



**ON Semiconductor®**

**NB3H5150**

Low Noise Multi-Rate Clock Generator

**GUI Manual**

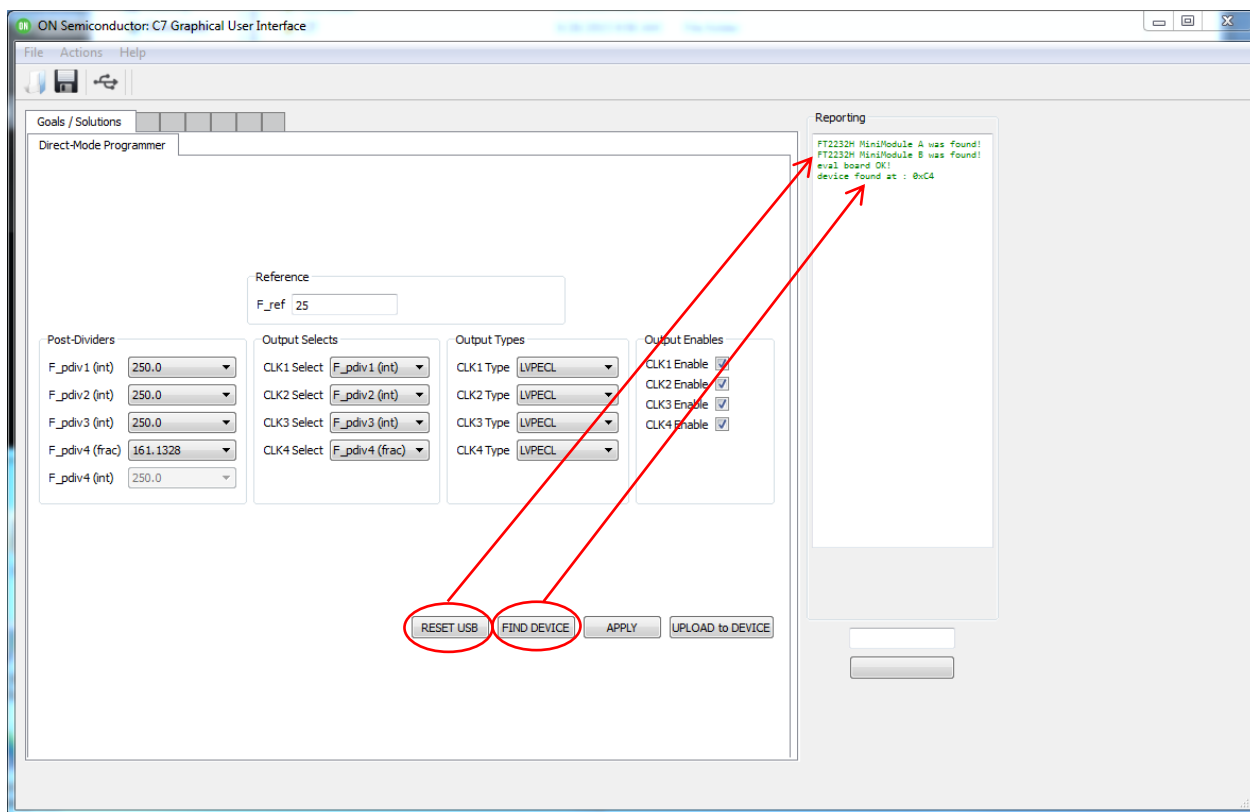
**Clock & Data Products**

## Software Installation

- 1) Download NB3H5150 GUI software.
  - a. Visit [www.onsemi.com](http://www.onsemi.com) and search part number NB3H5150.
  - b. GUI software can be found under the “Evaluation Board Documents” links on the NB3H5150 product webpage.
- 2) Download and Unzip GUI software “ONSEMI\_NB3H5150\_Customer\_GUI\_Opt08.zip”.
- 3) Within unzipped file you will find executable file “ONSEMI\_GUI.exe”.
  - a. Double click on executable file to launch GUI.

## Software and Hardware Initialization

- 1) Connect Evaluation Board to a USB port on PC.
- 2) Allow Windows to install all necessary drivers for evaluation board USB interface hardware. This will occur automatically.
- 3) Double click on ONSEMI\_GUI.exe to initiate GUI.
- 4) Click on “Reset USB” to ensure GUI establishes connection with board
- 5) Click on “Find Device” button to ensure GUI establishes connection with NB3H5150.
- 6) NB3H5150MNGEV B is now ready to program.



**Figure 1: USB Connection Validation**

## I<sup>2</sup>C Programming

NB3H5150MNGEVB GUI contains many features that make it easy to program NB3H5150 quickly and accurately.

