

## KEYSIGHT TECHNOLOGIES (AGILENT HP)

# E4440A

The Keysight / Agilent E4440A is a high-performance PSA Series spectrum analyzer designed to measure and monitor complex RF and microwave signals from 3 Hz to 26.5 GHz. Known for its precision, it delivers exceptional typical performance, including an absolute amplitude accuracy of  $\pm 0.19$  dB, a third-order intercept (TOI) of +19 dBm, and a phase noise of -118 dBc/Hz at a 10 kHz offset (1 GHz). Frequency coverage can be extended to 325 GHz via optional external mixing. The platform supports 40 MHz or 80 MHz analysis bandwidth options for capturing complex signals and can be configured with up to 16 built-in measurement personalities.

## SPECIFICATIONS

### General

|                   |                                                                 |
|-------------------|-----------------------------------------------------------------|
| Interfaces        | GPIO (IEEE-488), LAN (10Base-T), RS-232, Centronics, VGA output |
| Display           | 21.3 cm (8.4 in) color TFT LCD (640 × 480 resolution)           |
| Calibration Cycle | 1 year                                                          |
| EMC Compliance    | IEC 61326-1 / CISPR 11 Group 1 Class A                          |

### Physical

|                       |                                                  |
|-----------------------|--------------------------------------------------|
| Power Supply          | 100 to 240 VAC, 50/60 Hz; 100 to 120 VAC, 400 Hz |
| Operating Temperature | 0 to 55 °C                                       |
| Dimensions (W×H×D)    | 426 × 177 × 482 mm                               |
| Weight                | 24 kg                                            |

### Frequency Specifications

|                                      |                                  |
|--------------------------------------|----------------------------------|
| Frequency Range                      | 3 Hz to 26.5 GHz                 |
| Frequency Coverage (External Mixing) | Up to 325 GHz (option dependent) |
| Phase Noise (10 kHz offset)          | -118 dBc/Hz @ 1 GHz (Typical)    |

### Amplitude and Level Specifications

|                                                     |                                 |
|-----------------------------------------------------|---------------------------------|
| Displayed Average Noise Level (DANL)                | -155 dBm @ 1 GHz (Typical)      |
| Third-Order Intercept (TOI)                         | +19 dBm @ 1 GHz (Typical)       |
| Frequency Response                                  | $\pm 0.11$ dB @ 1 GHz (Typical) |
| Input Attenuation Range                             | 0 to 70 dB                      |
| Input Attenuation Step Size                         | 2 dB steps                      |
| Maximum Safe Input Level (Average Continuous Power) | +30 dBm (1 W)                   |

### Resolution Bandwidth (RBW) and Video Bandwidth (VBW)

|                                    |               |
|------------------------------------|---------------|
| Resolution Bandwidth Range (-3 dB) | 1 Hz to 8 MHz |
| Video Bandwidth Range              | 1 Hz to 8 MHz |

## Sweep and Trace Specifications

|                                |                     |
|--------------------------------|---------------------|
| Sweep Time Range (Span > 0 Hz) | 1 ms to 2000 s      |
| Sweep Time Range (Zero Span)   | 1 $\mu$ s to 6000 s |

## Inputs and Outputs

|                    |                   |
|--------------------|-------------------|
| RF Input Connector | APC-3.5 mm (male) |
| RF Input Impedance | 50 $\Omega$       |

## Options and Configurations

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Analysis Bandwidth Extension Option | 40 MHz or 80 MHz analysis bandwidth |
|-------------------------------------|-------------------------------------|

## Frequency

|                                    |                               |
|------------------------------------|-------------------------------|
| Reference Frequency Aging Rate     | $\pm 1 \times 10^{-7}$ / year |
| External Reference Input Frequency | 1 MHz to 30 MHz               |
| Reference Output Frequency         | 10 MHz                        |

## Measurement & Control

|           |                                                                                      |
|-----------|--------------------------------------------------------------------------------------|
| Detectors | Normal, peak, sample, negative peak, log power average, RMS average, voltage average |
|-----------|--------------------------------------------------------------------------------------|

## Options

|                           |                    |
|---------------------------|--------------------|
| Preamplifier (Option 1DS) | 100 kHz to 3 GHz   |
| Preamplifier (Option 110) | 10 MHz to 26.5 GHz |

## Environmental

|                     |                                      |
|---------------------|--------------------------------------|
| Storage Temperature | -40 $^{\circ}$ C to +70 $^{\circ}$ C |
| Shock & Vibration   | MIL-PRF-28800F Class 3               |

## Power

|                           |                                                    |
|---------------------------|----------------------------------------------------|
| AC Voltage Range          | 100 to 240 VAC (50/60 Hz); 100 to 120 VAC (400 Hz) |
| Maximum Power Consumption | < 450 W (260 W typical)                            |

## Spurious Responses

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| Residual Responses | -100 dBm (200 kHz to 8.4 GHz, 0 dB attenuation, 50 ohm load) |
|--------------------|--------------------------------------------------------------|

## Inputs & Outputs

|                     |                                                                 |
|---------------------|-----------------------------------------------------------------|
| IF Output Frequency | 321.4 MHz (nominal)                                             |
| Video Output        | VGA (640 x 480 resolution, 31.5 kHz horizontal, 60 Hz vertical) |

## TECHNOLOGY

Spectrum Analysis

## APPLICATIONS

RF/Microwave Test & Measurement

