# 2500 MHz Sweeper

- Ideal for Broadband Applications
- + 10 dBm Output
- Flexible Marker System
- Start/Stop Operation
- Excellent Display Linearity

#### 1 to 2500 MHz Frequency Range

The Model 2002 Sweep/Signal Generator offers an excellent broadband frequency range (1 to 2500 MHz) in a rugged, modular constructed, solid state instrument. Its features and specifications make it equally useful for engineering laboratory applications and production test requirements.

#### **Versatile Sweep Characteristics**

The Model 2002 can be swept up to 500 MHz wide on Bands 1, 2, 3 and up to 1000 MHz wide on Band 4. In the  $\Delta$ F mode, the sweep width is read directly on the calibrated upper portion of the slide-rule type dial. When band-stacking (Option B-3) is employed, one may sweep from 1 to 2500 MHz without manually band-switching the unit.

#### **Sweep Speeds**

In the normal sweeping modes, the unit may be line locked or swept at rates of 50 sweeps per second to 1 sweep every 100 seconds. Manual and triggered modes are also provided. In the optional band-stacking mode of operation, the minimum sweep time is 20 ms per band or the entire 1 to 2500 MHz range in 80 ms.

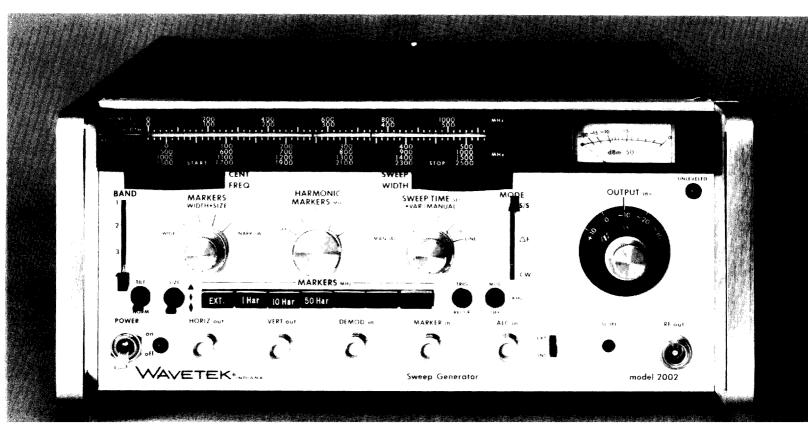
#### **Calibrated RF Output**

The RF output system is calibrated from +10 to -80 dBm. The 70 dB attenuator provides incremental 10 dB steps, while a continuous variable PIN diode attenuator adds an additional 0 to 20 dB.

#### **Marker System**

The instrument includes a complete

crystal controlled birdy bypass marker system for accurately determining the frequency at any portion of the response curve. A deluxe harmonic marker providing the commonly used 1, 10, 50 and 100 MHz combs is available as an option. In addition, single frequency markers or specific harmonic markers are available. All markers can be specified with the instrument or ordered at a later date to be field installed. The width of all markers is selectable between approximately 15 and 400 kHz, thus providing a usable marker for both wide and narrow band operations. Also, for steep slopes, the markers may be tilted 90° from vertical, so that they are more discernible on the response curve.



#### SWEEP GENERATORS

#### RF FREQUENCY

#### **Frequency Range**

1 to 2500 MHz in 4 bands. 1 to 500 MHz (band 1). 500 to 1000 MHz (band 2). 1000 to 1500 MHz (band 3).

1500 to 2500 MHz (band 4).

#### **Dial Calibration**

10 MHz/div (bands 1, 2 and 3). 20 MHz/div (band 4).

#### Accuracy (at 25°C)

1% of frequency or ±10 MHz (whichever is greater) in CW mode. 1.5% of frequency or ±15 MHz (whichever is greater) in all sweep

Accuracy vs Temperature: 500 kHz/°C.

#### Sweep

Continuously adjustable from 200 kHz (bands 1, 2 and 3); 400 kHz (band 4). to 100% of the selected band.

#### **Display Linearity**

1%.

#### **Spurious Signals**

Harmonics:

- -20 dBc (1 to 10 MHz).
- -30 dBc (10 to 2500 MHz).

NOTE: Band 4 includes harmonically related spurious signals at 0.5, 1.5 and 2 times output frequency.

#### Nonharmonics:

-35 dBc (1 to 500 MHz).

None detectable (500 to 2500 MHz). Residual FM (CW Mode):

Less than:

10 kHz p-p (bands 1, 2, and 3).

20 kHz p-p (band 4).

