3

Specifications

Introduction

Unless noted, all specifications are for AUTOCOUPLED FUNCTION operation and are with the preselector tracking optimized using the MARKER PRESELECTOR PEAK function. Where specifications are subject to minimization with the error-correction routine, corrected limits are given unless noted. Nominal values provide useful, but nonwarranted, information about functional performance.

Frequency

Measurement Range

100 Hz to 22 GHz, dc coupled input

Displayed Values

Frequency Reference Error and Accuracy

	Accuracy
Aging rate	$<1 \times 10^{-9}$/day and $< 2.5 \times 10^{-7}$/year
Temperature stability	$<7 \times 10^{-9}$ over 0°C to 55°C range (25°C reference)

Note

The term **frequency reference error**, when used later in this manual, is defined as: ± [aging rate/day x number of days since calibration + temperature stability].

Note

When the analyzer is in STANDBY, the frequency reference temperature is maintained at a steady state. Frequency accuracy is then subject to the standard instrument warm-up period indicated in "General" in this chapter.

Note

Changes in line voltage, gravitational field, and other environmental conditions will affect the frequency reference accuracy.

Center Frequency

0 Hz to 22 GHz

Center Frequency Readout Accuracy

	Accuracy*
Spans ≤n x 5 **MHz**	±(2% of frequency span + frequency reference error x center frequency + 10 Hz)
Spans >n x 5 **MHz**	±(2% of frequency span + n x 100 kHz + frequency reference error x center frequency) where *n* is the harmonic mixing number, depending on center frequency
Where: **n** = 1 for 100 Hz to 5.8 GHz center frequency. **n** = 2 for 5.8 GHz to 12.5 GHz center frequency. **n** = 3 for 12.5 GHz to 18.6 GHz center frequency. **n** = 4 for > 18.6 GHz center frequency.	
Zero Span	± frequency reference error x center frequency
*After adjusting FREQ ZERO at stabilized temperature. Add 30% of the resolution bandwidth setting if error correction is not used.	

Frequency Span

0 Hz, 100 Hz to 22 GHz over 10 division CRT horizontal axis; variable in approximately 1% increments. Two FULL SPAN keys select spans from 0 to 2.5 GHz and 2 to 22 GHz.

Frequency Span Readout Accuracy

	Accuracy
Range	100 Hz to 20 GHz
Readout Accuracy	
Spans ≤ **n** x 5 MHz	± 1% of indicated frequency separation
Spans > **n** x 5 MHz	±3% of indicated frequency separation
Start or Stop Frequency	Same as center frequency.

Resolution

Resolution Bandwidth

3 dB bandwidths of 10 Hz to 3 MHz in a 1, 3, 10 sequence. Bandwidth may be selected manually or coupled to frequency span (AUTO mode).

3 dB Bandwidth Accuracy*

Bandwidths	Accuracy
3 MHz	±20%
3 kHz to 1 MHz	±10%
10 Hz to 1 kHz	±20%
*30 kHz and 100 kHz bandwidth accuracy figures only applicable ≤90% relative humidity, ≤40°C.	

60 dB/3 dB Bandwidth Selectivity Ratio*

Bandwidths	Selectivity
100 kHz to 3 MHz	<15:1
3 kHz to 30 kHz	<13:1
30 Hz to 1 kHz	<12:1
*60 dB points on 10 Hz bandwidth are separated by <100 Hz.	

Resolution Bandwidth (Option 462 6 dB Bandwidths)

6 dB bandwidths of 10 Hz to 3 MHz in 1, 3, 10 sequence. Bandwidth may be selected manually or coupled to frequency span (AUTO mode).

6 dB Bandwidth Accuracy*

Bandwidths	Accuracy
3 MHz	±20%
30 Hz to 1 MHz	±10%
10 Hz	+50, -0%
*30 kHz and 100 kHz bandwidth accuracy figures only applicable ≤90% relative humidity ≤40°C.	

60 dB/6 dB Bandwidth Selectivity Ratio'

Bandwidths	Selectivity
100 kHz to 3 MHz	<11:1
30 Hz to 30 kHz	<8:1
*60 dB points on 10 Hz bandwidth are separated by <100 Hz.	

