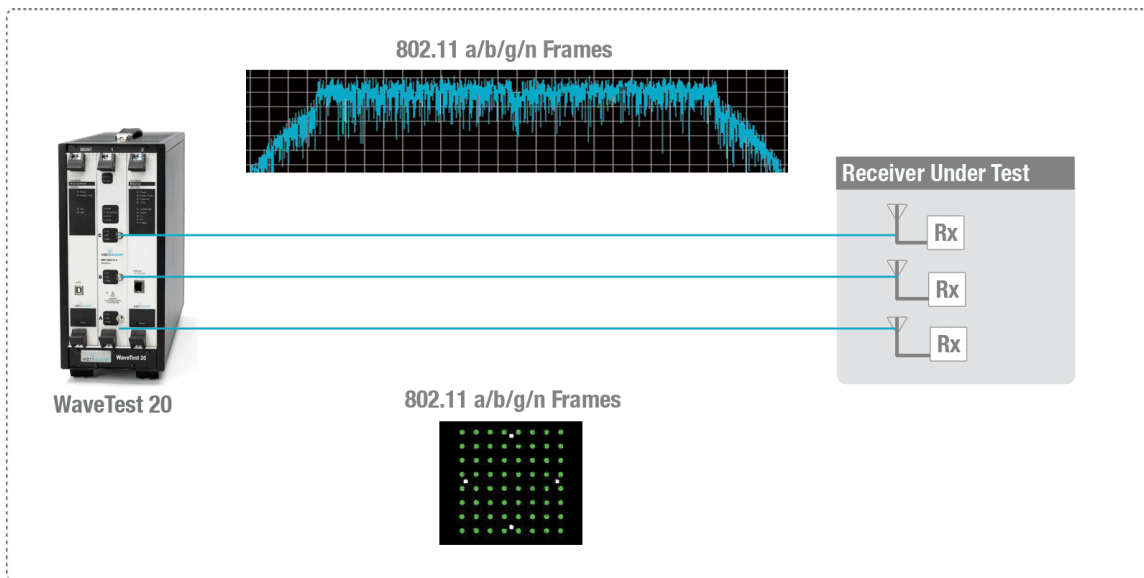


# WaveGen™ - True 3x3 MIMO Signal Generator with Integrated Channel Emulator

**WaveGen** - is the industry's only integrated and complete solution to 3x3 MIMO receiver testing. Utilizing a single WBW2300 WaveBlade, it allows the tester to create every conceivable combination of 802.11 a/b/g/n frames and present them to the device under test from a point-and-click GUI. Simultaneously, the IEEE channel models can be set on a per-packet basis. Unlike solutions composed of single-output generators, **WaveGen** does not require knowledge of DSP modulation SW packages, tedious construction and download of I/Q, or stringing together multiple devices with specialized synchronization hardware.

Purpose built by MIMO radio engineers for MIMO radio engineers, the WaveGen addresses the needs of designers and testers of 802.11 radio and baseband functions. Perfect for design, production validation test (PVT), large-scale interoperability test (IOT) or system integration, this small, modular, single-card approach offers an easy-to-use push-button 3x3 MIMO signal generation solution.



## Benefits

- Industry's only integrated true line-rate, 3x3 MIMO 802.11n signal generator. No ganging of single-stream signal generators and complex software interfaces
- Purpose-built for 802.11n: minimal effort required to create waveforms and combination of any packets
- Infinitely variable packet generation; no need to worry about the amount of available memory
- Selectively applying the 802.11 channel models is as simple as clicking a button
- Compact size: a complete 3x3 MIMO solution within one WBW2300 WaveBlade
- No need to download waveform files and install them on the test system
- Unbeatable scaling: combine up to 9 WaveBlades within a single WT90 chassis to create nine independent MIMO signal generators; daisy-chain WT90 chassis to increase scale further
- No need to invest in new hardware when moving to function and performance test: the WBW2300 also supports layer 2 through 7 traffic generation and analysis
- Multi user control allows one WBW2300 to be used for signal generation while another within the same chassis is used for function and performance test

