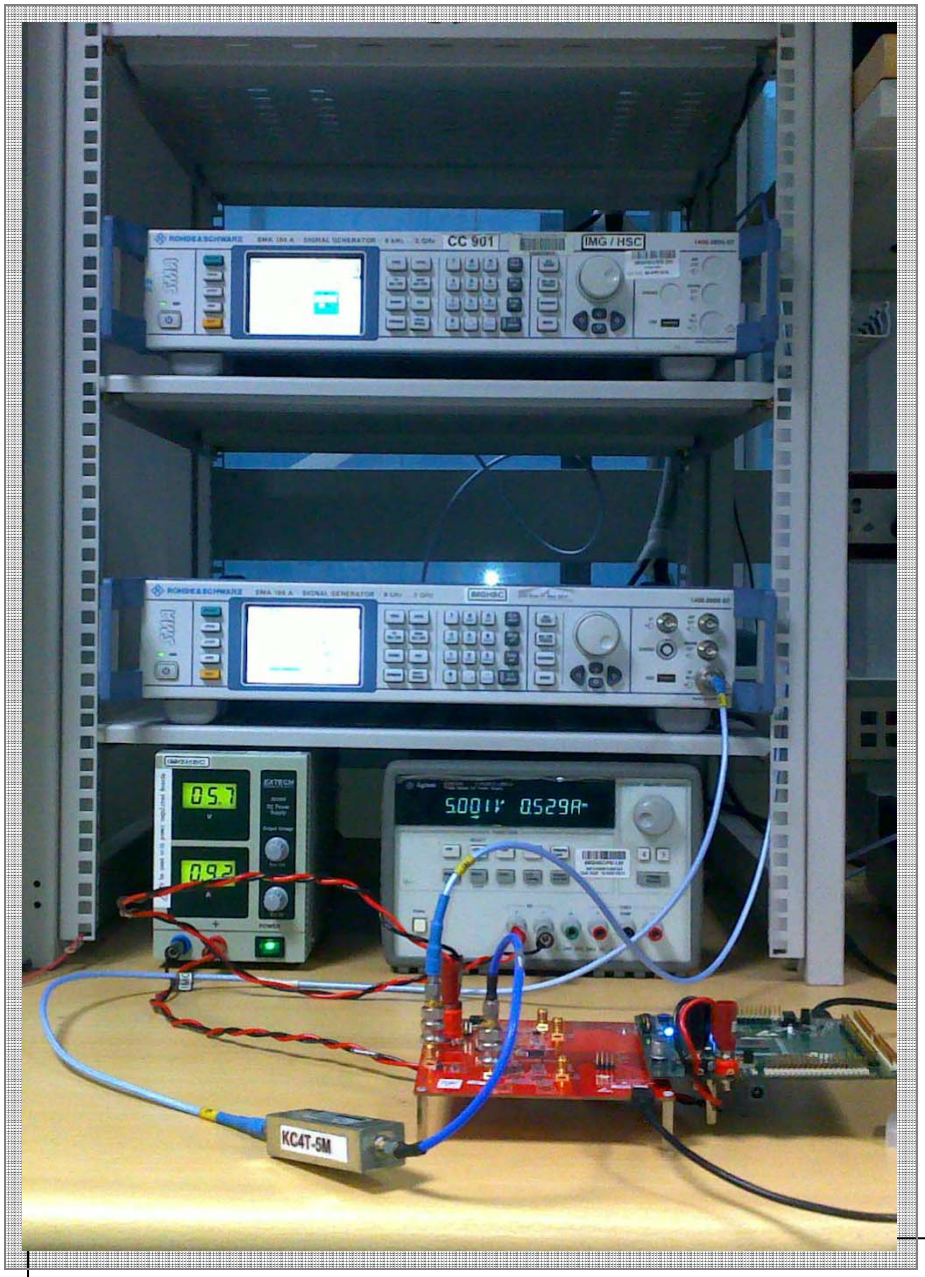
ADS5263 EVM Test Procedure for Customers to Read

Texas Instruments

Medical Business Unit

ADS5263 EVM BENCH SETUP



0. **Write SN number on new EVM**

1. **EVM Power Supply:** Set 5Volts And Current Limit to 700mA. Without Clock source turned on it should take about 170mA.

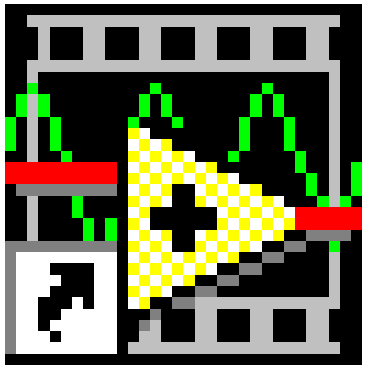
2. **TSW1250 Power: Connect the TSW1250 board to Power adaptor**

3. **SMA100A (or equivalent e.g. HP8644):** Connected as signal source. Set IF to 5Mhz (The IF signal needs to be Coherent . Coherent value can be taken from the TSW1250 GUI) .And set the signal Amplitude to 19.9 dBM

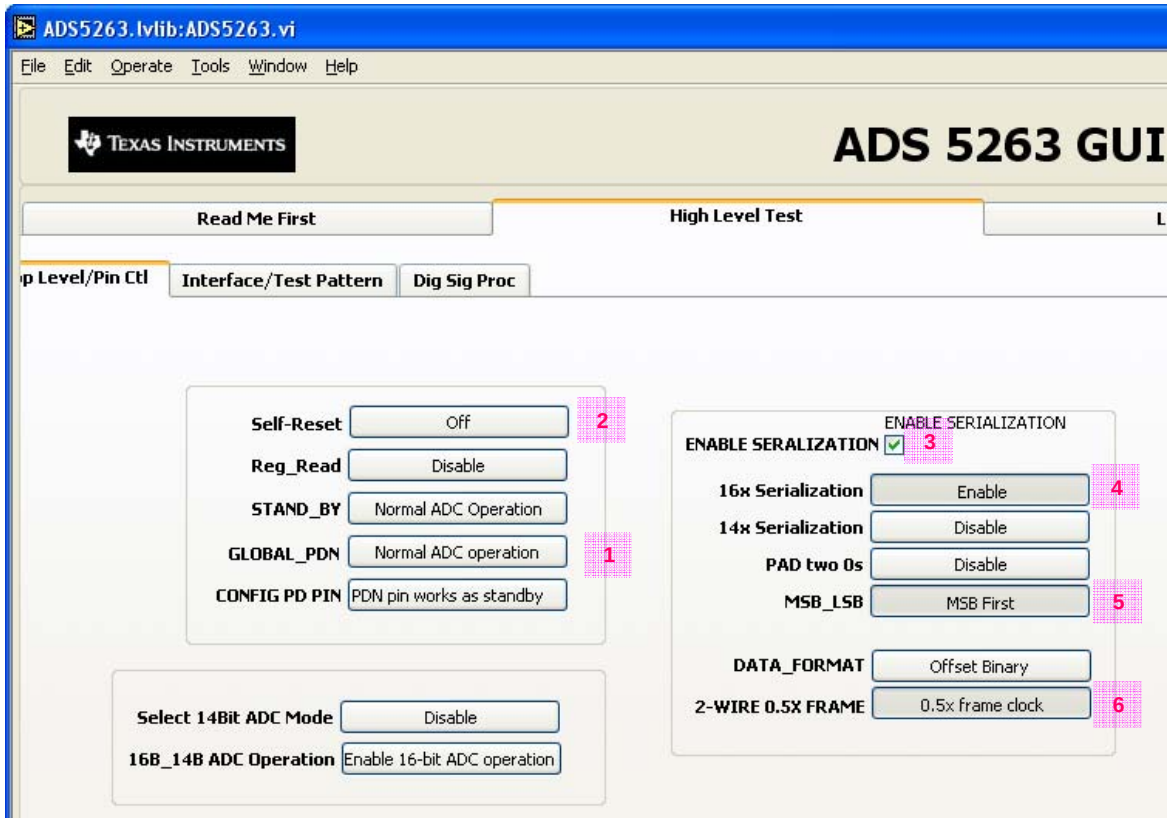
4. **SMA100A (or equivalent e.g. HP 8644):** Connected as Clock source. Set Frequency to 80Mhz. And Amplitude as 12dBM . After turning the clk source the EVM should take about 530mA

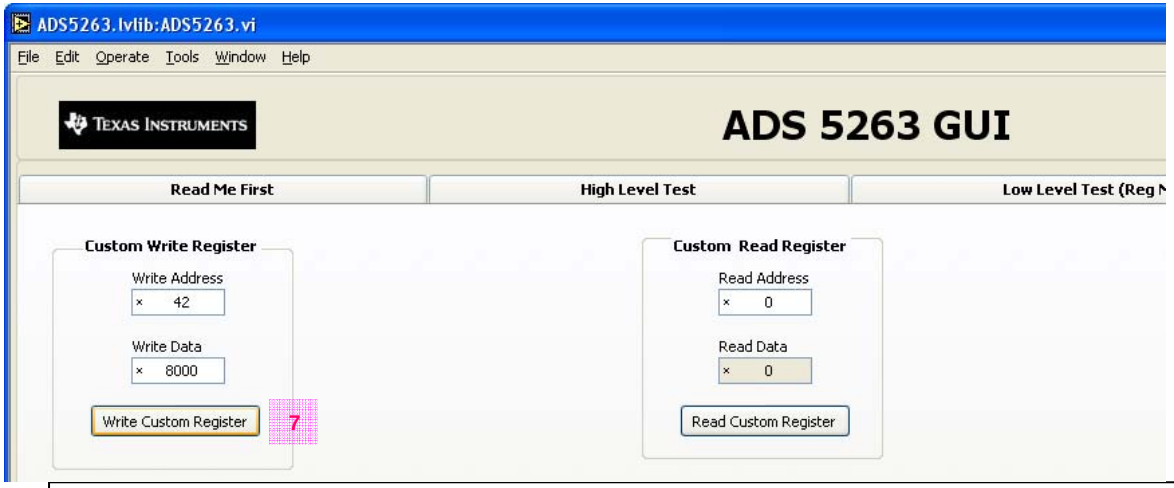
Run ADS5263 GUI to Setup ADS5263 Interface