Resolution Bandwidth (Option 462 Impulse Bandwidth)

Impulse bandwidth of 1 kHz to 3 MHz and 6 dB bandwidth of 10 Hz to 300 Hz in 1, 3, 10 sequence. Bandwidth may be selected manually or coupled to frequency span (AUTO mode).

Impulse Bandwidth Accuracy*

Bandwidths	Accuracy
3 MHz (Impulse Bandwidth)†	±20%
1 kHz to 1 MHz (Impulse Bandwidth)†	±10%
10 Hz to 300 Hz (6 dB Bandwidth)	+50, -0%
*30 kHz and 100 kHz bandwidth accuracy figures only applicable ≤90% relative humidity ≤40°C. † Applicable in 10 dB/DIV	

60 dB/6 dB Bandwidth Selectivity Ratio*

Bandwidths	Selectivity
100 kHz to 3 MHz	<11:1
30 Hz to 30 kHz	<8:1
*60 dB points on 10 Hz bandwidth are separated by <100 Hz.	

Bandwidth Shape

Synchronously-tuned, five-pole filters for 10 Hz to 30 kHz bandwidths; four-poles, 100 kHz to 3 MHz bandwidth. Approximate Gaussian shape optimized for minimum sweep time and smooth pulse response with calibrated display.

Spectral Purity

Noise Sidebands'

Offset from Carrier	Sideband Level
320 Hz	-80 dBc/Hz
1 kHz	-85 dBc/Hz
10 kHz	-90 dBc/Hz
100 kHz	-105 dBc/Hz
*For frequency span ≤25 kHz (except 100 kHz offset) and center frequency from 100 Hz to 5.8 GHz.	

Power-Line-Related Sidebands *

	Center Frequency	
Offset from Carrier	≤100 MHz	>100 MHz to 5.8 GHz
<360 Hz	-70 dBc	-60 dBc
360 Hz to 2 kHz	-75 dBc	—
*For line conditions specified in "Power Requirements" under "General" at the end of this chapter.		

Amplitude

Measurement Range

Measurement range is the total amplitude range over which the analyzer can measure signal responses. The low value is determined by sensitivity (10 Hz resolution bandwidth and 0 dB input attenuation), and the high value by damage level.

Amplitude Measurement Range

Tuned Frequency	Range
Non-Preselected	
100 Hz to 50 kHz	-95 dBm to +30 dBm
50 kHz to 1 MHz	-112 dBm to +30 dBm
1 MHz to 2.5 GHz	-134 dBm to +30 dBm
Preselected	
2.0 GHz to 5.8 GHz	–132 dBm to + 30 dBm
5.8 GHz to 12.5 GHz	–125 dBm to + 30 dBm
12.5 GHz to 18.6 GHz	-119 dBm to +30 dBm
18.6 GHz to 22 GHz	-114 dBm to +30 dBm

Displayed Values

Scale

Over a lo-division CRT vertical axis with reference level (0 dB) at the top graticule line.

Calibration

	Calibration
Log	10 dB/div for 90 dB display from reference level. Expanded from reference level: 5 dB/div for 50 dB display 2 dB/div for 20 dB display 1 dB/div for 10 dB display
Linear	10% of reference level/div when calibrated in voltage.

Reference Level Range

	Range
Log	+30.0 to -99.9 dBm or equivalent in dBmV, dBμV, volts. Readout expandable to +60.0* dBm to -119.9 dBm (-139.9 dBm for ≤1 kHz resolution bandwidth) using SHIFT, ATTEN (KSI).
Linear	7.07 V to 2.2 μV full scale. Readout expandable to 223.6 V* to 2.2 μV (0.22 μV for <1 kHz resolution bandwidth) using SHIFT, ATTEN (KSI).

*Maximum total input power not to exceed +30 dBm damage level.

Accuracy

The sum of several factors, listed in "Amplitude Uncertainty," determines the accuracy of the reference level readout. Refer to the "Amplitude Uncertainty" section in this chapter.

Reference Lines Accuracy

Equals the sum of reference level accuracy plus the scale fidelity between the reference level and the reference line level.

