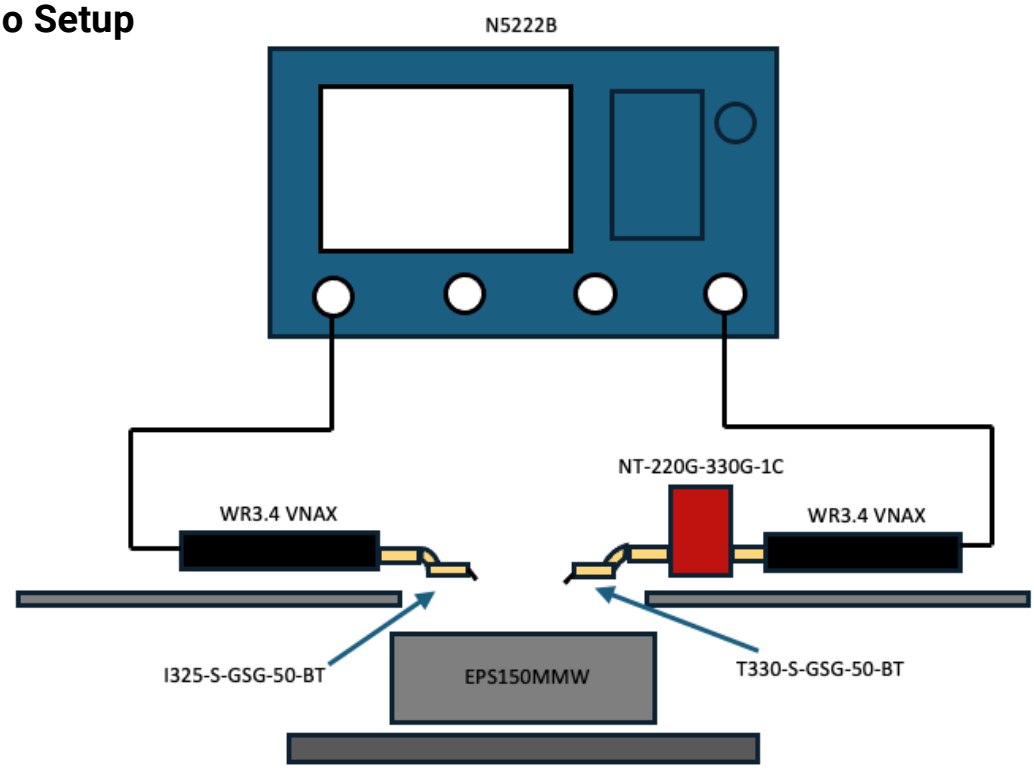
Active Device Characterization up to 330 GHz

Achieving high VSWR is crucial at high frequencies since passive interconnects, such as waveguide sections and on-wafer probes, experience higher loss, which reduces the maximum reflection coefficient presented to the device under test (DUT). Noise parameter extraction and load pull require high-VSWR impedance tuners capable of synthesizing various reflection coefficients anywhere on the Smith chart. The Maury Microwave WR3.4, WR4.3, and WR6.5 electromechanical impedance tuners offer the highest VSWR on the market by a significant margin, enabling users to perform active device characterization up to 330 GHz.

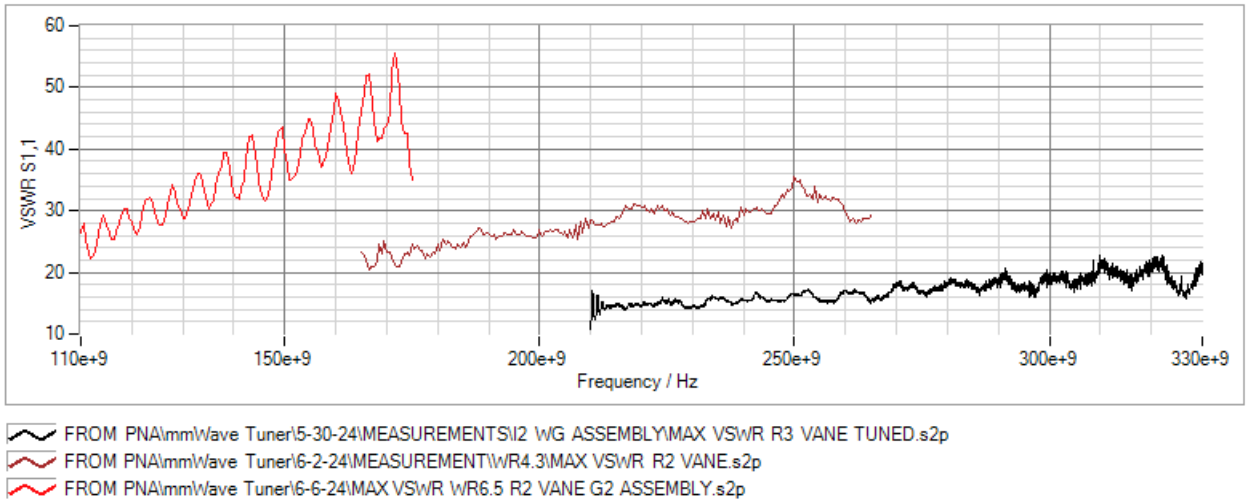
This demonstration shows a mmWave on-wafer setup for non-50 ohm device characterization, featuring the VDI mmWave frequency extenders at WR3.4 frequencies, a prototype NT-220G-330G-1C mmWave WR3.4 impedance tuner from Maury Microwave that offers unprecedented VSWR, and an on-wafer probe station from FormFactor. As the tuner is characterized, the setup will show the maximum reflection coefficient that can be presented to the DUT at the probe tip.

Demo Setup



Target Users

Target users include those involved in the design and verification of power amplifiers, phased arrays, and low noise amplifiers, enabling systems such as radar, communications systems, and electronic warfare applications.



Typical VSWR data for WR3.4, WR4.3, and WR6.5 tuners

Product Overview

Nano™ Series Automated Impedance Tuners

The Nano series (NT-series) automated impedance tuners are designed for on-wafer applications with maximum VSWR at the probe tip. The Nano5G model enables highly reliable passive load pull measurements for 5G applications, especially in the 28 GHz and 39 GHz bands allocated for FR2, although continuous operation is available from 18 GHz – 50 GHz. The WR6.5, WR4.3, and WR3.4 electromechanical impedance tuners from Maury Microwave offer extremely high VSWR for active device characterization up to 330 GHz.

KEY SPECIFICATIONS AND FEATURES:

- Accurate load pull measurements and noise parameters extraction up to 330 GHz
- Industry-leading VSWR to the DUT
    - WR6.5 VSWR at tuner plane > 20:1
    - WR4.3 VSWR at tuner plane > 18:1
    - WR3.4 VSWR at tuner plane > 12:1
- Uses piezoelectric stages with 1-nm step resolution and 4-nm step repeatability

.

More Resources

Visit info.maurymw.com/ims-2024 to learn more about Maury Microwave solutions