

1.3 PERFORMANCE SPECIFICATIONS

1.3.1 CW Operation

FREQUENCY RANGES AVAILABLE (GHz):	<u>FA</u> - <u>FB</u> .01 to 8 GHz .01 to 12 2 to 8 2 to 12 6 to 12 (5.4 to 12.5 GHz) 6 to 18 10 to 18
RESOLUTION:	1 MHz (standard) (1 kHz with Option 03)
ACCURACY/STABILITY:	Identical to timebase oscillator
TIME BASE (INTERNAL):	10 MHz
AGING RATE:	$<1 \times 10^{-6}$ /year after 20 minutes continuous operation ($<1 \times 10^{-9}$ /day with Option 06)
TIME BASE (EXTERNAL):	10 MHz, $\pm 1 \times 10^{-6}$ or better

1.3.2 Spectral Purity

HARMONICS (up to maximum frequency of the generator):	<-40 dBc at ≥ 2 GHz <-30 dBc at < 2 GHz <-50 dBc in Model 6100/10-18
SUBHARMONICS:	None
NONHARMONICS:	<-55 dBc
POWER LINE/FAN RELATED:	<-45 dBc, typical
RESIDUAL FM (50 Hz to 15 kHz BW):	<200 Hz rms
SSB PHASE NOISE (1 Hz BW, 10 kHz offset):	<-75 dBc

1.3.3 RF Output Power

MAXIMUM LEVELED OUTPUTS:	+10 dBm
RESOLUTION:	0.1 dB
MINIMUM OUTPUT LEVEL:	-120 dBm
RF OFF:	Typically attenuates a 0 dBm signal to <-140 dBm at the output connector
OUTPUT ACCURACY (Internally Leveled):	± 2 dB
OUTPUT FLATNESS:	Included in accuracy

OUTPUT IMPEDANCE: 50 ohms, nominal

OUTPUT SWR: $<2:1$

EXTERNAL LEVELING: Negative detector; gain and offset adjustments provided

1.3.4 Pulse/Square Wave Modulation (PM)

PM ENVELOPE PARAMETERS

ON/OFF RATIO: >80 dB

RISE/FALL TIMES: <25 nsec

OVERSHOOT, UNDERSHOOT AND RINGING: ± 2 dB maximum

SETTLING TIME (to within 1 dB): <100 nsec

INTERNALLY GENERATED PM ENVELOPE

REPETITION RATE:

Range	Resolution
10.0 Hz to 99.9 Hz	0.1 Hz
100 Hz to 999 Hz	1 Hz
1.00 kHz to 9.99 kHz	10 Hz
10.0 kHz to 99.9 kHz	100 Hz
100 kHz to 999 kHz	1 kHz

ACCURACY: $\pm 0.33\%$ of setting

JITTER: Same as time base

PULSE DELAY: (referenced to sync output)

Range	Resolution
0.1 usec to 99.9 usec	100 nsec
100 usec to 999 usec	1 usec
1 msec to 9.99 msec	10 usec
10 msec to 99.9 msec	100 usec

ACCURACY: ± 30 nsec, typical

JITTER: Same as time base

PULSE WIDTH: (referenced to pulse leading edge)

Range	Resolution
0.1 usec to 99.9 usec	100 nsec
100 usec to 999 usec	1 usec
1 msec to 9.99 msec	10 usec
10 msec to 99.9 msec	100 usec

ACCURACY: ± 30 nsec, typical

JITTER: Same as time base

EXTERNALLY TRIGGERED PM ENVELOPE

REPETITION RATE: 10 Hz to 1 MHz

PULSE DELAY: Set by internal delay control

DELAY JITTER (referenced to external trigger): ≤ 100 nsec

PULSE WIDTH: Set by internal width control

INPUT TRIGGER REQUIRED: Positive or negative-going TTL level trigger pulse, ≥ 50 nsec wide

