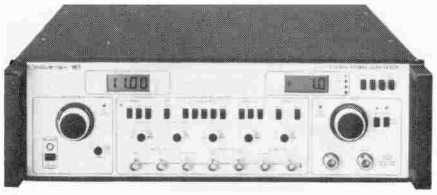
3.7 to 12.4 GHz Signal Generators

- 0 to −127 dBm Output Control
- All Solid State Construction
- 80 dB Pulse On/Off Ratio
- Internal Frequency Sweep
- Optional GPIB Programming

All Solid State Construction
Wavetek's Model 900 Series Microwave Signal Generators feature 100% solid state construction and all the capabilities of traditional signal generators. Remote analog control of frequency and output level, internal full-band sweep and optional GPIB control further enhance their usefullness for many applications.

High Performance
Efficient RF power level control is provided by a single control knob with digital display and automatic internal power leveling. Power level accuracy is enhanced by a modern design which includes digital power correction. The electronic output attenuator will never wear out, even after continuous power cycling under computer control. Excellent pulse modulation characteristics meet the needs of modern radar systems, while AM and FM provide versatility with a minimum of additional test equipment.

Optional GPIB Programming
The optional General Purpose Interface Bus (GPIB) programming is fully compatible with the IEEE Standard 488-1978. This option is ideal for high volume testing and applications which require remote control.



Model 907

Model 907 differs from Models 904 and 907A in that it does not provide for internal sweep or optional GPIB control and its colors remain the original Wavetek black and white. The 907 has been assigned National Stock Number 6625-01-091-8459 by the U.S. Air Force.

7-12.4 GHz

VERSATILITY

A cw signal source with AM, FM, pulse modulation and sweep capabilities. All parameters are independently adjustable.

Pulse modulation, frequency modulation, and sweep ramp signals from either the internal modulation generator or external input.

Frequency and level can be externally controlled by analog voltages or optional GPIB.

Auxiliary output and internal modulator signals are available at the front panel.

Modes

CW: Continuous RF output. Frequency and level adjustable.

FM: Internal or external signal frequency modulates the RF output. Rate and deviation adjustable.

Pulse: Internal or external signal pulse modulates the RF output. Pulse width adjustable or fixed 50% duty cycle; rate adjustable. External gate mode allows the external input to control pulse width and repetition rate.

Sweep: Internal or external controlled sweep (up to 15 Hz rate) of the entire RF frequency range.

OUTPUT

NOTE: Specifications for non-sweep modes only.

Frequency

Varied by a 10-turn potentiometer and vernier or by an external 0 to +5V. GPIB control optional.

Range: 7.0 to 12.4 GHz.

Readout: 3½ digit LCD.

Resolution: 10 MHz.

Accuracy: ±1% of reading.

Stability: Typically <60 ppm/°C; <20 ppm (+5%, −10% line variation).

Signal Purity

Residual FM: <15 kHz peak in a post-detection bandwidth of 100 Hz to 10 kHz.

Harmonics: −30 dBc.

Spurious: −55 dBc.

Level

Varied by a 10-turn potentiometer or external 0 to +13.6V (−10 dB/V). Output can be unleveled or automatically leveled. Output can be switched on and off. GPIB control optional.

Range (Leveled): 0 to −127 dBm; 0.251V to 0.100 μV (into 50Ω).

Range (Unleveled): Typically >+3 to <−115 dBm.

Readout: 3½ digit LCD, calibrated in dBm, dBref, Vrms.

Display Resolution: 0.1 dB.

Amplitude Accuracy:

Accuracy	Range
±1 dB (typ ±0.5)	0 dBm
±2 dB	+1 to −60 dBm
±3 dB	−60 to −120 dBm

Leveled power to approximately −127 dBm.

Level Flatness (>−10 dBm): ±1.0 dB.

VSWR: <1.5 relative to 50Ω.

Connector: Female type N coax.

Auxiliary Output: Typically >−10 dBm.

Reverse power protection: +30 dBm (both RF outputs).

Frequency Sweep

Internal: Pushbutton gives full band sweep; rate adjustable.

Rate Range: 0.02 to 15 Hz.

External: Control with ramp input. 0 to +5V for full band sweep.

Sweep Range: 7 to 12.4 GHz.

Rate Range: Up to 15 Hz.

Frequency Control Monitor: Output voltage (0 to +10V nominal) proportional to RF frequency control signal. 600Ω source impedance.

Pen Lift (TTL): Selective polarity output pulse.

PULSE MODULATION

Transition Times: <35 ns for leading and trailing edges. (Typically <15 ns).

On-Off Ratio: >80 dB when main output is set at 0 dBm.

Width: 200 ns to 100 μs in 2 ranges; for greater widths, use external gated mode.

Delay Range: 3 μs to 1 ms in 2 ranges, relative to normal sync.

(Not aplicable to gated pulse).

Internal Mode: Fixed square wave or variable width pulses; 10 Hz to 10 kHz in 3 ranges.

External Trigger Input: 1 Vrms min, 10 Vrms max trigger; slope and trigger point adjustable; 0 to 10 kHz with full leveling.

Externally Gated Pulse: RF output occurs for the duration that pulse trigger input signal exceeds trigger level setting; 0 to 10 kHz with full leveling.

FM-FREQUENCY MODULATION

Internal Sawtooth Modulator: 10 Hz to 10 kHz in 3 ranges; 0 to >5 MHz p-p deviation.

External Modulation: >1 MHz/V; ±2.5V max; >5 MHz p-p deviation; 10 kΩ nominal input impedance.

Bandwidth: >10 kHz, (dc coupled).

AM-AMPLITUDE MODULATION

Bandwidth: >10 kHz (dc coupled).

Max Source Level: ±2V peak.

Sensitivity: 27 dB/V (nominal).

Input Impedance: 10 kΩ nominal.

MODULATOR OUTPUTS

FM: Signal from external or internal modulation generator. 600Ω source impedance.

Pulse: Positive TTL level pulse set by modulator pulse repetition rate, delay and width pulse controls.

Normal Sync: Positive TTL level pulse occurring at selected repetition rate.

Delayed Sync: Positive TTL level pulse synchronous with modulator pulse with selected delay.

GENERAL

Literature

Refer to Models 904/907A Summary Brochure #900-10 and Technical Information Brochure #900-20 for more complete performance characteristics and instrument descriptions.

Environment

Specifications apply for 25° ±10°C after 1 hour warm-up. Instrument will operate from 0°C to +50°C, to 10,000 ft and to 90% rel humidity non-condensing. Storage: −25°C to +65°C. Designed and type tested to MIL-T-28800 class V.

Dimensions (Max)

43.2 cm (17 in.) wide; 13.3 cm (5¼ in.) high; 49.5 cm (19.5 in.) deep. Adapters supplied for rack mounting.

Weight

19.1 kg (42 lb) net; 22.7 kg (50 lb) shipping.

Power

100V, 120V, 220V, 240 (+5%, −10%); 48 to 66 Hz; 130 VA max.

OPTION

001: GPIB Programming

General Purpose Interface Bus (GPIB) programming fully compatible with the IEEE Standard 488-1978. Allows programming of frequency, level, CW, output on/off and leveled/unleveled.

FACTORY/FOB

San Diego, CA