These specifications apply to the HP 8591E, 8593E, 8594E, 8595E, and 8596E spectrum analyzers.

Specifications
All specifications apply over 0°C to +55°C. The analyzer will meet its specifications after 2 hours of storage at a constant temperature, within the operating temperature range, 30 minutes after the analyzer is turned on, and after CAL FREQ and CAL AMPTD (and for the HP 8593E, 8595E, and 8596E CAL YTF) have been run.

Frequency Specifications

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>HP 8591E</th>
<th>HP 8593E</th>
<th>HP 8594E</th>
<th>HP 8595E</th>
<th>HP 8596E</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Ω</td>
<td>9 kHz to 1.8 GHz</td>
<td>9 kHz to 2.9 GHz</td>
<td>dc coupled 9 kHz to 2.9 GHz</td>
<td>dc coupled 9 kHz to 6.5 GHz</td>
<td>dc coupled 9 kHz to 12.8 GHz</td>
</tr>
<tr>
<td>75 Ω</td>
<td>1 MHz to 1.8 GHz</td>
<td>100 kHz to 2.9 GHz</td>
<td>dc coupled 100 kHz to 2.9 GHz</td>
<td>ac coupled 100 kHz to 6.5 GHz</td>
<td>ac coupled 100 kHz to 12.8 GHz</td>
</tr>
<tr>
<td>HP 8593E</td>
<td>9 kHz to 22 GHz</td>
<td>2.75 GHz to 6.5 GHz</td>
<td>6.0 GHz to 12.8 GHz</td>
<td>6.0 GHz to 12.8 GHz</td>
<td>6.0 GHz to 12.8 GHz</td>
</tr>
<tr>
<td>Option 026/027</td>
<td>9 kHz to 26.5 GHz</td>
<td>2.75 GHz to 6.5 GHz</td>
<td>6.0 GHz to 12.8 GHz</td>
<td>6.0 GHz to 12.8 GHz</td>
<td>6.0 GHz to 12.8 GHz</td>
</tr>
</tbody>
</table>

Band LO harmonic = N

<table>
<thead>
<tr>
<th>Band</th>
<th>LO harmonic</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>9 kHz to 2.9 GHz (dc coupled)</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>100 kHz to 2.9 GHz (ac coupled)</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>2.75 GHz to 6.5 GHz</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>6.0 GHz to 12.8 GHz</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>12.4 GHz to 19.4 GHz</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>19.1 GHz to 22.0 GHz</td>
</tr>
<tr>
<td>4</td>
<td>4 (Opt. 026/027)</td>
<td>19.1 GHz to 26.5 GHz</td>
</tr>
</tbody>
</table>

Frequency Reference

| Aging     | ±2 x 10⁻⁶/year | ±1 x 10⁻⁷/year |
| Temperature Stability | ±5 x 10⁻⁶ | ±1 x 10⁻⁶ |
| Initial Achievable Accuracy | ±0.5 x 10⁻⁶ | ±2.2 x 10⁻⁶ |

(Opt. 004)
Residual FM
HP 8591 E
1 kHz RBW, 1 kHz VBW
≤ 250 Hz pk-pk in 100 ms
3 kHz to 10 kHz
100 kHz to 3 MHz
1 kHz, 30 kHz
≤ 40 dBk-3 dB
30 Hz to 300 Hz
10 kHz

Video Bandwidth Range
30 Hz to 1 MHz in 1,3 sequence
1 Hz to 1 MHz (Opt. 130)

Stability
Noise Sidebands (1 kHz RBW, 30 Hz VBW and sample detector)
>10 kHz offset from CW signal
≤ -90 dBc/Hz + 20 Log N*
>20 kHz offset from CW signal
≤ -100 dBc/Hz + 20 Log N*
>30 kHz offset from CW signal
≤ -105 dBc/Hz + 20 Log N*

