SECTION 1
GENERAL INFORMATION

1.1 INTRODUCTION

The Wavetek 1060 Series is a family of rugged, low cost, solid state sweep generators covering the frequency range of 1 to 400 MHz. The Models 1061 and 1062 are general purpose sweep generators designed for a variety of applications, while the Models 1066 and 1067 are designed primarily for CATV use. Each unit features 20 dB PIN diode leveling and remote programming of center frequency, sweep width, and output level. Up to five crystal controlled marker modules may be plugged into the unit. These modules are controlled by convenient front panel ON/OFF switches. Marker amplitude and width controls enable optimum adjustment of the marker display. Additionally, an external marker option can provide a marker by combining an external CW source with a sample of the sweep oscillator signal. Other optional features include an adjustable Pilot Carrier Notch control, and a sweep display Tilt control for use in CATV applications.

The 1060 Series features modular plug-in construction, which allows optional features to be factory installed at the time of purchase, or customer installed at a later date. This concept offers protection against obsolescence since updated and additional features can be easily and economically added as new requirements dictate.

1.2 SPECIFICATIONS

1.2.1 RF SPECIFICATIONS

Frequency Range	1 to 400 MHz
Operating Modes	Sweep and CW
Frequency Dial	
calibration	50 MHz intervals
accuracy	20 MHz
Sweep Width	200 kHz to 400 MHz
Display Linearity	2%
Spurious Signals	(Fundamental - 10 to 400 MHz)
harmonic	30 dB below the output
non-harmonic	30 dB below the output
Residual FM	less than 20 kHz
Drift	100 kHz/5 minutes - 2 MHz/8 hours (after ½ hour warmup at constant temperature, and allowing a 5 minute stabilizing period after a frequency change.)
Blanking	Retrace blanking of the RF output provided for sweep operation. Removed for CW operation.

RF Output Amplitude
Models 1061 and 1062 . . . . . Continuously adjustable from +10 to -60 dBm.
level calibration . . . . . 50 dB in 10 dB steps; 20 dB vernier with 0 to -15 dB calibrated in 1 dB increments
accuracy . . . . . Vernier: ±1 dB
Step Attenuator: ±.2 dB/10 dB step

RF Output Amplitude
Models 1066 and 1067 . . . . . Continuously adjustable from +57 to -13 dBmV.
level calibration . . . . . 50 dB in 10 dB steps: 20 dB vernier with +7 to -7 dBmV calibrated in 1 dB increments.
accuracy . . . . . Vernier: ±1 dB
Step Attenuator: ±.2 dB/10 dB step

RF Output Impedance
Models 1061 and 1062 . . . . . 50 Ω standard (75 Ω optional)
Models 1066 and 1067 . . . . . 75 Ω only

RF Output Flatness . . . . . ±.25 dB (measured with Wavetek detector)

DC Blocking . . . . . Models 1066 and 1067 include a DC block (100 V max.) in the RF output line.

Internal RF Detector
Models 1061 and 1062 . . . . . 50 Ω standard (75 Ω optional)
Models 1066 and 1067 . . . . . 75 Ω only
(Each contains a DC block)

1.2.2 SWEEP

Models 1062 and 1067 . . . . . Modes: Repetitive sweep, single sweep, externally triggered sweep, line locked sweep
Rates: continuously variable from less than 0.5 Hz to more than 60 Hz.

Models 1061 and 1066 . . . . . Line locked, 50 or 60 Hz.

1.2.3 SCOPE HORIZONTAL

10 Vpp triangular waveform (symmetrical about ground).

1.2.4 RF MARKERS

Pulse and birdy type markers are provided by plug-in "A" options. Six sockets are provided for these options. Birdy marker modules use one socket; pulse markers use two.

Marker Modules
Birdy Markers
A1 Option . . . . . Single frequency markers at any frequency within the instrument frequency range (Module M6S-).

A2 Option . . . . . Harmonic or comb type markers at 1, 10, 50 MHz and a double marker which contains markers at .1 and 1 MHz. Other frequencies available on special order (Module M6H-).

