

## T&M Satellite Solutions: Amplifier Noise Tolerance & 5G TDD Network Timing Demonstration Overview

### Product Demos:

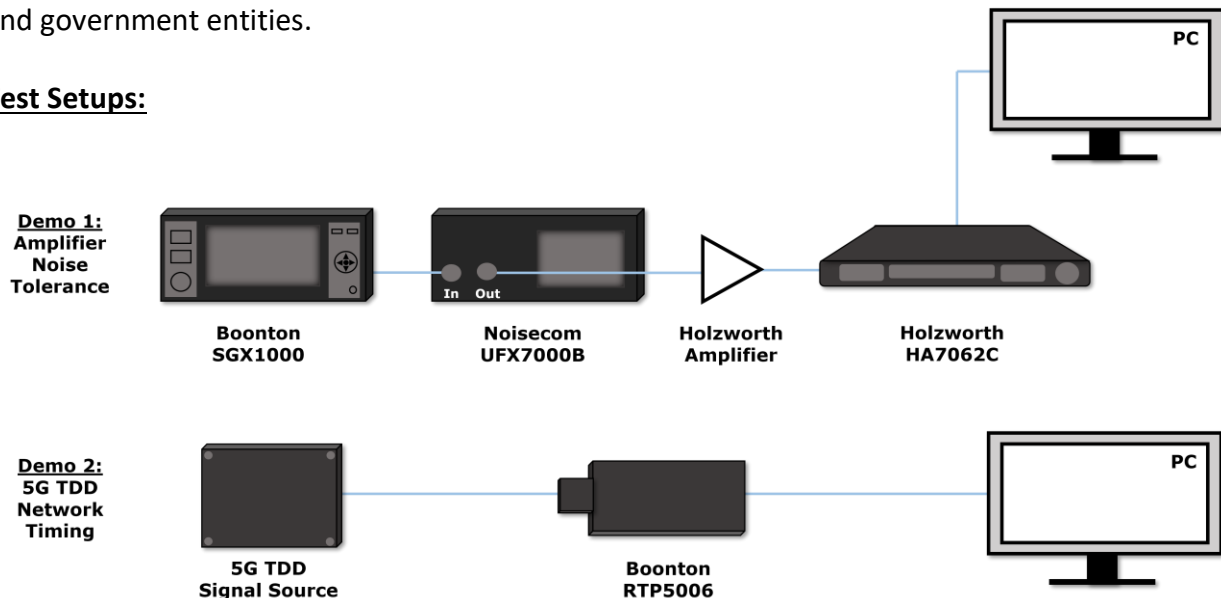
**Demo 1 – Amplifier Noise Tolerance:** The demonstration will test an amplifier to its noise tolerance limits, measuring the effects of additive white Gaussian noise (AWGN) and phase noise on the device. As the number of low Earth orbit (LEO) satellites continues to increase, satellite communications networks must operate efficiently in the face of rising noise floors and complex RF interference challenges. By simulating potential RF interference conditions and analyzing the performance of an amplifier under test, satellite network designers can gain crucial insight into how their systems will operate in the real world.

**Demo 2 – 5G TDD Network Timing:** The demonstration utilizes the unique capabilities of the RTP5000 Series RF Power Sensor to measure the fast performance of time division duplex (TDD) pulses, which can be emulated from a CommAgility 5G gNodeB or Holzworth RF Synthesizer Module. TDD schemes are key for 5G satellite communications networks, especially at higher frequencies, since they offer efficient spectrum utilization. To capitalize on TDD advantages, the switching of uplink and downlink transmissions must occur with extreme precision and at a rapid pace. The RTP5000 Series sensors have the performance needed to accurately characterize high-speed 5G TDD satellite signals to ensure seamless network operation.

### Target Users:

Target users include design engineers, network developers, satellite communications providers, and government entities.

### Test Setups:



## Product Overview:

### Demo 1 – Amplifier Noise Tolerance

**Boonton SGX1000 Series RF Signal Generator:** Through low phase, high-performance signal generation, Boonton supplies a clean reference satellite signal for noise tolerance testing.

**Noisecom UFX7000B Programmable Noise Generator:** Noisecom adds controlled interference to the satellite signal, which simulates the interference a satellite network may encounter once deployed.

**Holworth HX Series Amplifier:** The Holworth low phase noise amplifier serves as the device under test (DUT), where its performance under varying noise conditions is captured and analyzed.

**Holworth HA7062C Real-time Phase Noise Analyzer:** As power levels and noise floors are changed during testing, Holworth provides phase noise measurement capabilities to verify satellite signal integrity.

### Demo 2 – 5G TDD Network Timing

**CommAgility 5G gNodeB & Holworth HSM6001B RF Synthesizer Module:** An emulated 5G TDD signal provided by either Holworth or CommAgility products can serve as a benchmark for testing.

**Boonton RTP5000 Series Real-Time Peak Power Sensor:** Boonton showcases the leading performance and capabilities of its RF peak power sensor product line to measure critical 5G TDD signal parameters.

## More Resources:

Visit [info.wtcom.com/satellite-2022](http://info.wtcom.com/satellite-2022) to learn more about T&M solutions for satellite communications from Boonton, CommAgility, Holworth, and Noisecom.