

E2-950 Tune Up Procedure

The RF power output is tuned at mid frequency in the factory to have four power levels; 26.99dBm, 30dBm, 33.01dBm and 36.99dBm. Tests are then performed at various frequencies to ensure correct operation. The procedure is:

1. Connect E2-950 PCBA to test fixture. Test fixture includes a PC, calibrated RF test set, and specialised hardware to connect PC RS-232 port to E2-950 SK?.
2. Technician uses calibration software on a PC to calibrate and test E2-950 radio.
3. PC software assists the technician to tune VCO variable capacitors.
4. PC software sets PCBA to transmit at mid frequency.
5. PC software uses fuzzy logic to adjust PWM level from microprocessor (IC603 pin 25) to tune output power within 26.99dBm +/- 0.1dBm.
6. PC software saves PWM level setting to microprocessor memory location for this power level.
7. PC software uses fuzzy logic to adjust digital pot to set frequency offset within 0Hz +/- 50Hz.
8. PC software assists user to balance modulation at mid frequency by adjusting a digital potentiometer
9. PC software saves potentiometer setting to microprocessor memory location for the mid frequency modulation balance.
10. PC software assists user to balance modulation at lowest frequency by adjusting a digital potentiometer
11. PC software saves potentiometer setting to microprocessor memory location for the lowest frequency modulation balance.
12. PC software assists user to balance modulation at highest frequency by adjusting a digital potentiometer
13. PC software saves potentiometer setting to microprocessor memory location for the highest frequency modulation balance.
14. PC software sets radio to mid frequency and uses fuzzy logic to adjust a digital potentiometer to set deviation within 3kHz +/- 0.1kHz.
15. PC software uses fuzzy logic to adjust PWM level from microprocessor to tune output power within 30dBm +/- 0.1dBm.
16. PC software saves PWM level setting to microprocessor memory location for this power level.
17. PC software uses fuzzy logic to adjust PWM level from microprocessor to tune output power within 33.01dBm +/- 0.1dBm.
18. PC software saves PWM level setting to microprocessor memory location for this power level.
19. PC software uses fuzzy logic to adjust PWM level from microprocessor to tune output power within 36.99dBm +/- 0.1dBm.
20. PC software saves PWM level setting to microprocessor memory location for this power level.
21. PC software switches transmitter off.

22. PC software instructs the test set to generate a test tone for the device under test at mid frequency.
23. PC software calibrates the DC offset of receive audio using fuzzy logic to set a digital potentiometer. This setting is saved to microprocessor memory.
24. The RSSI is calibrated at -100dBm and -70dBm and these values are stored. The RSSI is calculated from these values.

All of the stored values are read in from the host processor each time the unit is powered up. An algorithm is used to ensure modulation is balanced from settings saved to memory.

1 REVISION HISTORY

Issue No.	Date	Details of Amendment
1.0	25/11/14	Initial Issue