## Accessories Available

The following accessories are available and may have been ordered with the HP 4934A:

| | |
|---|---|
| HP 18182A | 1.5m (60-inch) test cord with a 310 male connector and alligator clips. |
| HP 15678A | 19-inch rack mount kit. |
| HP 15677A | Ladder bracket. |
| HP 18134A | Soft vinyl carrying case with handles and shoulder strap and space for manuals and test cords. |

## Specification

Except where otherwise stated the following parameters are warranted performance specifications. Parameters described as "typical" or "normal" are supplemental characteristics which provide a useful indication of the typical, but non-warranted, performance characteristics.

**Measurement methods meet IEEE Std 743-1984**

### Transmitter Frequency

| Range | Resolution | Accuracy |
|---|---|---|
| 20 to 99999 Hz | 1 Hz | ± 50 ppm |
| 100 to 110 kHz | 10 Hz | ± 120 ppm |

### Receiver Frequency

| Range | Resolution | Accuracy |
|---|---|---|
| 20 to 9999 Hz | 1 Hz | ± 0.5 Hz |
| 10 to 110 kHz | 10 Hz | ± 5 Hz |

### Additional Transmitter Functions

**SF Skip:** Transmitter skips 2600 ± 150 Hz.
***Four Pre-set Frequencies:*** *Normally 404, 1004, 2804 and 2713 Hz.*
User can temporarily change these and the SF Skip center frequency.

### Transmitter Level

**Range:** -40 to +13 dBm.
***Resolution:*** *0.1 dB.*
**Accuracy at 1004 Hz, 0 to -19 dBm:** Typically ± 0.1 dB.
**Flatness (dB relative to 1004 Hz):**

| Level (dBm) | Frequency (Hz) | | | | | |
|---|---|---|---|---|---|---|
| | 20 | 200 | 15k | 60k | 85k | 110k |
| +10 to +13 | +1 - 2.5* | ± 0.2* | ± 0.5* | ± 0.7* | ± 1.5* | |
| -40 to +10 | ± 1.0 | ± 0.2 | ± 0.5 | ± 0.5 | ± 1.5* | |

*Typical

Distortion (dB down from fundamental):

| Level (dBm) | Frequency (Hz) | | | |
|---|---|---|---|---|
| | 20 | 100 | 4k | 110k |
| < +13 | 20 typ | 45 typ | 40 typ | |
| < +10 | 20 typ | 55 | 40 | |
| < 0 | 40 typ | 50 | 40 | |
| < -30 | 40 typ | 50 | 40 typ | |

At 1004 Hz, 0 dBm: THD typically >65 dB down from fundamental.

## Receiver Level

Range: -60 to +13 dBm.
Resolution: 0.1 dB.
Detector type: Average.
Accuracy (dB):

| Level (dBm) | Frequency (Hz) | | | | | |
|---|---|---|---|---|---|---|
| | 20 | 50 | 200 | 15k | 60k | 85k | 110k |
| +13 to -40 | ± 1.0 | ± 0.5 | ± 0.2 | ± 0.5 | ± 0.5 | ± 2.0* |
| -40 to -60 | ± 1.0* | ± 0.6* | ± 0.4* | ± 0.8* | ± 1.0* | ± 2.0* |

*Typical

At 1004 Hz, -20 to +10 dBm: ± 0.1 dB.
Receiver accuracy is specified from 500 Hz when using the 135 or 150Ω terminations.

## Message Circuit Noise

RECEIVER (Transmitter: off and terminated).
Range: 0 to 100 dBrn (135 & 150Ω: 7 to 100 dBrn).
Resolution: 1 dB.
Detector Type: Quasi-RMS.
Accuracy: ± 1 dB from 10 to 100 dBrn, ± 3 dB from 0 to 10 dBrn.
Filters: C-Message, 3 kHz Flat, 15 kHz Flat, Program, 50 kbit.

