

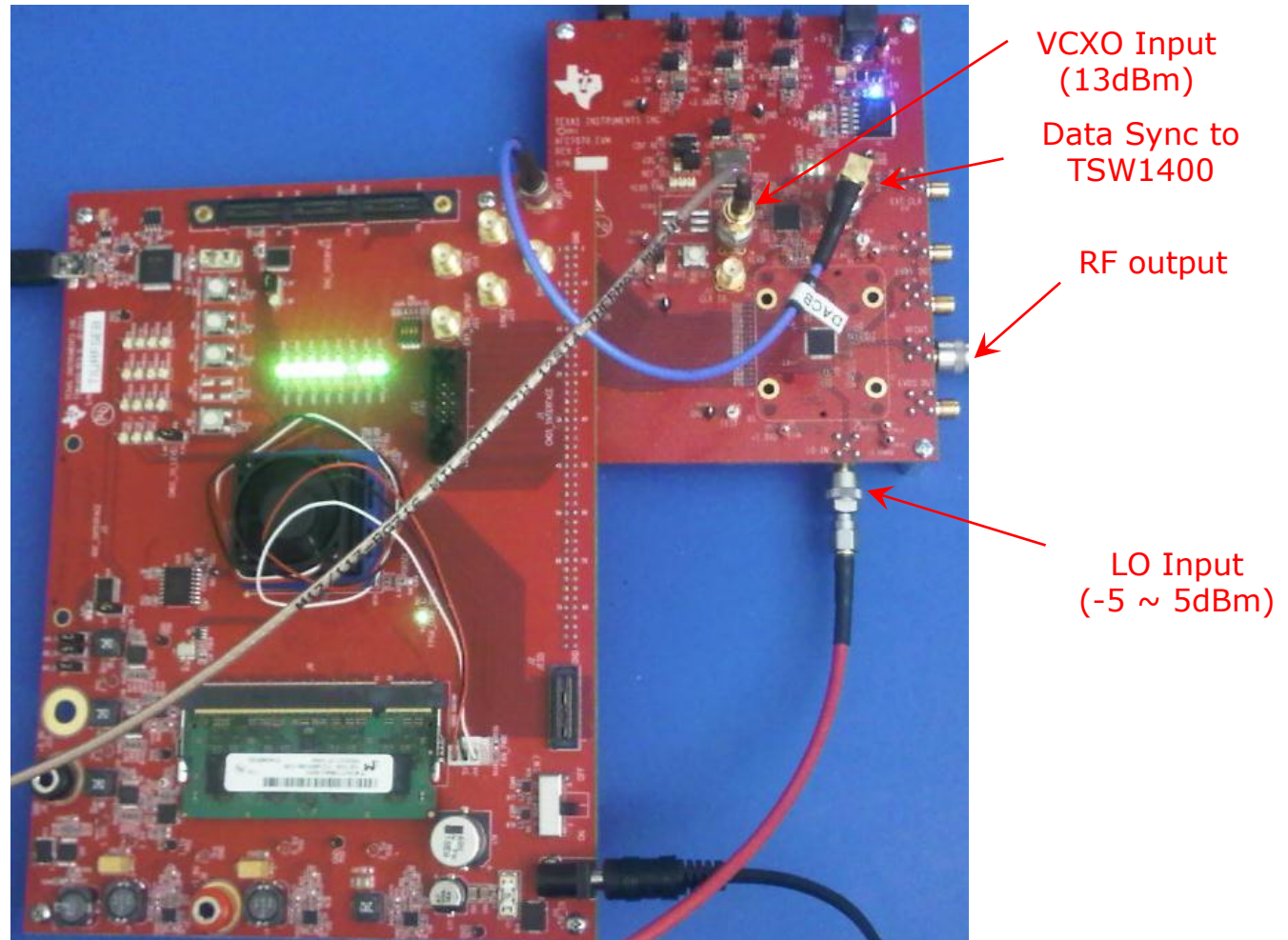
AFE707xEVM Quick Guide

High Speed Data Converters

AFE707xEVM + TSW1400EVM

- Equipment: 2 Signal Generator
(One for external VCXO J4 and the other for external LO J10) and Spectrum Analyzer
- EXT VCXO (J4): AFE7070 DAC clock source (122.88MHz which give AFE707x 61.44MHz of sampling clock)
- LO IN (J10): External LO source (950MHz)
- Power: +6V Plug-in Power Supply
- Test Signal: Single-tone (10MHz) from TSW1400
- *Connect USB cable to AFE707xEVM and configure AFE707x*
- *And then connect USB cable to TSW1400EVM*

AFE707x + TSW1400EVM Configuration



AFE707xEVM GUI capture (AFE707x)