- **Click on ADS5263 GUI.**



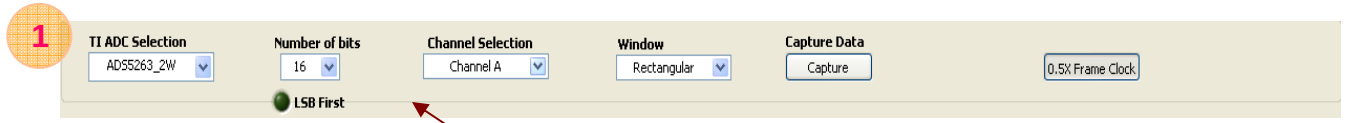
ADS5263

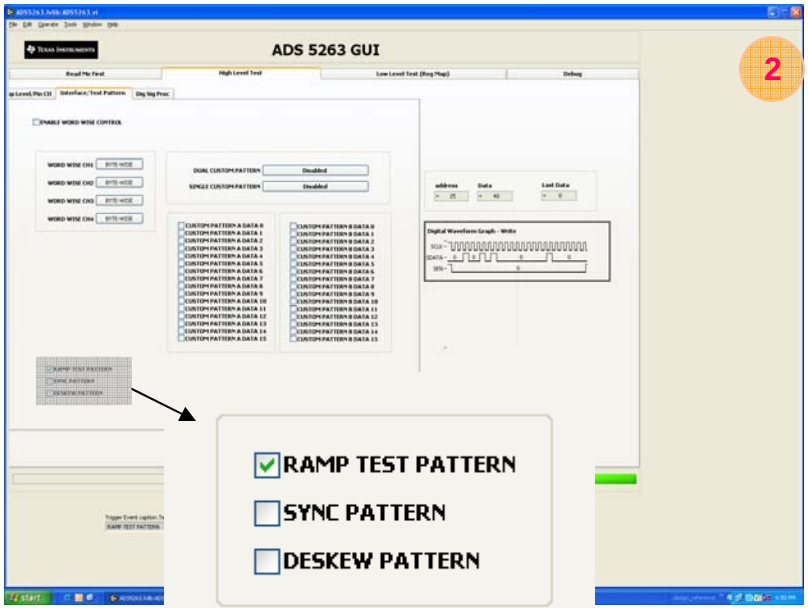


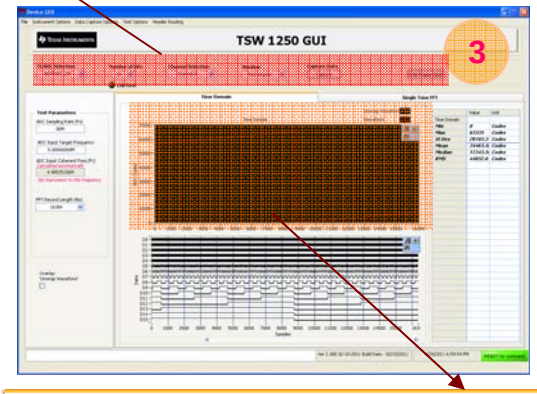


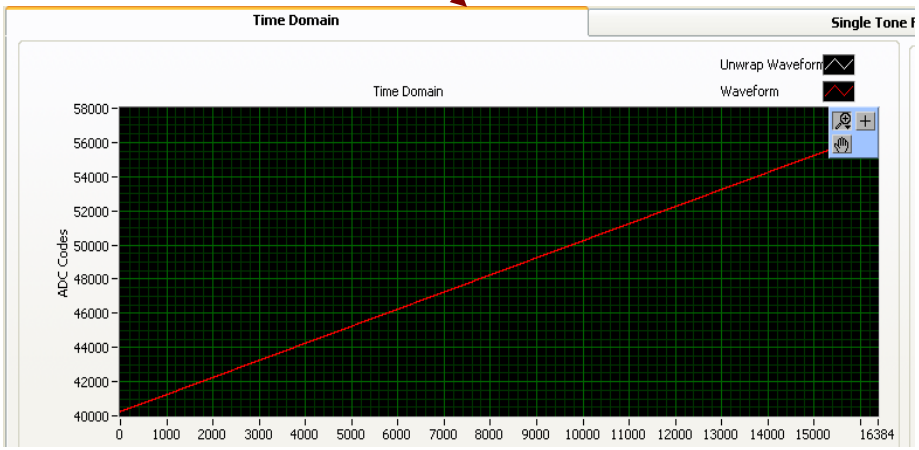
ADS5263 SERIAL INTERFACE SETUP

1. In order to to check the serial interface to the EVM. First we write Global_PDN register. By applying this register . Dut supply current should drop down to154mA
2. Apply Self-Rest.
3. Enable Serialization
4. Enable 16x Serialization
5. Apply MSB_LSB Register
6. Enable 2-WIRE MODE
7. Write Custom Register in Debug TAB







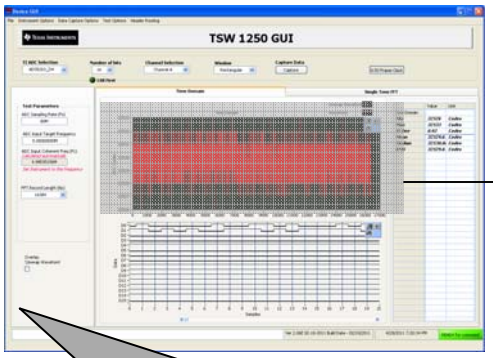


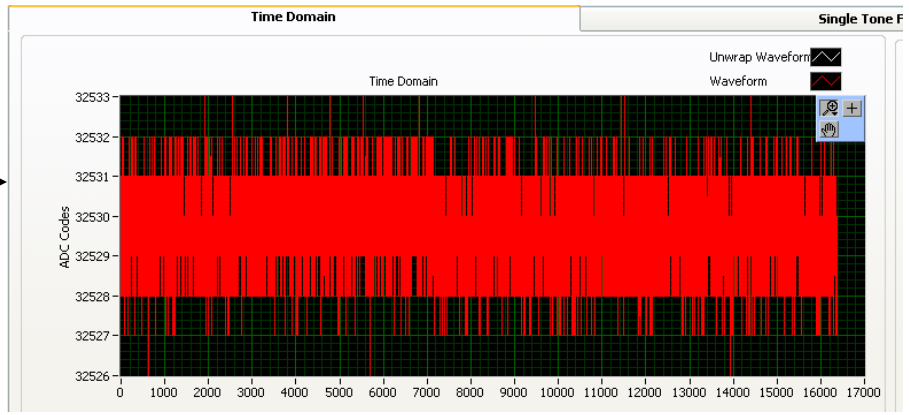
1 **First select the CAPTURE MODE-> ADS5263_2W : Number of bits-> 16 : Channel selection-> A : Window-> Rectangular : 0.5X Frame Clock**

2 **Select the ramp test pattern in the ADS5263 GUI. Under Interface/Test pattern tab.**

3 **By clicking the capture button in TSW1250 GUI .Under TIME DOMAIN tab you should see a ramp pattern as displayed in the picture. By selecting different channels . In the channel selection list . The same ramp pattern must be shown to make sure that all the channels are communicating to TWS1250 board.**