Dynamic Range

Spurious Responses

Spurious responses are signals generated by the analyzer due to input signals. For total signal power ≤ -40 dBm at the input mixer, all harmonic and intermodulation distortion >70 dB below input signal.

Note

Input mixer level is defined as the input attenuation subtracted from the total signal power at the input connector.

Second Harmonic Distortion

Frequency Range	Distortion
100 Hz to 50 MHz (non-preselected)	<-70 dBc
50 MHz to 700 MHz (non-preselected)	<-80 dBc
700 MHz to 2.5 GHz (non-Dreselected)	<-70 dBc
2 GHz to 22 GHz (preselected) For mixer levels <– 10 dBm	<-100 dBc

Third Order Intermodulation Distortion and Third Order Intercept

Frequency Range	TO1
100 Hz to 5 MHz	>+5 dBm
5 MHz to 5.8 GHz	>+7 dBm
5.8 GHz to 18.6 GHz	>+5 dBm

Note

For typical second and third order distortion characteristics, see Figure 4-4 in Chapter 4, "Performance Characteristics."

Note

Dynamic range due to TO1 and noise level can be calculated from 2/3 [TOI – displayed average noise level]. For example, at 18 GHz the analyzer's specified dynamic range when using the 10 Hz resolution BW is: 2/3 [+ 5 dBm – (-120 dBm)] = 2/3(125) = 83 dB.

Note

Two tone intermodulation distortion products can be calculated from 2 (TO1 – signal level). For example, for two tones at – 33 dBm, the intermodulation products for a +5 dBm TO1 will be:
2 [+5 dBm –(–33)] = 76 dB down.

Image, Multiple, and Out-of-Band Responses

Image responses are due to input signals that are two times the IF frequency above or below the tuned frequency. Multiple responses are due to input signals mixing with more than one LO harmonic. Out-of-band responses are due to input signals outside of the selected frequency band.

Image, Multiple, and Out-of-Rand Responses

	Tuned Frequency (GHz)				
Applied Frequency (GHz)	**0—2.5**	**2.0—5.8**	**5.8—12.5**	**12.5—18.6**	**18.6—22.0**
0—2.5	NA	−60 dBc	−60 dBc	−60 dBc	−60 dBc
2.0—5.8	−60 dBc	−70 dBc	−60 dBc	−60 dBc	−60 dBc
5.8—12.5	−50 dBc	−60 dBc	−70 dBc	−60 dBc	−60 dBc
12.5—18.6	−45 dBc	−60 dBc	−60 dBc	−70 dBc	−60 dBc
18.6—22.0	−40 dBc	−60 dBc	−60 dBc	−60 dBc	−70 dBc*

*Image Responses: -60 dBc, 18.6-20.0 GHz; -50 dBc, 20.0-22 GHz

Residual Responses

Residual responses are signals generated by the analyzer independent of input signals.

Residual Responses†

Frequency Range	Residual Responses
100 Hz to 5.8 GHz	<−100 dBm ‡
5.8 GHz to 12.5 GHz	<−95 dBm
12.5 GHz to 18.6 GHz	<−85 dBm
18.6 GHz to 22 GHz	<−80 dBm

†With 0 dB input attenuation and no input signal.

‡For 100 Hz to 5.8 GHz range, residual responses are limited by the appropriate displayed average noise level or -100 dBm, whichever is greater.

Gain Compression

<1.0 dB, 100 Hz to 22 GHz with ≤−5 dBm at input mixer

Displayed Average Noise Level (Sensitivity)

Average Noise *

Tuning Range	Level
Non-preselected	
100 Hz to 50 kHz	<−95 dBm
50 kHz to 1.0 MHz	<−112 dBm
1.0 MHz to 2.5 GHz	<−134 dBm
Preselected	
2.0 GHz to 5.8 GHz	<−132 dBm
5.8 GHz to 12.5 GHz	<−125 dBm
12.5 GHz to 18.6 GHz	<−119 dBm
18.6 GHz to 22 GHz	<−114 dBm

*0 dB input attenuation and 10 Hz resolution bandwidth.