Frequency Readout
Accuracy
(Start, Stop, Center, Marker)
± (frequency readout x frequency reference error¹ x span accuracy +1% of span +20% of RBW+100 Hz x N*)

Marker Count Accuracy
Frequency Span
≤10 MHz x N*
± (marker frequency x frequency reference error² x counter resolution +100 Hz x N*)
Frequency Span
>10 MHz x N*
± (marker frequency x frequency reference error² x counter resolution +1 kHz x N*)

Counter Resolution
Frequency Span
≤10 MHz x N*
Selectable from 10 Hz to 100 kHz
Frequency Span
>10 MHz x N*
Selectable from 100 Hz to 100 kHz

Frequency Span
Range
0 Hz (zero span), and

<table>
<thead>
<tr>
<th>Option</th>
<th>Std.</th>
<th>Min. (KHz)</th>
<th>Min. (KHz)</th>
<th>Max (GHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 8591E</td>
<td>1</td>
<td>10</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>HP 8593E</td>
<td>1 x N*</td>
<td>10 x N*</td>
<td>19.25</td>
<td></td>
</tr>
<tr>
<td>HP 8594E</td>
<td>1</td>
<td>10</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>HP 8595E</td>
<td>1</td>
<td>10</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>HP 8596E</td>
<td>1 x N*</td>
<td>10 x N*</td>
<td>12.8</td>
<td></td>
</tr>
</tbody>
</table>

Resolution
Four digits or 20 Hz x N* whichever is greater

Accuracy
Span ≤10 MHz x N*
±2% of span
Span >10 MHz x N*
±3% of span

Frequency Sweep Time
Range
Span = 0 Hz, >1 kHz
20 ms to 100 s
Span = 0 Hz (Opt. 101)
20 μs to 100 s

Accuracy
20 ms to 100 s
±3%
20 μs to <20 ms (Opt. 101)
±2%

Sweep Trigger
Free run, single, line, video, external

Resolution Bandwidth
1 kHz to 3 MHz (3 dB) in 1-3-10 sequence.
9 kHz and 120 kHz (6 dB) EMI bandwidths.
Adds 30, 100, and 300 Hz (3 dB) bandwidths and 200 Hz (6 dB) EMI bandwidth.

Option 130

Accuracy
±20%
Selectivity (Characteristic)
–60 dB to –3 dB
3 kHz to 10 kHz
15:1
100 kHz to 3 MHz
15:1
1 kHz, 30 kHz
16:1
–40 dBk-3 dB
30 Hz to 300 Hz
10:1

Video Bandwidth Range
30 Hz to 1 MHz in 1,3 sequence
1 Hz to 1 MHz (Opt. 130)

Stability
Noise Sidebands (1 kHz RBW, 30 Hz VBW and sample detector)
>10 kHz offset from CW signal
≤ –90 dBc/Hz + 20 Log N*
>20 kHz offset from CW signal
≤ –100 dBc/Hz + 20 Log N*
>30 kHz offset from CW signal
≤ –105 dBc/Hz + 20 Log N*

Residual FM
HP 8591E
1 kHz RBW, 1 kHz VBW
≤ 250 Hz pk-pk in 100 ms
30 Hz RBW, 30 Hz VBW
≤ 30 Hz pk-pk in 300 ms
HP 8593E, 94E, 95E, 96E
1 kHz RBW, 1 kHz VBW
≤ (250 x N*) Hz pk-pk in 100 ms
30 Hz RBW, 30 Hz VBW
≤ (30 x N*) Hz pk-pk in 300 ms
System-Related Sidebands
>30 kHz offset from CW signal
≤ –65 dBc + 20 Log N*

Comb Generator Frequency
HP 8593E, 96E
100 MHz fundamental frequency
Accuracy
±0.007%

* N = LO harmonic. N = 1 for 91E, 94E, 95E
1. Frequency reference error = (aging rate x period of time since adjustment + initial achievable accuracy + temperature stability).

