

Environmental

Operating temperature range Shock and vibration Leakage	0 to 50 °C Meets MIL STD 288003 Type III, Class 5 Conducted and radiated interference meets MIL STD 461B RE02 Part 2 and CISPR 11. <i>Leakage is typically < 1 μV (nominally 0.1 μV with a 2 turn loop) at ≤ 1001 MHz, when measured with a resonant dipole antenna one inch from any surface (except the rear panel) with output level < 0 dBm (all inputs/outputs properly terminated).</i>
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General

Power Requirements Internal Diagnostics Storage Registers Weight HP 8648A HP 8648B/C/D Dimensions	90 to 264 V; 48 to 440 Hz; 170 VA maximum Automatically executes on instrument power-up. Assists user in locating instrument errors and locating faulty module. 300 storage registers with sequence and register number displayed. Up to 10 sequences are available with 30 registers each. 7 kg (15 lbs) net; 9 kg (20 lbs) shipping 8.5 kg (19 lbs) net; 11 kg (24 lbs) shipping 165H x 330W x 368D mm (6.5H x 13W x 14.6D in.)
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Options IEA 1E2 1E5 1E6 1EP 1CM OBO OB1 W30	High power (HP 8648B/C/D only) Modulation generator (Not available with Option 1EP) High stability timebase Pulse modulation (HP 8648B/C/D only) Pager encoder/signaling (includes modulation generator functionality of Option 1E2) (HP 8648A only) (Not available with Option 1E2) Rack kit, part number 08648-60001 Delete manual Extra manual (includes service information) Three year warranty
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Translated Operating Manuals	
Option ABO	Chinese for Taiwan, part number 08648-90002
Option ABI	Korean, part number 08648-90006
Option AB2	Chinese for PRC, part number 08648-90004
Option ABE	Spanish, part number 08648-90003
Option ABD	German, part number 08648-90019
Option ABF	French, part number 08648-90020
Option ABJ	Japanese, part number 08648-90005

Accessories	
Transit Case	Part number 5961-4720
Remote Interface	HP 83300A
Memory Interface	HP 83301A

Modulation Generator Option 1E2

Adds variable frequency modulation source. (This functionality is also included with the pager encoder/signaling Option 1EP.)

Waveforms	sine, triangle, square, and sawtooth (or ramp)
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Frequency Range	
Sine	10 Hz to 20 kHz
Square, Triangle, Sawtooth (or ramp)	100 Hz to 2 kHz*

* Useable from 10 Hz to 20 kHz. However, bandwidth limitations may result in waveform degradation. Refer to AM, FM, and Phase Modulation Rate specifications (External AC mode).

Frequency Accuracy	Typically $\pm 0.01\%$
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Frequency Resolution	1 Hz (3 digits or 10 Hz displayed)
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Depth and Deviation Accuracy (1 kHz sine)	Refer to AM, FM, and Phase Modulation Accuracy specifications.
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Output Front Panel BNC	Nominally 1 Vp
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Pulse Modulation Option 1E6

Rise/Fall Time	< 10 ns
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On/Off Ratio < 2000 MHz ≤ 4000 MHz	> 80 dB > 70dB
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Maximum Pulse Repetition Rate	10 MHz
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Supplemental Information Pulse Input Delay Video Feedthrough	TTL level (f15 V maximum) < 60 ns, typical < 50 mV, typical
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Pager Encoder/Signaling Option 1EP

Frequency

Accuracy with Option 1E5*	Typically $\pm 0.15 \times 10^{-6}$ x carrier frequency in Hz or 0.092×10^{-6} x carrier frequency in Hz within 90 days of calibration.
* After one hour warm-up and within one year of calibration.	

Frequency Modulation

FSK Deviation Accuracy with Option 1EP	± 60 Hz*
* Specifications apply over the 25 ± 5 °C range, 4.8 kHz deviation. Meets FLEX requirements at 274 to 288, 322 to 329, 929 to 932 MHz.	