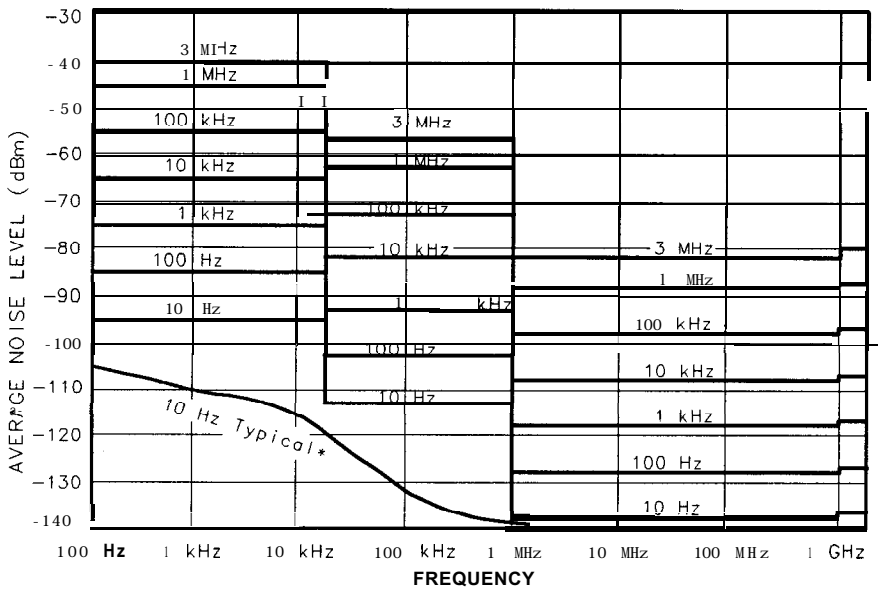

Figure 3-1.
Specified Average Displayed Noise Level, 100 Hz to 2.5 GHz Non-preselected Tuning Range

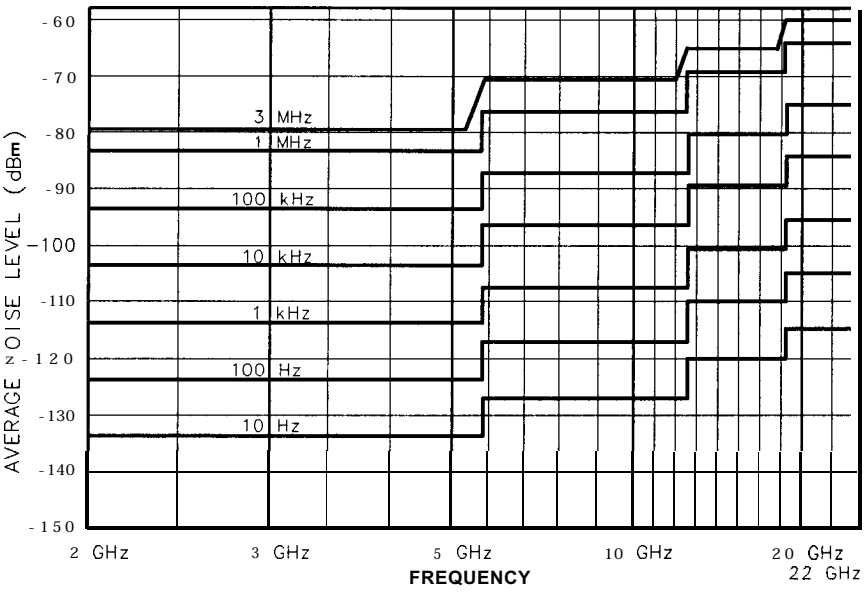

Figure 3-2.
Specified Average Displayed Noise Level, 2.0 GHz to 22 GHz Preselected Tuning Range

Amplitude Uncertainty

The following table summarizes the amplitude measurement uncertainties along with their respective dependent variables (such as tuned frequency or reference level range) versus corrected and uncorrected conditions and ambient temperature ranges.