1 kHz RBW, 1 kHz VBW
≤ 250 Hz pk-pk in 100 ms
3 kHz to 10 kHz
1 kHz, 30 kHz
–40 dBk-3 dB
30 Hz to 300 Hz
–65 dBc + 20 Log N*
–60 dB to –3 dB
3 kHz to 10 kHz
15:1
100 kHz to 3 MHz
15:1
1 kHz, 30 kHz
16:1
–40 dBk-3 dB
30 Hz to 300 Hz
10:1

Video Bandwidth Range
30 Hz to 1 MHz in 1,3 sequence
1 Hz to 1 MHz (Opt. 130)

Stability
Noise Sidebands (1 kHz RBW, 30 Hz VBW and sample detector)
>10 kHz offset from CW signal
≤ –90 dBc/Hz + 20 Log N*
>20 kHz offset from CW signal
≤ –100 dBc/Hz + 20 Log N*
>30 kHz offset from CW signal
≤ –105 dBc/Hz + 20 Log N*

Residual FM
HP 8591E
1 kHz RBW, 1 kHz VBW
≤ 250 Hz pk-pk in 100 ms
30 Hz RBW, 30 Hz VBW
≤ 30 Hz pk-pk in 300 ms
HP 8593E, 94E, 95E, 96E
1 kHz RBW, 1 kHz VBW
≤ (250 x N*) Hz pk-pk in 100 ms
30 Hz RBW, 30 Hz VBW
≤ (30 x N*) Hz pk-pk in 300 ms
System-Related Sidebands
>30 kHz offset from CW signal
≤ –65 dBc + 20 Log N*

Comb Generator Frequency
HP 8593E, 96E
100 MHz fundamental frequency
Accuracy
±0.007%

* N = LO harmonic. N = 1 for 91E, 94E, 95E
1. Frequency reference error = (aging rate x period of time since adjustment + initial achievable accuracy + temperature stability).
### Amplitude Specifications

Amplitude specifications do not apply for Analog+ mode and negative peak detector mode except as noted in “Amplitude Characteristics.”

#### Amplitude Range

<table>
<thead>
<tr>
<th></th>
<th>Displayed average noise level to +30 dBm</th>
<th>HP 8591E (Opt. 001) Displayed average noise level to +72 dBmV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Safe Input Level</strong> (input attenuator ≥10 dB)</td>
<td><strong>Average Continuous Power</strong> +30 dBm (1 W)</td>
<td><strong>Maximum Safe Input Level</strong> +72 dBmV (0.2 W)</td>
</tr>
<tr>
<td>HP 8591E</td>
<td>+30 dBm (1 W)</td>
<td>HP 8591E (Opt. 001) +72 dBmV (0.2 W)</td>
</tr>
<tr>
<td>HP 8591E</td>
<td>+72 dBmV (0.2 W)</td>
<td>HP 8593E, 94E, 95E, 96E +50 dBm (100 W) for &lt; 10 µs pulse width and &lt;1 % duty cycle, input attenuation ≥30 dB.</td>
</tr>
<tr>
<td><strong>dc</strong></td>
<td></td>
<td><strong>Gain Compression</strong></td>
</tr>
<tr>
<td>HP 8591E</td>
<td>25 Vdc</td>
<td>&gt;10 MHz ≤0.5 dB (total power at input mixer² = –10 dBm)</td>
</tr>
<tr>
<td>HP 8591E (Opt. 001)</td>
<td>100 Vdc</td>
<td><strong>Nominal Dynamic Range</strong></td>
</tr>
<tr>
<td>HP 8593E</td>
<td>0 Vdc</td>
<td><strong>HP 8598E</strong></td>
</tr>
<tr>
<td>HP 8594E, 95E, 96E</td>
<td>0 V (dc coupled)</td>
<td>400 kHz to 2.9 GHz ≤-125 dBm ≤-110 dBm</td>
</tr>
<tr>
<td>HP 8594E, 95E, 96E</td>
<td>50 V (ac coupled)</td>
<td>2.75 GHz to 6.5 GHz ≤-127 dBm ≤-112 dBm</td>
</tr>
<tr>
<td><strong>sensitivity 30 Hz RBW</strong></td>
<td><strong>gain compression</strong></td>
<td>6.0 GHz to 12.8 GHz ≤-127 dBm ≤-112 dBm</td>
</tr>
<tr>
<td><strong>dynamic range (dB)</strong></td>
<td><strong>gain compression</strong></td>
<td>4.0 kHz to 6.5 GHz ≤-115 dBm ≤-100 dBm</td>
</tr>
<tr>
<td><strong>ac coupled</strong></td>
<td><strong>gain compression</strong></td>
<td><strong>12.4 TO 19.4 GHz</strong></td>
</tr>
<tr>
<td><strong>dc coupled</strong></td>
<td><strong>gain compression</strong></td>
<td><strong>6.0 TO 18.4 GHz</strong></td>
</tr>
<tr>
<td><strong>2. Mixer Power Level (dBm) = Input Power (dBm) - Input Atten. (dB)</strong></td>
<td><strong>gain compression</strong></td>
<td><strong>400 kHz TO 6.5 GHz</strong></td>
</tr>
</tbody>
</table>

