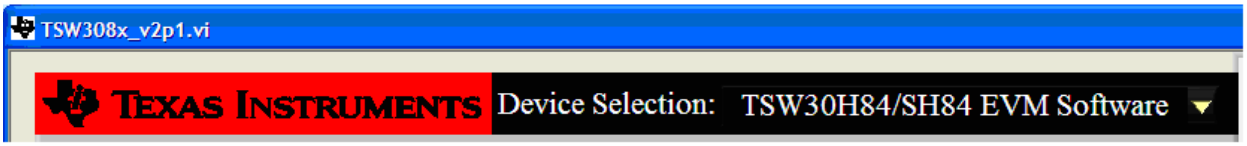
Test Procedure of TSW30SH84 with TSW1400

TSW1400EVM
1. Connect 5 V power supply to J12, *5V_IN* jack of the TSW1400 EVM.
2. Connect PC's USB port to J5 USB port of the TSW1400 EVM. The cable should be a standard A to mini-B connector cable.

TSW30SH84EVM
1. Connect J13 connector of TSW30SH84 EVM to J4 connector of TSW1400 EVM.
2. Connect 6V to the J18, *Power In* jack of the TSW30SH84 EVM.
3. Connect PC's USB port to J14 USB port of the TSW30SH84 EVM. The cable should be a standard A to mini-B connector cable.
4. Provide 10 dBm maximum, 300 MHz to 4 GHz LO source to connectors J19 and/or J22. The J19 or the J22 connector routes the LO source to the respective TRF3705 modulator TX path. Optionally, the EVM can be configured to share the LO source between the two TX paths through an on-board 3 Db splitter. The source should be connected to J22 in this case. See the *TX Path Optional Configuration* section for details.
5. Connect the RF output port of J7 and/or J9 to the spectrum analyzer.

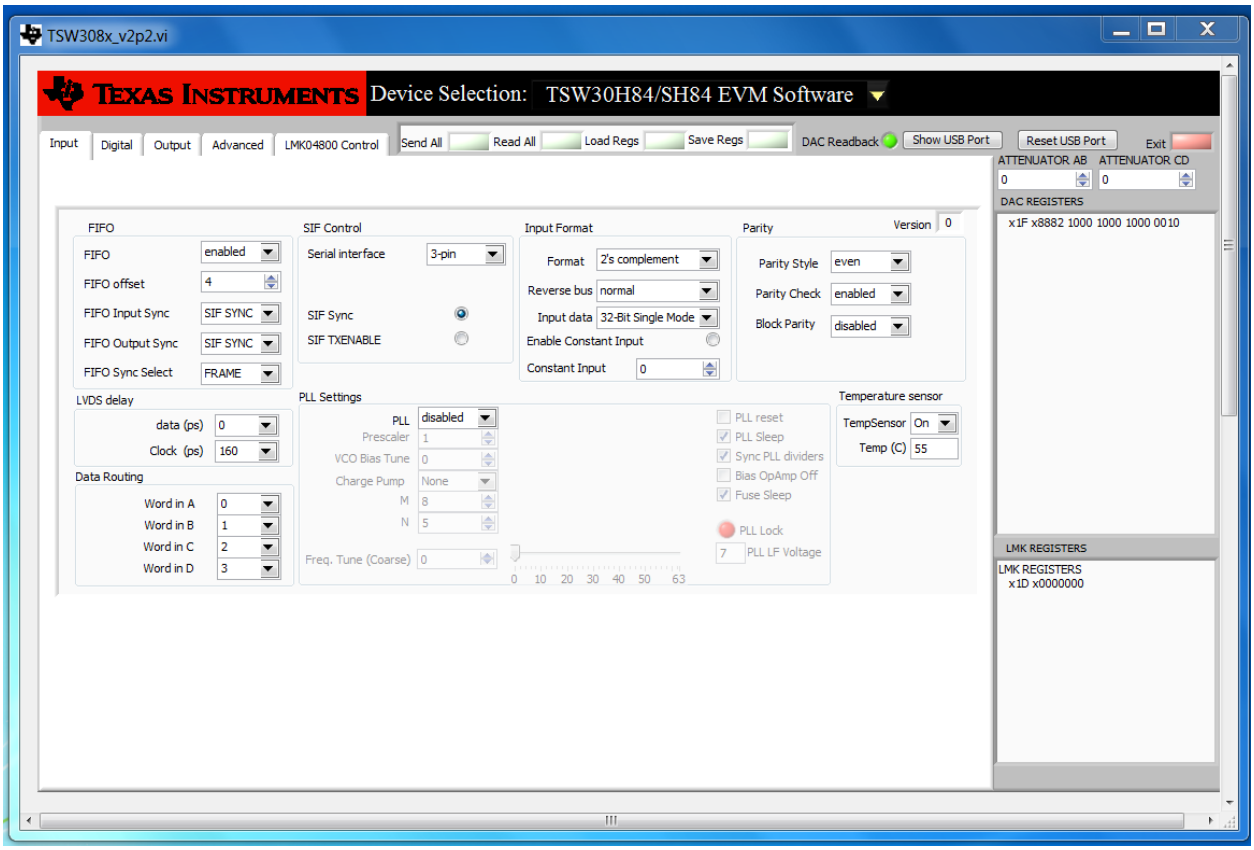
TSW30SH84 GUI Setup Procedure
1. Turn on power to both boards, and press the reset button SW1 on the TSW30SH84EVM.
2. Start the TSW308x EVM GUI program. When the program starts, press the *RESET USB Port* button in
the GUI, and verify USB communication.
3. Select the appropriate EVM platform on the software menu.



