## Manual Updating Supplement

A preamplifier manufactured after this manual has been printed may have a serial number prefix other than that listed on the title page, thus indicating a significant change. If a Manual Updating Supplement is included with the preamplifier, you should use the supplemental information to adapt this manual to the changed preamplifier. If there is no supplement, the manual requires no change.

Supplement information that corrects errors in the manual may apply to new or existing manuals. Therefore, you should periodically contact a Hewlett-Packard Sales and Service Office for the latest Manual Updating Supplement. The front cover of the supplement provides applicable model number, manual print date, and manual part number. For locations of Hewlett-Packard Sales and Service Offices, see Table 6-3.

## Options Available

**Option 907, Front Handle Kit**

This kit provides front handles and the parts necessary for mounting them to the HP 8449A or HP 8449B Preamplifier.

**Option 908, Rack Mount Kit**

This kit provides the parts necessary to mount the HP 8449A or HP 8449B Preamplifier in an HP System II cabinet or in a standard 19 inch (482.6 mm) equipment rack.

**Option 910, Extra Operation and Service Manual**

## Specifications and Characteristics

- Specifications describe warranted performance over the temperature range 0°C to +55°C (unless otherwise noted). All specifications apply after the instrument's temperature has been stabilized after 1 hour continuous operation. Unless otherwise noted, corrected limits are given when specifications are subject to minimization with error-correction routines.
- *Characteristics* provide useful information by giving functional, but nonwarranted, performance paramaters. *Characteristics are printed in italic font.*
- Typical Performance, where listed, is not warranted, but indicates performance which most units meet at 20°C to 30°C.
- Nominal Value indicates the expected, but not warranted, value of the parameter.

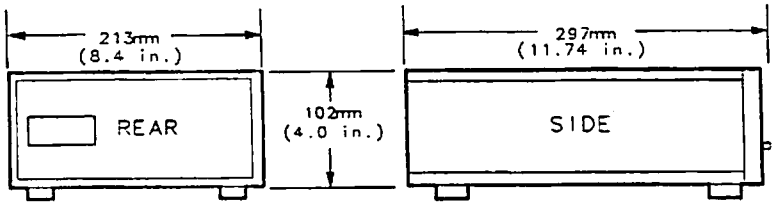
The HP 8449A specifications and characteristics are listed in Table 1-2. The HP 8449B specifications and characteristics are listed in Table 1-3.

Table 1-2. HP 8449A Specifications and Characteristics

| | |
|---|---|
| **FREQUENCY** | |
| **Frequency Range** | 2.0 to 22.0 GHz |
| **AMPLITUDE** | |
| **Flatness** | |
| 2.0 to 22.0 GHz | ±3.8 dB; ±2.4 dB Typical |
| **Small Signal Gain** | |
| 0°C to 55°C | ≥23 dB |
| 20°C to 30°C | ≥26 dB; ≥30 dB Typical |
| **Noise Figure** | |
| 2.0 to 22.0 GHz | ≤12.5 dB; ≤9.0 dB Typical |
| *Temperature Drift* | *≤−0.12 dB per °C* |
| *Gain Compression* | *≤ 1 dB for output signal of +7 dBm* |
| *Spectral Purity* | |
| *Third Order Intercept Measured at Amplifier Output* | *+15 dBm* |
| *Second Harmonic Intercept Measured at Amplifier Output* | *≥+30 dBm* |
| *Reverse Isolation* | *Reduces spectrum analyzer local oscillator emissions >75 dB* |
| **INPUT AND OUTPUT** | |
| **Maximum Safe Power Input** | +20 dBm (100 mW) |
| **Maximum DC Input** | ±20 V |
| *Input and Output* | *SMA, 50Ω nominal* |
| *VSWR* | |
| *Input* | |
| *2.0 to 22.0 GHz* | *≤2.0:1* |
| *Output* | |
| *2.0 to 22.0 GHz* | *≤2.0:1* |

Table 1-2. HP 8449A Specifications and Characteristics

| GENERAL | |
|---|---|
| **Power Requirements** | 100, 120, 220, or 240 V (±10%), 47 to 63 Hz |
| **Temperature Range** | |
| Operation | 0°C to +55°C |
| Storage | −40°C to +75°C |
| **Environmental** | Type tested per MIL-T-28800C, Type III, Class 5, Style E |
| **EMI** | Conducted and radiated emissions are in compliance with the requirements of FTZ 1046, CISPR Publication 11 (1975); and MIL-STD-461C, Part VII, Methods CE03 and RE02. |
| **Weight** | 2.9 kg (6.4 lb) |
| **Dimensions** | |