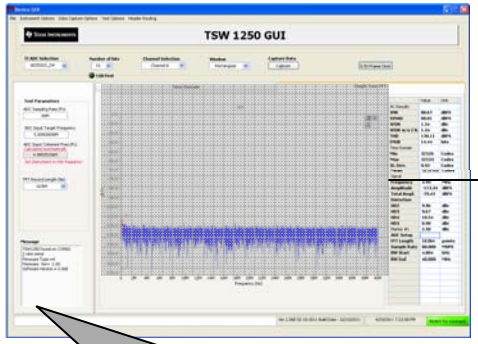
TSW1250 CAPTURE SETUP



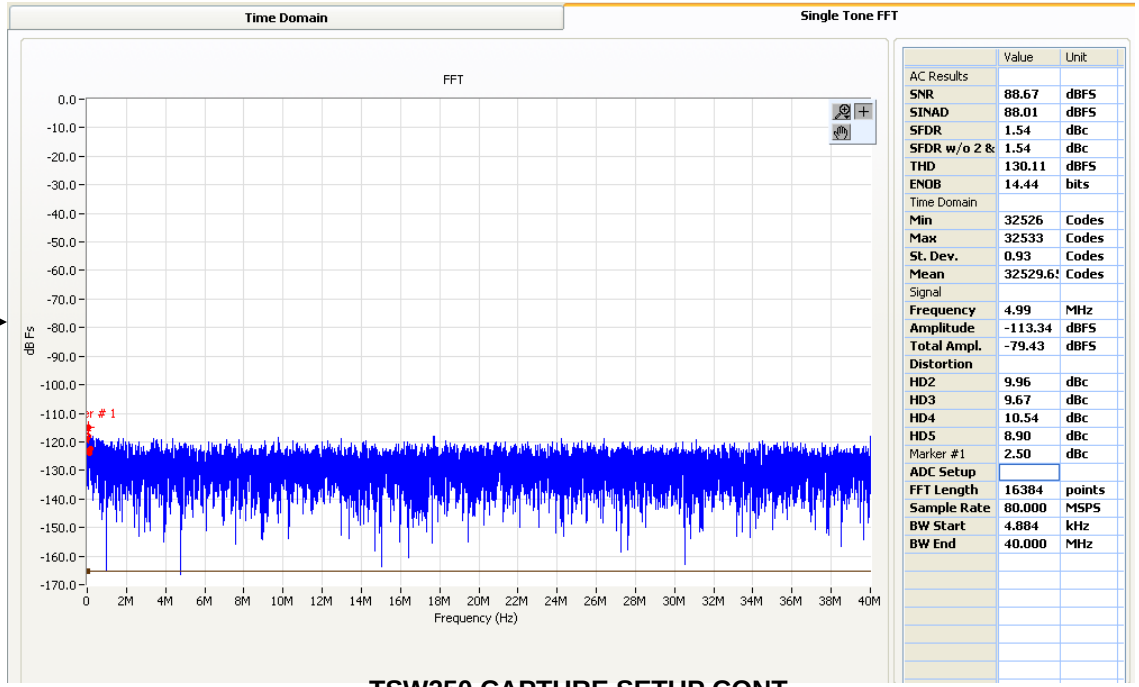


After Successful testing the ramp mode. Unclick the Ramp mode check box.

Without applying any input to the ADC . On any given channel in time domain mode you should view the ADC codes as shown



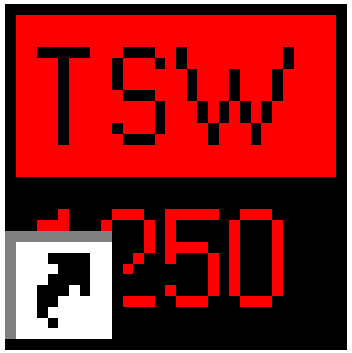
In The single tone FFT graph. The SNR Value should be around 88.67 dBFS. This concludes that the ADS is performing with good performance



TSW250 CAPTURE SETUP CONT….