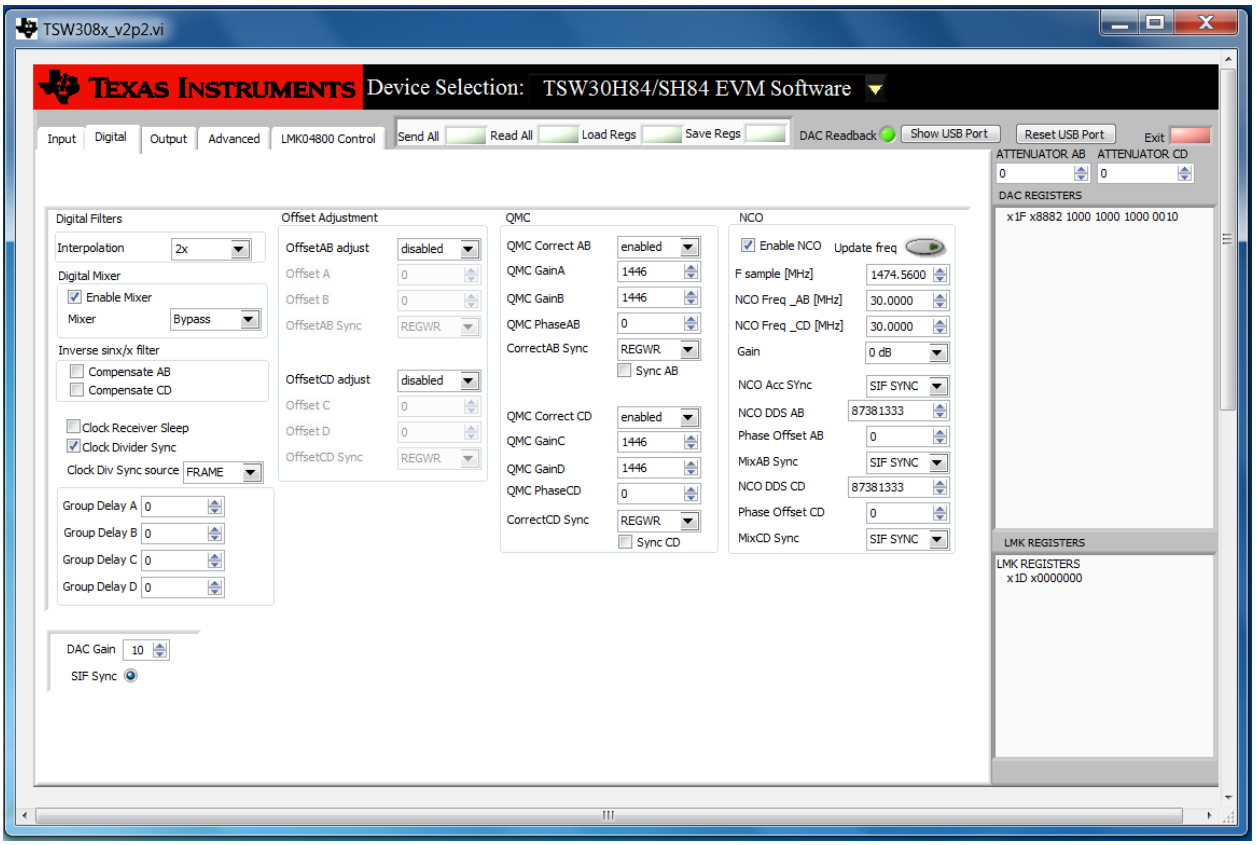
4. Click on LOAD REGS, browse to the installation folder, and load example files. The example files are located at C:\Program Files (x86)\Texas Instruments\TSW308x\Configuration Files\ TSW30SH84_single_PLL_mode_internal_clock_correct_output. To configure the LMK04808B in single PLL mode, select the file in the LMK04808 PLL Mode 10MHz reference folder. To configure the LMK04808B in clock distribution mode, select the file in the LMK04808 Clock Distribution Mode folder. For the TSW30SH84, the files contain settings for 2x interpolation with the DAC34SH84 running at 1474.56 MSPS. The data rate for each DAC is at 737.28 MSPS. The NCO is enabled at 30 MHz.

5. Click on Send All to write all of the values to the devices. If the LMK04808B is programmed properly in single PLL mode, the LMK LOCK LED (D7) near the device will be illuminated. The updated register configuration for the LMK04808B now appears.

