

**Aumictech**

Test & measurement · bought, sold, repaired, calibrated

Data Sheet

August 14, 2026

AGILENT / KEYSIGHT

Agilent / Keysight 8648D Synthesized RF Signal Generator, 9 kHz to 4000 MHz

HP Agilent Keysight 8648D Synthesized Signal Generator 9 kHz to 4000 MHz The HP/Agilent 8648D is the 4 GHz member of the 8648A/B/C/D economy synthesized family, covering 9 kHz to 4000 MHz. OEM 8648A/B/C/D data sheet lists 0.001 Hz settable resolution, plus 13 to minus 136 dBm to 2500 MHz, plus or minus 1.0 dB level accuracy to 2500 MHz, and optional high power, pulse, and modulation generator. High-volume cordless, cellular, and two-way radio manufacturing through 4 GHz, in-channel receiver sensitivity, and 8656B/8657-compatible automated test. The HP/Agilent 8648D is the 4 GHz member of the 8648A/B/C/D economy synthesized family, covering 9 kHz to 4000 MHz. OEM 8648A/B/C/D data sheet lists 0.001 Hz settable resolution, plus 13 to minus 136 dBm to 2500 MHz, plus or minus 1.0 dB level accuracy to 2500 MHz, and optional high power, pulse, and modulation generator. High-volume cordless, cellular, and two-way radio manufacturing through 4 GHz, in-channel receiver sensitivity, and 8656B/8657-compatible automated test. 4 GHz coverage versus 1/2/3.2 GHz on 8648A/B/C



MODEL

**Agilent / Keysight
8648D**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

8648D

LISTING

<https://aumictechlabs.com/products/8648d-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Agilent/Keysight 8648D is a synthesized RF signal generator covering 9 kHz to 4000 MHz with calibrated output power, precise frequency control, and versatile modulation capabilities. Designed for high-volume manufacturing, semi-automated receiver testing, and general-purpose signal sourcing, the 8648D delivers measurement consistency and repeatability across diverse test environments.

Technical Specifications

Frequency Performance
 Operating range: 9 kHz to 4000 MHz
 Settable resolution: 0.001 Hz increments
 Display resolution: 10 Hz
 Frequency accuracy (standard): $\pm 3 \times 10^{-6} \times$ carrier frequency
 Frequency accuracy (Option 1E5 High Stability): $\pm 0.15 \times 10^{-6} \times$ carrier frequency
 Aging rate (standard): $< \pm 2$ ppm/year
 Aging rate (Option 1E5): $< \pm 0.1$ ppm/year
 Temperature stability (standard): $< \pm 1$ ppm
 Temperature stability (Option 1E5): $< \pm 0.01$ ppm
 Frequency switching: < 75 ms below 1001 MHz; < 100 ms at 1001 MHz and above

Output
 Power Range below 2500 MHz: +13 dBm to -136 dBm
 Range below 4000 MHz: +10 dBm to -136 dBm
 Output impedance: 50 ohms nominally
 Reverse power protection: 50 watts (≤ 2000 MHz); 25 watts (≤ 4000 MHz)
 Power accuracy below 2500 MHz: ± 1.0 dB
 Power accuracy below 3200 MHz: ± 1.5 dB
 Power accuracy below 4000 MHz: ± 2.0 dB

Spectral Purity
 Harmonics ($\leq +4$ dBm output): < -30 dBc
 Subharmonics below 1001 MHz: < -60 dBc
 SSB phase noise at 500 MHz (20 kHz offset): < -120 dBc/Hz
 SSB phase noise at 1000 MHz (20 kHz offset): < -116 dBc/Hz
 SSB phase noise at 2000 MHz (20 kHz offset): < -110 dBc/Hz

Output Characteristics
 SWR below 2500 MHz (output < -6 dBm): $< 1.5:1$
 SWR below 4000 MHz (output < -6 dBm): $< 2.0:1$

Key Features
 High-precision frequency synthesis with 0.001 Hz tuning resolution
 Optional 1E5 timebase reduces aging to ± 0.1 ppm/year and improves temperature stability to ± 0.01 ppm
 Wide dynamic range from +13 dBm to -136 dBm below 2500 MHz
 Fast frequency switching supports rapid test sequencing
 Clean spectral output with suppressed harmonics and subharmonics

Typical Applications
 High-volume receiver manufacturing and characterization
 Semi-automated test systems requiring repeatable signal generation
 Filter and amplifier validation across UHF and microwave bands
 Production test environments demanding consistent phase noise and spectral purity

Compatibility & Integration
 The 8648D operates with 50-ohm RF systems. Output protection to 50 watts (≤ 2000 MHz) and 25 watts (≤ 4000 MHz) safeguards against reflected power. Option 1EA High Power extends maximum leveled output to +20 dBm at 1000 MHz for demanding test scenarios.