AFE7070 GUI v2p5.vi

TEXAS INSTRUMENTS

AFE7070 EVM Software Control
Version 2.5

AFE7070 CDCM7005 Reset USB Port Exit

Power Control

- Sleep ☒ Awake
- Power Down Fuses ☒ Powered
- Power Down Clock Receiver ☒ Powered
- LVDS Power Down ☒ Powered
- RF Out Power Down ☒ Powered
- DAC Power Down ☒ Powered
- Analog Out Power Down ☒ Powered
- Pwr Dn Clock Receiver on SLEEP ☒ No
- LVDS Pwr Dn when SLEEP ☒ No
- RF out Pwr Dn when SLEEP ☒ No
- DAC Pwr Dn when SLEEP ☒ No
- Analog out Pwr Dn when SLEEP ☒ No

Digital Input Settings

- Binary Rep ☒ 2's comp
- IQ Swap ☒ Swapped
- Data Type ☒ IQ

SYNC Settings

- SYNC bit ☒ 0
- Sync on I or Q ☒ I
- Sync / Sleep / TX Enable Selection
- All controlled by SIF bit ☒

Clock Settings

- Clock Mode ☒ Dual Input Clock
- Trim CLK RC Filter ☒ 0 1 2 3

FIFO Settings

- FIFO ☒ Disabled
- FIFO Offset ☒ -4 -2 0 2 3
- Mask 2-Away Alarm ☒ Not masked
- Mask 1-Away Alarm ☒ Not masked
- Enable 2-Away Alarm ☒ Disabled
- Enable 1-Away Alarm ☒ Disabled
- Mask FIFO Sync ☒ Not masked
- FIFO 2 away ☒
- FIFO 1 away ☒

Mixer/NCO Settings

- Mixer Enable ☒ Bypassed
- Mixer Gain ☒ x2
- Fdac (MHz) ☒ 61.44
- Frequency [MHz] ☒ 5
- NCO ☒ 349525340
- Phase ☒ 0

Misc. Digital Signals

- Enable 4-pin SIF ☒ 4-pin mode disabled
- ALARM_SDO Enable ☒ Disabled
- Output MSB on ALARM ☒ No

QMC Settings

- QMC Corr Enable ☒ Disabled
- QMC Offset Enable ☒ Disabled
- QMC Offset A ☒ 0
- QMC Offset B ☒ 0
- QMC Gain A ☒ 0
- QMC Gain B ☒ 0
- QMC Phase ☒ 0

Analog Output Settings

- TX Enable ☒ TX enabled
- DAC A Complement ☒ Not complement
- DAC B Complement ☒ Not complement
- DAC Current Control ☒ 15
- Trim Analog ☒ 0 10 20 31

Register Data

AFE7070 Register Data

Reg	Value
00	0x005FF1F0
01	0x000002A1
02	0xD00000A2
03	0x00000000

CDCM7005 Register Data

Reg	Value
00	0x005FF1F0
01	0x000002A1
02	0xD00000A2
03	0x00000000

Register Controls

- Send ☒
- Read All ☒
- Load Regs ☒
- Save All Regs ☒
- Save AFE Regs ☒
- Save CDC Regs ☒

LVDS Clock Divider ☒ /4

AFE707xEVM GUI capture (CDCM7005)

AFE7070_GUI_v2p5.vi

TEXAS INSTRUMENTS **AFE7070 EVM Software Control**
Version 2.5

AFE7070 CDCM7005 Reset USB Port Exit

CDCM7005 Operation Buffer Mode Send All

Advanced Options

Progr. Delay M 0ps Lock Digital
Progr. Delay N 0ps Ref. Clk Manual
Lock Detect Cycle 64 Ref.Detection Off
Lock Window ±8ns Status_Ref PRE_DET_REF
Fast Lock mode off Status_VCXC PRE_DET_VCXC
Charge Pump 2.0mA CP Direction positive
PFD Pulse +1.5ns

☐ Reset-(Off)/ Hold (On) ☐ Power Dwn Mode ☐ Frequency Hold-Over Fcn
☐ Cycle Slip Mode ☐ Preset CP to Vcc/2 ☐ Frequency Hold-Over Fcn1
☐ Reset all Dividers ☐ CP 3-State ☐ Hold Fcn always activated

Clock & PLL Options

Clock Settings
M & N Selection Auto
Ref. Freq (MHz) 10
VCXO Freq (MHz) 983.04

PLL Settings
M Divider 125
N Divider 1536
FB_MUX 1
Phase Shift /16

PLL Output
Output Freq (MHz) 983.04

Output Options

Y0 Output (Unused)
1 3-state Y0A
LVCMO 3-state Y0B

Y1 Output (AFE7070's CLK_IO)
1 active Y1A
LVCMO active Y1B

Y2 Output (Unused)
1 active Y2A
LVCMO active Y2B

Y3 Output (AFE7070's DACCLK)
1 active Y3A
LVPECL active Y3B

Y4 Output (CDC OUT)
1 active Y4A
LVCMO active Y4B

AFE7070 Register Data

x00	x80	1011 0000
x01	x80	1000 0000
x02	x03	0000 0011
x03	x10	0001 0000
x04	x4F	0100 1111
x05	x00	0000 0000
x06	x00	0000 0000
x07	x00	0000 0000
x08	x00	0000 0000
x09	x00	0000 0000
x0A	x00	0000 0000
x0B	x00	0000 0000
x0C	x00	0000 0000
x0D	x00	0000 0000
x0E	x00	0000 0000
x0F	x00	0000 0000
x10	x00	0000 0000
x11	x00	0000 0000
x12	x00	0000 0000
x13	x40	0100 0000
x14	x00	0000 0000
x15	x00	0000 0000

