# RF Interference
## Tolerance Testing

Boonton Power Analyzer

RTP5000 Series Sensors

Signal Source

(5G/Wi-Fi-like Signal)

Power Splitter
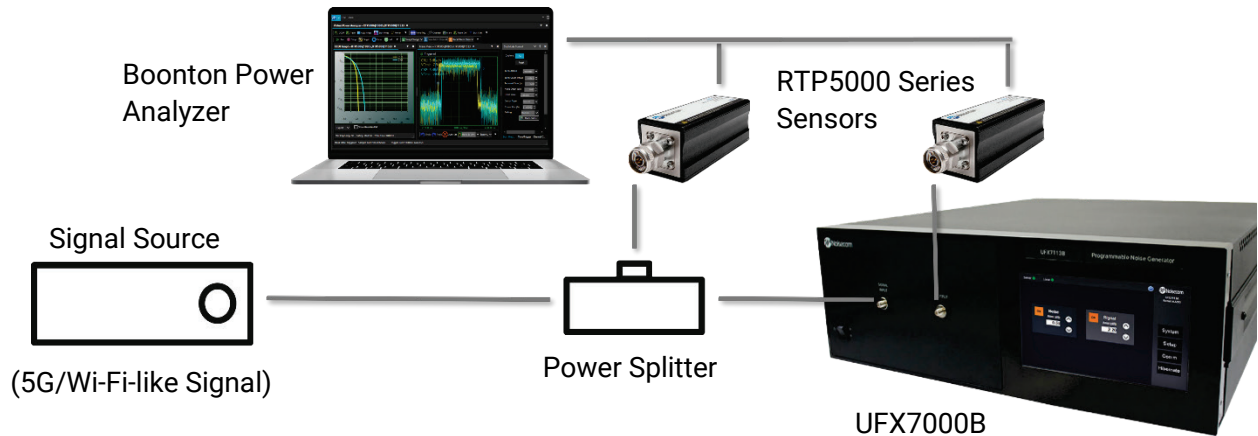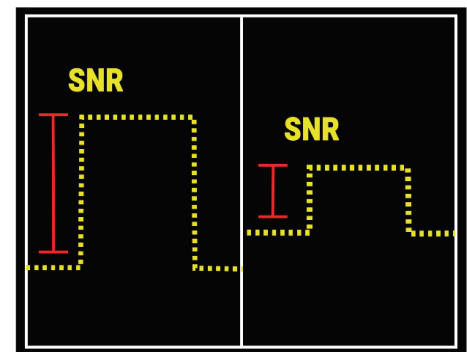
UFX7000B

## Demonstration Overview

Applications demanding increased data rates and operating frequencies need to contend with rising noise floors due to the influx of communications sources (5G, Wi-Fi, satellite, etc.). It is, therefore, vital to measure the robustness of communications devices and understand their tolerance to noise. The signal-to-noise ratio (SNR) and carrier-to-noise ratio (C/N) can quantify a system's response to interference, enabling insight into its ability to operate in real-world conditions. Noisecom showcases how controlled additive white Gaussian noise (AWGN) generation can ensure the performance designed in the lab is realized in the field.

The demonstration first monitors the 5G/Wi-Fi output from a signal source with a Boonton RTP5000 Series Real-time USB Peak Power Sensor. The signal is then fed into the Noisecom UFX7000B Programmable AWGN Generator, which enables manipulation of the carrier signal and noise floor in 0.1 dB steps over a 127 dB dynamic range. An RTP5000 Series sensor captures the UFX7000B output and measures SNR and CNR accurately at rapid speeds.

Precision SNR and CNR manipulation

The RTP5000 Series sensors connect to a PC loaded with the Boonton Power Analyzer, an advanced measurement and analysis software. The software enables propagation delay measurements between user-defined markers. Alternatively, the sensors can connect to the Boonton PMX40 Benchtop RF Power Meter for a benchtop experience that incorporates touchscreen operation and USB sensor flexibility and performance.

## Target Users for Noise Interference Testing

Target users include design engineers and production automated test engineers working with wireless communications systems, satellite networks, and radar systems that need to test how broadband noise impacts operation. For tight rackmount systems, the Noisecom RFX7000B Programmable AWGN Generator offers a compact form factor solution.

# Product Overviews

## UFX7000B Programmable Noise Generator

The Noisecom UFX7000B has a powerful single board computer with a flexible architecture used to create complex custom noise signals for advanced test systems. Offering both remote and manual control capabilities, the instrument's precision components provide high output power with superior flatness while the flexible architecture allows control of multiple attenuators, switches, and filter banks.

### KEY FEATURES AND SPECIFICATIONS:

- 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 Sensor

Boonton RTP5000 Series sensors utilize Real-time Power Processing™ technology to deliver the fastest measurement rate of 100,000 measurements per second with zero latency or gaps in acquisition. Its superior performance also includes 3 ns rise times, 195 MHz of video bandwidth, and 100 ps time resolution.

### KEY FEATURES AND SPECIFICATIONS:

- Accurate automated pulse measurements
- Crest factor, CCDF, and statistical measurements
- Synchronized multi-channel measurements

## Boonton Power Analyzer Software

The Boonton Power Analyzer provides control and readout of the RTP5000 Series and RTP4000 Series Real-time True Average Power Sensors. Users can analyze the behavior and power of waveforms in the time and statistical domains, supported by automated pulse measurements, statistical analysis, and user-defined measurement markers to test for latency.

### KEY FEATURES AND SPECIFICATIONS:

- Automated pulse and marker measurements
- Crest factor, CCDF, and statistical measurements
- Multiple pulse measurements

# Company Overviews

## Boonton

Boonton Electronics is a leader in high-performance RF and microwave test equipment for radar, avionics, electronic warfare, satellite and wireless communications, and EMI/EMC applications.

## Noisecom

Noisecom is a leader of RF and microwave noise sources for signal jamming and impairment, reference level comparison and calibration, receiver robustness testing, and jitter injection.

# Resources for More Information

Visit info.wtcom.com/ims-2023 to learn more about T&M solutions from Boonton and Noisecom.