# Specifications

## TRANSMISSION MODES

### • Tone Generation

- Simple sine wave generation, adjustable frequency and amplitude

### • Packet Generation

- Customizable sequences of packets, one packet or many different types in succession
- Fixed number of packets sent, or continuous transmission
- Predefined and fully customizable 802.11 packet types
- Data support for all ones, all zeros, alternating ones and zeros or user defined
- Enable or disable MAC header, preamble, checksum and FCS
- Customizable frame sizes
- Auto and customizable AMPDU aggregation

## MODULATION

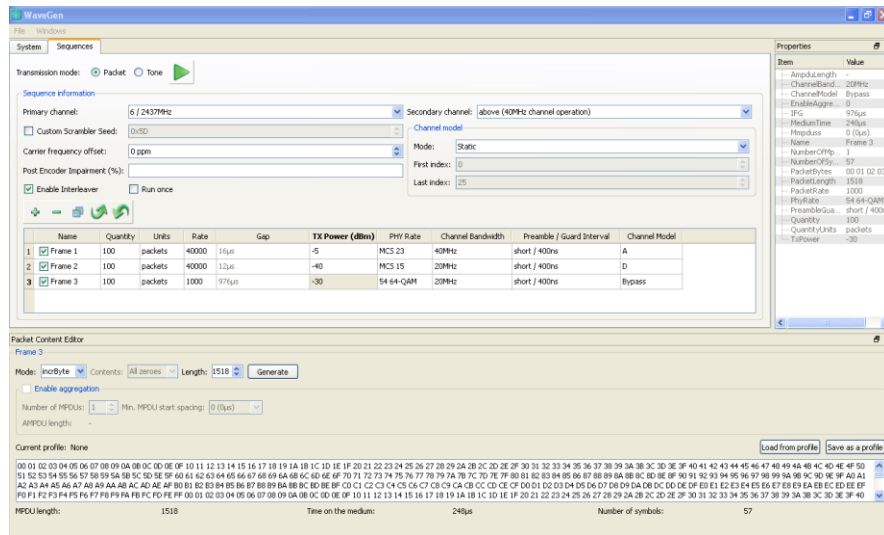
- Legacy PHY rates of 1, 2, 5.5, 6, 9, 11, 12, 18, 36, 48 and 54Mbps
- High Throughput PHY rates MCS 0 to MCS 23
- FEC coding rates of 1/2, 2/3, 3/4 and 5/6
- Programmable Short or Long preamble
- Programmable Short or Standard Guard Interval
- 1x1 SISO, 2x2 or 3x3 MIMO configurations

## RF PARAMETERS

- Power output: 0 to -50 dBm
- Typical Modulation Accuracy (EVM): < -35 dB
- 2.4 GHz operating channels: 1-14
- 4.9 GHz operating channels: 21 and 25
- 5 GHz operating channels: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165
- Supports channel bandwidths of 20 and 40 MHz
- 20MHz upper and lower in 40MHz channel

## IMPAIRMENTS

- Pre and post encoder bit error introduction.
- Sample Rate Offset
- Carrier Frequency Offset
- Static and Time Variant Channel Models IEEE 802.11 A-F
- Enable/Disable Interleaver
- Scrambler Initialization
- Future enhancements:
  - I/Q Amplitude Imbalance
  - I/Q Phase Imbalance
  - Phase Noise introduction
  - Spectral Flatness variance



## Minimum Requirements

<b>VeriWave Test System</b>	<ul style="list-style-type: none"> <li>• 1 x VeriWave WaveTest 90™ or WaveTest 20™ system</li> <li>• 1 x 3x3 MIMO Signal Generation WaveBlade (WBW2300)</li> </ul>
<b>Host Computer</b>	<ul style="list-style-type: none"> <li>• X86-based PC with 1GHz processor and 256MB RAM</li> <li>• Windows XP SP2, or Linux (2.6 or higher kernel level)</li> </ul>
<b>Application Software</b>	<ul style="list-style-type: none"> <li>• Signal Generation Software (SGS)</li> </ul>