GENERAL

The Model 519 is two generators in one package. The main generator is a VCF (voltage controlled frequency) function generator, producing sine, square, triangle, pulse, +sine and sync waveforms over an overall frequency range of 0.01Hz to 11MHz. The AM/FM generator is a second function generator producing sine, square, and triangle waveforms over a frequency range of 1Hz to 1MHz. It is also used to gate or trigger the main generator for tone-burst and pulse generator operation. Variable symmetry provides a ramp for sweeping the main generator.

Simultaneous AM and FM is provided by selecting both AM and FM with the mode switches. Percent of modulation can be set with either carrier level or AM level and the percent of modulation remains constant for all levels of output settings. Percent of modulation is adjustable from 0% through 100% and on to double sideband suppressed carrier. The symmetry of the AM-FM modulation generator can be varied to provide a ramp waveform suitable for frequency sweeps.

A search mode is provided using the frequency multiplier vernier, so the main generator can be manually swept over three decades. In the pulse mode, pulse duration as well as repetition rate are variable. The main generator can also be manually or externally gated or triggered. External amplitude and frequency modulating signals can be applied to AM and/or FM the main generator. An external carrier mode is provided to allow the Model 519 to modulate other signals. The AM/FM generator output is available on the front panel and the AM/FM sync output (square wave) is available from a rear panel connector. The output amplifier has a 60db step attenuator in 10db steps and 20db variable plus 60db carrier level for greater than 120db attenuation and ±10V of variable DC offset.

The Model 519 is a combination SINE, SQUARE, TRIANGLE, AM, FM, VCF, SWEEP, TONEBURST, PULSE GENERATOR all at a surprising low cost.

SPECIFICATIONS

WAVEFORMS
Sine, Square, Triangle, Positive Sine, Positive Pulse, Negative Pulse.

DYNAMIC FREQUENCY RANGE
Main generator, 1Hz to 11MHz (0.01 Hz in search mode)
AM/FM generator, 1 Hz to 1 MHz.

MODES OF OPERATION
Run, Gate, Trigger, Pulse, Burst, FM, AM, Simultaneous AM-FM, Ext. carrier.

SYNC OUTPUTS
Main generator, square wave approximately 4V P-P open circuit. Approx. 100Ω output impedance.
AM/FM generator, square wave approx. 4V P-P, 100Ω output impedance. Located on rear panel.

FREQUENCY ACCURACY
Main generator, ±2% of frequency range (typically ±2% of setting).
AM/FM generator, 1 Hz to 1 MHz in three calibrated steps. Accurate within ±5%. Uncalibrated continuously variable between steps: variable has 100:1 range down from calibrated step.

OUTPUTS
1. 50Ω output impedance. All waveforms 20V P-P open circuit. 10V P-P into 50Ω with exception of Positive Sine and Positive or Negative Pulses which are 10V peak open circuit, 5V peak into 50Ω. A full 80db of attenuation is provided in 10db steps with 20db continuously variable (greater than 120db utilizing carrier level in AM mode).
2. Separate selected AM-FM output approximately 2V P-P.

GATE AND TRIGGER MODES
Input: DC coupled, input impedance approx. 1K. Trigger and gate signal requirements, manual or external voltage of approx. 1.2V for turn on. TTL compatible.

EXTERNAL AM INPUT
Approx. 10V P-P for 100% modulation at full output. Frequency response, 1db down at 1 MHz.

EXTERNAL FM INPUT
Approx. 5V P-P for Maximum deviation. Slew rate limit approximately 0.1V/μsec.

EXTERNAL CARRIER INPUT
Approximately 10V P-P for full output.

SINE WAVEFORM DISTORTION
< 0.5% 1 Hz to 100KHz (Typically <0.2%). No harmonics.
< 30db down 100KHz to 11MHz

SINE FREQUENCY RESPONSE
0.1db to 100KHz, 2db to 10MHz.

SQUARE WAVEFORMS
Rise and fall < 20 nanoseconds.
Overshoot and ringing < 5%.

TRIANGLE LINEARITY
99% to 100KHz.

D.C. OFFSETS:
Variable ±5V into 50Ω, ±10V open circuit. Circuit will automatically limit (clip) signal if D.C. offset plus signal exceeds maximum voltage output.

FREQUENCY STABILITY
0.05% of setting for 10 min.
0.25% of setting for 24 hrs.

AMPLITUDE STABILITY
0.05% of maximum P-P amplitude for 10 min.
0.25% of maximum P-P amplitude for 24 hrs.

SYMMETRY (time): ±1% + 10 nS

POWER REQUIREMENTS
Input Voltage – 115 VAC ± 10% or 230 VAC ± 10%
Frequency – 50 to 400 Hz
Power Consumption – Approximately 20W.
Other voltages available.

PHYSICAL CHARACTERISTICS
30.5cm wide X 8.9cm high X 37.5cm deep. Weight – 5.22kg. Top and bottom covers are easily removable, exposing all calibration and circuit board areas.

Option "B" – 0.1Hz - 11MHz, Main generator
Option "G" – 0.01 Hz - 1MHz, AM/FM generator

NOTE: (unless otherwise stated). Specifications apply 10% to maximum output voltage with instruments terminated into 50 and do not apply in the Search Mode or AM Mode. Specifications are valid at 25°C ± 5°C warmup time of 30 min.