

I. GENERATOR FUNCTIONS

A. Residual FM

1. **EQUIPMENT:** Hewlett Packard mod analyzer. Set up mod analyzer as follows: 3 kHz LP filter and 300 Hz HP filter on, FM mod and average. **UNIT:** in GEN, MOD, 100 mV, CW.

a. Cable RF IN/OUT to mod analyzer input. Set unit frequency to 452.35 MHz. At 100 mV level, read residual FM on mode analyzer. Should read less than 100 Hz. Record on PTR. Cable RF IN/OUT to mod analyzer input. Set unit frequency to 852.35 MHz. At 100 mV level read residual FM on mod analyzer. Should read less than 100 Hz. Record on PTR.

B. FM Deviation Accuracy

1. **EQUIPMENT:** Hewlett Packard mod analyzer. **UNIT:** Activate 1 kHz fixed source. Put in RANGE 6. Turn off audio synthesizer.

a. Adjust 1 kHz level on front panel to read 5 kHz on meter and scope. Cable RF IN/OUT to mod analyzer input. Change mode analyzer to RM average. Check that mod analyzer reads 3.54 kHz average $\pm 10\%$ or .35 kHz. Record on PTR.

C. FM External Mod Input

1. **EQUIPMENT:** External variable audio source. **DVM.** **UNIT:** Turn off 1 kHz fixed source.

a. With external audio source at approximately 1 kHz cable to EXT IN, adjust EXT LVL Pot full CW. Adjust level on external audio source to obtain a reading on the meter at 5 kHz. Remove cable from EXT IN and connect to DVM. Reading should be less than 500 mVRMS. Check on PTR.

D. AM Modulation Distortion

1. **EQUIPMENT:** Hewlett Packard Audio Analyzer and Hewlett Packard Modulation Analyzer. **UNIT:** Switch to AM. Remove external audio source and activate 1K fixed source, frequency 52.350 MHz. Unit output at X10 mV, 1.5 on DIAL (15 mV). Turn on 3 kHz LP filter; and 300 Hz HP filter on mod analyzer.

a. Adjust 1 kHz fixed source level to obtain 90% modulation as read on modulation analyzer. See Diagram 1, check audio analyzer reads less than 10% distortion. Record on PTR.

b. Repeat Step a., at 952.350 MHz. Record on PTR.

E. AM External Mod Input

1. **EQUIPMENT:** External audio source set for 1 kHz sinewave. **DVM.** **UNIT:** Turn off 1 kHz fixed source.

a. Cable external audio source to EXT IN. Adjust EXT LVL pot full CW. Adjust external audio source level to obtain reading of 85% on the meter. Remove cable from EXT IN and connect to DVM. Reading should be less than 1.0V RMS. Check on PTR.

F. Microphone Operation

1. **EQUIPMENT:** Standard mobile microphone, VHF & UHF hand-held radios. **UNIT:** 1 kHz fixed source off, FM mode, RF/OFF button in.

a. Insert standard mobile microphone into mic jack on rear panel. Cable RF IN/OUT to VHF radio antenna jack. Change unit frequency to VHF radio frequency. Depress standard microphone PTT switch and whistle into mic. Monitoring audio on VHF radio and observing mod on unit scope, check that mod is clean, and that when PTT is released generation ceases. Check on PTR.

G. RFITest

1. **EQUIPMENT:** Spectrum analyzer, wide-band amplifiers, coaxial termination 50 ohm, 50 ohm load, loop probe.

a. Connect spectrum analyzer, wide band amplifiers and loop probe as shown in Diagram 3. Set spectrum analyzer with display line at a reference level of greater than -137 dBm Δ . Set 3000B for .3 μ V RF out, with 10 MHz and RF IN/OUT jacks terminated into 50 ohm loads. At 252.350 MHz, set the spectrum analyzer: