KEYSIGHT TECHNOLOGIES (AGILENT HP)

Q8486A

The Keysight (Agilent) Q8486A is a high-performance thermocouple waveguide power sensor designed for precise average power measurements in the Q-band frequency range from 33 GHz to 50 GHz. Operating over a power level of -30 dBm to +20 dBm, it offers excellent SWR to minimize measurement uncertainty due to mismatch. The sensor features a 50 MHz calibration port with NIST-traceable calibration and is compatible with a wide array of legacy and modern Keysight/Agilent power meters.

SPECIFICATIONS

General

Display	None (uses host power meter display)

Physical

Power Supply	Powered by host power meter
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	44 mm × 39 mm × 79 mm mm
Weight	0.16 kg kg

Frequency and Power Performance

Frequency Range	33 GHz to 50 GHz
Power Measurement Range	-30 dBm to +20 dBm (1 µW to 100 mW)
Maximum SWR	1.50
Maximum Average Power	200 mW (+23 dBm)
Maximum Peak Power	15 W peak

Sensor Element and Dynamic Characteristics

Sensing Element Type	Thermocouple

RF and Waveguide Interface Specifications

EIA Waveguide Size	WR-22
Flange Type	UG-383/U
Frequency Band	Q-band

Measurement Accuracy and Uncertainty

Calibration Port Reference Frequency	50 MHz
Calibration Traceability	NIST (National Institute of Standards and Technology)

Connectivity and Compatibility

Compatible Power Meter Models	EPM Series (E4418A/B, E4419A/B), EPM-P Series (E4416A, E4417A), P-Series (N1911A, N1912A), E1416A VXI, 70100A, 435B, 436A, 437B, 438A
Sensor Cable Interface Type	12-pin multi-contact connector (8480 Series Cable)

Environmental Specifications

Storage Temperature Range	-40 °C to +75 °C

Inputs & Outputs

Calibration Port Connector	APC-3.5 (male)

Environmental

Operating Humidity	< 95% RH at 40 °C (non-condensing)
Storage Humidity	< 95% RH at 65 °C
Maximum Operating Altitude	4570 m
Maximum Storage Altitude	15240 m

Waveguide Specifications

IEC Waveguide Designation	R400

Performance

Calibration Factor RSS Uncertainty (33.0 to 40.0 GHz)	±3.1%
Calibration Factor RSS Uncertainty (40.0 to 50.0 GHz)	±3.7%
Calibration Factor Worst-Case Uncertainty (33.0 to 40.0 GHz)	±5.8%
Calibration Factor Worst-Case Uncertainty (40.0 to 50.0 GHz)	±7.0%
Calibration Port SWR	< 1.10 @ 50 MHz
Maximum Energy per Pulse	30 W·µs
Zero Set	±50 nW (with E4418B / E4419B / 437B)
Zero Drift	< ±10 nW (within 1 hour at constant temperature)
Measurement Noise	< 110 nW (within 1 minute, with E4418B / 437B)
Calibration Factor Frequency Step Size	1 GHz intervals

TECHNOLOGY

Thermocouple

APPLICATIONS

RF and Microwave Power Measurement