Amplitude Uncertainty

Source of Uncertainty	Dependent Variable	With Uncorrected Readout (SHIFT) STOP FREQ (KSY)		With Corrected Readoul SHIFT (FREQUENCY SPAN) (KSW) SHIFT START FREQ (KSX)[1]
		20°C to 30°C	0°C to 55°C	20°C to 30°C
Calibrator Amplitude[6]	None	f0.3 dB	±0.3 dB	f0.3 dB
Frequency Response (flatness)[2,6]	**Tuned Frequency:**			
	100 Hz to 2.5 GHz	±0.6 dB	fl.O dB	f0.6 dB
	2.0 GHz to 12.5 GHz	f1.7 dB	f1.7 dB	f1.7 dB
Input attenuation (10 dB)	12.5 GHz to 18.6 GHz	±2.2 dB	f2.2 dB	i-2.2 dB
	18.6 GHz to 20.0 GHz	f2.2 dB	f3.3 dB	f2.2 dB
	20.0 GHz to 22 GHz	f3.0 dB	f4.1 dB	± 3.0 dB
Cumulative	100 Hz to 20 GHz	f2.2 dB	f3.3 dB	± 2.2 dB
kmulative	100 Hz to 22 GHz	f3.0 dB	f4.1 dB	f3.0 dB
Absolute Amplitude Calibration[4,6]	Applicable when making absolute amplitude measurements	±0.6 dB	f0.6 dB	f0.6 dB
Resolution Bandwidth Switching Referenced to 1 MHz RES BW	**Resolution BW:**			
	10 Hz	±2.0 dB	±4.0 dB	±1.1 dB
	30 Hz	f0.8 dB	f2.3 dB	±0.4 dB
	100 Hz to 1 MHz	f0.5 dB	±2.0 dB	f0.2 dB
	3 MHz	±1.0 dB	f2.0 dB	±0.2 dB
Log Scale Switching	Changing Log Scale	f0.5 dB	fl.O dB	fO.1 dB
Log Fidelity[6]	Incremental error for dB differential between calibration and measured signal, over 0 to 80 dB from reference level	≤±0.10 dB/dB	≤±0.15 dB/dB	≤±0.10 dB/dB
	Cumulative Error			
	10 Hz RES BW			
	Over 0 to 90 dB	≤±2.1 dB	≤±2.8 dB	32.1 dB
Option 857	Over 0 to 70 dB	≤±0.8 dB		≤±0.8 dB
	≥30 Hz RES BW			
	Over 0 to 90 dB	31.5 dB	≤±1.5 dB	≤±1.5 dB
	Over 0 to 80 dB	≤±1.0 dB		≤±1.0 dB
Option 857	Over 0 to 70 dB	≤±0.6 dB		≤±0.6 dB
Linear Fidelity[6]	Over top 9-1/2 divisions of display[8]	<±3% of Reference Level	<±3% of Reference Level	<±3% of Reference Level

Aplitude Uncetainty (continued)

Source of Uncertainty	Dependent Variable	With Uncorrected Readout SHIFT STOP FREQ (KSY)		With Corrected Readout SHIFT (FREQUENCY SPAN) (KSW) SHIFT [START FREQ] (KSX)[1]
		20°C to 30°C	0°C to 55°C	20°C to 30°C
IF Gain'	**RES BW ≥3 kHz**			
Reference	**Reference Level**			
to -10 dBm	0 to -59.9 dBm	≤±0.6 dB	≤±1.0 dB	≤±0.3 dB
Reference Level	-60 to -100 dBm	≤±1.0 dB	≤±1.5 dB	≤±1.0 dB
with 10 dB input				
attenuation	**RES BW 100 Hz—1 kHz**			
	Reference Level			
	0 to -79.9 dBm	≤±0.6 dB	≤±1.0 dB	≤±0.3 dB
	-80 to -100 dBm	≤±1.0 dB	≤±1.5 dB	≤±1.0 dB
	RES BW 30 Hz			
	Reference Level			
	0 to -79.9 dBm	≤±0.6 dB	≤±1.0 dB	≤±0.3 dB
	-80 to -100 dBm	≤±2.0 dB	≤±2.5 dB	≤±2.0 dB
	RES BW 10 Hz			
	Reference Level			
	0 to -79.9 dBm	≤±1.6 dB	≤±2.0 dB	≤±1.0 dB
	-80 to -100 dBm	≤±2.0 dB	<±2.5 dB	<±2.0 dB
Log Digitizing[6]	**Log Scale:**			
	10 dB	f0.2 dB	f0.2 dB	f0.2 dB
	5 dB	fO.1 dB	fO.1 dB	fO.1 dB
	2 dB	±0.04 dB	±0.04 dB	f0.04 dB
	1 dB	±0.02 dB	±0.02 dB	±0.02 dB
Linear Digitizing[6]		±0.2% of ref. level	±0.2% of ref. level	±0.2% of ref. level
Error Correction[5]	Corr'd function off or on	N/A	N/A	f0.4 dB