### Step 1: Output Frequency Selection

- 1) Select desired output frequency per output channel (CLK1-4) via Post-Dividers dropdown menus.
- 2) CLK1-3 outputs can be programmed to Integer-N frequencies.
- 3) CLK4 output can be programmed to either Integer-N or Frac-N frequencies.

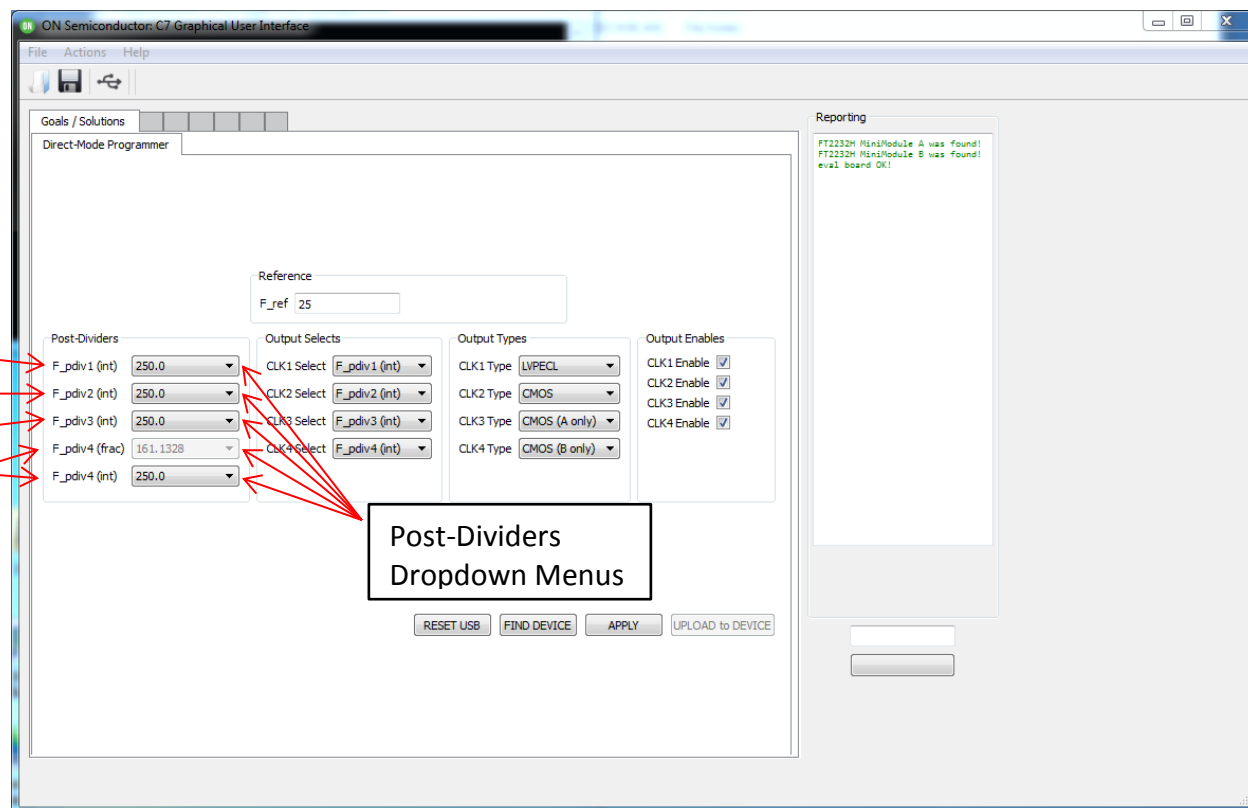
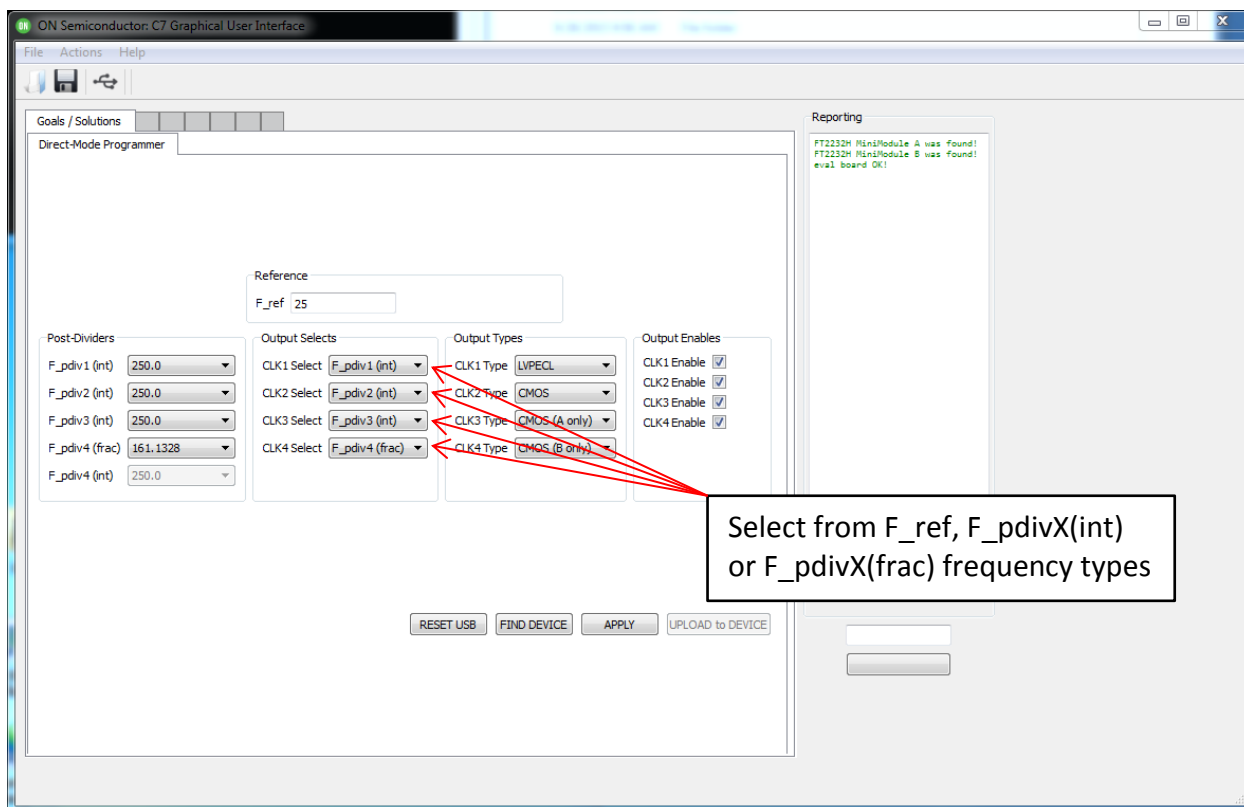