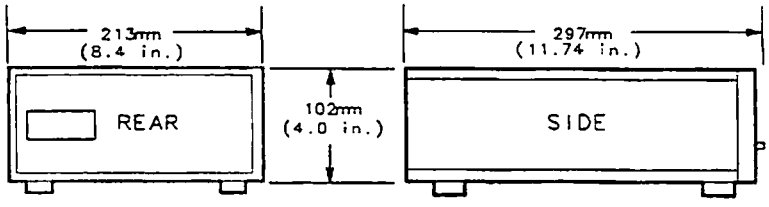


## Table 1-3. HP 8449B Specifications and Characteristics

| | | |
|---|---|---|
| **FREQUENCY** | | |
| **Frequency Range** | 1.0 to 26.5 GHz | |
| **AMPLITUDE** | | |
| **Flatness** | | |
| 1.0 to 26.5 GHz | ±5.7 dB | |
| 2.0 to 22.0 GHz | ±2.4 dB, Typical | |
| **Small Signal Gain** | | |
| 0°C to 55°C | ≥23 dB | |
| 20°C to 30°C | ≥26 dB | |
| **Noise Figure** | | |
| | **0°C to 55°C** | **20°C to 30°C, Typical** |
| 1.0 to 12.5 GHz | ≤8.5 dB | ≤7.0 dB |
| 12.5 to 22.0 GHz | ≤12.5 dB | ≤9.0 dB |
| 22.0 to 26.5 GHz | ≤14.5 dB | ≤12.0 dB |
| *Temperature Drift* | *≤−0.12 dB per °C* | |
| *Gain Compression* | *< 1 dB for output signal of ≤+7 dBm* | |
| *Spectral Purity* | | |
| *Third Order Intercept Measured at Amplifier Output* | *+15 dBm* | |
| *Second Harmonic Intercept Measured at Amplifier Output* | *≥+30 dBm* | |
| *Reverse Isolation* | *Reduces spectrum analyzer local oscillator emissions >75 dB* | |
| **INPUT AND OUTPUT** | | |
| **Maximum Safe Power Input** | +20 dBm (100 mW) | |
| **Maximum DC Input** | ±20 V | |
| *Input and Output* | *SMA, 50Ω nominal* | |
| *VSWR* | | |
| *Input* | | |
| *1.0 to 26.5 GHz* | *≤2.0:1* | |
| *2.0 to 12.5 GHz* | *≤1.5:1* | |
| *Output* | | |
| *1.0 to 26.5 GHz* | *≤2.0:1* | |

**Table 1-3. HP 8449B Specifications and Characteristics**

| GENERAL | |
|---|---|
| **Power Requirements** | 100, 120, 220, or 240 V (±10%), 47 to 63 Hz |
| **Temperature Range** | |
| Operation | 0°C to +55°C |
| Storage | −40°C to +75°C |
| **Environmental** | Type tested per MIL-T-28800C, Type III, Class 5, Style E |
| **EMI** | Conducted and radiated emissions are in compliance with the requirements of FTZ 1046, CISPR Publication 11 (1975); and MIL-STD-461C, Part VII, Methods CE03 and RE02. |
| **Weight** | 2.9 kg (6.4 lb) |
| **Dimensions** | |




## Typical System Performance

Table 1-4 lists typical system displayed average noise levels for the HP 8566B and HP 8563A Spectrum Analyzers when used with the HP 8449A or 8449B Preamplifiers.

**Table 1-4.**
**Typical System Performance for HP 8449A or HP 8449B Added to Spectrum Analyzer**

| Frequency | Displayed Average Noise Level (dBm)* | |
|---|---|---|
| | HP 8566B (10 Hz Res BW) | HP 8563A (100 Hz Res BW) |
| 2 GHz | −155 | −153 |
| 4 GHz | −154 | −154 |
| 8 GHz | −150 | −146 |
| 16 GHz | −144 | −141 |
| 22 GHz | −140 | −136 |
| * Note: all values at 20 to 30°C. | | |