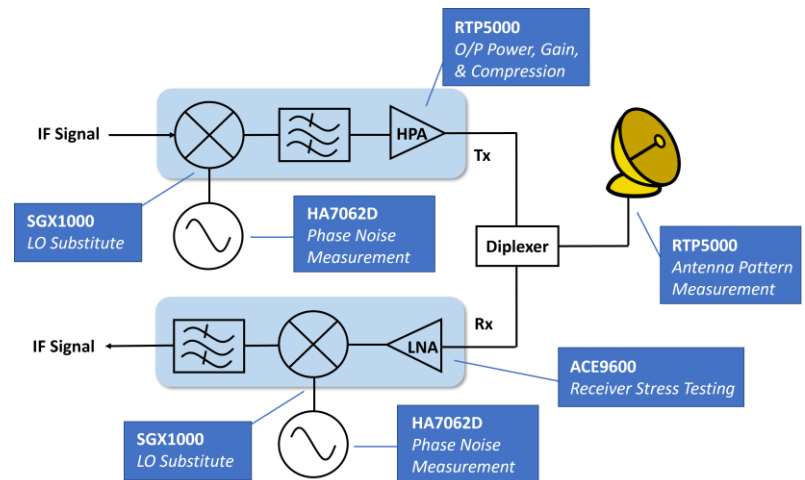


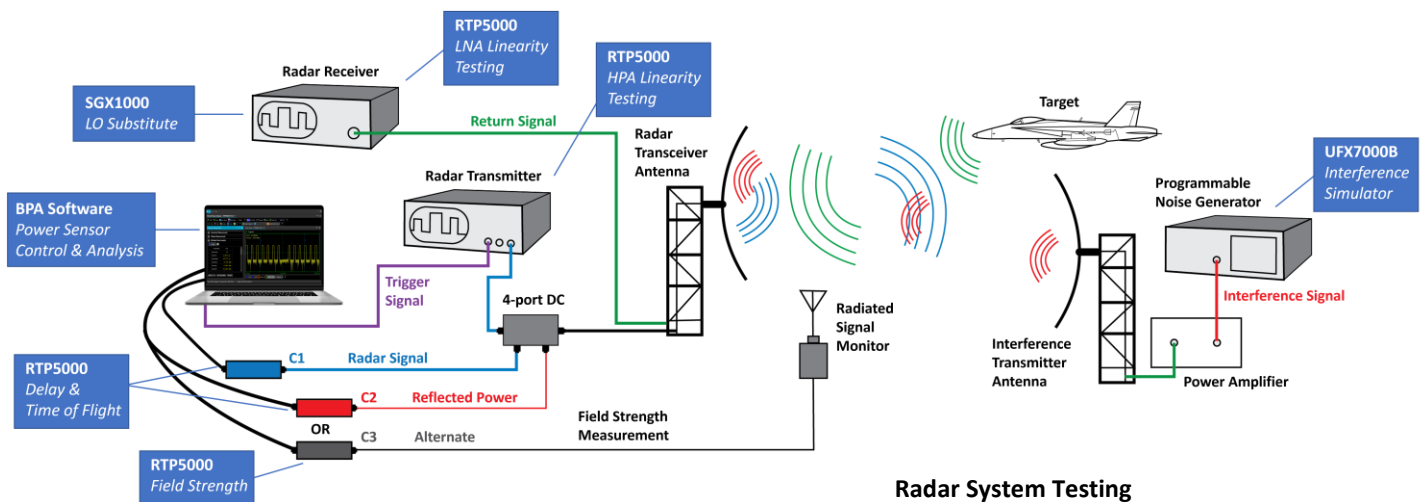
Uplink & Downlink Testing for Radar & Satellite Communications Systems

Low Earth orbit (LEO) satellite deployments are increasing due to factors such as reduced latency, enabling civil/commercial and military applications including, but not limited to, 5G and military battlefield communications. Radar systems are also used in mission-critical applications, such as identification friend or foe (IFF) that identifies targets as either friendly or hostile. To ensure reliable operation, LEO satellite networks and radar systems require very demanding test requirements.



Satellite Communications System Testing

The diagrams show how products from Boonton, dBm, Holzworth, and Noisecom are being entrusted to provide physical layer testing throughout the RF and microwave path of the uplink and downlink for radar and satellite communications systems. The demonstration on the bench shows examples of these measurements, including propagation delay and 5G TDD network timing, noise tolerance testing, amplifier linearity, phase noise analysis, and characterizing antenna performance.



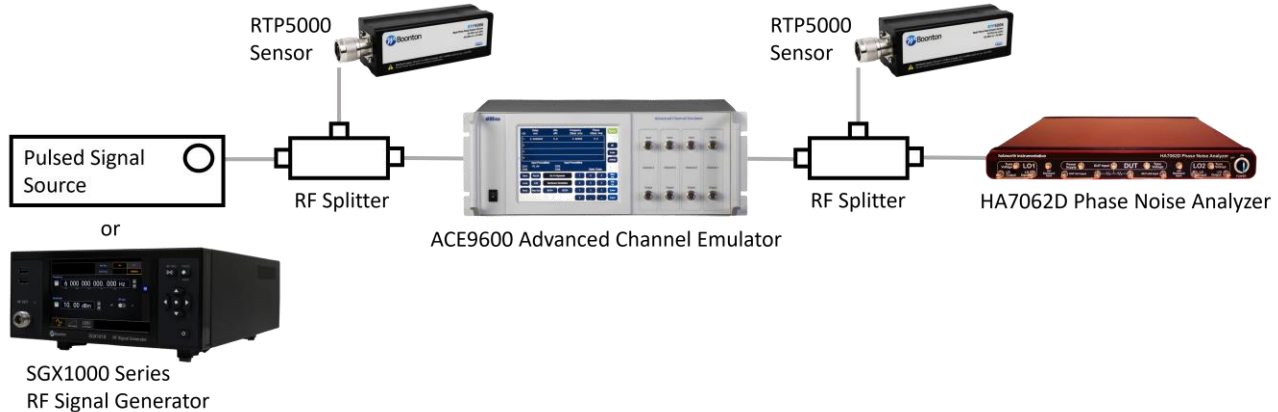
Radar System Testing

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, radar and avionics, and electronic warfare.



AOC 2023 Test Setup:



Product Overviews:

Boonton SGX1000 Series RF Signal Generator:

The SGX1000 utilizes a proprietary blend of direct digital and direct analog synthesis to provide ultra-fine frequency resolution, lightning-fast frequency switching, and ultra-low phase noise. This performance makes the SGX1000 Series an ideal local oscillator substitute for radar and satellite communications system testing.

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 uplink and downlink paths.

dBm ACE9600 Advanced Channel Emulator:

The dBm ACE9600 Advanced Channel Emulator can add RF link impairments (delay, Doppler, path loss, AWGN, multipath fading) and hardware-in-the-loop impairments (amplifier compression/distortion, phase noise, IMUX/OMUX filter shaping) to fully emulate satellite uplinks/downlinks.

More Resources:

Visit info.wtcom.com/aoc-2023 to learn more about T&M solutions for radar and satellite communications systems.

