

Date: 20 April 2018

To Whom it may concern

RE: Factory Tune up Procedure for Radio model E2-455

The following describes the process for factory calibration of the power level in the E2-455 radio. The maximum power level is +40dBm, and the device is calibrated to a tolerance $<\pm 0.5\text{dBm}$.

The E2-455 radio under test is connected to a Test PC running calibration software, and to a calibrated Marconi 2955 radio test set with GPIB connection to the Test PC. The test PC communicates with the device under test (the DUT E2-455) to set power levels and frequencies, and with the Marconi test set to set frequency and to read the power measurements.

The E2-455 radio provides calibration tables to compensate for variation over frequency and power level. The Frequency Calibration Table contains calibration points for low, mid, and high frequencies. This table is interpolated to provide a frequency dependent offset to the power setting stored in the Power Calibration Table. The Power Calibration Table contains a power calibration for each power setting available (steps of 1dBm from 7 to 40dBm).

The DUT is configured to power setting +37 dBm, and test transmission and power measurement is performed for low, middle and high frequencies (400MHz, 440MHz, and 480MHz). The measurements are used to calculate calibration points for the three test frequencies. This calibration is applied to the DUT Frequency Calibration Table to achieve calibrated power level of 37dBm across the frequency band.

The DUT is then configured for center frequency (440MHz) and test transmission and power measurement is performed for at power levels 40dBm, 33dBm, 30dBm, 27dBm, 20dBm, and 10dBm. The measurements are used to calculate calibration points for these six test power levels. These calibration points are interpolated to generate calibration points for the intermediate power levels (7-9, 11-19, 21-26, 28, 29, 31, 32, 34-36, 38, and 39dBm). These calibration points are programmed to the Power Calibration Table.

Samples from each production batch are tested at low, mid, and high frequency and at maximum and minimum power to validate the calibration process is operating correctly. All measurements are required to be within $\pm 0.5\text{dBm}$ of the correct setting.

Yours sincerely,



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