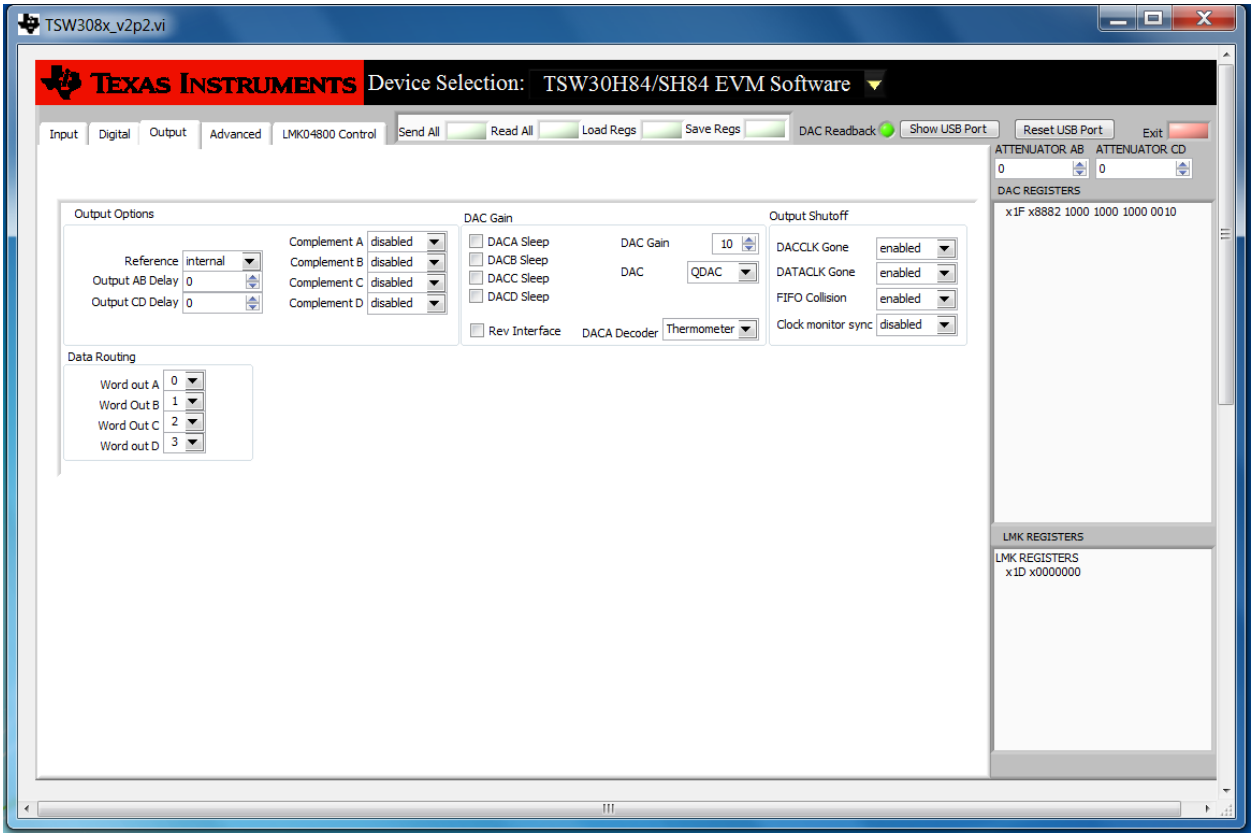
Input Setting



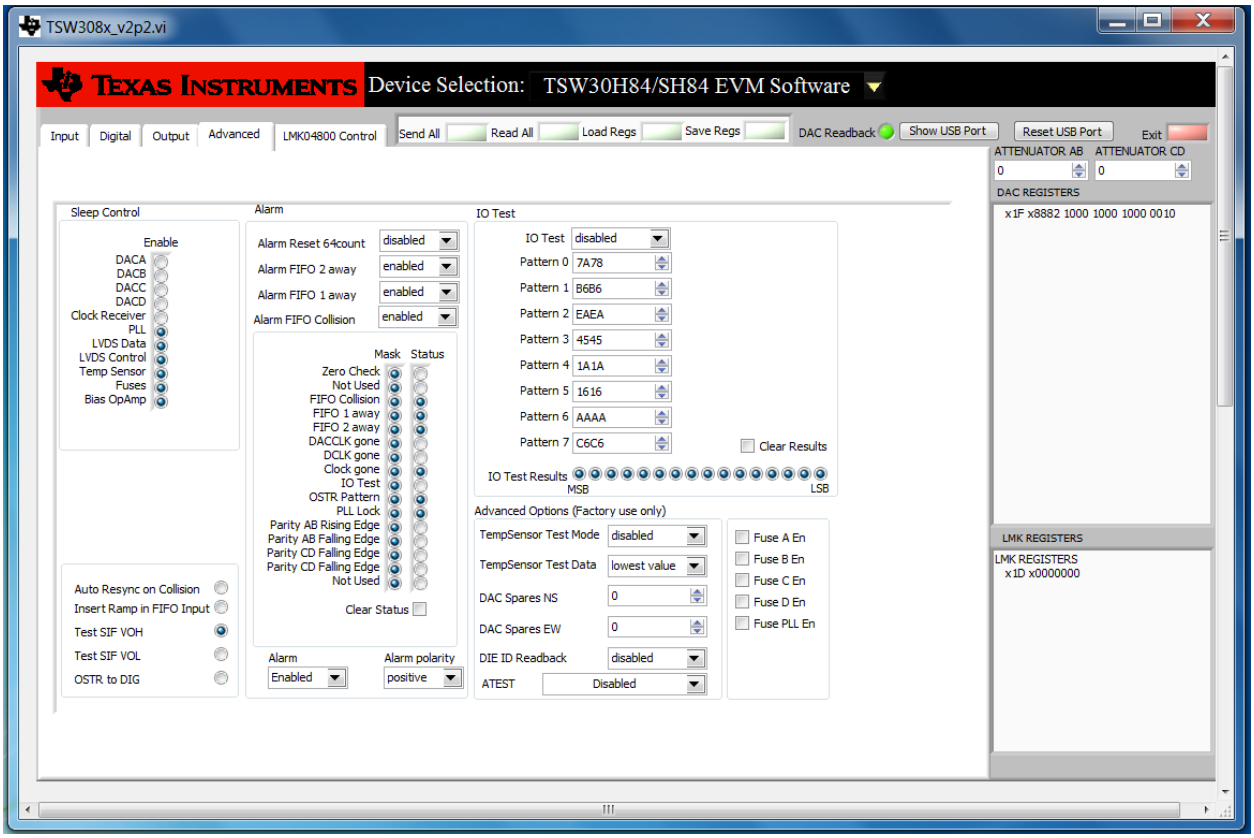
Digital Settings



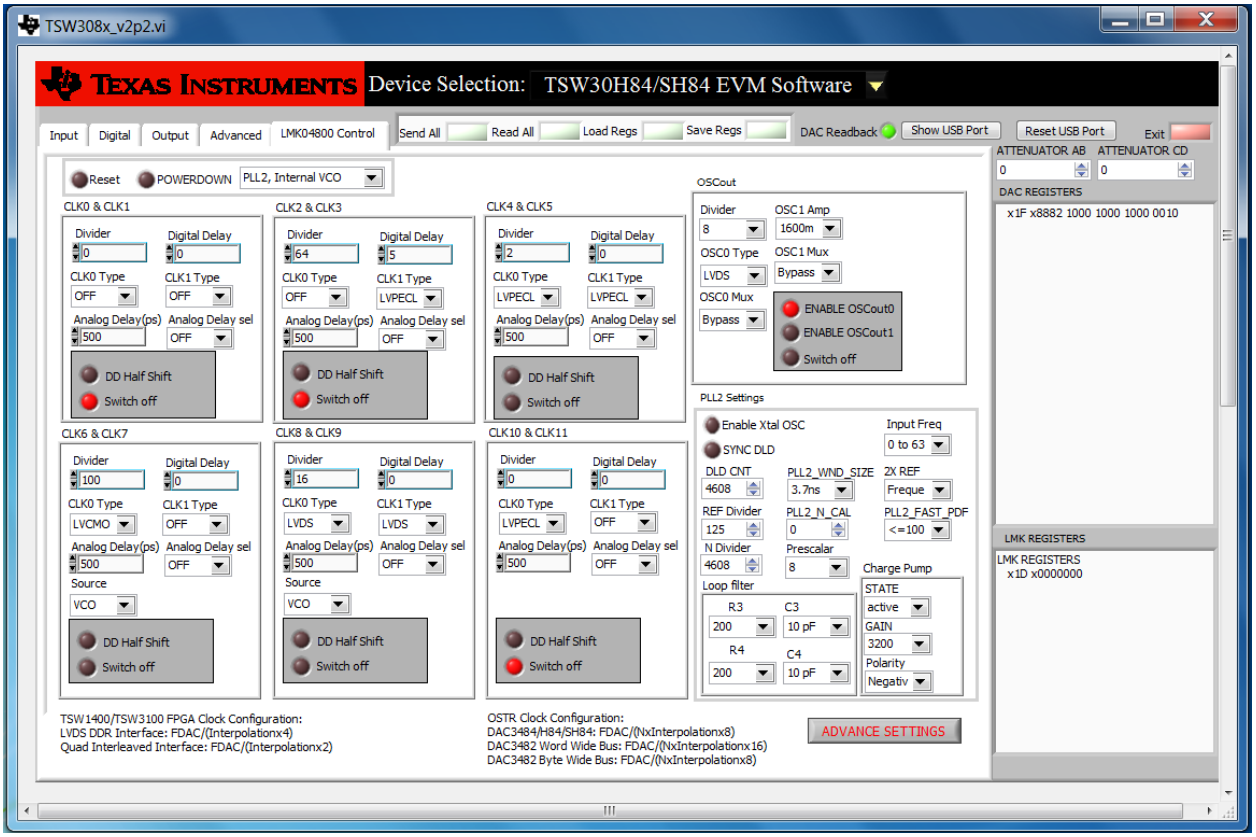
Output Settings