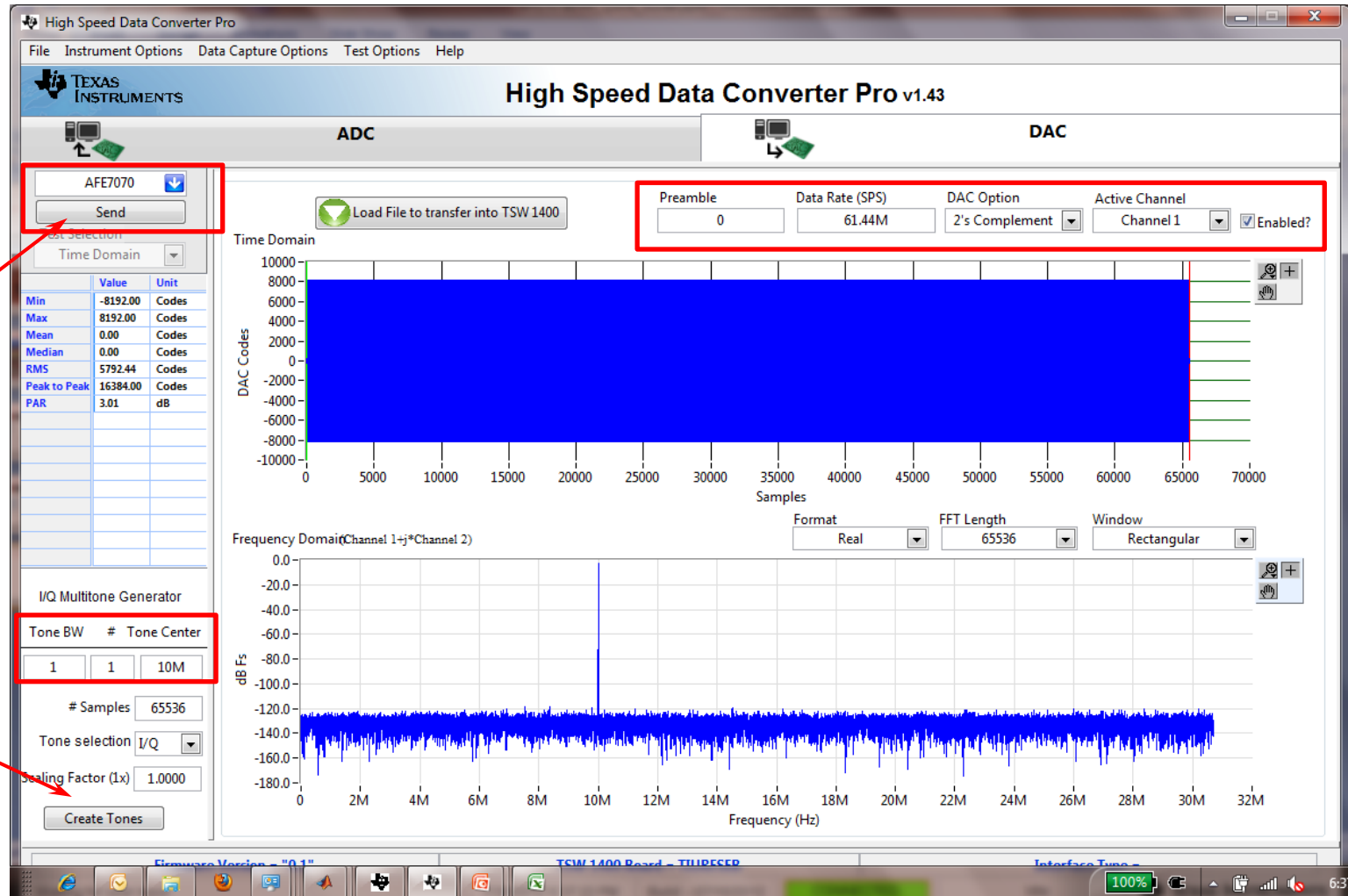
CDCM7005 Register Data

Reg	Value
00	0x005FF1F0
01	0x000002A1
02	0xD00000A2
03	0x00000000

Register Controls

Send Read All Load Regs Save All Regs Save AFE Regs Save CDC Regs

TSW1400 GUI capture (10MHz tone)



5/23/2014

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Spectrum Analyzer Screen

