ADF4351 external LO API application note

1. Introduction

This document describes how to use ADF4351 external LO API.

2. How to use ADF4351 external LO API.

i. Include ADF4351.h to user project.

ii. Define ADF4351 serial interface bus.(If you need to change ADF4351 serial interface bus please modify ADF4351.cpp)

```
#define SET_LE()        IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh5_o, 1)
#define CLR_LE()        IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh5_o, 0)

#define SET_SCL()       IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh3_o, 1)
#define CLR_SCL()       IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh3_o, 0)

#define SET_DATA()      IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh4_o, 1)
#define CLR_DATA()      IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh4_o, 0)


Dword ADF4351_busInit (Modulator*    modulator) {
    Dword error = ModulatorError_NO_ERROR;
    //ADF4351 LE
    error = IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh5_en, 1);
    if (error) goto exit;
    error = IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh5_on, 1);
    if (error) goto exit;

    //ADF4351 Data
    error = IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh4_en, 1);
    if (error) goto exit;
    error = IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh4_on, 1);
    if (error) goto exit;

    //ADF4351 CLK
    error = IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh3_en, 1);
    if (error) goto exit;
    error = IT9507_writeRegister (modulator, Processor_LINK, p_eagle_reg_top_gpioh3_on, 1);
    if (error) goto exit;

exit:
    return error;
}
```

iii. Initialize ADF4351 serial interface bus.

```
Eagle eagle;
Dword error = ModulatorError_NO_ERROR;


error = ADF4351_busInit ((Modulator*) &eagle); // Initialize ADF4351 serial interface bus.
if (error) {
     printf ("Error Code = %X", error);
     return;
}
```

iv. Set output frequency.(Unit: KHz)

```
Eagle eagle;
Dword frequency = 474000;        // Frequency is 474000 KHz.
Word bandwidth = 8000;           // Bandwidth is 8000 KHz.
Dword error = ModulatorError_NO_ERROR;

error = ADF4351_setFrequency((Modulator*) &eagle,freq); // set ADF4351 output frequency.
if (error) {
     printf ("Error Code = %X", error);
     return;
}

error = IT9507_acquireTxChannel ((Modulator*) &eagle, bandwidth, frequency);
if (error) {
     printf ("Error Code = %X", error);
     return;
}
```

If PLL lock, ADF4351's LD pin (pin 25) outputs logic high to indicate PLL lock. A logic low output indicates loss of PLL lock.