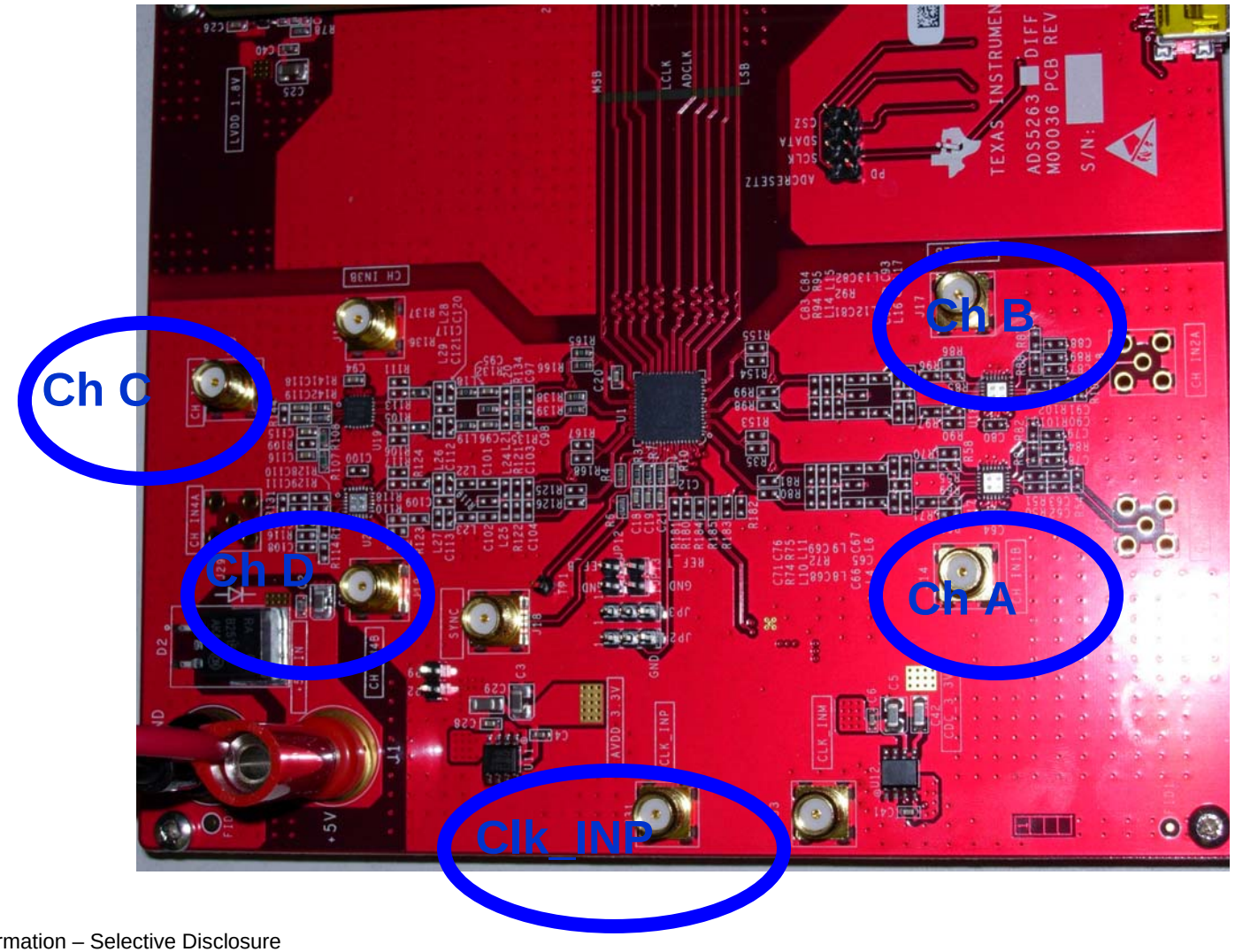
Run TSW 1250 Main GUI to Test All 4 Channels (A to D)

- **Click on TSW 1250 Main GUI.**



TSW 1250 Main

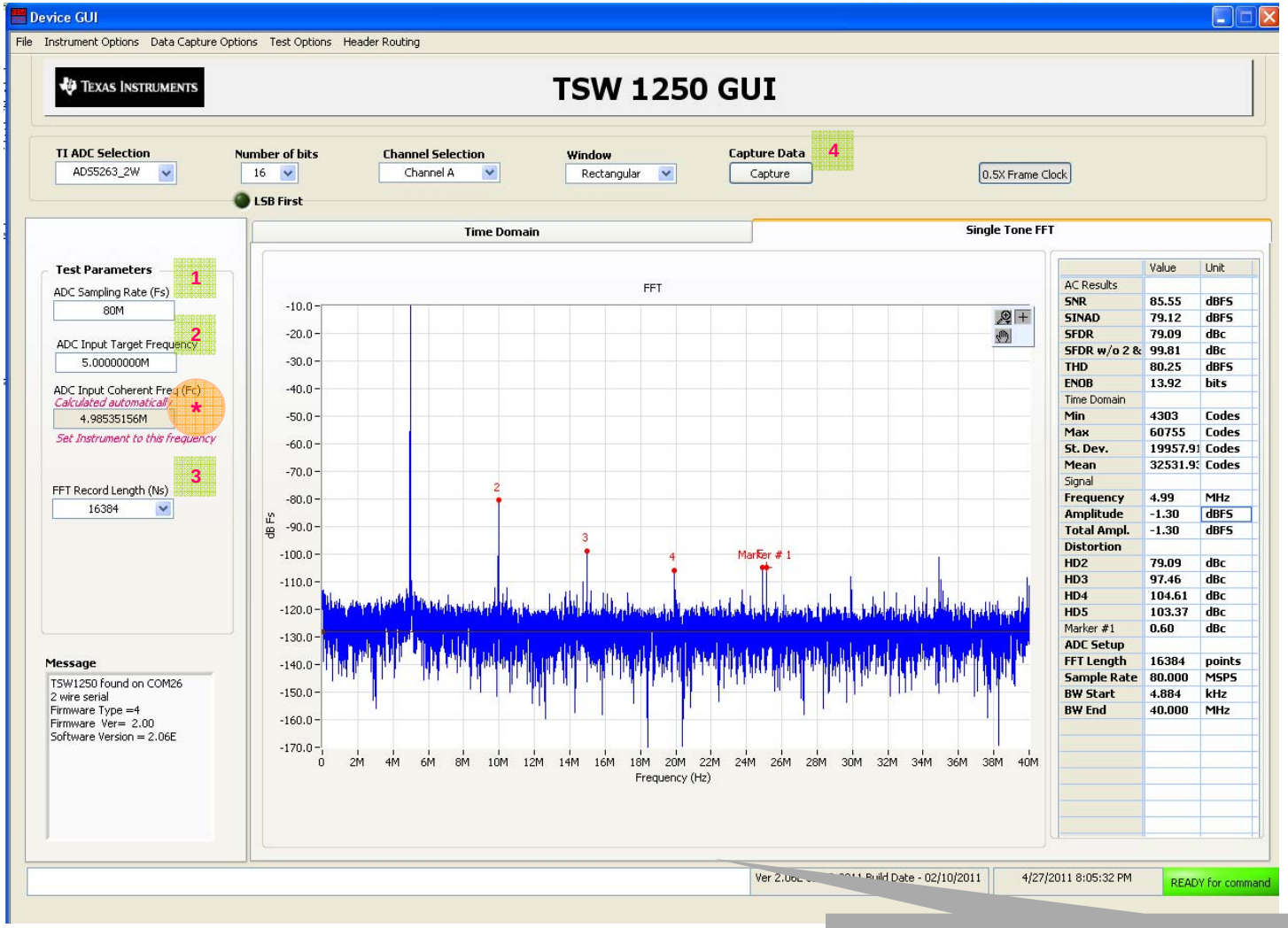
All 4 Channel Connectors



Test All 4 Channels (A to D)

