

APPENDICES

APPENDIX A: SPECIFICATIONS OF FM/AM-500A

A-1 RF SIGNAL GENERATOR

Frequency Range:	250 kHz to 999.9999 MHz in 100 Hz increments
Frequency Accuracy:	Same as Master Oscillator
Variable Generate:	Continuous tuning ± 10 kHz from selected frequency
Residual FM:	<100 Hz peak, 300 Hz to 3 kHz bandwidth
RF Output Power:	-127 dBm to -20 dBm (10 dB steps with 11 dB range continuous vernier)
RF Output Accuracy:	± 3 dB
Output Impedance:	50 Ohms Nominal
Output Protection:	Fully protected, 25 Watts continuous, 150 Watts for 60 seconds. Auto changeover from generate to monitor will occur at a nominal 100 mW level.
Internal Modulation:	See Audio Generator
External Modulation:	
Frequency Response:	FM: 2 Hz to 30 kHz (DC when in variable generate) AM: 10 Hz to 10 kHz (30% maximum modulation above 5 kHz)
Modulation Sensitivity:	FM: 0.08 VRMS/kHz AM: 0.01 VRMS/%
Distortion (1 kHz tone):	FM: <1% to 20 kHz deviation AM: <10% to 60% modulation
Input Impedance:	Greater than 10 K Ohms

A-2 AUDIO GENERATOR*

Operating Modes:	
Internal:	Modulation/Tone Out level controlled by 1 kHz or Variable Tone Control
Speaker:	Tone applied directly to speaker with volume controlled by 1 kHz or Variable Tone Control
External Plus Internal:	External modulation input is summed directly with tones and applied to modulator

Tone Accuracy:
 Fixed: Same as Master Oscillator
 Variable: $\pm 0.01\%$

Tone Distortion (at 2.5 VRMS Output):
 Fixed: $< 0.5\%$
 Variable: $< 0.5\%$ at 1 kHz, $< 1.5\%$ 10 Hz to 9999.9 Hz

Tone Output Level: 0 to 2.5 VRMS minimum either tone into 150 Ohm Load

Frequency Range (Variable): 10 Hz to 9999.9 Hz in 0.1 Hz increments

* Variable Tone Generator is optional on FM/AM-500, standard on FM/AM-500A

A-3 GENERATE AMPLIFIER (Optional)

Gain: 30 ± 2 dB typical, 100 kHz to 1000 MHz

Test Set Output with Amplifier Installed:
 Variable to +10 dBm, FM CW
 Variable to +4 dBm, AM (nominal)

A-4 RECEIVER/MONITOR

Frequency Range: 100 kHz to 999.9999 MHz in 100 Hz increments

Sensitivity: 2 μ V (1 MHz to 1000 MHz, FM Narrow)

Selectivity:

Mode	RCVR Bandwidth	Audio Bandwidth
FM WIDE	200 kHz	80 kHz
FM MID	200 kHz	8 kHz
FM NAR	15 kHz	8 kHz
SSB	6 kHz	8 kHz
AM NAR	6 kHz	8 kHz
AM NORM	15 kHz	8 kHz

Adjacent Channel Rejection:

RCVR Bandwidth	-40 dB at
200 kHz	± 300 kHz
15 kHz	± 27 kHz
6 kHz	± 12 kHz

Demodulation Output:

Output Impedance: 500 Ohms

Output Level (Measured into an open circuit):

FM: 60 mVRMS/ ± 1 kHz
 AM: 5 mVRMS/%

Receiver Antenna Input
Protection: 0.25 Watts maximum without damage

A-5 MASTER OSCILLATOR

Standard TCXO:
Stability: 0.5 PPM (0-50°C)
Aging: 3 PPM first year, 1 PPM thereafter

Optional TCXO:
Stability: 0.2 PPM (0-50°C)
Aging: 3 PPM first year, 1 PPM thereafter

Optional Oven (Prohibits internal battery installation):
Accuracy: 0.05 PPM (0-50°C)
Aging: 1 PPM per year

A-6 FREQUENCY ERROR METER

RF Counter:
Accuracy: ±Master Oscillator ±3% of full scale

Ranges:
FM/AM-500 ±10 kHz, ±3 kHz, ±1 kHz full scale
High Resolution Option:
(±300 Hz, ±100 Hz, ±30 Hz full scale)

FM/AM-500A ±10 kHz, ±3 kHz, ±1 kHz, ±300 Hz,
±100 Hz, ±30 Hz full scale

Audio Counter:
FM/AM-500 (with variable tone generator option only)
FM/AM-500A
Accuracy: ±0.01% of frequency ±6% of full scale
Ranges: ±300 Hz, ±30 Hz, ±3 Hz full scale

A-7 MODULATION METER (Monitor Mode)

Type: Maximum of positive or negative peak (AM and FM)

FM Deviation:
Accuracy: ±5% of reading ±3% of full scale
Ranges: 2 kHz, 6 kHz, 20 kHz, 60 kHz full scale

AM% Modulation:
Accuracy: ±5% of reading ±3% of full scale
Ranges: 60%, 200% full scale

A-8 SINAD/DISTORTION METER (FM/AM-500A Only)

SINAD:
Accuracy: ±1 dB at 12 dB
Range: 3 to 20 dB at 1 kHz
Input Level: 0.25 VRMS to 10 VRMS

Distortion:
Range: 0 to 20% at 1 kHz
Input Level: 0.25 VRMS to 2 VRMS
Impedance: 10 K Ohms nominal

A-9 POWER METER (FM/AM-500A Only)

Accuracy:
1-600 MHz: $\pm 7\%$ of reading $\pm 3\%$ of full scale
600-1000 MHz: $\pm 20\%$ of reading $\pm 3\%$ of full scale
Range: 0-15 and 0-150 Watts, peak or average responding
Input Power: 25 Watts continuous, 150 Watts
60 seconds ON, 5 minutes OFF

A-10 GENERAL

Fuse Requirements: Line: 120 VAC Operation: 1 A, 250 V Slow Blow
240 VAC Operation: $\frac{1}{2}$ A, 250 V Slow Blow
Battery: 3 Amp Slow Blow
External DC (in cord): 3 Amp Slow Blow
Microphone Jack: Special, IFR P/N 5106-4900-125
Power Requirements: Line: 105-130/210-260 VAC, 50-400 Hz at 30 Watts typical
Ext. DC: 12-14 VDC Nominal at 2 AMPS
Operation on Internal Battery (Optional):
Approximately 2 hours
Operating Temperature
Range: 0 to 50°C
Dimensions: 11.5" wide, 4.9" high, 14.3" deep (29.2 cm W,
12.4 cm H, 36.3 cm D) 18" deep (45.7 cm D) with
lid and handle
Weight (Nominal): 16 lbs. (7.2 kg)
22 lbs. (9.9 kg) with battery
Standard
Accessories: Line Cord, DC Power Cord, Flexible Antenna and
Lid