## Noise-with-Tone

RECEIVER (Transmitter: 1004 Hz tone).
Notch Filter: >50 dB rejection from 995 to 1025 Hz.
Range (at 600,900 and 1200Ω): 10 to 100 dBrn.
Resolution: 1 dB.
Accuracy: ± 1 dB from 20 to 100 dBrn, ± 3 dB from 10 to 20 dBrn.
Detector Types (noise): Quasi-RMS; (tone): Average.
Filters: C-Message, 3 kHz Flat, 15 kHz Flat, Program, 50kbit.

## Signal-to-Noise Ratio

RECEIVER (Transmitter: 1004 Hz tone).
Signal Level Range (600, 900 and 1200Ω) -40 to +10 dBm.
Ratio Range: 10 to 45 dB.
Ratio Resolution: 1 dB.
Accuracy (signal > -30 dBm). S/N 10 to 40 dB: ± 1 dB; S/N 40 to 45 dB: ± 2 dB.
Detector Types (noise): Quasi-RMS; (tone): Average.

## 3-Level Impulse Noise

TRANSMITTER C-Msg or 3 kHz Flat receive filter selected: 1004 Hz tone. Any other receive filter: off and terminated.
RECEIVER
Level Range: -40 to +10 dBm.
Notch Filter: >50 dB rejection from 995 to 1025 Hz.
Threshold Ranges (at 600Ω): Low 30 to 109 dBrn, Mid and High 4 and 8 dB higher respectively, up to 109 dBrn.
Threshold Accuracy for Threshold Above 40 dBrn (threshold above 60 dBrn for program filter): ± 1 dB.
Loss of Holding Tone: "-" sign in right display, latching.
Count Timer: Nominally 5, 15, 60 minutes or non-stop.
Count Range: 0 to 9999.
Max Count Rate: Nominally 8 per second.

## Noise-to-Ground

RECEIVER (Transmitter: off and terminated)
**Range** (600, 900 and 1200Ω): 50 to 130 dBrn.
**Resolution:** 1 dB.
**Accuracy:** ± 1.5 dB.
**Filters & Detector:** See message circuit noise.

## P/AR

TRANSMITTER
**Signal:** 16 frequencies in range 140 to 3890 Hz.
**Level Range:** -40 to 0 dBm.
**Resolution:** 1 dB.
RECEIVER
**P/AR Range:** 0 to 120 units.
**Resolution:** 1 unit.
**Accuracy** (30 to 110 units): ± 2 units.
**Level Range:** -40 to +3 dBm RMS. (135 & 150Ω: -30 to +3 dBm RMS).
**Resolution:** 1 dB.

## General

**Maximum DC Blocking:** 200V nominal.
**Impedances:** Nominally 135, 150, 600, 900 and 1200Ω. Transmit and receive impedances are independently selectable.
**Receiver Return Loss** (600, 900 and 1200Ω: 50 Hz to 4 kHz): typically >30 dB.
**Bridging Loss** (up to 20 kHz): Typically <0.2 dB.
**Longitudinal Balance:** (typical) >80 dB at 60 Hz, >70 dB at 540 Hz, >60 dB up to 4 kHz, decreasing at 6 dB per octave up to 20 kHz.
**Hold Circuits:** 2, each drawing 23 mA nominal.
**AC Power Requirement:** Nominally 90 to 126 V RMS, 48 to 66 Hz, 20VA max.
**Battery Supply** (Option 001): Nominally 6 hours (4 hours minimum) operation at 25°C. Complete recharge typically in 14 hours with unit in standby mode.
**Temperature Range** (without batteries)
**Operating:** 0°C to +50°C;
**Storage:** -40°C to +75°C.
**Temperature Range** (with batteries),
**Operating:** 0°C to +40°C;
**Storage:** -20°C to +55°C.
**Dimensions** (including handle): 105 mm high, 280 mm wide, 355 mm deep (4.1 in x 11.0 in x 14.0 in).
**Weight** (without batteries): 3.7 kg (8.2 lb).
**Weight** (with batteries): 5.0 kg (11.0 lb).