

(UHF IEM August 16, 2000)

**A. PLL Reference Test**

1. Using an oscilloscope, verify oscillation at pin2 of U50. If there is no signal, U50 may not be programmed properly. Exact frequency will be set later.

**B. 2<sup>nd</sup> L.O. Check**

1. Monitor TP23 with a high impedance voltmeter.
2. Verify voltage to be 1.50-4.00 VDC.

**C. 1<sup>st</sup> L.O. Adjustment**

1. Monitor TP24 with a high impedance voltmeter.
2. Set transmitter frequency to the highest setting.
  - a. 662 MHz (Band A)
  - b. 864.5 MHz (Band B)
3. Adjust C700 for 4.00-4.25 VDC (Band A) or 4.25-4.50 (Band B). Out of lock message on display should no longer be seen.
4. Set transmitter frequency to the lowest setting.
  - a. 614.35 MHz (Band A)
  - b. 774.1 MHz (Band B)
5. Verify voltage at TP24 to be > 1.00 VDC.
6. Verify supply voltage for output stage (TP33) to be  $10 \pm 0.5$  VDC.

**D. Lock Detect Test**

1. Monitor TP33 with voltmeter.
2. Ground TP23.
3. Verify voltage at TP33 drops to below 0.5 VDC. Out of lock message should return.
4. Remove ground. Out of lock message should disappear and the voltage at TP33 should return to  $10 \pm 0.5$  VDC.

(UHF IEM August 16, 2000)

5. Ground TP24.
6. Verify voltage at TP33 drops to below 0.5 VDC. Out of lock message should once again be seen on the display.
7. Remove ground. Out of lock message should disappear and the voltage at TP33 should return to  $10 \pm 0.5$  VDC.

#### E. Output Bandpass Alignment

1. Install jumper between pins 1 and 2 of P8.
2. Install jumper between pins 1 and 2 of P7.
3. Connect tracking generator output to J20.
  - a. Set level to -15 dBm.
4. Connect spectrum analyzer to J21.
  - a. Set ref to +10 dBm.
  - b. Set span from 450 to 850 MHz (Band A) or 600 to 1000 MHz (Band B).
5. Adjust C420, C419, C418, C416, and C417 to obtain response in fig. 1 (Band A) or fig. 2 (Band B).

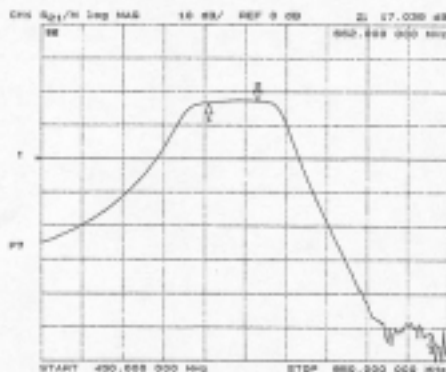


Fig. 1 (Band A)

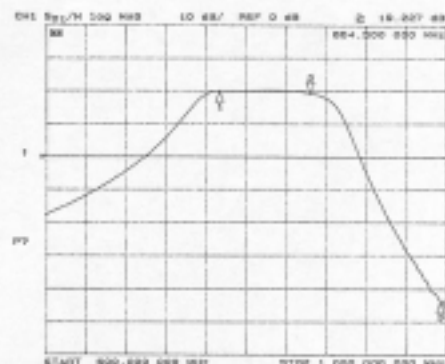


Fig. 2 (Band B)

6. Ripple in the passband should be  $< 1$  dB.

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- a. Passband for Band A = 614-662 MHz
  - b. Passband for Band B = 774-865 MHz
7. Observe the amount of passband gain and compare with the figures. It should be within a few dB.
  8. Move jumper at P8 to pins 2 and 3.
  9. Move jumper at P7 to pins 2 and 3.
  10. In frequency mode ('ALL' mode for Band B), sweep entire frequency range.
  11. Adjust R378 until the output at the highest level does not exceed +17 dBm (Band A) or +10 dBm (Band B).
  12. Verify that level does not change more than 2 dB across entire band.

**F. PLL Reference Adjustment**

1. Set transmitter frequency to 600.000 MHz (Band A) or 800.000 MHz (Band B).
2. Monitor RF output (P6) with frequency counter.
3. Adjust C93 for reading within the following:
  - a. 600.000 MHz  $\pm$  3 kHz (Band A)
  - b. 800.000 MHz  $\pm$  4 kHz (Band B)

**IV. AUDIO SECTION TEST AND ALIGNMENT**

**A. Audio Input Tests**

1. Left Main
  - a. Connect A.F. generator to the T(TIP) of P12, ground R(RING) of P12. Set level to 1V PTP.
  - b. Verify that the same signal from the generator is present at the TIP of J8.
  - c. Verify the audio at TP205 to be 600-700mV PTP.
  - d. Switch in main input attenuator (SW8) and check for a 14-15 dB drop at TP205. Switch attenuator out.