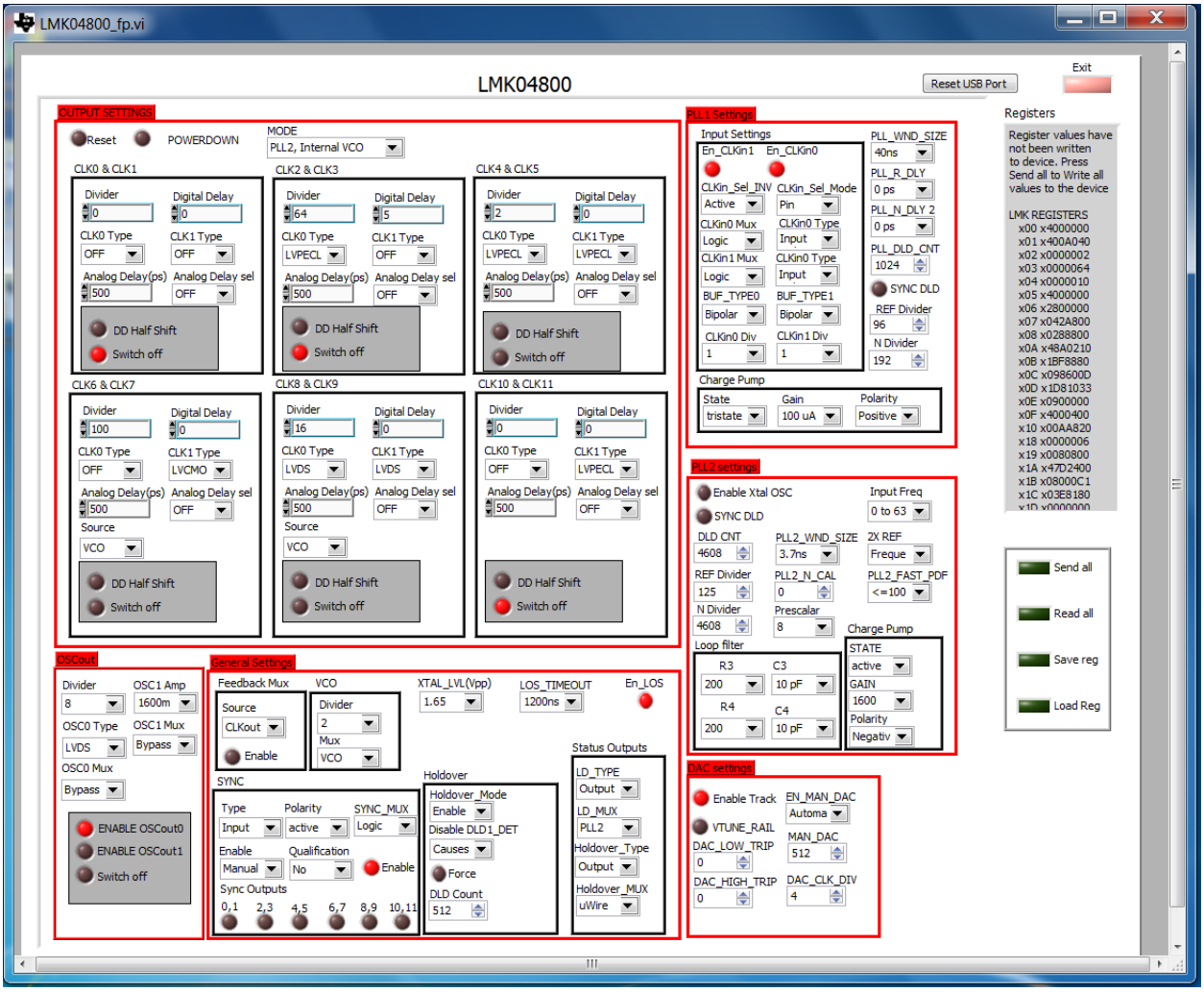
Advanced Settings



LMK04800 Control Settings

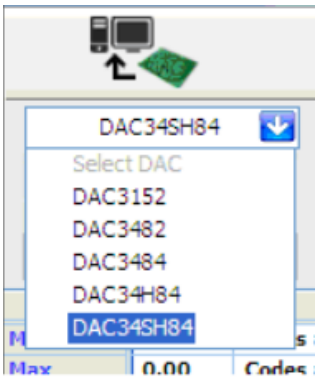


LMK04800 advance Settings



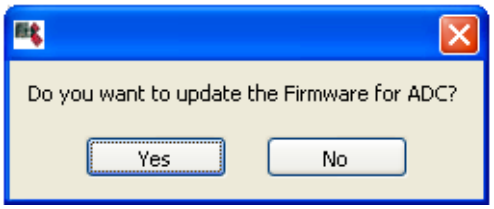
TSW1400 GUI Setup Procedure

1. Start the High Speed Converter Pro GUI program. When the program starts, select the DAC tab and then select DAC34SH84 device in the “Select DAC” menu



