Tune Up Procedure, 96281-x09x (1400MHz) variant

Power Output

The power level of the 96281-x09x Transmitter is not adjustable. In production the power level of the Main PCBA (P/N 670-1632) will be verified by an automated test of conducted power at J3OUT, at the band edges and centre. After final assembly, the transmitter is mounted in a jig incorporating a test antenna. An automated test system verifies the radiated level of ANT1 and the conducted power at the lead-wire antenna feed point.

Frequency

The 96281-x09N Transmitter centre frequency and modulation are calibrated by an automatic system during production, and may be recalibrated using a semi-automatic procedure as a service operation. The automated and semi-automated procedures are equivalent; the semi-automated service calibration procedure is given below, with explanatory notes in italic. This should be read in conjunction with the transmitter block diagram.

The procedure provides a two-point calibration of the 19.2 MHz VCTCXO, controlling both the centre frequency and the depth of modulation.

Calibration method

Equipment required:

- PC with the 96281 FSE Calibration Software (163-1765-02) installed
- Bluetooth v2.1 PC peripheral (dongle) installed on the PC.
- Spectrum analyser with ≤ 0.1 ppm class reference (OCXO or satellite)
- Antenna for 1400MHz use, fitted to the spectrum analyser

1. Set the Spectrum Analyser to centre 1395.025MHz, span 50kHz, RWB 100Hz
2. Run the 96281 Calibration Software and establish Bluetooth communication from the PC to the 96281 transmitter.

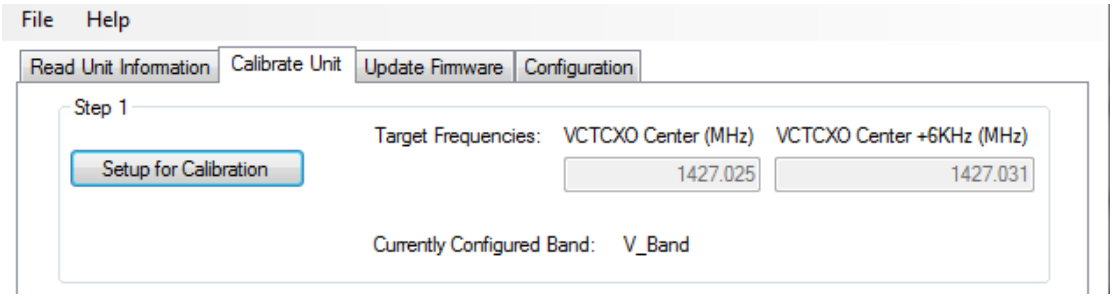

Fig 1

3. Press the SetupForCalibration [Execute] button (fig 1).

The software initialises the 96281 synthesiser settings and inhibits modulation

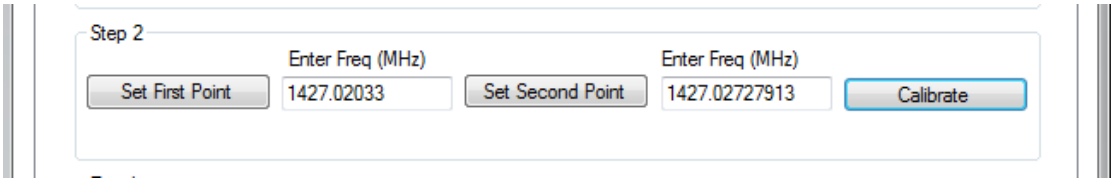

Fig 2

4. Press the [Set First Point] button (fig 2)

This sets DAC1 to 1.25V

5. Measure the carrier frequency using the Spectrum Analyser.
6. Type this frequency into the left-hand Enter Freq box (fig 2)
7. Press the [Set Second Point] button.(fig2).

This sets DAC1 to 1.68V

8. Measure the carrier frequency using the Spectrum Analyser.
9. Type this frequency into the right-hand Enter Freq box (fig 2)
10. Press the [Calibrate] button (fig 2)

The software now calculates DAC1 settings required to trim the centre frequency and to generate the intended depth of modulation.

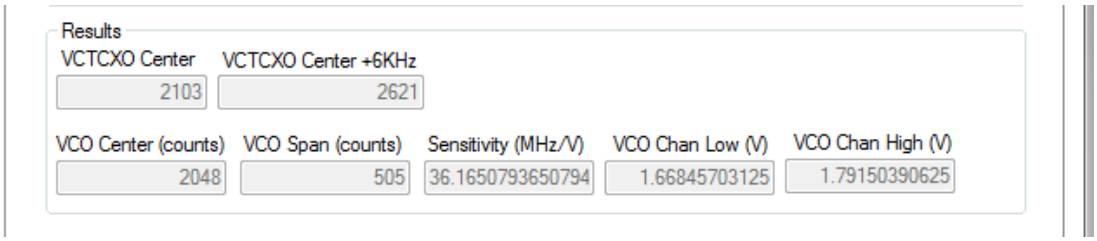

Fig 3

11. After around least 30 seconds you will observe the calibration results in the window (fig 3)

The software now carries out an automated measurement of the VCO sensitivity, by setting the PLL to a new frequency and using the BUFF/ADC feedback path to measure the change in VCO control voltage.
Using the VCTCXO calibration, the Narrow selection, and the VCO sensitivity measurement, the software scales and offsets the modulation data tables for DAC1 and DAC2. The calibration results and table values are then written to the 96281 transmitter.

