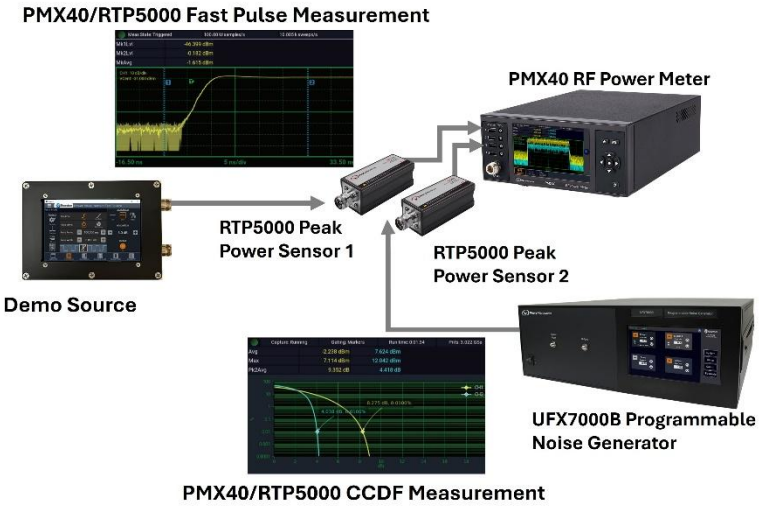
Widest VBW Peak Power Sensors for RADAR/Modulated Signals

This is a two-part demonstration. Part one shows the measurement of a fast rise-time pulsed RF/microwave signal as may be needed in radar systems. The sharpness of the rising edge is important — too slow an edge will degrade discrimination between closely separated targets. Characterization of overshoot and droop across the pulse is also important as excessive amounts of both can degrade radar maximum range.

Part two shows the generation of additive white Gaussian noise (AWGN), used for stress testing receivers or simulating interference. Applications demanding increased data rates and higher operating frequencies must manage rising noise floors from communications sources like 5G, Wi-Fi, and satellite signals. The signal-to-noise ratio (SNR) and carrier-to-noise (C/N) ratio can quantify a system's tolerance to complex noise, providing insight into its real-world performance.

The RTP5000 sensors are connected to the Maury Microwave PMX40 RF Power Meter with advanced measurement capabilities. In demo one, a demo source provides a fast-rising narrow pulse that is characterized by an RTP5000 power sensor with rise time capability as fast as 3 ns. In demo two, the UFX7000B generates broadband AWGN, which can be used to stress-test the receiver. In this case, the CCDF of the AWGN signal is characterized by an RTP power sensor with video bandwidths as wide as 195 MHz.

Demo Setup



Target Users

Target users include design and test engineers working with radar systems and terrestrial or satellite communication systems who need to accurately characterize pulsed RF signals, the CCDF attributes of their communication signals, or the impact on receiver performance when subjected to interference.

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Product Overview

UFX7000B Programmable Noise Generator

The HA7162C and HA7162D real-time phase noise analyzers offer a unique combination of accuracy, speed, flexibility, and reliability in a compact form factor. Control is easy through an intuitive GUI or simple remote commands, making them ideal for the lab and production.

KEY SPECIFICATIONS AND FEATURES:

- Output power up to +30 dBm.
- 127 dB of attenuation; 1 dB step size (optional 0.1 dB step size).
- Highly customizable to fit a variety of design needs.

RTP5000 Series Real-Time USB Peak Power Sensors

The RTP5000 Real-Time Peak USB Power Sensors address challenges faced by engineers and technicians who design, verify, and maintain systems utilizing pulsed signals. sensors incorporate Real-Time Power Processing™ and offer faster rise times; better time resolution; the fastest measurements; and a complementary, simple, intuitive, and powerful GUI.

KEY SPECIFICATIONS AND FEATURES:

- Accurate automated pulse measurements.
- Crest factor, CCDF, and statistical measurements.
- Industry-leading video bandwidth (195 MHz), rise time (3 ns), measurement speed (100,000 per second), and time resolution (100 ps).
- Synchronized multi-channel measurements.

PMX40 RF Power Meter

The PMX40, compatible with RTP5000 and RTP4000 series power sensors, provides design engineers and technicians the utility of traditional benchtop instrument, the flexibility and performance of modern USB RF power sensors, and the simplicity of a multi-touch display.

KEY SPECIFICATIONS AND FEATURES:

- Capture/display/analyze peak and average power.
- Frequency range from 4 kHz to 40 GHz.
- Synchronous multi-channel measurements (up to 4 channels).
- Sensors can be used as standalone instruments.

More Resources

Visit maurymw.com/info/eumw-2025 to learn more about Maury Microwave solutions.

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