

**1-25. Recommended Test Equipment.**

1-26. Equipment required to maintain the Model 3585A is listed in Table 1-2. Other equipment may be substituted if it meets the requirements listed in the table.

**Table 1-1. Specifications.**

<b>NOTE</b>	
<i>Specifications are guaranteed only when the Auto Calibration is on, the OVEN REF OUT is connected to the EXT REF IN and the instrument has warmed up at least 20 minutes at the ambient temperature.</i>	
<b>FREQUENCY:</b>	
<b>Measurement Range:</b>	20 Hz to 40.1 MHz
<b>Displayed Range:</b>	
<b>Frequency Span:</b>	0 Hz to 40.1 MHz Settable with 0.1 Hz resolution 10 Hz to 40 MHz in 1, 2, 5 steps
<b>Accuracy:</b>	-0% +0.2% of Frequency Span setting
<b>Marker:</b>	
<b>Readout Accuracy:</b>	$\pm 0.2\%$ of Frequency Span $\pm$ Resolution Bandwidth
<b>Counter Accuracy:</b>	$\pm 0.3$ Hz $\pm 1 \times 10^{-7}$ /month of counted frequency for a signal 20 dB greater than other signals and noise in the IF filter skirts.
<b>Manual Frequency Accuracy:</b>	$\pm 0.1$ Hz $\pm 1 \times 10^{-7}$ /month using the internal reference.
<b>Resolution:</b>	
<b>Resolution Bandwidths</b>	3 dB bandwidths of 3 Hz to 30 kHz in a 1, 3, 10 sequence
<b>Accuracy</b>	$\pm 20\%$ at the 3 dB points
<b>Selectivity (Shape Factor)</b>	60 dB/3dB < 11:1

**Table 1-1. Specifications (Cont'd).**

**AMPLITUDE:**

**Measurement Range:**  
 Terminated (50/75Ω) input  
 -137 dBm to +30 dBm or equivalent level in dBV or volts  
 High Impedance (1 MΩ) input  
 31 nV to 22V

**Displayed Range:**  
**Vertical Scale:**  
 10 division CRT settable to 10, 5, 2 and 1 dB/division relative to the Reference Level (which is represented by the top graticule line)  
**Input Range:**  
 -25 dBm to +30 dBm in 5 dB steps  
**Reference Level (relative to Input Range):**  
**Settability**  
 -100 dB to +10 dB; 0.1 dB resolution  
**Accuracy (at Center Frequency for Sweep Time**  
 ≥ 2 steps above auto setting or at Manual Frequency, 1 or 2 dB/Div.)  
 Add 0.1 dB for auto sweep setting  
 Add 0.1 dB for 5 or 10 dB/Div.

**Terminated (50/75Ω) input**

+ 10 dB	-50 dB	-70 dB	-90 dB
±0.4 dB	±0.7 dB	±1.5 dB	

High Impedance(1 MΩ) input—add to above

20 Hz	10 MHz	40.1 MHz
±0.7 dB	±1.5 dB	

**Amplitude Linearity (referred to Reference Level):**

0 dB	-20 dB	-50 dB	-80 dB	-95 dB
±0.3 dB	±0.6 dB	±1.0 dB	±2.0 dB	

**Frequency Response (referred to center of span):**  
 Terminated (50/75Ω) input ±.5 dB  
 High Impedance (1 MΩ) input

20Hz	10 MHz	40.1 MHz
±0.7 dB	±1.5 dB	

Table 1-1. Specifications (Cont'd).

**Marker:****Amplitude Accuracy:**

Center Frequency or Manual frequency at the Reference Level: Use Reference Level accuracy from +30 dBm to -115 dBm, add Amplitude Linearity below -115 dBm.

**To Calculate Marker Accuracy:****Terminated (50/75Ω) input**

At the Center or Manual Frequency and at the Reference Level - use Reference Level Accuracy.

