

## KEYSIGHT TECHNOLOGIES (AGILENT HP)

# 8560E

The Keysight / Agilent HP 8560E is a high-performance portable RF spectrum analyzer operating from 30 Hz to 2.9 GHz. It delivers benchtop-level measurement capability, including fast digital resolution bandwidths down to 1 Hz, exceptional phase noise, and synthesized tuning, in a ruggedized MIL-T-28800 compliant package. It features built-in time-gated spectrum analysis and standard measurements for adjacent channel power (ACP), carrier power, and occupied bandwidth.

## SPECIFICATIONS

### General

|              |                                   |
|--------------|-----------------------------------|
| Interfaces   | HP-IB (IEEE-488)                  |
| Display      | Monochrome CRT                    |
| Warm-up Time | 5 minutes (in ambient conditions) |

### Physical

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| Power Supply          | 115/230 VAC (nominal); 47-440 Hz (115V), 47-66 Hz (230V) |
| Operating Temperature | -10 to 55 °C                                             |
| Dimensions (W×H×D)    | 327 × 163 × 427 mm (without handle/feet) mm              |
| Weight                | 20 kg                                                    |

### Frequency Specifications

|                                  |                                     |
|----------------------------------|-------------------------------------|
| Frequency Range                  | 30 Hz to 2.9 GHz (Continuous Sweep) |
| Frequency Band Breakdown         | Band 0: 30 Hz to 2.9 GHz            |
| Internal Reference Frequency     | 10 MHz                              |
| Frequency Counter Resolution     | 1 Hz (Selectable up to 1 MHz)       |
| Resolution Bandwidth (RBW) Range | 1 Hz to 2 MHz (1, 3, 10 sequence)   |
| Digital Resolution Bandwidths    | 1, 3, 10, 30, 100 Hz                |
| Video Bandwidth (VBW) Range      | 1 Hz to 3 MHz                       |

### Sweep Specifications

|                     |                                                           |
|---------------------|-----------------------------------------------------------|
| Sweep Time Range    | 50 ms to 100 s (Span > 0 Hz), 50 μs to 6000 s (Zero Span) |
| Sweep Trigger Modes | Free Run, Line, Video, External                           |

## Amplitude and Level Specifications

|                                      |                                                 |
|--------------------------------------|-------------------------------------------------|
| Measurement Range                    | Displayed Average Noise Level (DANL) to +30 dBm |
| Maximum Safe Input (Continuous Wave) | +30 dBm (1 W)                                   |
| Input Attenuator Range               | 0 to 70 dB                                      |
| Input Attenuator Step Size           | 10 dB                                           |
| Reference Level Range                | -119.9 dBm to +30 dBm                           |
| Reference Level Resolution           | 0.1 dB (Log scale)                              |
| 1 dB Gain Compression Point          | -5 dBm (at 0 dB input attenuation)              |

## Spectral Purity and Spurious Responses

|                             |                                                |
|-----------------------------|------------------------------------------------|
| Phase Noise (10 kHz offset) | $\leq -113$ dBc/Hz (at 1 GHz center frequency) |
|-----------------------------|------------------------------------------------|

## Inputs and Outputs

|                                 |                  |
|---------------------------------|------------------|
| RF Input Connector              | Type-N (female)  |
| Input Impedance                 | 50 $\Omega$      |
| External Reference Input        | 10 MHz           |
| External Reference Output       | 10 MHz           |
| Remote Control Interface (GPIO) | HP-IB (IEEE-488) |

## Display and Processing

|                       |                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------|
| Trace Detectors       | Normal, Positive Peak, Negative Peak, Sample                                                                 |
| Number of Traces      | 3 (A, B, C)                                                                                                  |
| Built-In Measurements | Adjacent Channel Power, Channel Power, Carrier Power, Occupied Bandwidth Percentage, Time-Gated Measurements |

## Options and Configurations

|                                            |                                         |
|--------------------------------------------|-----------------------------------------|
| Tracking Generator Option                  | Option 002                              |
| Measurement Personalities/Software Options | Digital Radio, Phase Noise Measurements |

## Environmental and Compliance

|                               |                    |
|-------------------------------|--------------------|
| Vibration and Shock Tolerance | MIL-T-28800 Rugged |
|-------------------------------|--------------------|

## Outputs

|                             |                                      |
|-----------------------------|--------------------------------------|
| Amplitude Calibrator Output | 300 MHz, -10 dBm $\pm$ 0.3 dB        |
| IF Output Frequency         | 310.7 MHz                            |
| Video Output                | 0 to 1 V (uncalibrated), 50 $\Omega$ |

## Performance

|                                |                                               |
|--------------------------------|-----------------------------------------------|
| Local Oscillator (LO) Emission | $\leq -80$ dBm (with 10 dB input attenuation) |
|--------------------------------|-----------------------------------------------|

## Features

|                    |                                                                      |
|--------------------|----------------------------------------------------------------------|
| Audio Demodulation | AM and FM (includes built-in speaker and front-panel headphone jack) |
|--------------------|----------------------------------------------------------------------|

**Environmental**

|                     |                           |
|---------------------|---------------------------|
| Storage Temperature | -40 °C to +75 °C          |
| Operating Altitude  | Up to 4,572 m (15,000 ft) |

**Compliance**

|                |                        |
|----------------|------------------------|
| EMC Compliance | MIL-STD-461C, CISPR 11 |
|----------------|------------------------|

**Frequency Reference**

|                                                       |                               |
|-------------------------------------------------------|-------------------------------|
| Standard Timebase Aging Rate                          | $\pm 2 \times 10^{-6}$ / year |
| Precision Timebase Aging Rate (Option 103)            | $\pm 1 \times 10^{-7}$ / year |
| Standard Timebase Temperature Stability               | $\pm 5 \times 10^{-6}$        |
| Precision Timebase Temperature Stability (Option 103) | $\pm 1 \times 10^{-8}$        |

**Sweep**

|                                   |            |
|-----------------------------------|------------|
| Sweep Time Accuracy (Span > 0 Hz) | $\pm 10\%$ |
| Sweep Time Accuracy (Zero Span)   | $\pm 1\%$  |

**Amplitude Accuracy**

|                       |                                                                |
|-----------------------|----------------------------------------------------------------|
| Log Scale Fidelity    | $\pm 0.1$ dB/dB (up to $\pm 0.85$ dB maximum over 90 dB range) |
| Linear Scale Fidelity | $\pm 3\%$ of reference level                                   |

**Spurious Responses**

|                                   |                                                          |
|-----------------------------------|----------------------------------------------------------|
| Third-Order Intermodulation (TOI) | > +11 dBm (> 10 MHz)                                     |
| Residual Responses                | < -90 dBm (frequencies $\geq 200$ kHz, 0 dB attenuation) |

**TECHNOLOGY**

Superheterodyne Spectrum Analysis

**APPLICATIONS**

RF Spectrum Analysis, Adjacent-Channel Power (ACP) Testing, Digital Modulation Testing

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