Table 1-1. Signal Generator Specifications

Specifications apply 1 hour after turn-on within operating temperature range.

FREQUENCY (8-1/2 digit display)

RANGE	0.01 MHz to 520.0 MHz in two bands: 0.01 MHz to 244.99999 MHz 245 MHz to 520.00000 MHz
RESOLUTION	10 Hz.
ACCURACY	Same as reference (see REFERENCE).
REFERENCE (Internal)	Accuracy within 10 ppm of indicated frequency. Unit operates on an internal free-air 10-MHz crystal oscillator, aging < ±0.5 ppm/month. < ±5 ppm for 25°C, ±25°C. Frequency stability < ±0.5ppm/hour 1 hour after warm up. Internal reference signal (10 MHz TTL) available at rear connector.
(External)	Accepts 10-MHz TTL signal.

AMPLITUDE (3-1/2 digit display)

RANGE (Indicated)	+13 (+13 peak on AM) to -127 dBm; (Autoranging 6-dB step attenuator).
RESOLUTION	0.1 dB (< 1% or 1 nV in volts).
ACCURACY	±2.5 dB.
SOURCE SWR	< 1.3 below -10 dBm.

SPECTRAL PURITY (CW mode only)

SPURIOUS	< -35 dBc

NOTE

dBc refers to decibels relative to the carrier frequency, or in this case, relative to the signal level.

HARMONICS	< -30 dBc from 10 MHz to 520 MHz. < -26 dBc from 0.01 MHz to 10 MHz.
RESIDUAL FM (peak in 0.05 kHz to 15 kHz band)	< 200 Hz.
RESIDUAL AM (in 0.05 kHz to 15 kHz band)	< -60 dBc.

AMPLITUDE MODULATION (two-digit display)

DEPTH RANGE	0% to 99%
RESOLUTION	1%
ACCURACY	±6% of setting for internal rates; RF peak amplitude of +13 dBm or less.

Table 1-1. Signal Generator Specifications (cont)

DISTORTION	< 5% THD at 50% AM for 1-kHz rate.
RATES	10 Hz to 20 kHz.
EXTERNAL INPUT LEVEL	Less than 10V peak-to-peak into 600 ohms.
FREQUENCY MODULATION (three-digit display)	
DEVIATION RANGES	1 kHz to 9.99 kHz, 10 kHz to 99.9 kHz, and 100 kHz to 500 kHz.
MAXIMUM DEVIATION	500 kHz at rates above 50 Hz. 50 kHz between frequencies of 0.1 MHz and 5 MHz and rates above 50 Hz.
RESOLUTION	Three digits.
ACCURACY	±5% for 1-kHz rate and > 1-kHz deviation.
RATES	0.05 kHz to 100 kHz.
EXTERNAL INPUT LEVEL	Less than 10V peak-to peak into 600 ohms.
MODULATION SOURCE	
INTERNAL	0.4 kHz or 1 kHz, ±5%
EXTERNAL	±5V max.; 1V peak provides indicated modulation index. Nominal input impedance is 600 ohms.
MODES	Any combination of Internal AM, Internal FM, External AM, and External FM. Modulation may also be disabled. The nominal input impedance with both External AM and External FM enabled is 560 ohms.
DEVIATION METER	
FREQUENCY INPUT	30 MHz to 500 MHz.
INPUT SIGNAL LEVEL	15 mV to 5V rms.
INPUT IMPEDANCE	50 ohms nominal.
MEASUREMENT RANGES	Two ranges of 500 kHz and 50.0 kHz full scale.
POLARITY	Selectable +/- peak.
MODULATION RATE	100 Hz to 8 kHz.
ACCURACY	±6% of full-scale range from 100 Hz to 8 kHz.
GENERAL	
TEMPERATURE Operating	0°C to 50°C (32°F to 122°F)
Non-operating	-40°C to 70°C (-40°C to 158°F)
HUMIDITY RANGE Operating	0-95% non-condensing.