At the Center or Manual Frequency and NOT at the Reference Level - add Reference Level Accuracy and Amplitude Linearity.

NOT at the Center or Manual Frequency and NOT at the Reference Level - add Reference Level Accuracy, Amplitude Linearity and Frequency Response.

**High Impedance (1 MΩ) input**

Calculate the Marker Accuracy according to the Terminated Input rules above, *then* add 1 MΩ Reference Level Accuracy.

**INPUT:****Signal Inputs:**

Terminated (50/75Ω) input; > 26 dB return loss, DC coupled, BNC connector. Applied dc voltage must be  $\leq$  ten times the RANGE setting in volts for full specification compliance.

High Impedance (1 MΩ) Input;  $\pm 3\%$  shunted by < 30 pf, BNC connector

**Maximum Input Level:**

Terminated (50/75Ω) input; 13 V peak ac plus dc, relay protected against overloads to 42 V peak.

High Impedance (1 MΩ) input; 42 V peak ac plus dc (derate ac by a factor of two for each octave above 5 MHz).

**External Reference Input:**

10 MHz (or subharmonic to 1 MHz), 0 dBm to +15 dBm/50Ω

Required frequency accuracy,  $\pm 5 \times 10^{-6}$ . When an external reference is used the  $\pm 1 \times 10^{-7}$ /month specification on the Counter and Manual frequency accuracy is replaced by the accuracy of the external reference.

**Table 1-1. Specifications (Cont'd).**

**DYNAMIC RANGE:**

Spurious Responses: (which includes image, out of band and harmonic distortion) referred to a single signal whose amplitude is  $\leq$  RANGE setting and whose frequency is  $\geq$  ten times the Resolution Bandwidth.

Terminated (50/75 $\Omega$ ) input

< -80 dB

High Impedance (1 M $\Omega$ ) input

< -80 dB; except second harmonic distortion, < -70 dB

Intermodulation Distortion: for two signals, each at least 6 dB below the RANGE setting and separated in frequency by at least 100 Hz, referred to the larger of the two signals.

Terminated (50/75 $\Omega$ ) input

< -80 dB; except 2nd order IM with one or both of the input signals within the range of 10 MHz to 40 MHz, < -70 dB

High Impedance (1 M $\Omega$ ) input

< -70 dB

Residual Responses (no signal at input, -25 dBm Range)

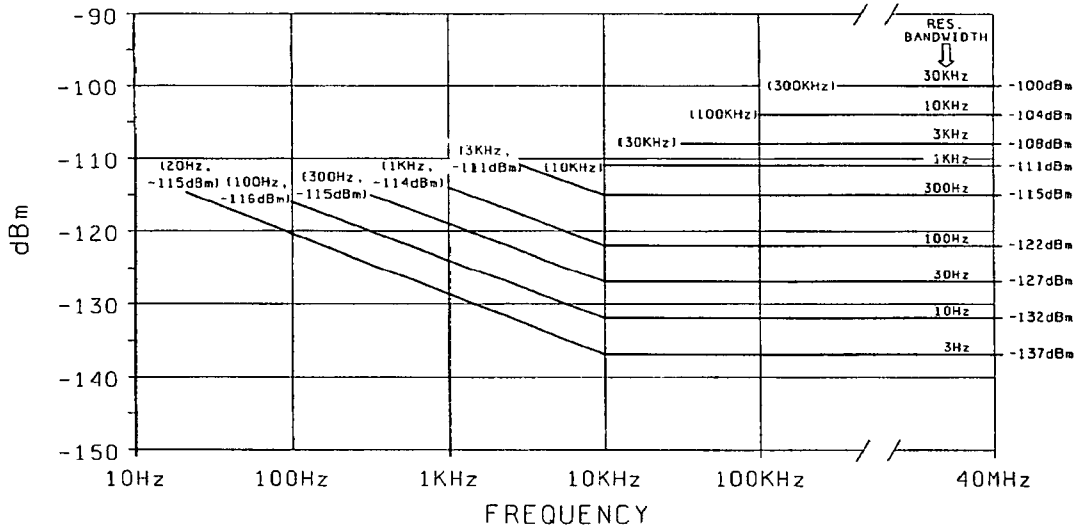
< -120 dBm

Lo Feed Through:

