- Peak, peak-to-average ratio and average power measurements
- Time-gated power measurements
- Fast measurement speed over the GPIB (up to 1,000 readings per second with the E4416A and E9320 power sensors)
- 5 MHz modulation bandwidth
- Operates with all E-series and 8480 series power sensors
- Large 4-line measurement display on high-resolution LCD
- RS-232/422 serial interfaces as standard
- Standard 3-year global warranty

E4416A and E4417A Peak and Average Power Meters

Comprehensive measurement capability for TDMA, CDMA, and W-CDMA signals

The E4416A and E4417A high-performance, single and dual-channel power meters and E932X peak and average power sensors, provide a low-cost, single-box solution for peak, peak-to-average ratio, average power and time-gated measurements, for the complex modulation formats used in today's and future wireless communications systems.

Time-gated measurements are performed using the meters comprehensive triggering features, such as an external TTL compatible trigger input. Up to 4 simultaneous time-gated measurements can be made. Individual start and duration times can be setup, allowing user's to measure the average, peak, or peak-to-average ratio. For example, on a GSM signal, this capability can be used to measure the average power over 5% to 95 % of the burst duration, as well as measuring the peak power and pulse droop.

Fast measurement speed without compromising accuracy and repeatability

Faster test times improve manufacturing productivity and efficiency. Designed for both bench and automatic test equipment (ATE) operation, the EPM-P series power meters along with the E9320 sensors, provides a measurement speed, over the GPIB, of 1,000 corrected readings per second.

The meter's 20 Msamples/second continuous sampling rate provides the capability to accurately profile complex modulation formats of up to 5 MHz bandwidth.

Easy to use

The LCD display is arranged into two windows, an upper and lower window, and provides user's with the ability to show either a large 1-line or up to a 4-line numeric measurement display, or an analog display, or show the trace display. To provide an intuitive user interface, the meter's hardkeys provide the most frequently used functions for making measurements on TDMA and CDMA signals, such as the TRIGGER function, while the softkey menus simplify configuring the meter for the user's particular measurement needs.

To reduce repeated setup sequences, the SAVE/RECALL menu allows you to save up to 10 instrument states.

Low cost of ownership

The EPM-P series power meters come with a standard 3-year warranty, and are fully compatible with the 8480 and E-series power sensors, therefore protecting your investment. This also gives an additional choice for conventional average power measurements.

Specifications

Frequency Range: 9 kHz to 110 GHz, sensor dependent
Power Range: –70 to +44 dBm, sensor dependent
Single Sensor Dynamic Range:
- **8480 series sensors:** 50dB maximum
- **E series CW power sensors:** 90dB
- **E series E9300 Average power sensors:** 80dB maximum
- **E series E9320 Peak and Average power sensors:**
  - 85 dB maximum (CW mode)
  - 75 dB maximum (peak mode)

Display Units:
- **Absolute:** Watts or dBm; Relative: Percent or dB

Display Resolution: Selectable resolution of 1.0, 0.1, 0.01, 0.001 dB in logarithmic mode, or 1 to 4 significant digits in linear mode.

E4416A
E4417A

Measurement Characteristics:
- **Measurements:** Average Power, Peak Power, Peak-to-Average Ratio and measurements between two time offsets (time-gating)
- **Averaging:** Averaging over 1 to 1024 readings

Modulation Bandwidth: 5MHz maximum (set by meter and is sensor dependent)
Instrumentation Accuracy:
- **Absolute:**
  - **Logarithmic:** ± 0.02 dB; Linear: ± 0.5%
- **Relative:**
  - **Logarithmic:** ± 0.04 dB; Linear: ± 1.0%

Time Base Accuracy: 0.1%
Trigger Sources: Internal, External TTL, GPIB, RS232/422,
Sampling Characteristics:
- **Sampling Rate**: 20 MSamples/second continuous sampling
- **Sampling Technique:** Synchronous repetitive sampling

1mW Power Reference: Refer to EPM Series Power Meters

Key Literature

Product Overview, p/n 5980-1471E
Technical Specifications, p/n 5980-1469E
Configuration Guide, p/n 5965-6481E
Application Note 64-1, Fundamentals of RF and Microwave Power Measurements, p/n 5965-6630E
Application Note 64-4, Four Steps for Better Power Measurements, p/n 5965-8161E
Product Note, Choosing the Right Power Meter and Sensor, p/n 5968-7150E

Ordering Information

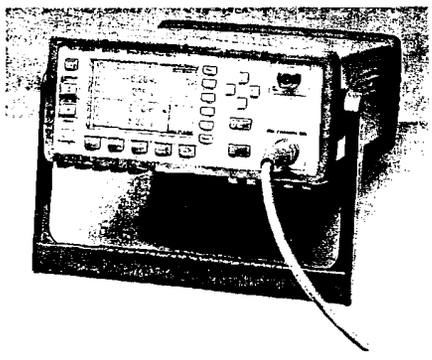
	Price
E4416A Power Meter (peak and average, single-channel)	$3,500
E4417A Power Meter (peak and average, dual-channel)	$5,500
Opt 002 Supplies rear-panel sensor input (power reference calibrator is on the front panel)	SPOA
Opt 003 Supplies rear-panel sensor input (power reference calibrator is on the rear panel)	SPOA
Opt 004 Deletes the E9288A sensor cable	SPOA
Opt 908 Supplies a one-instrument rackmount kit	SPOA
Opt 909 Suppies a two-instrument rackmount kit	SPOA
Opt A6J Supplies ANSI Z540 Certificate of Calibration with data	SPOA

Accessories
34131A Hard transit case
34161A Accessory pouch
34141A Yellow soft carry case
Power Sensor Cables:
For operation with E9320 power sensors:
E9288A 1.5 meters (5ft)
E9288B 3 meters (10ft)
E9288C 10 meters (31ft)

Note: The E9288A-C sensor cables will also operate with 8480 andE-series power sensors.

For operation with 8480 series, E441x and E9300 power sensors only:
11730A 1.5 meters (5ft)
11730B 3 meters (10ft)
11730C 6.1meters (20ft)
11730D 15.2 meters (50ft)
11730E 30.5 meters (100ft)
11730F 61 meters (200ft)

POA = Price on Application



EPM-P Series Power Meters