

# SIGNAL GENERATORS

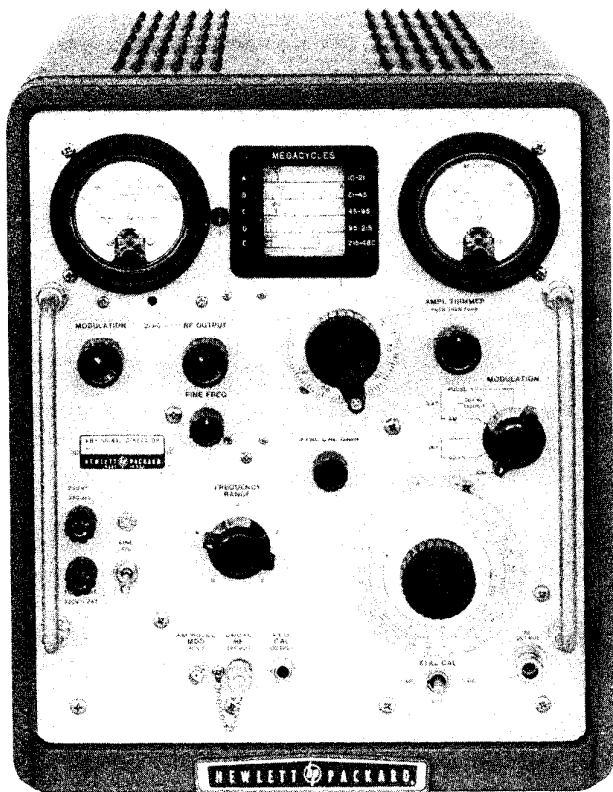
## VHF signal generator

### Model 608E

389



- Versatility and value, 10-480 MHz
- Low noise floor
- Master oscillator - power amplifier



608E

### 608E VHF Signal Generator

Model 608E provides high-quality, versatile performance with distinctive ease of operation. The 608E provides an output of up to 1 volt over the range from 10 to 480 MHz.

The 608E is an improved version of the popular and time-proven HP 608C/D Signal Generators. The instrument is a master oscillator-power amplifier (MOPA) type with a broadband buffer amplifier stage between the oscillator and power amplifier circuits for isolation. The MOPA design permits optimization of the oscillator stage for high stability of 0.005% per 10 minutes, minimum residual FM, and low harmonics without restricting the modulation characteristics. Modulation is applied to the power amplifier stage with negligible effect on the oscillator frequency.

### 608E Specifications

#### Frequency Characteristics

**Range:** 10-480 MHz in five bands.

**Accuracy:**  $\pm 0.5\%$  with cursor adjustment.

**Drift:** less than  $50 \times 10^{-6}$  / 10 min after one hour warmup.

**Resettability:** better than  $\pm 0.1\%$  after initial warmup; fine-frequency-adjust provides approximately 25 kHz settability at 480 MHz.

**Crystal calibrator:** provides frequency check points every 1 MHz up to 270 MHz or every 5 MHz over total range; jack provided for audio frequency output; crystal frequency accuracy better than 0.01% at room temperature.

**Residual FM:** less than  $\pm 5$  parts in  $10^7$  in a 10 kHz post-detection bandwidth.

**Harmonic output:** at least 35 dB below the carrier for harmonic frequencies below 500 MHz.

#### Output Characteristics

**Output level:** continuously adjustable from 0.1  $\mu\text{V}$  to 1.0 V into a 50-ohm resistive load; output calibrated in volts and dBm.

**Accuracy:** within  $\pm 1$  dB of attenuator dial reading at any frequency when RF output meter indicates "ATTENUATOR CALIBRATED."

**Impedance:** 50  $\Omega$  with a maximum SWR of 1.2 for attenuator setting below -7 dBm.

**RFI:** meets all conditions specified in MIL-I-6181D; permits receiver sensitivity measurements down to at least 0.1  $\mu\text{V}$ .

**Auxiliary RF output:** at least 180 mV rms into 50  $\Omega$  provided at front panel.

#### Modulation Characteristics

##### Internal AM

**Frequency:** 400 and 1000 Hz,  $\pm 10\%$ .

**Modulation level:** 0 to 95% modulation at carrier levels 0.5 V and below.

**Carrier envelope distortion:** less than 2% at 30% AM, less than 5% at 70% AM.

##### External AM

**Frequency:** 20 Hz to 20 kHz.

**Modulation level:** 0 to 95% modulation at carrier levels of 0.5 V and below; continuously adjustable from front panel MOD LEVEL control; input required, 1-10 V rms (1000  $\Omega$  input impedance).

**Carrier envelope distortion:** less than 2% at 30% AM, less than 5% at 70% AM (modulation source distortion less than 0.5%).

**Modulation meter accuracy:**  $\pm 5\%$  of full scale 0 to 80%,  $\pm 10\%$  from 80% to 95% (for INT AM or 20 Hz to 20 kHz EXT AM).

**Incidental FM (at 400 and 1000 Hz modulation):** less than 1000 Hz peak at 50% AM for frequencies above 100 MHz; below 100 MHz; less than 0.001% at 30% AM.

#### External Pulse Modulation

**Rise and decay time:** from 40 MHz to 220 MHz, combined rise and decay  $< 4 \mu\text{s}$ ; above 220 MHz, combined rise and decay time  $< 2.5 \mu\text{s}$ .

**On-off ratio:** at least 20 dB for pulsed carrier levels of 0.5 V and above.

**Input required:** positive pulse, 10-50 V peak, input impedance 2 k $\Omega$ .

#### General

**Power:** 115 or 230 V  $\pm 10\%$ , 50 to 400 Hz; approx. 220 VA.

**Size:** cabinet, 416 H x 337 W x 533 mm D (16.38" x 13.25" x 21"); rack mount: 355.6 H x 483 W x 467 mm D behind panel (14" x 19" x 18.4").

**Weight:** cabinet mount: net, 28 kg (62 lb); shipping 33.4 kg (74 lb); rack mount: net, 28 kg (62 lb); shipping, 37.4 kg (83 lb).

#### Accessories available:

11508A Output Cable for high impedance circuits.

11509A Fuse Holder protection for transceiver tests.

10514A Mixer for use as nanosecond pulse modulator.

11690A Doubler for extending frequency range.

11710B Down Converter for low frequency extension.

#### Ordering Information

608E VHF Signal Generator (cabinet)

608ER VHF Signal Generator (rack)

#### Price

\$5800

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