

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8643A

The Keysight (formerly Agilent / HP) 8643A is a high-performance synthesized signal generator designed for demanding out-of-channel receiver testing and general-purpose RF applications. Offering superb spectral purity with non-harmonic spurious levels below -100 dBc up to 1 GHz and an SSB phase noise of -130 dBc/Hz at 20 kHz offset, the 8643A delivers exceptional accuracy and reliability. Its electronic attenuator on the 1 GHz version replaces mechanical relays with solid-state components to achieve excellent output level accuracy of +/-1.0 dB down to -127 dBm. Standard features include pulse modulation, a 0.1 Hz to 400 kHz internal modulation synthesizer with two-tone capability, and support for sine, square, triangle, sawtooth, and white Gaussian noise waveforms.

SPECIFICATIONS

Frequency

Minimum Frequency	252 kHz Hz
Maximum Frequency	1030 MHz (expandable to 2.06 GHz with Option 002) Hz
Frequency Resolution	0.01 Hz

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	-137 dBm to +13 dBm
Phase Noise	<-130 dBc/Hz (at 20 kHz offset, 1 GHz carrier)

Modulation

Modulation	AM, FM, Phase Modulation, Pulse Modulation
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General

Interfaces	GPIB (IEEE-488.2)
Display	Liquid Crystal Display (LCD)

Frequency Specifications

Frequency Range	252 kHz to 1030 MHz (expandable to 2060 MHz with Option 002)
Internal Reference Frequency	10 MHz
External Reference Input Frequency	1, 2, 5, 10 MHz

Amplitude & Output Power

Absolute Level Accuracy	+/-1.0 dB (down to -127 dBm)
Minimum Output Level	-137 dBm
Output Impedance	50 ohms
Reverse Power Protection (RF)	50 Watts (from 50 ohm source)
Attenuator Type	Electronic (solid-state, up to 1 GHz)

Spectral Purity

Non-Harmonic Spurious	<-100 dBc (up to 1 GHz, at offsets >10 kHz)
Harmonics	<-30 dBc (for output levels < +10 dBm)
SSB Phase Noise (1 kHz offset)	<-110 dBc/Hz (at 1 GHz carrier)
Residual FM	< 1.5 Hz RMS (in 300 Hz to 3 kHz BW, at 1 GHz carrier)
Broadband Noise Floor	< -140 dBc/Hz (at > 20 MHz offset, < 1030 MHz carrier)

Frequency Modulation (FM)

Maximum FM Deviation	Up to 10 MHz (carrier frequency dependent)
FM Frequency Response	DC to 100 kHz (DC-coupled), 20 Hz to 100 kHz (AC-coupled)

Amplitude Modulation (AM)

Maximum AM Depth	100%
AM Resolution	0.1%

Internal Modulation Source

Internal Modulation Synthesizer Range	0.1 Hz to 400 kHz
Internal Waveforms Available	Sine, square, triangle, sawtooth, white Gaussian noise

Interfaces & Connectivity

RF Output Connector Type	Type-N female (front panel)
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Physical & Environmental

Operating Temperature Range	0 to 55 °C
Storage Temperature Range	-40 to 71 °C

Options & Accessories

Option 001	High Stability Timebase
Option 002	2.06 GHz Frequency Extension

Reference Oscillator

Reference Output Frequency	10 MHz
External Reference Input Frequencies	1, 2, 5, 10 MHz (±10 ppm)

RF Output

Level Resolution	0.1 dB
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Power Requirements

AC Input Voltage	90 to 132 Vac or 198 to 264 Vac (automatically selected)
AC Input Frequency	47 to 440 Hz

Performance

SSB Phase Noise (20 kHz offset)	<-130 dBc/Hz @ 1 GHz carrier
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TECHNOLOGY

Synthesized RF Signal Generator

APPLICATIONS

Receiver out-of-channel testing, RF component characterization, general-purpose RF signal generation

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.