8648D Characteristics / Specifications

PARAMETER	VALUE
Instrument Type	Economy synthesized RF signal generator
Series Family	HP Agilent 8648A/B/C/D
Frequency Range	9 kHz to 4000 MHz
Frequency Resolution Settable	0.001 Hz
Frequency Display Resolution	10 Hz
Switching Speed below 1001 MHz Typical	less than 75 ms
Switching Speed at or above 1001 MHz Typical	less than 100 ms
Frequency Accuracy Typical	plus or minus 3e-6 times carrier after 1 hour warmup within 1 year of calibration
Frequency Accuracy Option 1E5 Typical	plus or minus 0.15e-6 times carrier
Standard Timebase Aging	less than plus or minus 2 ppm per year
External Reference Input	2, 5, or 10 MHz, 0.5 Vrms to 2 Vrms into 50 ohm
Harmonics	less than minus 30 dBc at output less than or equal to plus 4 dBm
Subharmonics below 1001 MHz	less than minus 60 dBc
Subharmonics to 3200 MHz	less than minus 50 dBc
Subharmonics to 4000 MHz	less than minus 40 dBc
Nonharmonics below 249 MHz	less than minus 55 dBc
Nonharmonics below 1001 MHz	less than minus 60 dBc
Nonharmonics to 4000 MHz	less than minus 48 dBc
Residual FM below 501 MHz	less than 4 Hz CCITT rms (typically less than 2 Hz)
Residual FM to 4000 MHz	less than 28 Hz CCITT rms (typically less than 12 Hz)
SSB Phase Noise at 500 MHz	less than minus 120 dBc/Hz at 20 kHz offset typical
SSB Phase Noise at 4000 MHz	less than minus 104 dBc/Hz at 20 kHz offset typical
Output Level to 2500 MHz	plus 13 dBm to minus 136 dBm
Output Level to 4000 MHz	plus 10 dBm to minus 136 dBm

PARAMETER	VALUE
Absolute Level Accuracy to 2500 MHz	plus or minus 1.0 dB at 25 plus or minus 5 C
Absolute Level Accuracy to 3200 MHz	plus or minus 1.5 dB
Absolute Level Accuracy to 4000 MHz	plus or minus 2.0 dB
Reverse Power Protection to 2000 MHz	50 watts
Reverse Power Protection to 4000 MHz	25 watts
SWR to 2500 MHz Typical	less than 1.5:1 at output less than minus 6 dBm
FM Peak Deviation to 4000 MHz	0 to 800 kHz
FM Deviation Accuracy to 4000 MHz	plus or minus 3 percent of deviation plus or minus 120 Hz at internal 1 kHz
AM Range	0 to 100 percent at output less than or equal to plus 4 dBm
AM Distortion at 30 percent	less than 2 percent
Pulse Option 1E6 On Off below 2000 MHz	greater than 80 dB
Pulse Option 1E6 On Off to 4000 MHz	greater than 70 dB
Pulse Option 1E6 Rise Fall	less than 10 ns
Output Impedance	nominally 50 ohm
Remote Interface	GPIB IEEE 488.2 SCPI 1992.0
Power Requirements	90 to 264 V, 48 to 440 Hz, 170 VA maximum
Operating Temperature	0 to 50 C
Net Weight	8.5 kg (19 lb)
Dimensions	165 mmHby 330 mmWby 368 mmDStorage Registers: 300 registers in up to 10 sequences of 30

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	0 to 50 C
Operating Temperature	0 to 50 C
Net Weight	8.5 kg (19 lb)
Dimensions	165 mmHby 330 mmWby 368 mmDStorage Registers: 300 registers in up to 10 sequences of 30 Notes Numeric rows from Agilent 8648A/B/C/D Signal Generators data sheet 5965-3432E model column 8648D. All performance below 250 kHz is typical. Combining Option 1E6 with 1EA reduces maximum output by 2 dB above 100 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.