A3 Option . . . . . External marker provides a marker by combining a CW source supplied by an external source and a sample of the sweep oscillator signal. A connector mounted on the instrument rear panel requires a signal of .1 V into 50 ohms from an external source to produce a marker. (Module M6C).

Pulse markers
A4 Option . . . . . Single frequency markers between 35 and 52 MHz. Up to 5 pulses per module selected by plug-in crystals (Module M13J).

Marker switching — Four front-panel switches control the 6 Marker sockets in the following manner.

Marker socket a . . . . . This socket is always "on" and is normally used for option A3.

Marker socket b, c, d . . . . . These three sockets are individually turned on by the top three front-panel buttons.

Marker sockets e and f . . . . . These two sockets are turned on together by the bottom front-panel button and are normally used for option A4.

Marker size — Adjustable approximately from 2 mVpp to 2 Vpp.

Marker Width
Pulse . . . . . ≈80 μs
Birdy . . . . . adjustable, ≈100 to 400 kHz

Marker Accuracy
Pulse . . . . . 0.02% (at leading edge)
Birdy . . . . . 0.005% (at center)

1.2.5 Programming — The rear-panel REMOTE jack provides for remote control of center frequency, sweep width, and 20 dB of the output level. The connections can also be used to provide external AM or FM as specified in Table 1-1.

Also provided is access to ±18 V (30 mA), blanking and SCOPE HORIZONTAL signals, plus an input for triggering the sweep rate generator (requires +10 V pulse).

Table 1-1. External Modulation

AM -	
Percent	90% max
Modulating Frequency	DC to 25 kHz
Sensitivity	9% AM per volt
Input Impedance	10 kΩ
Note: The output level must be reduced by at least 6 dB by the VERNIER control to allow 90% modulation.	
FM -	
Input Impedance	10 kΩ
Sensitivity	50 MHz per volt
Deviation	entire range of instrument
Modulating Frequency	DC - 4 kHz at above deviation, up to 100 kHz with reduced deviation and linearity

1.2.6 POWER REQUIREMENTS . . . . . 115 or 230 VAC ±10%, 50 or 60 Hz, 25 VA max.

1.2.7 MECHANICAL

Coaxial Connectors

Models 1061 and 1062 . . . . . Type BNC

Models 1066 and 1067 . . . . . Type F

Width . . . . . 11¼" (28.6 cm)

Height . . . . . 4" (10.2 cm)

Depth . . . . . 10½" (26.7 cm)

Weight . . . . . 8¼ lb. (3.7 kg.)

1.2.8 ENVIRONMENTAL . . . . . Specifications apply at 25° C ±5°C. The instrument will operate over the range of 0°C to 50°C.

1.3 OPTIONS

1.3.1 "A" Options . . . . . For specifications of frequency markers see section 1.2.4.

1.3.2 "B" Options . . . . . The instrument has provisions for including one of the following "B" options. The options are mounted inside the rear panel through which any required controls are accessible.

B2 - Pilot Carrier Notches and Tilt control . . . . . This option applies to instruments used in CATV applications. The output is blanked at two adjustable frequencies. A single ON/OFF switch is located on the rear panel. Two external controls determine the notch frequency. An internal adjustment determines the notch width between 3 and 10 MHz (this option includes Option B3, Tilt control).

B3 - Tilt Control . . . . . This option can be used to simulate or compensate for cable losses. Depending on the output VERNIER setting, the highest frequency of the sweep display can be increased by 6 dB or decreased by 20 dB, referenced to the lowest frequency of the sweep display. Rear panel controls include an ON/OFF switch and a variable TILT control.

1.4 ACCESSORIES

1.4.2 Accessories Available:

Wide Band RF Detectors . . . . . Model D151 for 50 ohm impedance and Model D171 for 75 ohm impedance (both have BNC connectors)

Rack Mount Kit . . . . . K015 enables unit to be mounted in a 19" wide rack.