< -15 dB with respect to Range

Average Noise Level (-25 dBm Range), 50/75 $\Omega$  input)

AVERAGE NOISE LEVEL



1 M $\Omega$  input: Below 500 kHz add 12 dB to above.

Average Noise Level at 40 Hz (3 Hz Res. BW) using the Noise Level Key -123 dBm (1 Hz)

**Table 1-1. Specifications (Cont'd).****DISPLAY:****Trace:**

Two memories, A and B, each 1001 data points horizontally by 1024 data points vertically are displayed on the CRT at a flicker free rate.

Memory A - updated at the rate of the analyzer sweep time.

Memory B - updated by transfer from A (Store A-B).

Max Hold - retains in Memory A the largest signal level at each horizontal point over successive sweeps.

A-B - updates Memory A with sweep data minus Memory B data at each corresponding horizontal point.

**Trace Detection:**

A linear envelope detector is used to obtain video information from the IF signal. Peak signal excursions between horizontal sweep data points are retained and displayed at the left-hand data point. This assures that no signal responses are missed.

**OUTPUT:****Tracking Generator:****Level**

0 dBm to -11 dBm/50 $\Omega$  with a single turn knob, continuously variable

**Frequency Accuracy**

$\pm 1$  Hz relative to analyzer tuning

**Frequency Response**

$\pm 0.7$  dB

**Impedance**

50 $\Omega$ ; > 14 dB return loss

**Probe Power:**

+ 15 Vdc, -12.6 Vdc; 150 ma max.

Suitable for powering HP 1120A Active Probe

**External Display**

X, Y: 1 volt full deflection

Z; < 0V to > 2.4 V.

**Recorder:**

X Axis: minimum of + 10 Vdc full scale

Y Axis: + 10 Vdc full scale

Z—penlift output (TTL levels)

**IF:**

350 kHz, -14.0 dBV  $\pm$  2.0 dBV at the reference level

**Video:**

+ 10 Vdc at the reference level

**Frequency Reference:**

10.000 MHz  $\pm 1 \times 10^{-7}$ /mo., > + 5 dBm into 50 $\Omega$

Table 1-1. Specifications (Cont'd).

<p><b>SWEEP:</b></p> <p><b>Modes:</b> Continuous, Single or Manual</p> <p><b>Trigger:</b> Free Run, Line, or External</p> <p><b>Time:</b> Resolution: 0.2 sec Minimum: 0.2 sec Maximum: Frequency Span/minimum sweep rate limit The minimum sweep rate limit is:     <math>\geq 10</math> KHz Res BW - 10 sec/Hz of Frequency Span or 0.1 Hz/sec     <math>\leq 3</math> kHz Res BW - 200 sec/Hz of Frequency Span or 0.005 Hz/sec</p> <p><b>GENERAL:</b></p> <p><b>Environmental:</b> Temperature:     Operating 0°C to 55°C Humidity:     95% RH except 300 Hz Res. BW, 40% RH</p> <p><b>Warm-up Time:</b> 20 minutes at ambient temperature</p> <p><b>Power Requirements:</b> 115 V (+ 11% - 25%), 48-440 Hz 230 V (+ 11% - 18%), 48-66Hz &lt; 180 watts, 3A max.</p> <p><b>Weight:</b> 39.9 kg (88 lb)</p> <p><b>Dimensions:</b> 22.9 cm (9 in) H x 42.6 cm (16.75 in) W x 63.5 cm (25 in) D</p> <p><b>Remote Operation:</b> Compatible with IEEE Standard 488-1975 "Standard Digital Interface for Programmable Instrumentation"</p>
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