#### Displayed Average Noise Level

(Input terminated, 0 dB attenuation, 1 Hz/30 Hz VBW, sample-detector)

<table>
<thead>
<tr>
<th></th>
<th>HP 8591E</th>
<th>30 Hz RBW</th>
<th>1 kHz RBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 kHz to 1 MHz</td>
<td>≤-130 dBm</td>
<td>≤-115 dBm</td>
<td></td>
</tr>
<tr>
<td>1 MHz to 1.5 GHz</td>
<td>≤-130 dBm</td>
<td>≤-115 dBm</td>
<td></td>
</tr>
<tr>
<td>1.5 GHz to 1.8 GHz</td>
<td>≤-128 dBm</td>
<td>≤-113 dBm</td>
<td></td>
</tr>
<tr>
<td>HP 8591E (Opt. 001)</td>
<td>1 MHz to 1.5 GHz</td>
<td>≤-78 dBmV</td>
<td>≤-63 dBmV</td>
</tr>
<tr>
<td>HP 8591E (Opt. 001)</td>
<td>1.5 GHz to 1.8 GHz</td>
<td>≤-76 dBmV</td>
<td>≤-61 dBmV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>HP 8593E</th>
<th>400 kHz TO 2.9 GHz</th>
<th>≤-127 dBm</th>
<th>≤-112 dBm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.75 GHz to 6.5 GHz</td>
<td>≤-129 dBm</td>
<td>≤-114 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0 GHz to 12.8 GHz</td>
<td>≤-117 dBm</td>
<td>≤-102 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.4 GHz to 19.4 GHz</td>
<td>≤-113 dBm</td>
<td>≤-96 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.1 GHz to 22 GHz</td>
<td>≤-107 dBm</td>
<td>≤-92 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HP 8593E (Opt. 026/027)</td>
<td>19.1 GHz to 26.5 GHz</td>
<td>≤-102 dBm</td>
<td>≤-87 dBm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>HP 8594E</th>
<th>400 kHz to 5 MHz</th>
<th>≤-122 dBm</th>
<th>≤-112 dBm</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 MHz to 2.9 GHz</td>
<td>≤-127 dBm</td>
<td>≤-112 dBm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>HP 8595E</th>
<th>400 kHz to 2.9 GHz</th>
<th>≤-125 dBm</th>
<th>≤-110 dBm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.75 GHz to 6.5 GHz</td>
<td>≤-127 dBm</td>
<td>≤-112 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0 GHz to 12.8 GHz</td>
<td>≤-115 dBm</td>
<td>≤-100 dBm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Nominal Dynamic Range