Figure 2: Output Frequency Selection

## Step 2: Output Selects ( Input Reference, Integer-N & Frac-N)

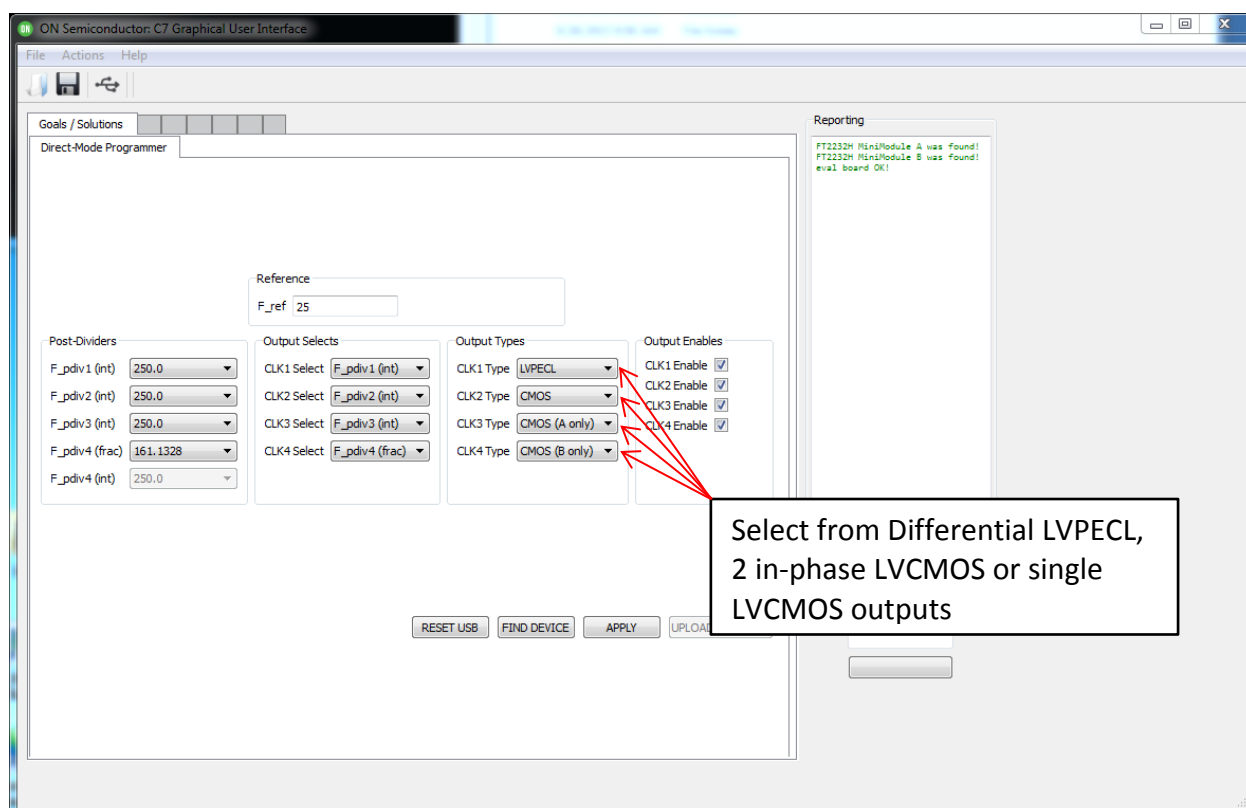
- 1) Select input reference frequency. *(Default 25MHz Crystal)*
- 2) For bypass mode select “F\_ref” in the “Output Selects” dropdown menu. This feature can be used to verify crystal frequency and ppm of input.
- 3) For Integer-N mode select “F\_pdivX(int)”, you can then select from Integer-N frequencies.
- 4) For Frac-N mode select “F\_pdivX(frac)”, you can then select from Frac-N frequencies.



**Figure 3: Outputs Selection**

### Step 3: Output Level Selection

- 1) Select desired output level per output channel (CLK1-4) via Output Types dropdown menus.
- 2) CLK1-4 channels have LVCMOS or LVPECL capabilities.
- 3) Each channel has two output traces in order to provide differential LVPECL outputs or 2 In-Phase LVCMOS outputs. In the case only one LVCMOS output is needed, CMOS A or CMOS B traces can be selected.



**Figure 4: Output Level Selection**

#### Step 4: Output Enables

- 1) Enable desired outputs (CLK1-4).

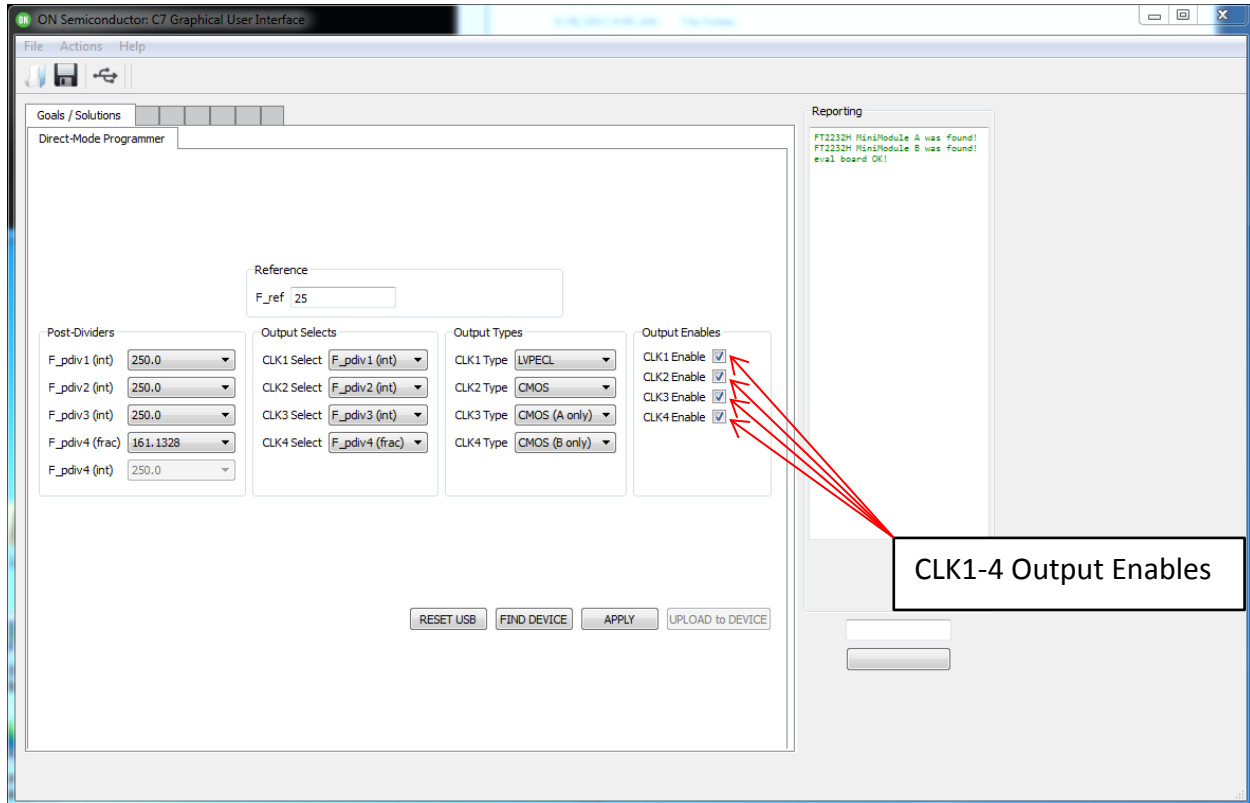
