

Satellite Network Emulation for 4G/5G Communications Demonstration Overview

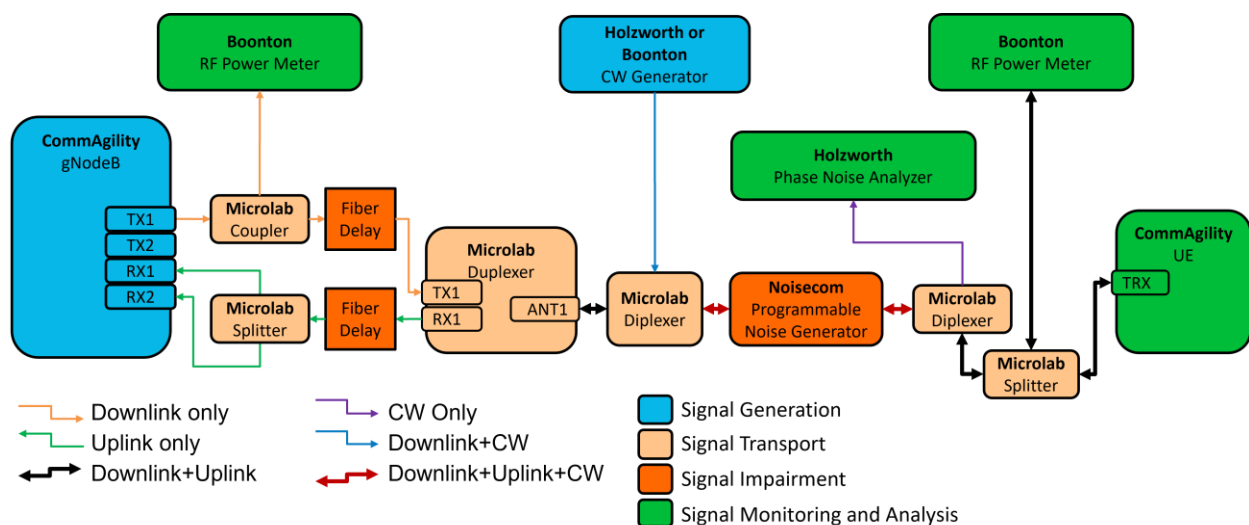
Product Demo:

The demonstration sends data over a simulated satellite network utilizing products from Boonton, CommAgility, Holzworth, Microlab, and Noisecom. Facing issues such as advancing communications standards and an increased number of satellites sharing limited resources, products across all Wireless Telecom Group segments band together to enable and support real-life 4G/5G satellite communications. Specifically, the demonstration provides solutions in signal generation, transport, impairment, monitoring, and measurement that address 4G/5G satellite network challenges, such as Doppler Shifts, multiple satellite system hops, signal jamming, carrier-to-noise impairments, satellite signal combining and distribution, and accurate RF power measurements and signal analysis.

Target Users:

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

Test Set-Up:



Product Overview:

Part 1 – Signal Generation

CommAgility 5G Reference gNodeB: CommAgility can address the challenges of latency and Doppler shifts faced by GEO, MEO, and LEO systems through PHY source code manipulation and access to upper protocol layers.

Boonton SGX1000 Series and Holzworth HSM Series RF Synthesizer Modules: Holzworth and Boonton demonstrate test and measurement solutions through clean, low phase noise signal generation to be used as a reference value.

Part 2 – Signal Transport and Impairment

Microlab RF Passive Components: Microlab enables signal combining, signal conditioning, and signal distribution for satellite systems through combining and splitting multiple frequency bands to distribute uplink and downlink signals.

Noisecom UFX7000B Programmable Noise Generator: Noisecom adds controlled interference to better understand how RF signal paths in satellite applications perform under real-world interference challenges, such as signal jamming, carrier-to-noise, and Eb/No.

Part 3 – Signal Monitoring and Analysis

Boonton RTP5000 Series Real-Time Peak Power Sensor: Through automatic pulse measurements and CCDF/crest factor statistical analysis, Boonton will monitor the overall system power level, performance, and signal degradation.

CommAgility 4G/5G Management Tool: CommAgility provides an easy-to-use graphical interface for monitoring the communication link with parameters such as data rate, connected user equipment (UE), and data plane BLER.

Holzworth Phase Noise Analyzer: Optimized for ultra-low phase noise performance, Holzworth can measure cumulative phase noise created by an increasing density of satellite communications systems.

More Resources:

Visit info.wtcom.com/satellite-2022 to learn more about satellite communications solutions from Boonton, CommAgility, Holzworth, and Noisecom.