Table Footnotes

1 Requires executing the error correction function (SHIFT [FREQUENCY SPAN]) after stabilization at new ambient temperature. Otherwise a typical amplitude drift may be f0.05 dB/°C (at -10 dBm reference level, 10 dB input attenuation and 1 MHz resolution SW.)

2 Includes input attenuator in 10 dB position, mixing mode, gain variations, and assuming PRESELECTOR PEAK in current instrument state. COUPLED FUNCTION not required as long as MEAS UNCAL message is not displayed.

3 Supplemental characteristic (typical, nonwarranted performance parameter).

4 Assuming internal calibration signal is used to calibrate the reference level at -10 dBm and the input attenuator is fixed at 10 dB.

5 When the error correction function is used, amplitude uncertainty is introduced because additional IF gain is used to offset the amplitude errors caused by resolution BW switching and display scale switching errors.

6 Unaffected by error correction.

7 Usable reference level range is a function of resolution bandwidth. Refer to Displayed Average Noise Level.

8 For IF-Display sections with serial prefixes 3014A and above, specification applies over entire display.

Marker

The marker is a bright dot placed upon the display trace and is positioned horizontally by the DATA controls. The marker amplitude and frequency are read out continuously.

Frequency Accuracy

Marker Type	Accuracy
Normal	same as center frequency accuracy.
A	same as frequency span accuracy.

Amplitude Accuracy

Marker Type	Accuracy
Normal	same as reference level accuracy plus scale fidelity between the reference level and marker position.
A	same as frequency response uncertainty and scale fidelity between two markers.

Sweep

Sweep Time Accuracy

Sweep Time	Accuracy
≤200 seconds sweep times	±10%
>200 seconds sweep times	±30%

Inputs

RF INPUT

Connector	Precision Type N female, front panel
Frequency Range	100 Hz to 22 GHz, dc coupled
Maximum Input	
ac	Continuous power: + 30 dBm from 50Ω source. Mixer protected by diode limiter, 100 Hz to 2.5 GHz. Pulse power: ≤100 W, 10 μs pulse width and ≤1% duty cycle with ≥50 dB input attenuation (≤0 dBm peak power to input mixer).
dc	<100 mA damage level
Input Attenuator	0 to 70 dB in 10 dB steps

Note — +30 dBm (1 W) input damage level.

IF INPUT

Connector	SMA female, front panel
Sensitivity	-30 dBm at 321.4 MHz produces 0 dB ±1.0 dB display on CRT when (SHIFT) ▢ (KSU) is executed, reference level 0 dBm, conversion loss set to 30 dB, resolution bandwidth 1 MHz and a scale 1 dB/div.
Maximum Input	
ac	+ 10 dBm continuous power from 50Ω source.
dc	20 V with rise time of <1 V/μs.

outputs

CAL OUTPUT

Connector	BNC female, front panel
Impedance	500 nominal
Frequency	100 MHz *(frequency reference error x 100 MHz)
Amplitude	-10 dBm f0.3 dB

1ST LO OUTPUT

Connector	SMA female, front panel
Impedance	50Ω nominal
Frequency	2.3 to 6.1 GHz
Amplitude	>+5 dBm
Maximum Safe Reverse Level	+27 dBm (1/2 W) total power into 50Ω