Specifications	
Specifications	
PARAMETER	VALUE
Instrument Type	Economy synthesized RF signal generator
Series Family	HP Agilent 8648A/B/C/D
Frequency Range	9 kHz to 4000 MHz
Frequency Resolution Settable	0.001 Hz
Frequency Display Resolution	10 Hz
Switching Speed below 1001 MHz Typical	less than 75 ms
Switching Speed at or above 1001 MHz Typical: less than 100 ms	
Specifications	
PARAMETER	VALUE
Frequency Accuracy Typical	plus or minus 3e-6 times carrier after 1 hour warmup within 1 year of calibration
Frequency Accuracy Option 1E5 Typical	plus or minus 0.15e-6 times carrier
Standard Timebase Aging	less than plus or minus 2 ppm per year
Option 1E5 Aging: less than plus or minus 0.1 ppm per year; less than plus or minus 0.0005 ppm per day	
Specifications	
PARAMETER	VALUE
External Reference Input	2, 5, or 10 MHz, 0.5 Vrms to 2 Vrms into 50 ohm
Harmonics	less than minus 30 dBc at output less than or equal to plus 4 dBm
Subharmonics below 1001 MHz	less than minus 60 dBc
Subharmonics to 3200 MHz	less than minus 50 dBc
Subharmonics to 4000 MHz	less than minus 40 dBc
Nonharmonics below 249 MHz	less than minus 55 dBc
Nonharmonics below 1001 MHz	less than minus 60 dBc
Nonharmonics to 4000 MHz	less than minus 48 dBc
Residual FM below 501 MHz	less than 4 Hz CCITT rms (typically less than 2 Hz)

PARAMETER	VALUE
Residual FM to 4000 MHz	less than 28 Hz CCITT rms (typically less than 12 Hz)
SSB Phase Noise at 500 MHz	less than minus 120 dBc/Hz at 20 kHz offset typical
SSB Phase Noise at 4000 MHz	less than minus 104 dBc/Hz at 20 kHz offset typical
Output Level to 2500 MHz	plus 13 dBm to minus 136 dBm
Output Level to 4000 MHz	plus 10 dBm to minus 136 dBm

Option 1EA Max Power at 1000 MHz: plus 20 dBm
Option 1EA Max Power at 4000 MHz: plus 13 dBm

Specifications

PARAMETER	VALUE
Absolute Level Accuracy to 2500 MHz	plus or minus 1.0 dB at 25 plus or minus 5 C
Absolute Level Accuracy to 3200 MHz	plus or minus 1.5 dB
Absolute Level Accuracy to 4000 MHz	plus or minus 2.0 dB
Reverse Power Protection to 2000 MHz	50 watts
Reverse Power Protection to 4000 MHz	25 watts
SWR to 2500 MHz Typical	less than 1.5:1 at output less than minus 6 dBm
FM Peak Deviation to 4000 MHz	0 to 800 kHz
FM Deviation Accuracy to 4000 MHz	plus or minus 3 percent of deviation plus or minus 120 Hz at internal 1 kHz
AM Range	0 to 100 percent at output less than or equal to plus 4 dBm
AM Distortion at 30 percent	less than 2 percent

Pulse Option 1E6 On Off below 2000 MHz: greater than 80 dB
Pulse Option 1E6 On Off to 4000 MHz: greater than 70 dB

Specifications

PARAMETER	VALUE
Pulse Option 1E6 Rise Fall	less than 10 ns
Output Impedance	nominally 50 ohm
Remote Interface	GPIO IEEE 488.2 SCPI 1992.0
Power Requirements	90 to 264 V, 48 to 440 Hz, 170 VA maximum
Operating Temperature	0 to 50 C
Net Weight	8.5 kg (19 lb)
Dimensions	165 mmHby 330 mmWby 368 mmDStorage Registers: 300 registers in up to 10 sequences of 30

Notes
Numeric rows from Agilent 8648A/B/C/D Signal Generators data sheet 5965-3432E model column 8648D. All

performance below 250 kHz is typical. Combining Option 1E6 with 1EA reduces maximum output by 2 dB above 100 MHz.

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

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
NAICS 423690 · 811210 · 541380
Generated August 14, 2026

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