

# USG3000V RF Vector Generator

The USG3000V series delivers comprehensive vector signal generation capabilities up to 6.5 GHz—combining professional-grade phase noise performance, exceptional dynamic range, and advanced modulation features at pricing that democratizes access to vector signal testing. These instruments excel in wireless communications, component testing, and research applications while providing outstanding value for laboratories and production environments.

## Professional Vector Signal Generation

9 kHz-6.5 GHz



### Advanced Vector Signal Generation

- Full IQ vector modulation capability up to 6 GHz with 150 MHz modulation bandwidth
- Rich vector modulation formats: QAM (16-512), ASK, PSK, FSK with comprehensive variants
- Real-time modulation, local ARB, and remote ARB modes for maximum flexibility
- Signal Studio software integration for WLAN, WCDMA, LTE, 5G/NR signal creation

### Professional Signal Quality

- Exceptional phase noise performance ( $< -122$  dBc/Hz @ 1 GHz) matches premium instruments
- Industry-leading output power range (-135 dBm to +25 dBm) eliminates need for external components
- Superior amplitude accuracy ( $\leq 0.7$  dB) ensures reliable device characterization
- Built-in 110 dB dynamic programmable attenuator for precise level control

### Comprehensive Test Capabilities

- AWGN interference simulation for real-world channel modeling
- Multiple scanning methods: frequency, amplitude, frequency + amplitude sweeps
- Pulse modulation with 20 ns minimum width and 70 dB on-off ratio
- Power de-embedding support with external power meter kit

### Key Specifications

Frequency Range	9 kHz-6.5 GHz
Output Power Range	-135 dBm to +25 dBm
Power Resolution	0.01 dB
Frequency Resolution	0.001 Hz
Phase Noise	$< -122$ dBc/Hz @ 1 GHz, offset 20 kHz (Typ.)
Amplitude Accuracy	$\leq 0.7$ dB (Typ.)
Modulation Types	IQ, QAM, ASK, PSK, FSK, AM, FM, $\Phi$ M, Pulse (optional)
Built-in Function Generator	50 MHz
Display	5" capacitive touch screen



## Competitive Comparison Matrix

Brand	Model	Frequency Range	Output Power	Phase Noise (1GHz@20kHz)	Level Accuracy	Function Generator	Display	Warranty
UNI-T	USG3000V	9 kHz - 6.5 GHz	-135 to +25 dBm	<-122 dBc/Hz	≤ 0.7 dB	50 MHz	5" touch	5 Years
Keysight	N5172B/503	9 kHz - 3 GHz	-144dBm-+19dBm	< -122dBc/Hz	≤0.6dB	Optional	5"	3 Years
Keysight	N5172B/506	9 kHz - 6 GHz	-144dBm-+19dBm	< -122dBc/Hz	≤0.6dB	Optional	5"	3 Years
Rigol	DSG3030-IQ	9 kHz – 3 GHz	-100dBm-+13dBm	< -110dBc/Hz	≤0.5dB	200kHz	4.3" touch	3 Years
Rigol	DSG3060-IQ	9 kHz – 6 GHz	-100dBm-+13dBm	< -110dBc/Hz	≤0.5dB	200kHz	4.3" touch	3 Years
Rigol	DSG3065B-IQ	9 kHz – 6.5 GHz	-110dBm-+20dBm	< -116dBc/Hz	≤0.5dB	200kHz	4.3" touch	3 Years
Rigol	DSG821A	9 kHz – 2.1 GHz	-110dBm-+5dBm	< -105dBc/Hz	≤0.5dB	200kHz	3.5"	3 Years
Rigol	DSG836A	9 kHz - 3.6 GHz	-110dBm-+5dBm	< -105dBc/Hz	≤0.5dB	200kHz	3.5"	3 Years
R & S	SMCVB-B103	4 kHz - 3 GHz	-120dBm-+20dBm	< -100dBc/Hz	≤0.7dB	Optional	5" touch	3 Years
Siglent	SSG5040X-V	10 MHz–4 GHz	-130dBm-+20dBm	< -120dBc/Hz	≤0.7dB	1MHz	5" touch	3 Years
Siglent	SSG5060X-V	10 MHz–6 GHz	-130dBm-+20dBm	< -120dBc/Hz	≤0.7dB	1MHz	5" touch	3 Years

### Advanced Vector Signal Technology

The USG3000V series employs state-of-the-art vector signal generation technology to deliver professional-grade IQ modulation up to 6 GHz with exceptional 150 MHz modulation bandwidth. The USG3045V provides comprehensive vector capabilities up to 4.5 GHz, while the USG3065V-P extends CW coverage to 6.5 GHz with mechanical attenuator for enhanced amplitude accuracy. Both instruments maintain outstanding phase noise performance (<-122 dBc/Hz at 1 GHz, 20 kHz offset) that matches instruments costing 2-3x more.

The built-in 110 dB dynamic high-precision programmable attenuator enables the industry's widest output power range from -135 dBm to +25 dBm in this class. This exceptional dynamic range eliminates the need for external attenuators or amplifiers when testing both ultra-sensitive receivers and high-power transmitter components, dramatically simplifying test setups while improving measurement accuracy.

### Professional Wireless Communications Testing

The USG3000V series excels in modern wireless standards validation including 5G/NR Sub-6, Wi-Fi 6/6E, LTE Advanced, and emerging IoT protocols. The comprehensive vector modulation suite supports everything from basic BPSK to advanced 512QAM schemes with real-time, local ARB, and remote ARB modes. Built-in AWGN interference simulation enables realistic channel modeling that premium competitors charge extra for.

The integrated Signal Studio software compatibility transforms the USG3000V into a complete communication test solution, generating standards-compliant waveforms for cellular, wireless connectivity, and custom research applications. This professional software integration—typically found only on instruments costing much more—enables rapid prototype validation and reduces development cycles for wireless device manufacturers.

**Why UNI-T?** Over 35 years of innovation. 5-Year Warranties. US-Support. 30-Day No Hassle Returns.