SWEEP + TUNE OUTPUT

Connector	BNC female. rear panel
Impedance	10 kΩ nominal
Amplitude	-1 V/GHz of tuned frequency ±(2% + 10 mV)

400 Hz Power Line Frequency Operation Option 400

Power Line Related Sidebands*

Offset from Carrier	Sideband Level
<2 kHz	-55 dBc
2 kHz to 5.5 kHz	-65 dBc
*For Center Frequency from 100 Hz to 5.8 GHz	

Power Requirements

	Specification
Line Frequency	400 Hz ±10% line frequency (50 Hz to 60 Hz operation for servicing only)
Line Voltage	100 or 120 V (+5%, -10%)

Operating Temperature Range

Power Line Frequency	Temperature Range
50 Hz to 60 Hz (service only, not for extended periods)	0°C to 40°C
400 Hz	0°C to 55°C

General

HP-IB Interface Functions

SH1, AH1, T6, L4, SR1, RL1, PPO, DC1, DT1, Cl, C2, C3, C28, E2

Environmental

Temperature

Operation: 0°C to 55°C
Storage: -40°C to 75°C

Increased internal temperatures may result if the rear-panel air filters are not cleaned regularly.

Altitude

Operation: ≤4,572 m (15,000 feet)
Storage: 515,240 m (50,000 feet)

Power Requirements

50 to 60 Hz; 100, 120, 220, or 240 volts (+5%, -10%); approximately 650 VA (40 VA in standby). 400 Hz operation is available as Option 400.

Humidity

Operation

Except as noted in electrical specifications, type tested at <95% relative humidity, 25°C to 40°C for five days.

Storage

5% to 90% relative humidity, 0°C to 40°C.

EMI

Conducted and radiated interference is within the requirements of MIL-STD 461C, Part 7 RE02 and CEO3 (Air Force), and within the requirements of CISPR Publication 11 and Messempfaenger-Postverfuegung 526/527/79 (Kennzeichnung Mit F-Nummer/Funkschutzzeichen).

X-Rays

Serial Prefix 3004A and Above

X-rays generated by this instrument are sufficiently screened.

Die in diesem geraet entstehende roentgenstrahlung ist ausreichend abgeschirmt .

accel. voltage / beschl. spg < 20 kV

Serial Prefix 3001A and Below

When operating, this instrument emits x-rays; however, it is well shielded and meets safety and health requirements of various countries, such as the X-Ray Radiation Act of Germany. Radiation emitted by this instrument is less than 0.5 mR/hr at a distance of five (5) centimeters from the surface of the cathode-ray tube. The x-ray

radiation primarily depends on the characteristics of the cathode-ray tube and its associated low-voltage and high-voltage circuitry. To ensure safe operation of the instrument, adjust both the low-voltage and high-voltage power supplies as outlined in the Performance Tests and Adjustments manual (if applicable).

Replace the cathode-ray tube with an identical CRT only.

Number of German License: BW/50/79/ROE

Waehrend des Betriebs erzeugt dieses Geraet Roentgenstrahlung. Das Geraet ist so abgeschirmt, dass die Dosisleistung weniger als 36 pA/kg (0,5 mR/h) in 5cm Abstand von der Oberflaeche der Katodenstrahlroehre betraegt. Somit sind die Sicherheitsbestimmungen verschiedener Laender, u.A. der deutschen Roentgenverordnung eingehalten.

Die Staerke der Roentgenstrahlung haengt im Wesentlichen von der Bauart der Katodenstrahlroehre ab, sowie von den Spannungen, welche an dieser anliegen. Um einen sicheren Betrieb zu gewaehrleisten, duerfen die Einstellungen der Niederspannungsund des Hochspannungsnetzteils nur nach der Anleitung des Handbuches vorgenommen werden.

Die Katodenstrahlroehre darf nur durch die gleiche Type ersetzt werden.

Das Geraet ist in Deutschland zugelassen unter der Nummer: BW/50/79/ROE

Warm-Up Time

Operation

Requires 30-minute warm-up from cold start, 0°C to 55°C. Internal temperature equilibrium is reached after 2-hour warm-up at stabilized ambient temperature.

kequency Reference

From a cold start (no line power connected to HP 8566B), the following conditions apply:

- <72 hours to meet aging rate specification after <24-hour off period.
- <30 days to meet aging rate specification after indefinite off period.
- <30 minutes to be within 1 x 10^{-8} of 24-hour warm-up frequency (at 25°C).

