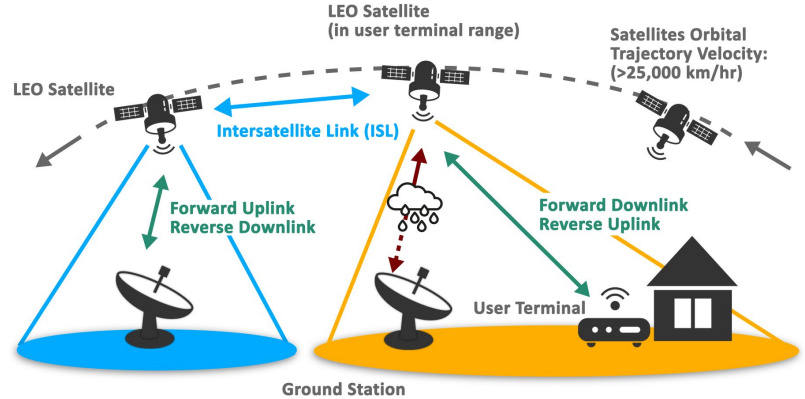
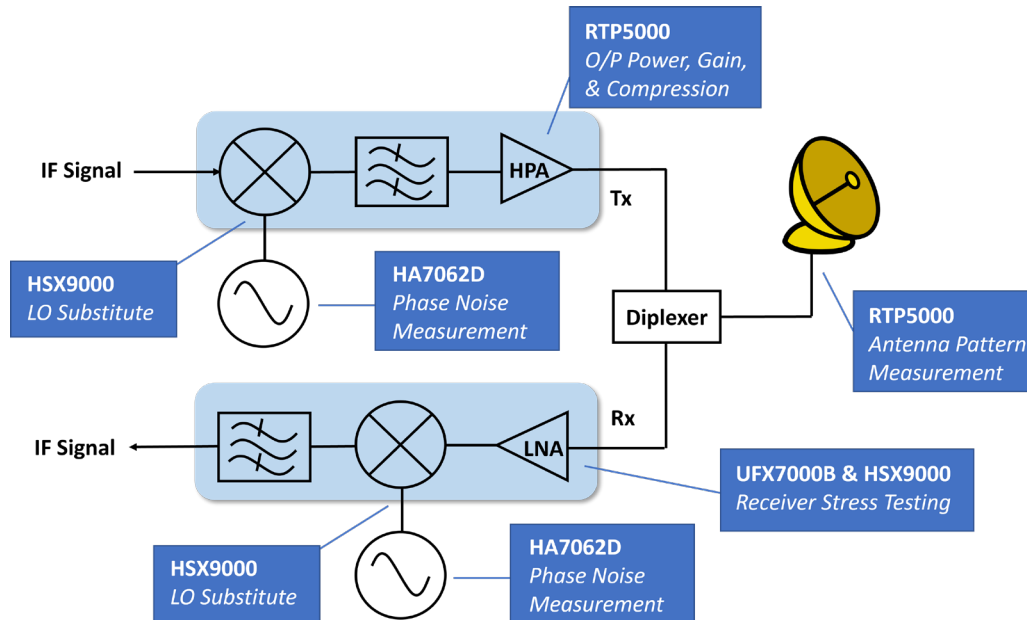


Satellite Uplink & Downlink Testing

Deployments of low Earth orbit (LEO) satellites are happening at an ever-increasing rate. Due to the reduced latency of LEO systems, they are becoming, or will become, the system of choice for both civil/commercial and military applications including, but not limited to, 5G and military battlefield communications. Use of LEO systems for these types of operation leads to very demanding test requirements to ensure reliable operation.



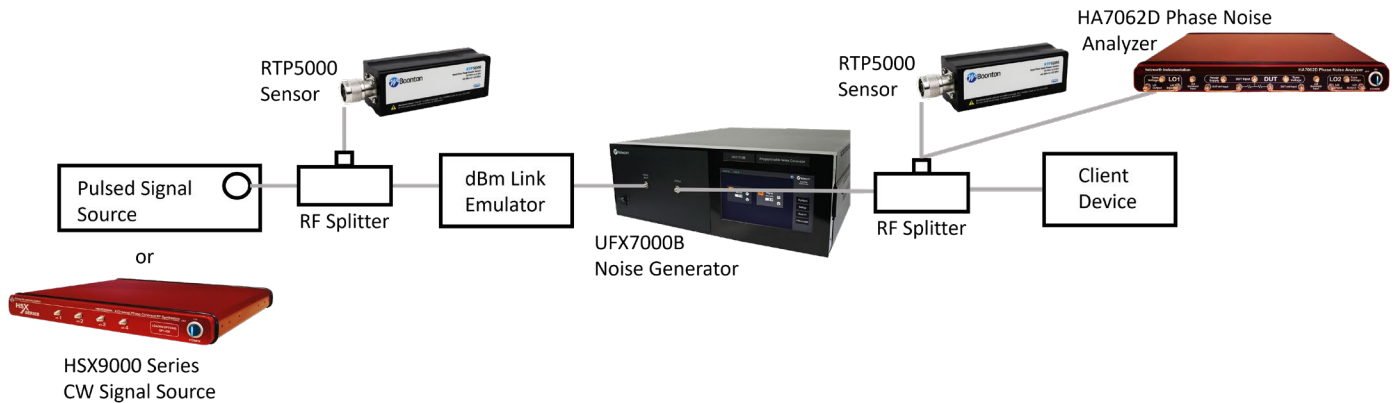
The diagram below shows how products from Wireless Telecom Group are being entrusted to provide physical layer testing throughout the RF and microwave path of the uplink and downlink. The demonstration on the bench shows examples of these measurements, including propagation delay and 5G TDD network timing, noise tolerance testing, satellite amplifier linearity, phase noise analysis, and characterizing antenna performance.



Target Users:

Target users include design engineers and technicians engaged in design, verification, and troubleshooting of the RF and microwave physical layer subsystems used in uplinks and downlinks of ground and space segments.

SATELLITE 2023 Test Setup:



Product Overviews:

Holzworth HSX9000 Series Multi-Channel RF Synthesizers:

The HSX9000 Series are PLL-based frequency synthesizers that offer low phase noise and high spectral purity. They can be used as a local oscillator substitute for fault diagnosis in up and downlink chains. When coupled with the Noisecom UFX7000B Programmable Noise Generator, they provide the means to measure receiver performance under degraded SNR conditions.

Boonton RTP5000 Real-Time USB Peak Power Sensors to 40 GHz:

The Boonton RTP5000 Series power sensors provide an excellent means of confirming power levels and delays throughout the up and downlink chains. With their fast measurement speed, they are ideal for making antenna pattern measurements. Crest factor measurement capability can quickly establish if amplifiers are being driven into compression.

Holzworth HA7062D Real-Time Phase Noise Analyzer:

The HA7062D Phase Noise Analyzer provides industry-leading accuracy, high reliability, ease of automation, and the utmost flexibility. The real-time engine delivers extremely fast measurement speeds. It is excellent for evaluating absolute phase noise of the local oscillators and additive phase noise of the amplifiers in the up and downlink paths.

Noisecom UFX7000B Programmable Noise Generator:

The UFX7000B adds controlled interference to better understand how RF signal paths in satellite applications perform under real-world interference challenges, such as signal jamming, reduced carrier-to-noise, and Eb/No scenarios.

More Resources:

Visit info.wtcom.com/satellite-2023 to learn more about T&M solutions for satellite communications from Boonton, Holzworth, and Noisecom.