Pager Signaling

<p>Supported Pager Protocols</p> <p>POCSAG</p> <p>Speed Message Format</p> <p>FLEX/FLEX-TD</p> <p>Speed 2 Level FSK 4 Level FSK Message Format</p> <p>Address Type Supported Roaming Method</p> <p>Messaging Accessible From Front Panel or HP-IB</p> <p>Message Types Message Length Repetition Modes</p> <p>Messaging Accessible Only Over HP-IB</p> <p>Message Type Batch Length FLEX/FLEX-TD POCSAG Repetition Mode Data Rate Accuracy</p>	<p>POCSAG, FLEX™ *, and FLEX-TD</p> <p>512, 1200, and 2400 bps Tone only, Numeric, Alphanumeric, Alphanumeric entered by hex-bin code, Pseudo-noise (15-stage)</p> <p>1600 and 3200 bps 3200 and 6400 bps Tone only, Numeric (standard, special, and numbered), Alphanumeric, HEX/Binary, Pseudo-noise (15-stage), Re-synchronization Short, Long SSID, NID</p> <p>Five fixed (built-in), one user-defined 40 characters maximum Single, Burst, Continuous</p> <p>arbitrary (user-defined)</p> <p>128 Frames 128 Batches Single, Burst, and Continuous ± 5 ppm†</p>
† FLEX is a trademark of Motorola, Inc. Specifications apply over the 25 ± 5 °C range.	

Modulation Source

Internal	400 Hz or 1 kHz, or audio generator (see Option 1E2 for characteristics), front panel BNC connector provided at nominally 1 Vp into 600 ohms.
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General

Storage Registers	70 storage registers with sequence and register number displayed. Up to 10 sequences are available with 30 registers each.
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Regulatory Information

ISO 9002 Compliant

The HP 8648A/B/C/D signal generators are manufactured in an ISO 9002 registered facility in concurrence with Hewlett-Packard's commitment to quality.

Statement of Compliance

This instrument has been designed and tested in accordance with IEC Publication 348, Safety Requirements for Electronic Measuring Apparatus, and has been supplied in a safe condition. The instruction documentation contains information and warnings which must be followed by the user to ensure safe operation and to maintain the instrument in a safe condition.

Noise Declaration

Notice for Germany: Noise Declaration
L_{pA} < 70 dB
am Arbeitsplatz (operator position)
normaler Betrieb (normal position)
nach DIN 45635 T. 19 (per ISO 7779)

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:

Hewlett-Packard Co.

Hewlett-Packard Ltd.

Manufacturer's Address:

Microwave Instruments Division
1400 Fountaingrove Parkway
Santa Rosa, CA 954031799
USA

Queensferry Microwave Division
South Queensferry
West Lothian
EH30 9TG
United Kingdom

declares that the products

Product Name:

RF Signal Generator

Model Number:

HP 8648A, HP 8648B, HP 8648C, HP 8648D

Product Options:

This declaration covers all options of the above products.

conform to the following Product specifications:

Safety: IEC 1010-1:1990+A1 / EN 61010-1:1993
CAN/CSA-C22.2 No. 1010.192

EMC: CISPR 11:1990 / EN 55011:1991 Group 1, Class A
IEC 801-2:1984 / EN 50082-1:1992 4 kV CD, 8 kV AD
IEC 801-3:1984 / EN 50082-1:1992 3 V/m, 27-500 MHz
IEC 801-4:1988 / EN 50082-1:1992 0.5 kV Sig. Lines, 1 kV Power Lines
IEC 555-2:1982+A1:1985 / EN 60555-2:1987
IEC 555-3:1982 + A1:1990 / EN 60555-3:1987 + A1:1991

Supplementary Information:

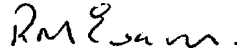
These products herewith comply with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and carry the CE-marking accordingly.

Santa Rosa, 19 Dec. 1996



John Hiatt/Quality Engineering Manager

South Queensferry, 27 Dec. 1996



R. M. Evans/Quality Manager

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department ZQ/Standards Europe, Herrenberger Strasse 130, D-71 034 Böblingen, Germany (FAX +49-7031-143143)