Weight

	Weight
Total net	**50** kg (112 lb)
RF Section (net)	29 kg (65 lb)
IF-Display Section (net)	21 kg (47 lb)
RF Section (shipping)	**35** kg (78 lb)
IF-Display Section (shipping)	**27** kg (60 lb)

Dimensions

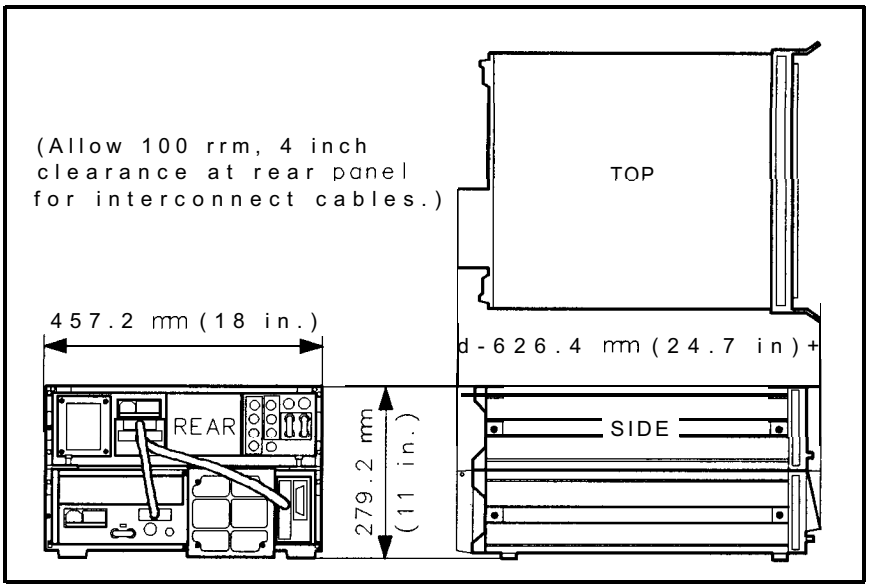

Figure 3-3. Instrument Dimensions with Handles

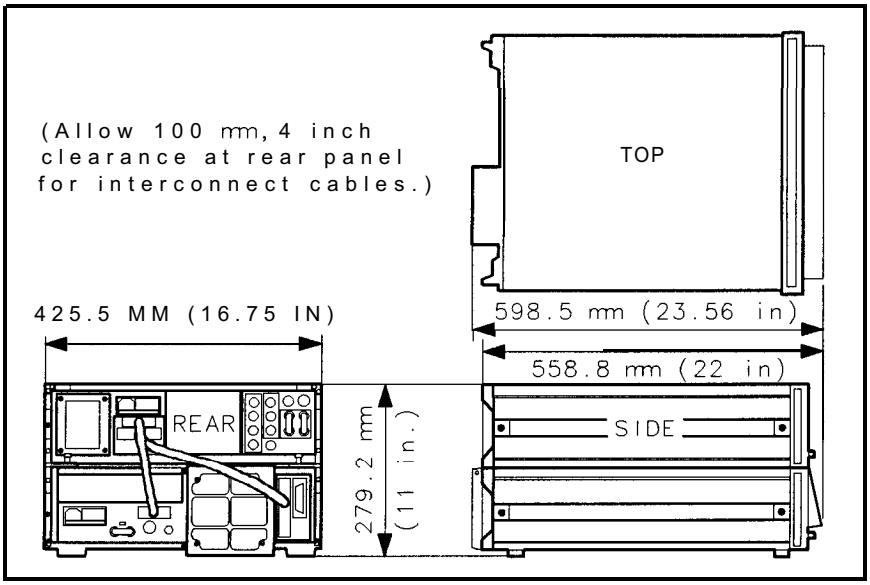

Figure 3-4. Instrument Dimensions without Handles