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Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent / Keysight 8643A High-Performance Signal Generator, 1 GHz or 2 GHz

HP Agilent Keysight 8643A High Performance RF Signal Generator 252 kHz to 1030 MHz The HP/Agilent 8643A is a high-performance synthesized RF signal generator covering 252 kHz to 1030 MHz (2060 MHz with Option 002). OEM 8643A/8644B/8664A/8665A/B datasheet lists 0.01 Hz resolution, a standard electronic attenuator, AM/FM/pulse modulation, and optional VOR/ILS Option 009. Receiver tests with less than 90 dB selectivity, high-volume production level cycling, mixer stimulus, and avionics VOR/ILS with Option 009. The HP/Agilent 8643A is a high-performance synthesized RF signal generator covering 252 kHz to 1030 MHz (2060 MHz with Option 002). OEM 8643A/8644B/8664A/8665A/B datasheet lists 0.01 Hz resolution, a standard electronic attenuator, AM/FM/pulse modulation, and optional VOR/ILS Option 009. Receiver tests with less than 90 dB selectivity, high-volume production level cycling, mixer stimulus, and avionics VOR/ILS with Option 009. Standard electronic PIN attenuator for high cycle-count reliability Optional specified VOR/ILS Option 009 and 2 GHz counter Option 011



MODEL

**Agilent / Keysight
8643A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

8643A

LISTING

<https://aumictechlabs.com/products/8643a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 8643A is a signal generator delivering precise RF signal generation from 252 kHz to 1030 MHz (2060 MHz with Option 002). Built for R&D, manufacturing, and service

environments, it combines exceptional spectral purity with frequency stability through an oven-controlled timebase and electronic attenuator using solid-state PIN diodes.

Technical Specifications

Frequency Range Standard: 252 kHz to 1030 MHz Option 002 (Doubled Output): 252 kHz to 2060 MHz Resolution: 0.01 Hz Output Level Range: +13 dBm to -137 dBm Overrange: Up to +15 dBm (increased harmonic distortion) Accuracy: ± 1.0 dB down to -127 dBm Spectral Performance SSB Phase Noise @ 1 GHz: -130 dBc/Hz Nonharmonic Spurious: -100 dBc up to 1 GHz Modulation Standard: Amplitude Modulation (AM), Frequency Modulation (FM), Pulse Modulation Internal Synthesizer: 0.1 Hz to 400 kHz (sine and white Gaussian noise); 0.1 Hz to 50 kHz (triangle, sawtooth, square) Waveforms: Sine, square, triangle, sawtooth, white Gaussian noise, two-tone capability Pulse Modulation (Option 008): Rise/fall times 80 dB on/off ratio, variable delay and width 50 ns to 999 ms VOR/ILS Simulation (Option 009): Avionics testing capability Sweep Capabilities Digital stepped sweep across entire frequency range Linear/logarithmic selection Sweep times: 0.5 to 1000 sec Phase-continuous sweep: 40 MHz span available at maximum carrier frequency

Key Features Electronic attenuator with PIN diode solid-state components for reliability and precision level setting High-stability oven-controlled timebase (standard configuration) 0.01 Hz frequency resolution for exacting calibration and measurement applications Two independent modulation sources available simultaneously Internal frequency counter (Option 011): 20 Hz to 2 GHz range

Typical Applications Component characterization and manufacturing test Receiver and transceiver development Avionics system simulation and validation Filter and amplifier evaluation Phase noise and spectral purity analysis

Compatibility & Integration GPIB (IEEE 488.2-1987) remote control interface Member of Agilent/Keysight signal generator family Available options: High Stability Timebase (001), Doubled Output (002), Rear Panel Connections (003), Low Noise (004), and others

8643A Characteristics / Specifications

PARAMETER	VALUE
Instrument Type	High performance RF signal generator
Series Family	HP Agilent 8643A/8644B/8664A/8665A/8665B
Frequency Range	252 kHz to 1030 MHz
Frequency Range Option 0	252 kHz to 2060 MHz
Frequency Resolution	0.01 Hz
Frequency Accuracy Standard Timebase	0.375e-6 times carrier in Hz within 1 year of calibration
Switching Speed Typical	less than 90 ms within 100 Hz
Output Level Range	plus 13 dBm to minus 137 dBm
Output Level Option 0	plus 13 dBm maximum
Absolute Level Accuracy	plus or minus 1 dB at output greater than or equal to minus 127 dBm
Absolute Level Accuracy Low	plus or minus 3 dB at output less than minus 127 dBm
Harmonics	less than minus 25 dBc at output less than or equal to plus 8 dBm
Subharmonics 252 kHz to 515 MHz	none
Subharmonics 515 to 1030 MHz	less than minus 60 dBc
Subharmonics 1030 to 2060 MHz	less than minus 40 dBc
SSB Phase Noise 515 to 1030 MHz	minus 130 dBc/Hz at 20 kHz offset (minus 134 typical)
SSB Phase Noise Option 002 1030 to 2060 MHz	minus 124 dBc/Hz at 20 kHz offset
Residual FM 515 to 1030 MHz	less than 2 Hz rms in 3 kHz BW
Residual AM	less than 0.01 percent AM rms (0.3 to 3 kHz post-detection BW)
SSB AM Noise Floor	less than minus 157 dBc/Hz at plus 10 dBm, offsets greater than 100 kHz, below 1030 MHz
Reference Aging Standard	plus 1.5e-8 per day after ten days
Reference Aging Option 0	plus or minus 3e-10 per day after 10 days
External Reference Input	10 MHz plus or minus 5 ppm, 0.5 V to 2 Vrms into 50 ohm
AM Depth	0 to 100 percent, output less than or equal to plus 7 dBm