- First, test Channel A.
- Select **Channel Selection** => **Channel A** (on next page).
- Connect ADC Input 80MHz CLK (from SMA100A or equivalent e.g. HP8644) cable to EVM's CLK_INP connector. Set CLK amplitude = 12dBm.
- Connect ADC Input 5MHz Signal (from SMA100A or equivalent e.g. HP8644) cable to EVM's ChA connector. Set Input Signal amplitude = 19.9dBm (only for ChA, ChB and ChD). Type Coherent frequency = 4.98535156 MHz (on SMA100A or equivalent e.g. HP8644).
- Select **16384** samples (on next page).
- Click **Capture** button (on next page) to compute data and waveform.

TSW250 CAPTURE SETUP WITH INPUT SIGNAL APPLIED



After the capture. The fundamental frequency and its harmonics are displayed. The amplitude of the ADC should be not more than -1.1 dBFS. Expected SNR value should be grater than 85 dB. And the SFDR unit should be not less than 76 dBc

* Coherent Frequency value that has to be entered in SMA100 Which is configured as Signal Source

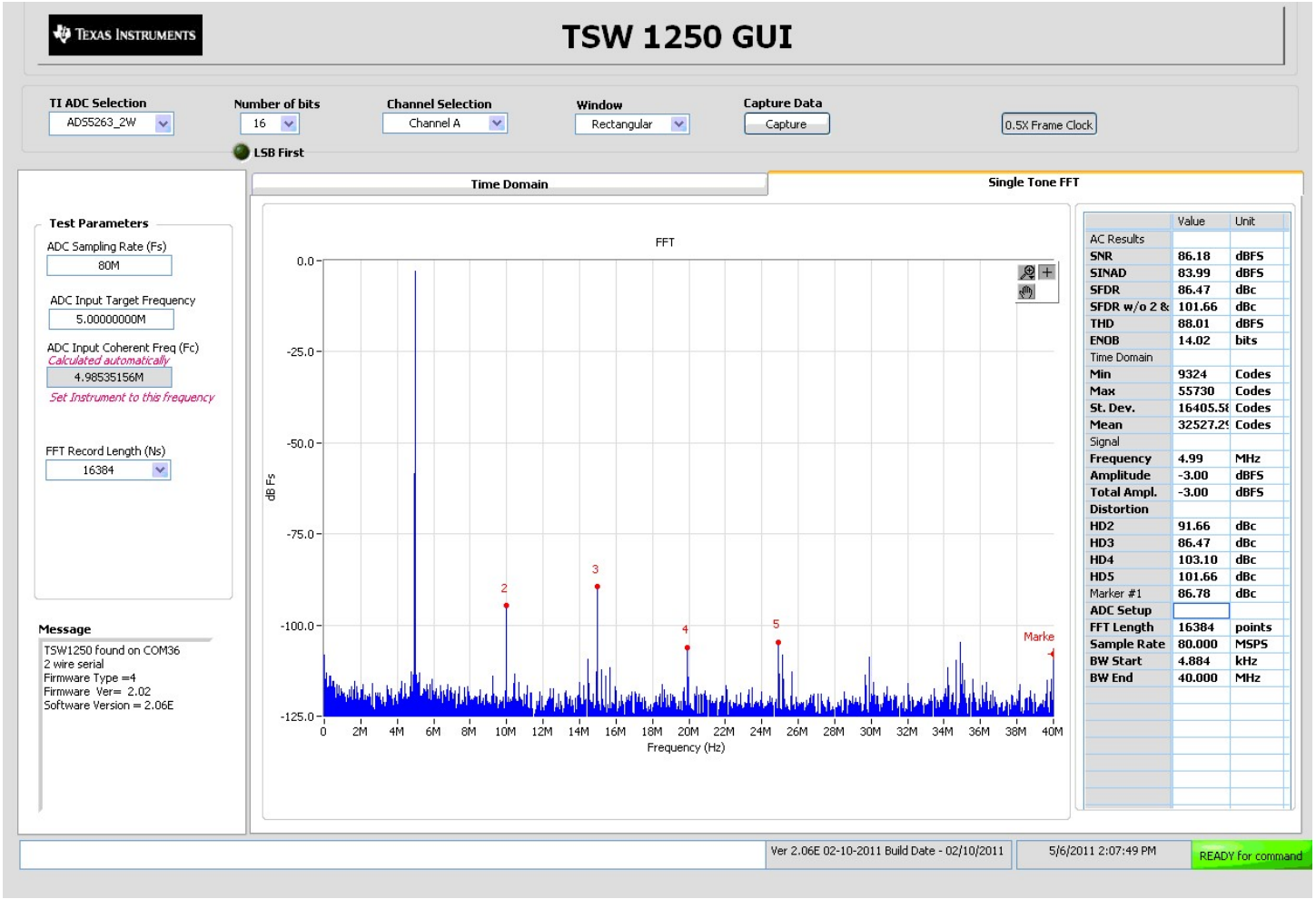
Note: SMA100 or equivalent e.g. HP8644

1. Enter 80M as ADC CLK frequency
2. Enter 5M as ADC Input frequency
3. Select 16384 samples
4. Select capture.

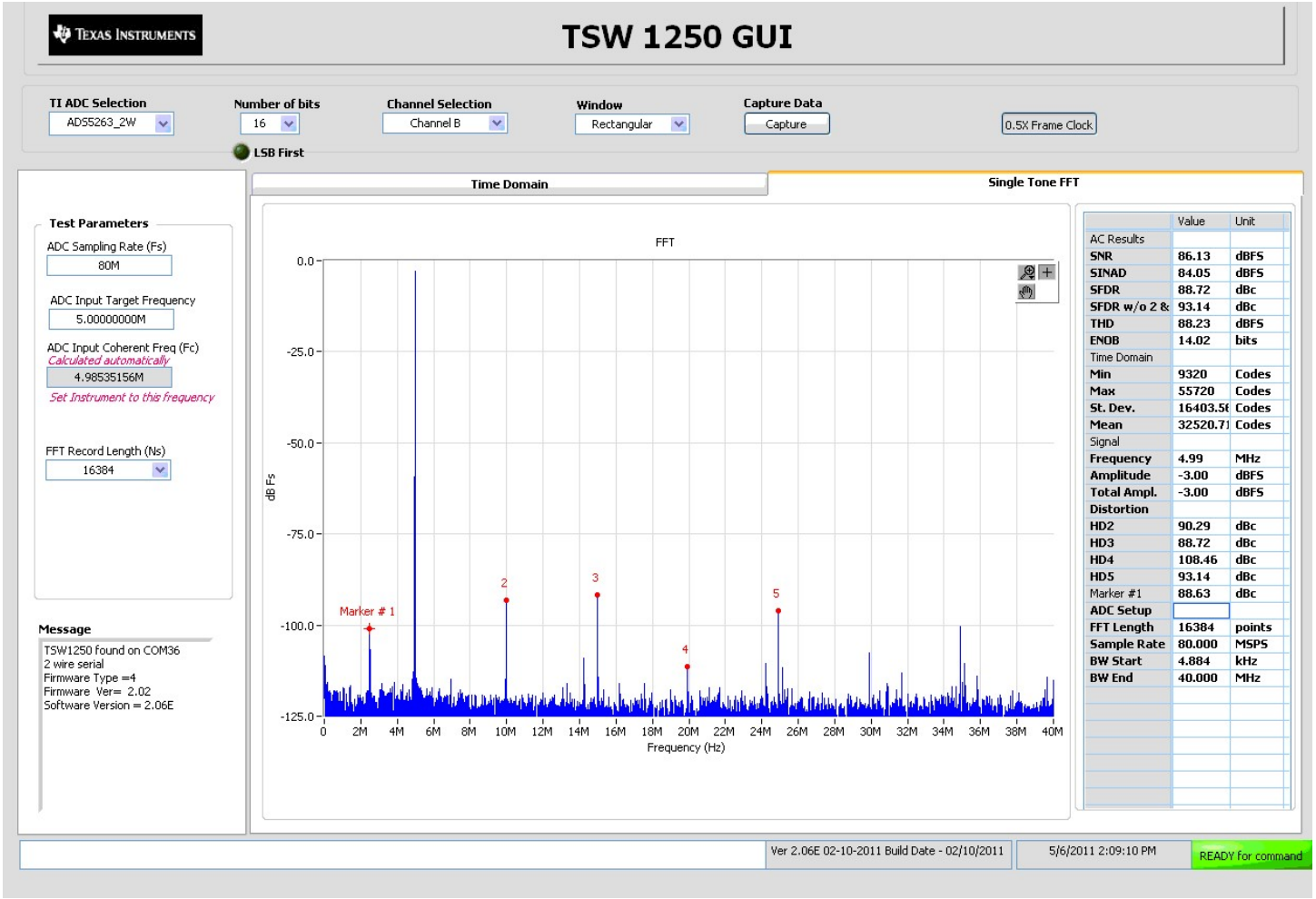
Test All 4 Channels (A to D)

- Continue to test Channel B, C, and D.
- Follow the same test procedures as Channel A.
- Note that: Only for Channel C, set Input Signal amplitude = 14.1dBm. The SNR criteria for ChC should be different from ChA, ChB and ChD.