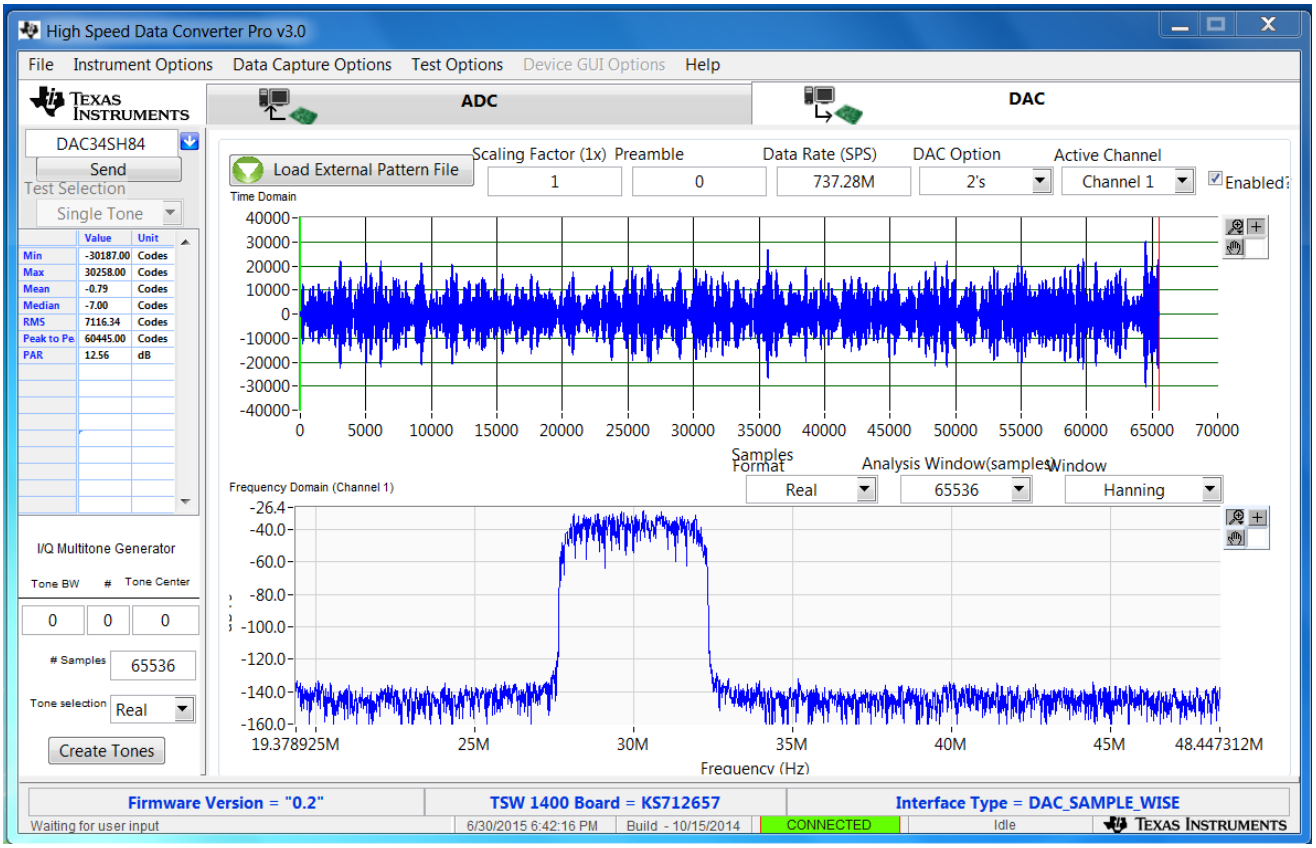
Select DAC34SH84 in the High Speed Converter Pro GUI Program-

2. When prompted Load DAC Firmware?, select YES.



Load DAC Firmware Prompt

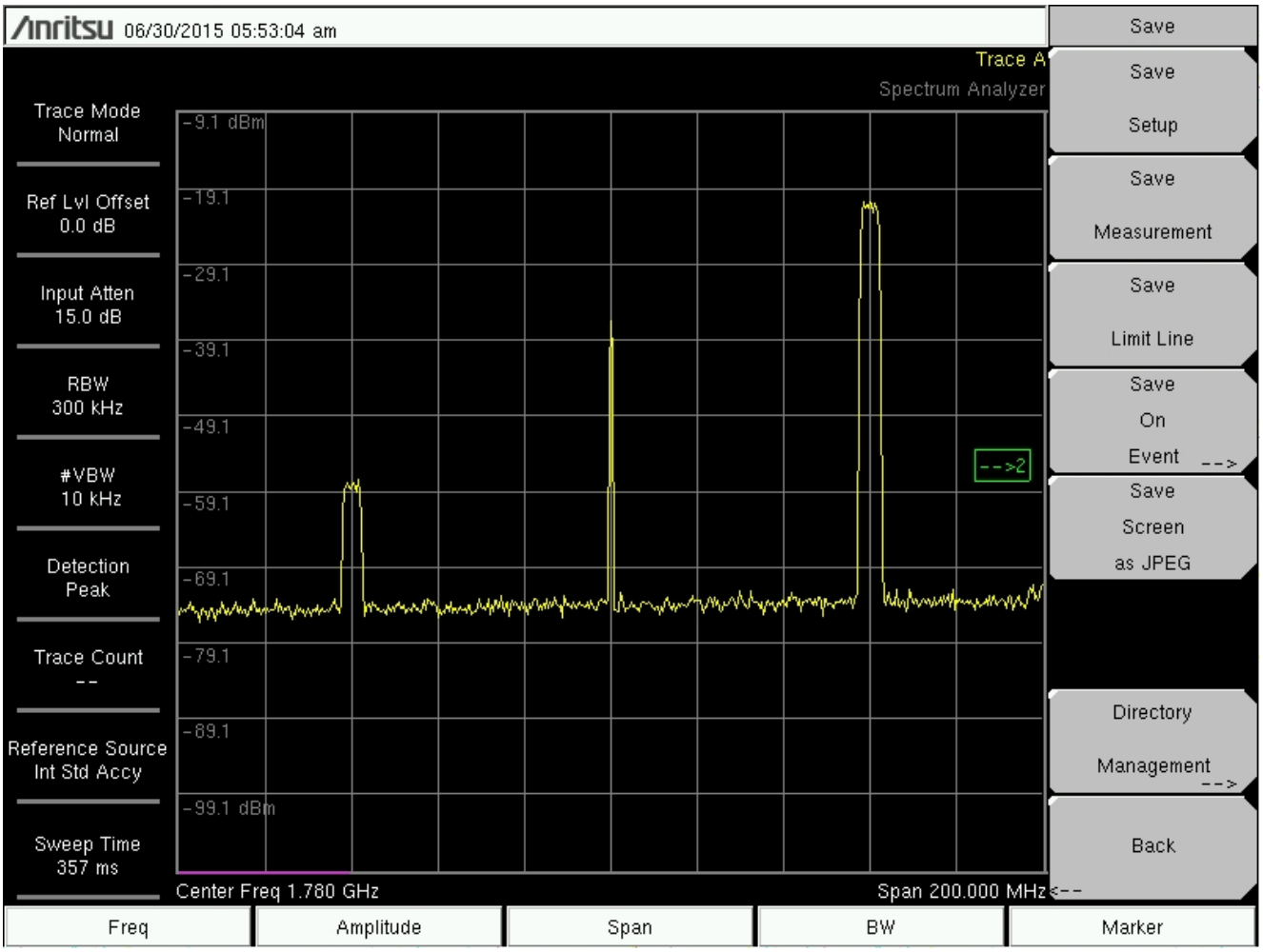
3. Click on the button labeled “Load External Pattern File”, located near the top left of the GUI

