1.2 SPECIFICATIONS

1.2.1 GENERATE MODE

1.2.1.1 FREQUENCY

Range	400 kHz to 999.9999 MHz
Resolution	100 Hz
Display	7 lever/indicator switches
Accuracy	See Time Base

1.2.1.2 RF OUTPUT

Range	0.03 μV to 316 mV (-137 to +3 dBm)
Accuracy	0.03 to .3μV ±1 dB 0.3 to 300 μV ±1.5 dB 0.3 to 316 mV ±4.5 dB
Attenuator	20 dB/step
Vernier	23 dB overlapping range
Leakage	Virtually unmeasurable at 0.3 μV output level

REVERSE POWER PROTECTION

Type	Automatically switches to internal load at inputs > 200 mW
Power	Up to 100 W (10 seconds)
Alarm	Excessive energy triggers loud, shrill sound and front-panel indicator

SPECTRAL PURITY

Non-Harmonic	< -50 dBc within ±30 kHz of carrier (all land mobile bands)
Residual FM	< 40 Hz RMS (0.4 to 481 MHz); < 80 Hz RMS (482 to 1000 MHz) (measured in a post-detection bandwidth of 0.1 to 3 kHz)
Residual AM	1% (measured in a post-detection bandwidth of 0.1 to 3 kHz)
Other	2 signals, f1 and f2 For f1=(fc + 17.5 MHz), < 5 mV For f2=(fc + 35 MHz), same level as fc

1.2.1.3 MODULATION

Displayed on METER and CRT DISPLAY

FM

Deviation	0 to ±18 kHz
Ranges	1.8, 6 and 18 kHz
Bandwidth, 3 dB	1 Hz to 10 kHz (METER response limited to > 10 Hz)

Accuracy (1 kHz frequency)	±5% of full scale
External Input	100 mVRMS for 5 kHz peak (nominal)

BURST MODE

Burst	0.03 to 1.0 seconds continuously variable
Interrupt	Switch closure (Ron < 1 kohm) via miniature phone jack to enable internal modulation source

AM

Depth	0 to 90%
Bandwidth, 3 dB	10 Hz to 10 kHz
Accuracy at 30% (1 kHz frequency)	±5% of full scale
External Input	100 mVRMS for 100% (nominal)

1.2.2 RECEIVE MODE

1.2.2.1 FREQUENCY

Range	400 kHz to 999.9999 MHz
Resolution	100 Hz
Display	7 lever/indicator switches plus frequency error counter
Accuracy	See Time Base
Sensitivity	2 μV for 12 dB SINAD (typical)

Bandwidth, 3 dB, nominal

Narrow	7 kHz
Wide	50 kHz

1.2.2.2 MODULATION MEASUREMENT MODE

FM MODE

Deviation	0 to ±18 kHz
Ranges	1.8, 6 and 18 kHz
Bandwidth, 3 dB	0 to 10 kHz (METER response limited to > 10 Hz)
Accuracy (1 kHz frequency)	±5% of full scale
Display	METER and CRT
FM Markers	±600 Hz and ±5 kHz (accuracy of ±5 kHz is ±2%)

AM MODE

Depth	0 to 100%
Bandwidth, 3 dB	50 Hz to 10 kHz
Ranges	1.8, 6, and 18% (X10)
Accuracy at 30% (1 kHz frequency)	±5% of full scale
Display	METER and CRT

1.2.3 INSTRUMENT FUNCTIONS

FREQUENCY COUNTER MODES

Display	4 digit LCD, backlighted	
Accuracy	Time Base ± 1 count	
Gate Period	1.0 second	
MODES	RANGE	RESOLUTION
Frequency Error	± (.01 to 20 kHz)	10.0 Hz
Modulation	60 to 9,999 Hz	1.0 Hz
Subtone (RCV)	60 to 250 Hz	0.1 Hz
External Counter	250 to 9,999 Hz	1.0 Hz
Lissajous (RCV)	10 to 9,999 Hz	0.01, 0.1, and 1 Hz

In Lissajous mode, all modulation sources are automatically applied to the CRT DISPLAY horizontal axis. The demodulated audio and external signals are applied to the CRT DISPLAY vertical axis.

NOTE: In the FM mode, the CRT DISPLAY provides an analog display proportional to the frequency error.