**HP 8593E (Option 130)**

- **Sensitivity 30 Hz RBW**
- **Third Order Intermod**
- **Second Order Distortion**

2. **Mixer Power Level (dBm) = Input Power (dBm) - Input Atten. (dB)**
Frequency Response

HP 8591E
9 kHz to 1.8 GHz
±1.5 dB ±1.0 dB
Preselector peaked in band > 0

HP 8593E
9 kHz to 2.9 GHz
±1.5 dB ±1.0 dB
2.75 GHz to 6.5 GHz
±2.0 dB ±1.5 dB
6.0 GHz to 12.8 GHz
±2.5 dB ±2.0 dB
12.4 GHz to 19.4 GHz
±3.0 dB ±2.0 dB
19.1 GHz to 22 GHz
±3.0 dB ±2.0 dB
19.1 GHz to 26.5 GHz
±5.0 dB ±2.0 dB

HP 8594E, 95E, 96E (dc coupled preselector peaked)
9 kHz to 2.9 GHz
±1.5 dB ±1.0 dB
2.75 GHz to 6.5 GHz
±2.0 dB ±1.5 dB
6.0 GHz to 12.8 GHz
±2.5 dB ±2.0 dB

Calibrator Output
Amplitude
HP 8591E Opt.001 +28.75 dBmV ±0.4 dB

Resolution Bandwidth
Switching Uncertainty
(Referenced to 3 kHz RBW, at ref. level)
3 kHz to 3 MHz RBW ±0.4 dB
1 kHz RBW ±0.5 dB
30 Hz to 300 Hz RBW ±0.6 dB

Linear to Log Switching
±0.25 dB at reference level

Display Scale Fidelity
Log Maximum Cumulative
0 to –70 dB from reference level
3 kHz to 3 MHz RBW ±(0.3 + 0.01 x dB from reference level)
30 Hz to 1 kHz RBW ±(0.4 + 0.01 x dB from reference level)

Log Incremental Accuracy ±0.4 dB/4 dB
0 to –60 dB from reference level
Linear Accuracy ±3% of reference level

Option Specifications

Option 010 and 011 Tracking Generator

Frequency Range
HP 8591E
100 kHz to 1.8 GHz
Opt. 011, 75 Ω
1 MHz to 1.8 GHz
HP 8593E, 94E, 95E, 96E
9 kHz to 2.9 GHz
### Output Level

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 8591E</td>
<td>0 to –70 dBm</td>
</tr>
<tr>
<td>HP 8591E (Opt. 011)</td>
<td>+42.8 to –27.2 dBmV</td>
</tr>
<tr>
<td>HP 8593E, 94E, 95E, 96E</td>
<td>–1 to –66 dBm</td>
</tr>
</tbody>
</table>

Absolute Accuracy (@ 300 MHz, –20 dBm, +28.8 dBmV)
- HP 8591E ±1.0 dB
- HP 8593E, 94E, 95E, 96E ±0.75 dB

### Resolution
0.1 dB

### Vernier

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 8591E</td>
<td>10 dB</td>
</tr>
<tr>
<td>HP 8593E, 94E, 95E, 96E</td>
<td>9 dB</td>
</tr>
</tbody>
</table>

Accuracy
- HP 8591E ±0.75 dB
- HP 8593E, 94E, 95E, 96E ±0.5 dB

### Output Attenuator

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 8591E</td>
<td>0 to 60 dB, 10 dB steps</td>
</tr>
<tr>
<td>HP 8593E, 94E, 95E, 96E</td>
<td>0 to 56 dB, 8 dB steps</td>
</tr>
</tbody>
</table>

### Output Flatness

<table>
<thead>
<tr>
<th>Model</th>
<th>Flatness</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 8591E</td>
<td>±1.75 dB</td>
</tr>
<tr>
<td>HP 8593E, 94E, 95E, 96E</td>
<td>±2.0 dB</td>
</tr>
</tbody>
</table>