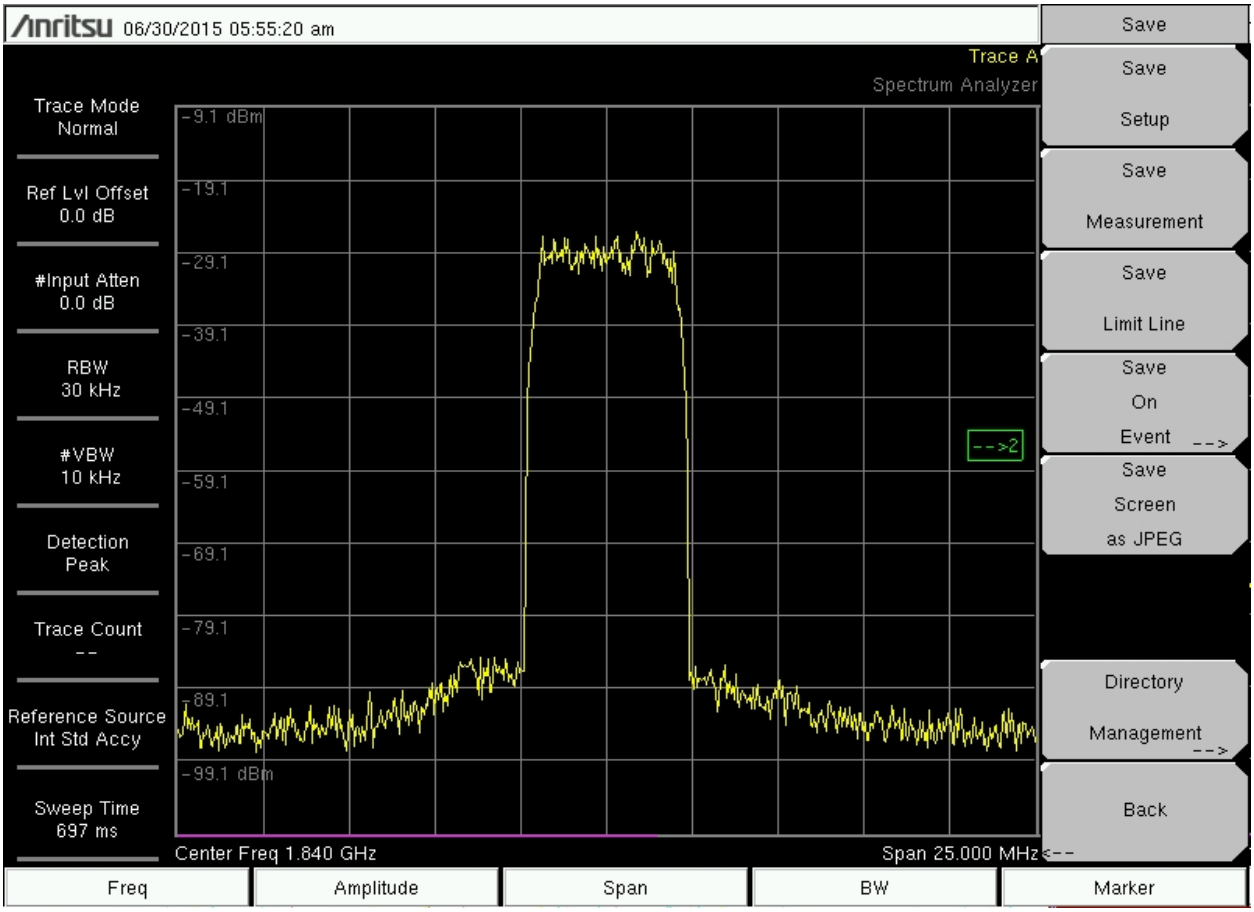


Load File to Transfer into TSW1400

4. Select the file "WCDMA_TM1_complexIF30MHz_Fdata737.28MHz_1000.tsw" under C:\Program Files\Texas Instruments\High Speed Data Converter Pro\Testfiles
5. Enter 737.28M for the "Data Rate" and 2's complement for the "DAC Option".
6. Select Hanning for "Window".
7. In the “DAC Selection” panel on the left side of the GUI, click on “Send” to load the data into memory.