1.2.3.1 RF SWEEP MODE (GEN)

Sweep Width	0 to ±18 kHz
Repetition Time	0.01, 0.1, 1, and 10 msec

1.2.3.2 ZERO BEAT MODE (RCV) — Built-in speaker provides audible indication of frequency range.

1.2.3.3 INTERNAL SPEAKER — 3-inch speaker with volume control (2 W output).

1.2.3.4 MICROPHONE JACK — External microphone "push-to-talk" switch activates generator output. Pre-emphasis and 5 kHz limiter simulates transmitter operation.

1.2.3.5 POWER METER MODE

Meter Range	1 to 10 watts (x.1) 1 to 100 watts (x1) (METER selectable from PWR to MOD via SINAD/WATT/MOD switches).

	Accuracy	± (7% of reading + 3% of full scale) (to 500 MHz)

1.2.3.6 DISTORTION ANALYZER MODE-SINAD

Notch Frequency	1 kHz
Range	0 to 30 dB
Accuracy, 12 dB	± 1 dB
Input Impedance	100 kohm (nominal)
Input Connector	BNC (AUDIO IN)
Display	METER and CRT

1.2.3.7 INTERNAL MODULATION SOURCES

Synthesizer

Frequency	
Range	10 to 9,999 Hz
Resolution	0.01, 0.1, and 1 Hz
Accuracy	See Time Base
Display	4 digit lever/indicator switches
Output	0 to 1 VRMS
Impedance	600 ohm (nominal)

Fixed Source

Frequency	1 kHz
Accuracy	See Time Base
Output	0 to 1 VRMS
Impedance	600 ohm (nominal)

1.2.3.8 AC VOLTMETER

Ranges	1.8, 6.0, and 18 V peak
Accuracy	±5% of full scale
Bandwidth, 3 dB	10 Hz to 100 kHz
Input Impedance	100 kohm (nominal)
Input Connector	BNC (AUDIO IN)

NOTE: Signals measured by the voltmeter can also be viewed on the CRT, measured by the frequency counter, and heard through the speaker.

1.2.3.9 RELATIVE SIGNAL STRENGTH INDICATOR

Frequency	400 kHz to 999.9999 MHz
Dynamic Range	> 90 dB
Weak Signal Range	2 to 30 μV (linear) (nominal)
Full Signal Range	2 μV to 100 mV (log) (nominal)

1.2.3.10 OSCILLOSCOPE

Vertical

Bandwidth, 3 dB	10 Hz to 100 kHz
Ranges	1.8, 6.0 and 18 V peak
Accuracy	±5% of full deflection
Input Impedance	100 kohm (nominal)
Input Connector	BNC (EXT VERT)
Input Coupling	AC/DC selectable from demod circuits

Horizontal

Sweep Range	0.01, 0.1, 1.0, and 10 msec/division
Accuracy	±15%

1.2.4 TIME BASE CHARACTERISTICS

Standard TCXO (Refer to Section 1.3.1 for optional OCXO)

Aging Rate	± 1 ppm/year
Temperature (0 to 50° C)	± 0.5 ppm

1.2.5 GENERAL

Operating Temperature	0 to 50° C
Power Requirements	103/117/220/240 VAC; +5%, -10%; approximately 60 VA
Input DC (To Optional Inverter)	10.5 to 15.2 VDC, 6A
Dimensions	41.3 cm (16-1/4 in)(including handles) wide 18.3 cm (7-3/16 in) high 40.6 cm (16 in)(including rear feet & bezel) deep
Weight	11.4 kg (25 lb)

1.3 OPTIONS/MODIFICATION

1.3.1 HIGH-STABILITY (OCXO) TIME BASE

AGING RATE	± 1 ppm/year operating
TEMPERATURE	0° C to 50° C range
STABILITY	± 0.05 ppm after 10 minutes at 25° C

1.3.2 INVERTER, 12 VOLTS (SSI-110B or SSI-220B)

Allows external 12 VDC operation. Choice of 110 or 220 VAC output.

1.3.3 SPECIAL MODIFICATIONS Per Customer Needs

Due to the rapidly changing technology in the Two-Way Communications industry, customer needs may require a special modification either at the time of purchase or at some time in the future. By contacting your Customer Service Representative (see Section 2.2), the feasibility of the modification will be considered; however, due to the complexity of some modifications, certain customer requests may not be possible.

1.4 ACCESSORIES

1.4.1 FURNISHED WITH INSTRUMENT

Owner's Manual
Protective Front Cover
Telescoping Whip Antenna

1.4.2 ADDITIONAL ACCESSORIES

Protective Soft Cover