Table 1-1. Signal Generator Specifications (cont)

VIBRATION	
Non-operating	5 Hz to 15 Hz at 0.06 in, 15 Hz to 25 Hz at 0.04 in, and 25 Hz to 55 Hz at 0.02 in. DA.
SHOCK	
Non-operating	Bench handling per MIL T 28800C Class 5, Style E.
ELECTROMAGNETIC COMPATIBILITY	The radiated emissions induce < 1 uV of the Generator's output signal into a 1-inch diameter, two-turn loop, 1 inch from any surface as measured into a 50-ohm receiver.

Also complies with the following standards:

CE03 of MIL-STD-461B (Power and interconnecting leads), 0.015 MHz to 50 MHz

RE02 of MIL-STD-461B (14 kHz to 10 GHz)

FCC Part 15 (j), class A

CISPR 11

REVERSE POWER PROTECTION LEVEL	Up to 50 watts from a 50-ohm source, 0.01 MHz to 520 MHz. Will withstand up to 25V dc. Protection not provided when instrument is off.
IEEE-488 INTERFACE FUNCTIONS (IEEE Std 488-1978)	SH1, AH1, T5, TE0, L3, LE0, SR1, RL1, PP0, DC1, DT1, C0, and E1.

SIZE	Width	Height	Depth
	43 cm	13.3 cm	55.3 cm
	17 in	5.25 in	21.8 in

POWER	115V, 230V ac ±10%, 47 Hz to 400 Hz, < 100 watts.
WEIGHT	< 18.2 kg (40 lbs).
CALIBRATION INTERVAL.....	After calibration, the equipment shall meet each performance requirement within the tolerance specified for a period of 9 months.

SUPPLEMENTAL CHARACTERISTICS

The following characteristics are provided to assist in the application of the instrument and to describe the typical performance that can be expected.

FREQUENCY SWITCHING SPEED ...	< 150 ms to be within 100 Hz of final frequency.
AMPLITUDE SWITCHING SPEED ...	< 100 ms to be within 0.1 dB of final amplitude.
AMPLITUDE RANGE	Programmable to +19 dBm and -147.4 dBm, usable to +15 dBm. Fixed-Range, selected by Special Function, allows for more than 12 dB of vernier without switching the attenuator.

Table 1-1. Signal Generator Specifications (cont)

AM ACCURACY	±(2% + 4% of setting) for internal rates, for depths 90% or less and peak amplitude of +13 dBm or less.
AM DISTORTION	< 1.5% THD to 30% AM, < 3% to 70% AM, < 5% to 90% AM at internal rates.
INCIDENTAL FM	< $0.3f_m$ for internal rates and 30% AM.
FM ACCURACY	±7% for rates from 0.3 to 20 kHz > 1 kHz deviation f_o > 0.4 MHz.
FM DISTORTION	< 1% THD for rates of 0.3 kHz to 20 kHz, 1 kHz to 99.9 kHz deviation for f_o > 5 MHz.
INCIDENTAL AM	< 1% AM at 1 kHz rate, for the maximum deviation or 50 kHz, whichever is less.
RESIDUAL FM (rms in 0.3-KHz to 3-kHz Band).....	< 15 Hz from 245 to 520 MHz; < 30 Hz elsewhere.
RESIDUAL FM (rms in 0.05-kHz to 15-kHz Band).....	< 30 Hz from 245 to 520 MHz; < 60 Hz elsewhere.
NOISE (at 20 kHz offset)	< -113 dBc/Hz (except < -107 dBc/Hz below 245 MHz).
SPURIOUS	< -60 dBc for offsets greater than 10 kHz. Fixed frequency spurs are < -60 dBc or < -140 dBm, whichever is larger.
EXTERNAL MODULATION	Annunciators indicate when a 1V peak signal is applied, ±2%, over a 0.02-kHz to 100-kHz band.
DEVIATION METER ACCURACY	±5% of reading ±1 count for rates between 100 Hz and 10 kHz.
IEEE-488 INTERFACE	All controls except the power switch and the internal/external reference switch are remotely programmable via IEEE Std 488-1978. All status including option compliment are available remotely. The Store/Recall memory data may be transferred via an external controller. In talk only, the appropriate commands are generated when the front panel step-up and step-down entries are made to control another 6060A/AN, 6060A, 6070A, or 6071A. (The 6070 and 6071A only have FREQUENCY STEP.)