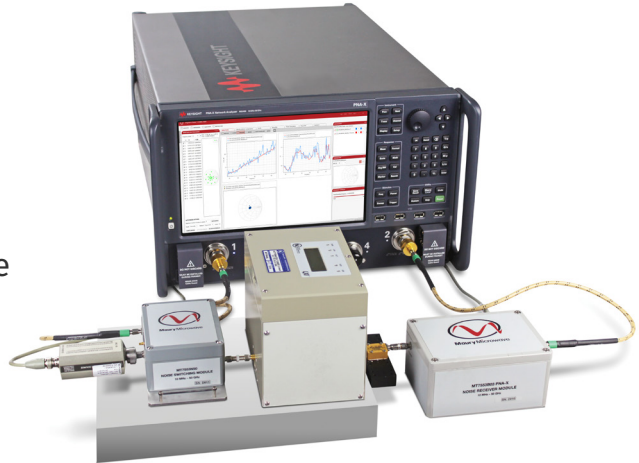
- > MT2001 core supportive software and add-ons for extended capabilities
- > Amplitude- and phase-stable cable assemblies
- > High-performance measurement accessories
- > Calibration and calibration verification kits
- > Universal automated VNA calibration modules



Maury Microwave Device Characterization Solutions

Noise Parameter Extraction

Noise parameter extraction characterizes how a device's noise performance varies with source impedance, which is critical for LNA design, especially at high frequencies and low power levels. Maury provides calibrated noise sources and automated impedance tuners, which varies the source impedance presented to the DUT, while noise conditioning modules minimize system noise contributions and enhance accuracy. The InsightPro™ software simplifies measurements workflows across a broad frequency range.



Featured Maury Products



Noise Conditioning Modules

- > Instantaneous ultra-wideband measurements from 100 MHz – 65 GHz
- > Banded measurements from 50–75 GHz, 60–90 GHz, and 75–100 GHz
- > Automates noise parameter measurement systems
- > Integrated downconverter, bias tees, LNA, and switches
- > Low noise figure for improved system calibration accuracy and repeatability
- > Integrated LNA reduces second-stage noise figure by 5-6 dB



Automated Impedance Tuners

- > Frequencies up to 330 GHz
- > High gamma (up to 200:1) in a compact tuner design
- > Integrated encoders with closed-loop feedback
- > Direct connection to probe maximizes tuning range and reduces phase skew
- > Cryogenic tuners extract noise parameters down to 4K



Calibrated Noise Sources

- > Broadband coverage
- > Excellent temperature stability
- > Superior voltage stability
- > Noise figure meter-compatible

More from Maury

- > InsightPro software for seamless operation from setup to results
- > Amplitude- and phase-stable cable assemblies
- > High-performance measurement accessories
- > Calibration and calibration verification kits
- > Universal automated VNA calibration modules



Maury Microwave Device Characterization Solutions

THz Device Characterization

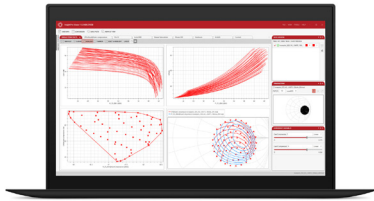
Terahertz device characterization (hybrid mode up to 330 GHz and active mode to THz) provides accurate small- and large-signal measurements at frequencies beyond the limits of conventional VNA-based test benches. The system combines a VNA with waveguide frequency extenders and active impedance control for precise power and phase control at the DUT reference plane. This enables power-controlled S-parameter measurements and vector-corrected large-signal characterization for accurate insight into gain compression and output power under controlled operating conditions.



Featured Maury Products

From MMW-Studio to InsightPro

InsightPro: The Unified RF and mmWave Characterization Platform



- > Seamless transition from MMW-Studio to a fully unified platform
- > Linear S-parameter and vector-corrected measurements
- > Active and hybrid active load pull
- > Calibrated measurements directly at the DUT reference plane
- > Integrated mmWave noise parameter characterization
- > Fundamental power, gain, efficiency, and PAE at 50Ω and arbitrary impedances
- > Advanced automated sequencer: impedance, power, frequency, and bias sweeps
- > Powerful yet intuitive built-in data visualization and post-processing
- > Compatible with commercial waveguide extenders up to 1.1 THz

Automated Impedance Tuners



- > Frequencies up to 330 GHz
- > High gamma (up to 200:1) in a compact tuner design
- > Integrated encoders with closed-loop feedback
- > Models with low-loss, high-directivity coupler available
- > Direct connection to probe maximizes tuning range and reduces phase skew
- > Minimizes transmission line lengths by bringing tuning element closer to the DUT

More from Maury

- > Upgradeable to a hybrid-active system
- > Amplitude- and phase-stable cable assemblies
- > High-performance measurement accessories
- > Calibration and calibration verification kits
- > Universal automated VNA calibration modules