Channel Setting and Verification

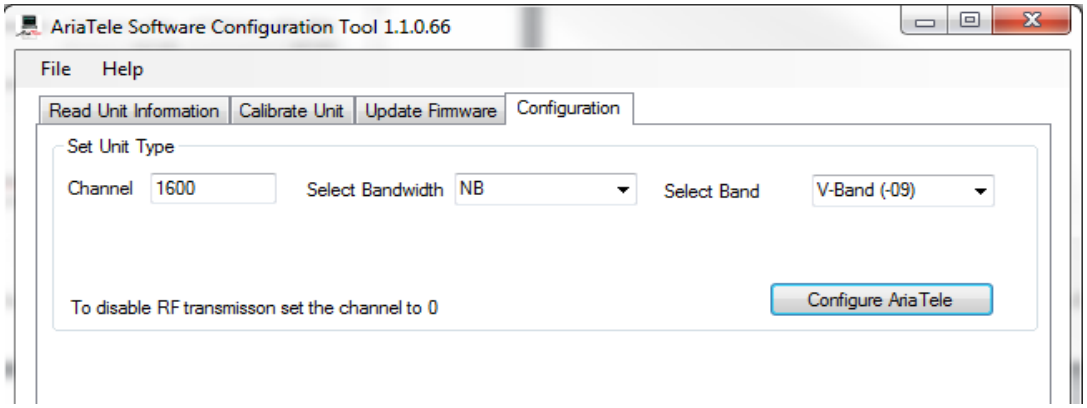

Fig 4

The channel and the bandwidth of the modulation, wide or narrow band, can be changed as necessary using the above shown tab (fig 4).

1. Enter the Channel number, Select NB or WB and Select the appropriate Band for the unit model. Then press [Configure AriaTele].
2. Remove and refit the batteries of the transmitter to make it reload all the calibrations, and revert to normal operation.
3. Measure the carrier frequency using the spectrum analyser and verify that the measurement is within +/-200 Hz of the tabulated channel frequency.
4. Make an Adjacent Channel Power (ACP) measurement and verify that it is similar to fig 5, +/- 3dB.

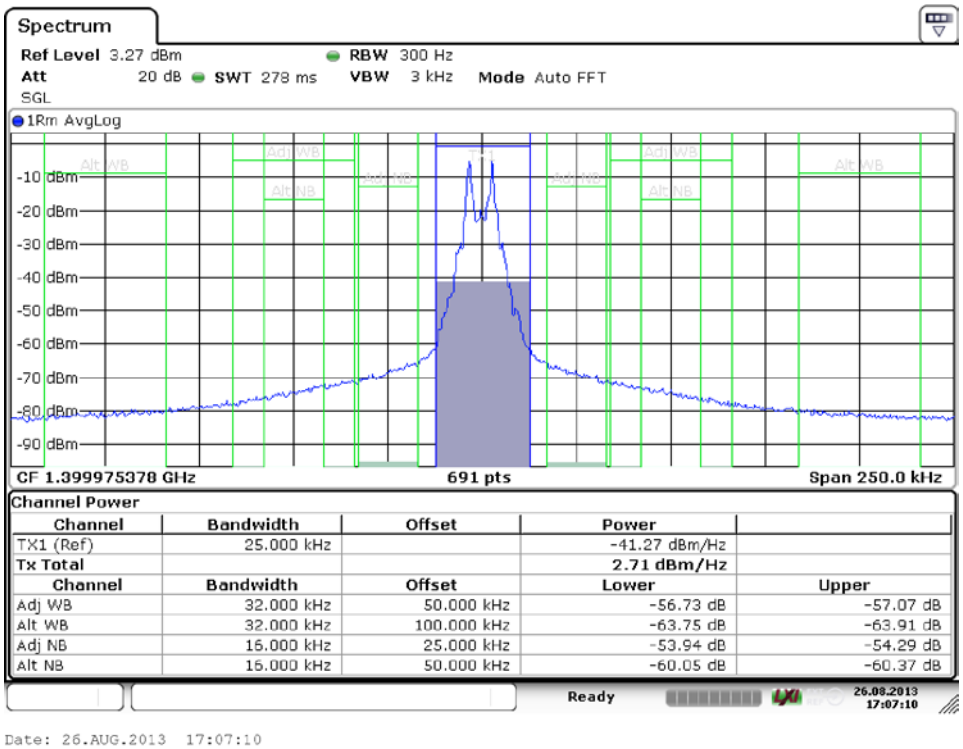

Fig 5– ACP measurements