### Effective Source Match (Characteristic)

<table>
<thead>
<tr>
<th>Model</th>
<th>Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 8591E</td>
<td>1.6:1 (10 dB attenuation)</td>
</tr>
<tr>
<td>HP 8593E, 94E, 95E, 96E</td>
<td>1.5:1 (8 dB attenuation)</td>
</tr>
</tbody>
</table>

### Spurious Output

#### Harmonic Spurs
- HP 8591E: (0 dBm, +42.8 dBmV output) <-25 dBc
- HP 8593E, 94E, 95E, 96E: (~1 dBm Output)

#### Nonharmonic Spurs
- HP 8591E: ~<–30 dBc
- HP 8593E, 94E, 95E, 96E: 300 kHz to 2.0 GHz ≤–27 dBc
- 2.0 GHz to 2.9 GHz ≤–23 dBc

### Dynamic Range (Characteristic)

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 8591E</td>
<td>106 dB</td>
</tr>
<tr>
<td>HP 8591E (Opt. 011)</td>
<td>100 dB</td>
</tr>
<tr>
<td>HP 8593E (&gt; 400 kHz)</td>
<td>111 dB</td>
</tr>
<tr>
<td>HP 8594E (&gt; 400 kHz)</td>
<td>106 dB</td>
</tr>
<tr>
<td>HP 8595E (&gt; 5 MHz)</td>
<td>111 dB</td>
</tr>
<tr>
<td>HP 8596E (&gt; 400 kHz)</td>
<td>109 dB</td>
</tr>
</tbody>
</table>

### Power Sweep

#### Range
- HP 8591E: (~–15 dBm to 0 dBm) –(source attenuator setting)
- HP 8591E (Opt. 011): (+27.8 to +42.8 dBmV) –(source attenuator setting)
- HP 8593E, 94E, 95E, 96E: (~–10 dBm to –1 dBm) –(source attenuator setting)

Resolution
- 0.1 dB

### Option 103 Quasi-Peak Detector
Amplitude response conforms with Publication 16 of Comite' International Special des Perturbations Radioelectriques (CISPR) Section 1, Clause 2.

### Option 105 Time Gated Spectrum Analysis

**Gate Delay**
- Range: 1 µs to 65.35 ms
- Resolution: 1 µs
- Accuracy: ±(1 µs + 0.01% x Gate Delay Readout)^5
(From Gate Trigger Input to positive edge of Gate Output)

**Gate Length**
- Range: 1 µs to 65.35 ms
- Resolution: 1 µs
- Accuracy: ±(0.2 µs + (0.01% x Gate Length Readout))
(From positive edge to negative edge of Gate Output)

### Additional Gate Amplitude Error^7
- Log Scale: <2 µs ±0.8 dB
- ≥2 µs ±0.5 dB

### General Specification

**Temperature Range**
- Operating: 0°C to +55°C
- Storage: –40°C to +75°C

**EMI Compatibility**
- Conducted and radiated interference: CISPR Pub. 11 and Messemfaher Postverfuegung 526/527/79.

**Audible Noise**
- <37.5 dBa pressure and <5.0 Bels (ISODP7779)

**Power Requirements**
- ON (Line 1): 90 to 132 V rms, 47 to 440 Hz
- Power consumption: <500 VA; <180W
- Standby (Line 0): Power consumption <7 W

**User Program Memory**
- 238 Kbytes non-volatile RAM

**Data Storage** (nominal)
- Internal: 24 traces or 32 states
- External: 50 traces, 8 states
- Memory card (HP 85700A): 32 Kbytes

---

5. Maximum output level minus TG feedthrough.
6. Up to 1 V/s jitter due to 1 µs resolution of gate delay clock.
7. With GATE ON enabled and triggered, CW Signal, Peak Detector Mode.
## Inputs/Outputs