8. **Toggle the SIF SYNC button of the TSW308x EVM GUI to synchronize the appropriate digital blocks, if the example file with NCO setting is used.**
9. Verify the spectrum using the spectrum analyzer at the two RF outputs, J7 and J9, of the TSW30SH84.
10. With 1780 MHz of LO, the expect results are shown as

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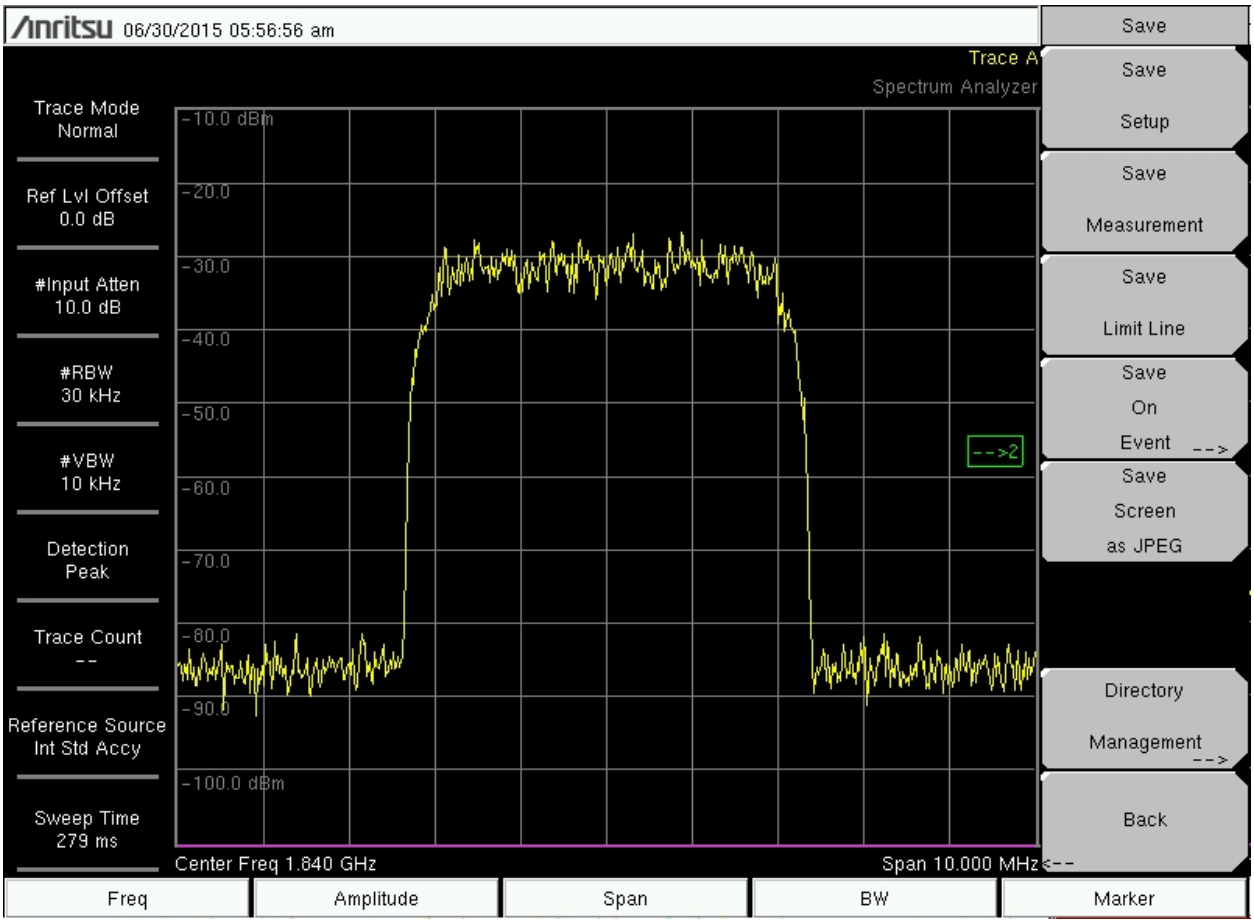
Trace A
Spectrum Analyzer
Trace Mode
Normal
Ref Lvl Offset
0.0 dB
#Input Atten
0.0 dB
RBW
30 kHz
#VBW
10 kHz
Detection
Peak
Trace Count
--
Reference Source
Int Std Accy
Sweep Time
697 ms
-9.1 dBm
-19.1
-29.1
-39.1
-49.1
-59.1
-69.1
-79.1
-89.1
-99.1 dBm
-->2
Center Freq 1.840 GHz
Span 25.000 MHz
Save
Save
Setup
Save
Measurement
Save
Limit Line
Save
On
Event -->
Save
Screen
as JPEG
Directory
Management -->
Back
Freq
Amplitude
Span
BW
Marker


Anritsu 06/30/2015 05:56:56 am
Trace A
Spectrum Analyzer
Trace Mode
Normal
Ref Lvl Offset
0.0 dB
#Input Atten
10.0 dB
#RBW
30 kHz
#VBW
10 kHz
Detection
Peak
Trace Count
--
Reference Source
Int Std Accy
Sweep Time
279 ms
-10.0 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100.0 dBm
-->2
Center Freq 1.840 GHz
Span 10.000 MHz
Save
Save
Setup
Save
Measurement
Save
Limit Line
Save
On
Event -->
Save
Screen
as JPEG
Directory
Management -->
Back
Freq
Amplitude
Span
BW
Marker