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Boonton's Wi-Fi 6 Solutions: Synchronized Multi-Channel Measurements

Wireless devices with multiple input, multiple output (MIMO) architectures utilize multiple transmitters and receivers to transfer large amounts of data simultaneously, improving capacity for wireless connections and decreasing congestion in multi-user environments. Boonton's Synchronized Independent Gate Mode helps enable this capability through its multi-channel measurement alignment on the RTP5000 and RTP4000 real-time RF power sensor product lines, which removes the necessity of compromises when testing today's advanced Wi-Fi chipsets and devices.

Synchronized Independent Gate Mode allows users to independently perform packet power measurements on multiple synchronous or asynchronous transmit chains, and each session may be configured with a common time base shared among sensors. Distribution of the shared time base occurs through a simple cable connection between each sensor's multi-function input-output ports. An example of a multi-channel measurement application is depicted in Figure 1 below. In this 4x4 MIMO Wi-Fi chipset scenario, multiple observations periods over a common time base are established while using Synchronized Independent Gate Mode to determine if packets from distinct data streams align or overlap.

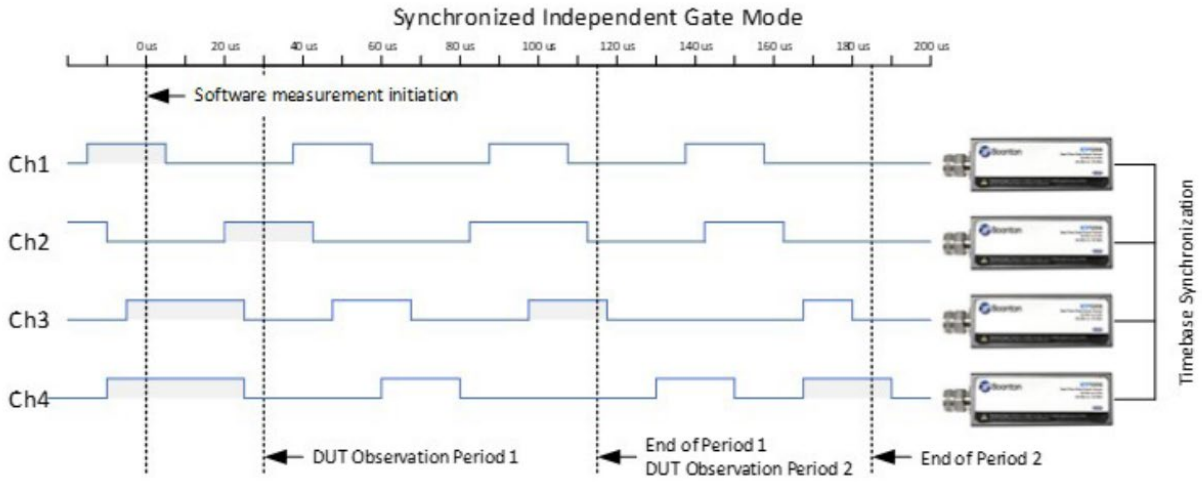

Figure 1: A multi-channel measurement application with various observation periods over a shared time base using the Synchronized Independent Gate Mode.

Other power meter-based characterization systems often fail to incorporate synchronized multi-channel measurements capabilities. Consequently, these alternative methods require the purchase of additional test equipment like oscilloscopes or necessitate the customer to allocate valuable resources to develop their own custom circuitry. Eliminating costly expenditures and

customer-created hardware, Synchronized Independent Gate Mode provides inclusive and convenient multi-channel time alignment capabilities for Wi-Fi characterization and compliance testing.

Synchronized Independent Gate Mode combines with Boonton's industry-leading performance and additional software utilities to create a comprehensive solutions package for sufficient and accurate Wi-Fi testing. Boonton's real-time USB power sensors provide the finest 100-picosecond time resolution, fastest measurement speeds with its Real-Time Power Processing technology, and compatibility with the RTP Measurement Buffer Mode Application software to enable a virtually unlimited time capture of a packet stream with essentially no gaps in acquisition or analysis.

The RTP5006 sensors have the widest video bandwidth (VBW) of 195 MHz for measuring 160 MHz-wide Wi-Fi channels, while the RTP5008 sensor and its 165 MHz of VBW is built particularly for fully characterizing today's advanced, high-performance Wi-Fi chipsets and devices covering the recently allocated 6 GHz band. Without adequate VBW, users often replace peak power with average power measurements, which not only masks signal compression and its resultant distortion, but also necessitates the purchase of additional high-priced and complex test equipment to fully characterize the chipsets. To learn more about Boonton's design verification and characterization capabilities that can uncover your Wi-Fi chipset's true potential, visit www.boonton.com.