EXTERNALLY GENERATED PM ENVELOPE

REPETITION RATE: DC to 1 MHz

PULSE DELAY (Output envelope leading edge referenced to input pulse leading edge): 30 nsec, typical

INPUT PULSE REQUIRED Positive or negative-going TTL level pulse, ≥ 50 nsec wide (leveled output): > 25 nsec wide (unleveled output)

1.3.5 Amplitude Modulation (AM)

AM ENVELOPE PARAMETERS

DEPTH

RANGE: 0 to at least 82%

RESOLUTION: 0.1% steps

ACCURACY: $\pm 10\%$ at 1 kHz rate and 50% depth

INDICATOR

READOUT: 3 digits

RESOLUTION: 0.1%

ACCURACY: $\pm 10\%$ at 1 kHz rate and 50% depth

FREQUENCY RESPONSE (Band width): 10 Hz to 10 kHz (50 kHz, typical, except 15 kHz, typical, in Model 6100/6-12 or 6-18)

HARMONIC DISTORTION (Relative to externally supplied AM envelope): <10% at 1 kHz rate and 50% depth

INTERNALLY GENERATED AM ENVELOPE

WAVEFORM: Sine, square or triangle wave

RATE

Range	Resolution
10.0 Hz to 99.9 Hz	0.1 Hz
100 Hz to 999 Hz	1 Hz
1.00 Hz to 9.99 kHz	10 Hz
10.0 kHz to 99.9 kHz	100 Hz

ACCURACY: ±10% of setting

EXTERNALLY SUPPLIED AM ENVELOPE

WAVEFORM: Any waveform compatible with bandwidth considerations

RATE: 10 Hz to 100 kHz

SENSITIVITY: 1V, p-p, is 50% modulation at 1 kHz rate

INPUT IMPEDANCE: 600 ohms, nominal

1.3.6 Frequency Modulation (FM)

FM ENVELOPE PARAMETERS

DEVIATION: 5 MHz, peak

FLATNESS (Bandwidth): +3 dB, 10 Hz to 1 MHz

RESIDUAL FM: 1.5 kHz rms, typical

INDICATOR

READOUT: 3 digits

RESOLUTION: 10 kHz

ACCURACY: ±10% at 100 kHz rate and 3 MHz peak deviation

DISTORTION: <5% at 500 kHz rate and 5 MHz peak deviation

INTERNALLY GENERATED FM ENVELOPE

WAVEFORM: Sine, square or triangle wave

RATE

Range	Resolution
10.0 Hz to 99.9 Hz	0.1 Hz
100 Hz to 999 Hz	1 Hz
1.00 kHz to 9.99 kHz	10 Hz
10.0 kHz to 99.9 kHz	100 Hz

ACCURACY:

±10% of setting

EXTERNALLY SUPPLIED FM ENVELOPE

WAVEFORM:

Any waveform compatible with bandwidth considerations

RATE:

10 Hz to 1 MHz

SENSITIVITY:

2 V, p-p, for maximum deviation

INPUT IMPEDANCE:

50 ohms, nominal

1.3.7 GENERAL SPECIFICATIONS

REMOTE INTERFACE:

IEEE STD 488-1978, all parameters except AC power on/off

OPERATING TEMPERATURE:

0 to +50 degrees Celsius

ENVIRONMENTAL:

Complies with MIL-T-28800D, Type III, Class 5, Style E

POWER:

100/120/220/240 VAC ± 10%, 50-400 Hz, 200 Watts, nominal

WEIGHT AND DIMENSIONS:

	Net	Packed for Air Shipment
Width	16.75 in. (42.5 cm.)	23 in. (58.4 cm.)
Depth	18.00 in. (45.6 cm.)	25 in. (63.4 cm.)
Height	5.25 in. (13.3 cm.)	12 in. (30.4 cm.)
Volume	.92 cu. ft. (.025 cu. m.)	3.99 cu. ft. (.1128 cu. m.)
Weight	40 lbs. (18.2 kg.)	48 lbs. (21.8 kg.)