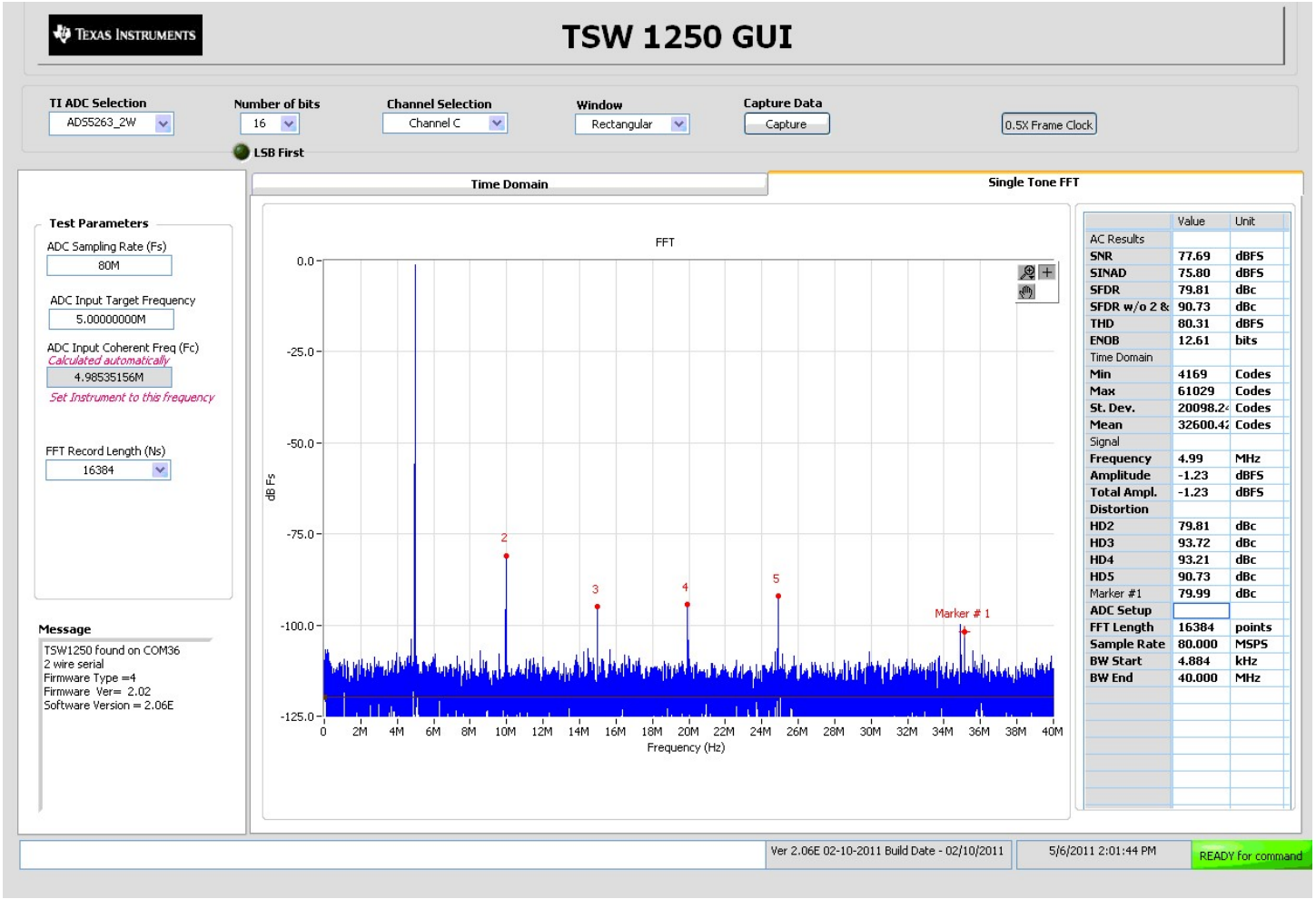
Typical ChA Result, SNR=~86dB



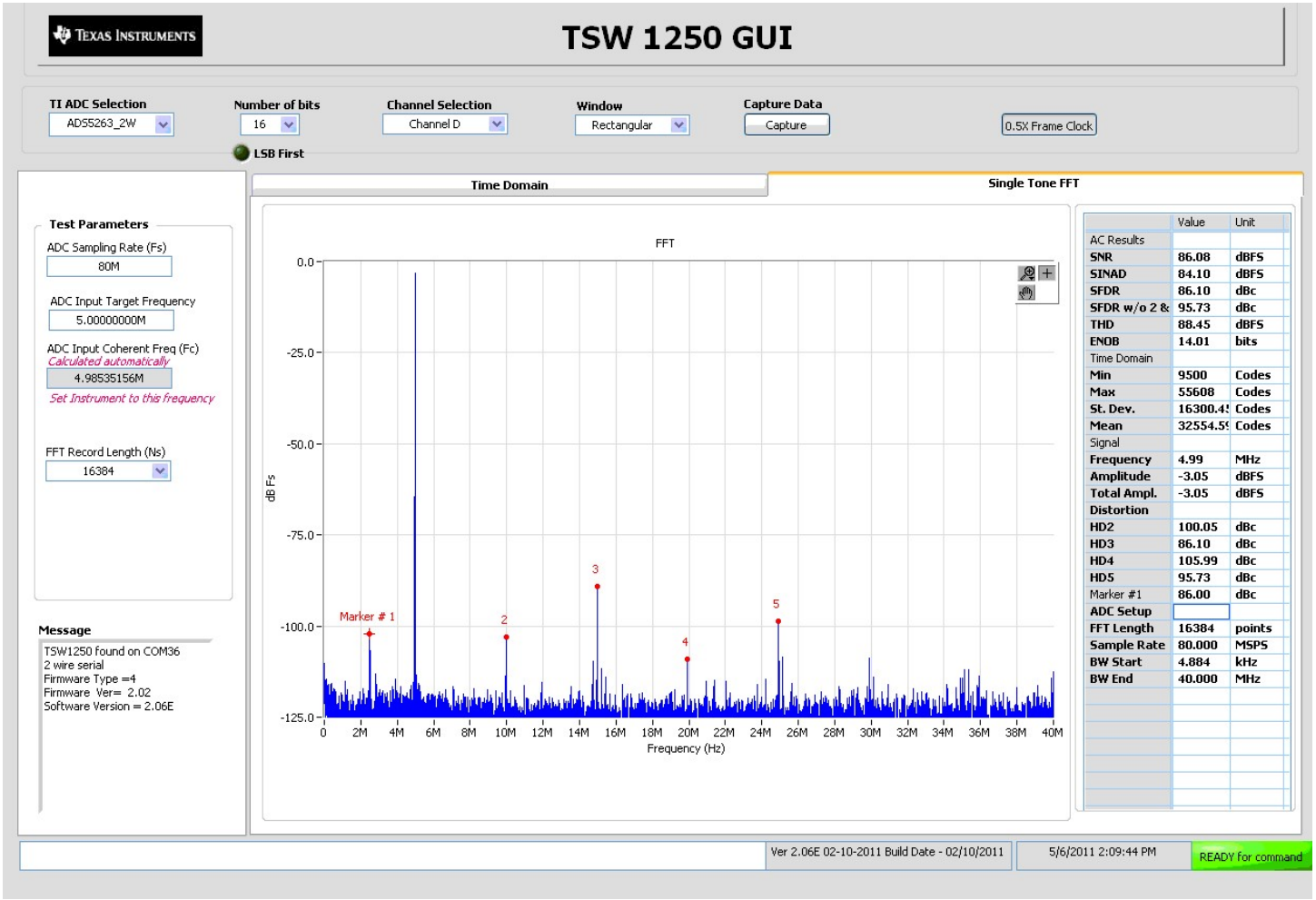
Typical ChB Result , SNR=~86dB



Typical ChC Result , SNR=~77dB



Typical ChD Result , SNR=~86dB



Test Complete