

Anritsu's Tensor VNA Brings AI to Network Analysis

By Barry Manz

As artificial intelligence spreads its wings throughout society, it shouldn't be surprising that it's making its way into the test and measurement. The first example of this in the ED and microwave industry appears to be a new vector network analyzer from [Anritsu](#) that it calls Tensor. Launched at IMS2026, Tensor is essentially a "measurement companion" that can understand human-language instructions, offer suggestions, and help users set up complex measurements. It also understands multiple languages.

From a practical perspective, this is arguably the best instrument on which to implement it, because modern VNAs are complex. Setting up a mixer conversion-loss measurement, vector mixer calibration, multiport S-parameter sweep, or two-tone amplifier test can be a laborious process that requires knowledge of calibration methods, port assignments, receiver paths, triggering, power levels, and data format. An AI interface that lets an engineer describe the measurement goal in ordinary language could reduce setup time and make the instrument less intimidating. Think of it as a chatbot that, when you tell it what to do, automatically executes your instructions.

Of course, a VNA cannot know whether a calibration kit was properly characterized, a fixture is repeatable, probe contact is secure, a device is being overdriven, or ripple is caused by cable movement rather than the DUT. Even so, there's a little doubt that this could significantly reduce the time required to set up and take measurements and enable those with limited experience with VNAs to begin using them without wading through hundreds of pages of manuals.



Beyond AI, Tensor's hardware architecture may prove just as important. Anritsu says the platform uses one signal source per measurement port, so a 4-port VNA has four sources. That enables multiple measurements using the same setup, including amplifier, mixer, and multistage mixer measurements, and supports two-tone amplifier measurements even with 2-port VNAs. Integrating these sources can reduce reliance on external hardware, switching, and synchronization issues, as well as setup complexity.

Anritsu says the VNA supports 54 to 220 GHz using compact millimeter-wave modules and can perform banded waveguide measurements, enabled by third-party equipment, up to 1.1 THz. That places it in advanced semiconductor, 6G research, radar, imaging, high-speed interconnect, and sub-THz component characterization, where setup and calibration are often as challenging as the device under test.

One of Tensor's most important architectural features is its one-source-per-measurement-port design. In a 4-port configuration, this provides the instrument with up to four independent RF sources, enabling more complex active-device and frequency-conversion measurements without relying as heavily on external signal generators, switching, or synchronization hardware. Anritsu cites a dynamic range of 147 dB above 2 GHz, along with low trace noise, high output power, high IF bandwidth, fast sweep speed, repeatable measurement performance, and improved data-transfer rates. A second local

oscillator is available as an option, enabling vector converter/mixer measurements, including phase and group delay.