#### Drift

Less than:

100 kHz for 5 minutes (bands 1, 2 and 3).

2 MHz for 8 hours (bands 1, 2 and 3). 200 kHz for 5 minutes (band 4).

4 MHz for 8 hours (band 4).

NOTE: At a constant temperature after 1 hour warm-up.

#### Blanking

RF output is removed during sweep retrace.

#### **RF OUTPUT**

### Impedance

 $50 \Omega$ .

#### **Output Amplitude**

+ 10 dBm maximum.

#### **Attenuation**

Continuously adjustable from +10 to -80 dBm. 70 dB in 10 dB steps plus a 20 dB vernier.

#### Accuracy

Step Attenuator: ±0.3 dB plus 1% of attenuation (1 db max error at 70 dB position).

Vernier Attenuator: ± 0.5 dB over top 10 dB of range; lower 10 dB range is unspecified.

#### **Output Flatness**

 $\pm$  0.5 dB (at + 10 dBm).

#### **Output Connector**

Type N.

#### **External Leveling**

An external negative signal, between 0.2 to 2V may be used to level the RF output.

#### **SWEEP CHARACTERISTICS**

#### Sweep Modes

Repetitive sweep, single sweep, externally triggered sweep, manual sweep and line lock sweep.

#### Sweep Time

Continuously variable from less than 10 ms to greater than 100s, in 4 decade steps, plus vernier.

#### **Horizontal Output**

10V p-p symmetrical about ground. Impedance 10 k  $\Omega$ .

#### **MARKER SYSTEM**

#### **RF Markers**

Provisions for deluxe 1, 10, 50 and 100 MHz harmonic marker (Option A-3) and up to 6 crystal controlled plug-in birdy bypass markers, plus external marker input. Markers may be either discrete frequency (Option A-1) or harmonic type (Option A-2).

#### **Marker Switches**

Individual front panel on/off switches provided for each type marker. The universal marker set has its own front panel rotary switch control.

#### Accuracy

0.005%.

#### Width

Adjustable from approximately 15 to 400 kHz in 4 steps.

#### **Amplitude**

Adjustable from approximately 10 mV to 6V p-p and 50  $\mu$ V to 50 mV p-p.

#### **Marker Tilt**

Adjustable from vertical to approximately 90°

#### **External Marker**

BNC input accepts CW signal for conversion to a birdy marker. Input level must be at least 100 mV into 50  $\Omega$ .

#### Recorder Processing

Front panel switch removes negative portion of birdy markers for use with X-Y recorders.

#### REMOTE PROGRAMMING

Rear mounted jack provides necessary connections for remote control of center frequency, sweep width and 20 dB vernier output control. Provisions for external FM and AM modulation are also included.

#### GENERAL

#### **Dimensions**

30.3 cm (12 in.) wide; 13.4 cm (51/4 in.) high; 34.9 cm (133/4 in.) deep.

#### Weight

13 kg (28.6 lb) net; 13.6 kg (30 lb) shipping.

#### Power

115 or 230V  $\pm$  10%; 50 or 60 Hz; approximately 25 watts.

#### **OPTIONS**

\$55

Single birdy markers at specified frequency from 1 to 1500 MHz (above 1500 MHz consult factory).

Harmonic type (comb) frequency markers at 1, 5, 10, 50 or 100 MHz. Specify desired frequency for operating frequency range of 1 to 1500 MHz. (See Option A-3 for 1 to 2500 MHz range.)

NOTE: Harmonic type 0.1 MHz markers with associated 1.0 MHz markers are available \$150 (operation to 1500 MHz only).

\$200

Deluxe harmonic marker (1, 10, 50 and 100 MHz) over entire 1 to 2500 MHz range.

\$150

Slope Adjustment. Allows a + or -2dB amplitude slope to compensate for frequency-dependent variations in the test setup. Slope adjustment is provided on the front panel.

B-2 \$55

1 kHz Square Wave. Provides 100% amplitude modulation at a 1 kHz rate. On/off control is on the front panel.

**B-3** 

Stacking. Provides for band-stacking to allow a single continuous sweep from 1 to 2500 MHz. Rear panel control allows stacking of any 2 or 3 adjacent bands or the entire 1 to 2500 MHz. The fastest sweep time is 20 ms per band; e.g., 40 ms for a 1 to 1000 MHz sweep or 80 ms for a 1 to 2500 MHz sweep. The horizontal output signal required for bandstacking operation is provided on the rear panel (2.5V per band with an impedance of 1 k  $\Omega$ ).

Pen Lift.

#### PRICE (FOB Beech Grove)

Model 2002 \$2700

\$30



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