Yana --- Calibration

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If the cursor is not in the Home position, return to the Home screen and Home position. This is in the upper right corner of the Home screen. The cursor (blue) should be on R. Turn the knob to show C (for Calibration). Hold the button to enter calibration mode.

On the calibration screen you will see the current data. The format is described in YANA_AD851.ino (the program). The numbers represent raw ADC readings.

Never worry about wrecking a calibration. At the end of every calibration run you will be asked if you wish to save the calibration (if not it is discarded). Therefore, you can always look at calibration data without disturbing the saved data.

First enter calibration mode (as above). **Then:**

I. Calibrating the SNA

1. Click the button to begin an SNA calibration.

2. Attach a **through** connection between the generator (AD9851 DDS) and the detector (AD8307). I use a 10cm sma cable.

3. Once the **through** is connected, Click the button.

4. Remove the **through** and connect the 30db attenuator.

5. Once the attenuator is connected, Click the button.

6. You will see the new SNA calibration data in the left hand column. Click to skip out without saving the data. Push to save the new data (it will replace your old data).

7. The SNA is now calibrated.

8. Periodically connect the 30db attenuator and run the SNA. The graph should be a straight line at about 28db. A few minor bumps are allowed. If this check doesn't work, recalibrate.

What happened? On the first click, Yana measures the DDS output at set frequencies. These are recorded and used as calibration data. On the second click, Yana measures the DDS output through the 30db (actually 28.64db) attenuator at 10MHz which is saved as calibration data. All readings are raw ADC output.

II. Calibrating the SWR

1. Push the button to begin SWR calibration.

2. Attach the SWR bridge to Yana. The bridge connectors are at different heights to match the heights of the sma connectors on Yana, so you can't get it wrong.

3. Attach a **short** load to the bridge. I.e. attach a sma pin-plug adapter then plug a short into the adapter. One end of the short should go to the sma center pin and the other to ground.

4. Once all connections are correct, Click the button.

5. You will see the new SWR calibration data in the right hand column. Click to skip out without saving the data. Push to save the new data (it will replace your old data).

6. The SWR is now calibrated.

7. Periodically connect the bridge and a SWR 2 load (100 or 25 ohms) and run SWR. The graph should be a straight line at about SWR 2. A few minor bumps are allowed, especially at the high frequency end. If this check doesn't work, recalibrate.

What happened? Yana measured the DDS output passing through the bridge with a short at the same set frequencies used in the SNA. These are saved as calibration data.

III. Calibrate PWR

For this calibration you need a reliable 10MHz -10dbm generator.

1. Hold the button to begin PWR calibration.

2. Connect the 10MHz -10dbm generator to the detector (short sma).

3. Once the generator is connected, Click the button.

4. The calibration number will be the top right hand number on the display. Click to skip saving or Push to save the data (replacing your old data).

5. The PWR is now calibrated. Since PWR does not use the generator, it has much wider range. It is good from about 100KHz to 200MHz. The accuracy then falls gradually above 200MHz. The input circuitry to the AD8307 limits the response.

6. Periodically reattach the 10MHz -10dbm generator and use PWR. The reading should be about   -10dbm. If it is not, then recalibrate PWR.