### Front Panel Connectors
- **Input**
  - (Opt 001) 50 Ω Type N
  - (Opt 026) 75 Ω BNC female
  - (Opt 027) APC 3.5 mm male
- **Cal Output**
  - 50 Ω BNC, –20 dBm, 300 MHz
- **100 MHz Comb Out**
  - 100 MHz ± 0.007%, SMA
- **Probe Power**
  - +15 Vdc, –12.6 Vdc, and Gnd (150mA max each)

### Rear Panel Connectors
- **Earphone (Opt 102 and 103)**
  - 1/8 inch monaural jack
- **LO Output (Opt 009)**
  - 50 Ω SMA Female, 3.0 to 6.8214 GHz
- **TV Trigger Output (Opt 101 and 102)**
  - BNC, TTL levels, negative edge trigger after sync pulse
- **Gate Trigger Input (Opt 105)**
  - 50 Ω BNC, Pulsewidth >30 ns (TTL)
- **Gate Output (Opt 105)**
  - 50 Ω BNC (TTL)
- **SWEEP + Tune Output (Opt 009)**
  - 2 k Ω BNC, 0 to +10V, 0.36V/GHz of CF
- **Ext. ALC Input 1 MW,**
  - –66 dBV to +6 dBV
- **Sweep Output**
  - BNC, 5 k W, 0 to +10 V ramp
- **High Sweep In/Out**
  - BNC, high TTL = sweep, low TTL = Retrace
- **Aux Video Out**
  - 50 Ω BNC, 0–1 V Uncalibrated
- **Aux IF Output**
  - 50 Ω BNC, –10 to –60 dBm, 21.4 MHz
- **Keyboard (Opt. 041 or 043)**
  - 5 Pin mini-DIN, compatible with HP C1405B and most IBM/AT keyboards
- **Ext. Trigger Input**
  - BNC, TTL levels, positive edge trigger

### HPIB and Parallel (Opt 041)
- SH1, AH1, T6, L4, ST1, RL1, PPO, DC1, C1 C2, C3, & C28 and 25 Pin subminiature D-shell female for parallel

### RS-232 and Parallel (Opt 043)
- 9 Pin subminiature D-shell female and 25 Pin subminiature D-shell female for parallel

### Ext Ref In
- 50 Ω BNC, 10 MHz, –2 to +10 dBm

### 10 MHz Ref Output
- 50 Ω BNC, 10 MHz, 0 dBm

### Aux Interface
- 9 pin “D” subminiature
- Pin 1-4, TTL Output
- Pin 5 TTL Input
- Pin 6 Gnd
- Pin 7 –15 vdc ±5%; 150 mA max
- Pin 8 +5 vdc ±5%; 150 mA max
- Pin 9 +15vdc ±5%; 150 mA max

### Monitor Out
- 50 Ω BNC,

### Selectable Format
- NTSC, 15.75 kHz, 60 Hz
- PAL, 15.625 kHz, 50 Hz

## Dimensions (Nominal)

- **Without handle, feet, or cover**
  - 163 mm (H) x 325 mm (W) x 427 mm (D)
- **Overall**
  - 184 mm (H) x 373 mm (W) x 461 mm (D)

## Weight (Nominal)

- HP 8591E
  - 15.4 kg (34 lb)
- HP 8593E
  - 16.4 kg (36 lb)
- HP 8594E
  - 16.4 kg (36 lb)
- HP 8595E
  - 16.4 kg (36 lb)
- HP 8596E
  - 16.4 kg (36 lb)
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Mississauga, Ontario
L4W 5G1
(905) 206 4725

Europe:
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European Marketing Centre
P.O. Box 999
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The Netherlands

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Measurement Assistance Center
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Tokyo 192, Japan
(81) 426 48 3860

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131 347 Ext. 2902

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