PARAMETER	VALUE
AM Resolution	0.1 percent
FM Maximum Peak Deviation 515 to 1030 MHz	1 MHz
FM Bandwidth 3 dB	dc to 100 kHz
Pulse On Off Ratio	greater than 35 dB; greater than 80 dB above 1030 MHz
Pulse Rise Fall	less than 100 ns, 10 to 90 percent
Output Impedance	50 ohm
Reverse Power Protection	50 watts
Internal Modulation Sources	two independent sources, sine to 400 kHz
Remote Interface	GPIO IEEE 488.2
Net Weight	23 kg (50 lb)
Dimensions	177 mmHby 426 mmWby 601 mmDOperating Temperature: 0 to 55 C
Power Requirements	100/120/220/240 V plus or minus 10 percent, 48 to 440 Hz, 400 VA
Calibration Interval	recommended three years MTBC
Bandwidth	3 dB: dc to 100 kHz
Operating temperature	0 to 55 C

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	0 to 55 C
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Power Requirements	100/120/220/240 V plus or minus 10 percent, 48 to 440 Hz, 400 VA
Calibration Interval	recommended three years MTBC Notes Numeric rows from Agilent 8643A, 8644B, 8664A, 8665A/B High Performance RF Signal Generators data sheet model column 8643A. Option 002 extends coverage to 2060 MHz.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Performance RF Signal Generator 252 kHz to 1030 MHz

Overview

The HP/Agilent 8643A is a high-performance synthesized RF signal generator covering 252 kHz to 1030 MHz (2060 MHz with Option 002). OEM 8643A/8644B/8664A/8665A/B datasheet lists 0.01 Hz resolution, a standard electronic attenuator, AM/FM/pulse modulation, and optional VOR/ILS Option 009.

Applications

Receiver tests with less than 90 dB selectivity, high-volume production level cycling, mixer stimulus, and avionics VOR/ILS with Option 009.

Key Features

Standard electronic PIN attenuator for high cycle-count reliability

Internal FM pre-emphasis of 750 usec

Optional 2 GHz doubled output Option 002

Optional specified VOR/ILS Option 009 and 2 GHz counter Option 011

Three year calibration cycle with built-in diagnostics

Technical Specifications

Technical Specifications

PARAMETER	VALUE
Instrument Type	High performance RF signal generator
Series Family	HP Agilent 8643A/8644B/8664A/8665A/8665B
Frequency Range	252 kHz to 1030 MHz
Frequency Range Option 002	252 kHz to 2060 MHz
Frequency Resolution	0.01 Hz
Frequency Accuracy Standard Timebase	0.375e-6 times carrier in Hz within 1 year of calibration
Switching Speed Typical	less than 90 ms within 100 Hz
Output Level Range	plus 13 dBm to minus 137 dBm
Output Level Option 002	plus 13 dBm maximum
Absolute Level Accuracy	plus or minus 1 dB at output greater than or equal to minus 127 dBm
Absolute Level Accuracy Low	plus or minus 3 dB at output less than minus 127 dBm
Harmonics	less than minus 25 dBc at output less than or equal to plus 8 dBm
Subharmonics 252 kHz to 515 MHz	none
Subharmonics 515 to 1030 MHz	less than minus 60 dBc
Subharmonics 1030 to 2060 MHz	less than minus 40 dBc
SSB Phase Noise 515 to 1030 MHz	minus 130 dBc/Hz at 20 kHz offset (minus 134 typical)

SSB Phase Noise Option 002 1030 to 2060 MHz: minus 124 dBc/Hz at 20 kHz offset

Specifications

PARAMETER	VALUE
Residual FM 515 to 1030 MHz	less than 2 Hz rms in 3 kHz BW
Residual AM	less than 0.01 percent AM rms (0.3 to 3 kHz post-detection BW)
SSB AM Noise Floor	less than minus 157 dBc/Hz at plus 10 dBm, offsets greater than 100 kHz, below 1030 MHz
Reference Aging Standard	plus 1.5e-8 per day after ten days
Reference Aging Option 001	plus or minus 3e-10 per day after 10 days
External Reference Input	10 MHz plus or minus 5 ppm, 0.5 V to 2 Vrms into 50 ohm
AM Depth	0 to 100 percent, output less than or equal to plus 7 dBm
AM Resolution	0.1 percent

FM Maximum Peak Deviation 515 to 1030 MHz: 1 MHz

Specifications

PARAMETER	VALUE
FM Bandwidth 3 dB	dc to 100 kHz
Pulse On Off Ratio	greater than 35 dB; greater than 80 dB above 1030 MHz
Pulse Rise Fall	less than 100 ns, 10 to 90 percent
Output Impedance	50 ohm
Reverse Power Protection	50 watts
Internal Modulation Sources	two independent sources, sine to 400 kHz
Remote Interface	GPIO IEEE 488.2
Net Weight	23 kg (50 lb)
Dimensions	177 mmHby 426 mmWby 601 mmD0perating Temperature: 0 to 55 C
Power Requirements	100/120/220/240 V plus or minus 10 percent, 48 to 440 Hz, 400 VA
Calibration Interval	recommended three years MTBC

Notes

Numeric rows from Agilent 8643A, 8644B, 8664A, 8665A/B High Performance RF Signal Generators data sheet model column 8643A. Option 002 extends coverage to 2060 MHz.

Ordering Information

OPTION	DESCRIPTION
Option 002	Optional specified VOR/ILS Option 009 and 2 GHz counter Option 011

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.