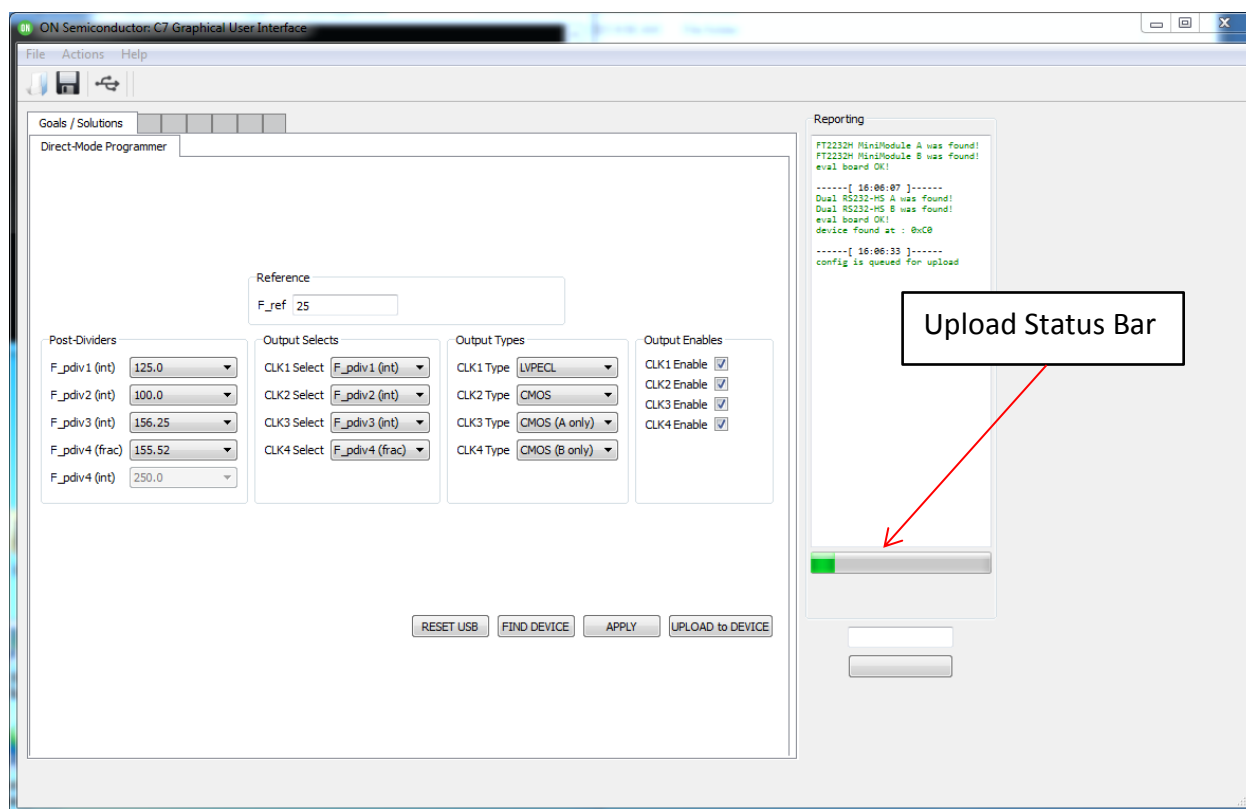


Figure 5: Output Enables

**Step 5: Apply & Upload desired settings**

- 1) Click “Apply” button to load settings into the GUI queue.
- 2) Click “Upload to Device” button to program the NB3H5150 device.
- 3) Please note status bar as part is being programmed. (Figure 6)
- 4) Please note “upload successful” in the reporting window to confirm desired settings were programmed to NB3H5150. (Figure 7)
- 5) Desired settings are now realized and NB3H5150 performance can be monitored with appropriate equipment.



**Figure 6: Upload Status Bar**

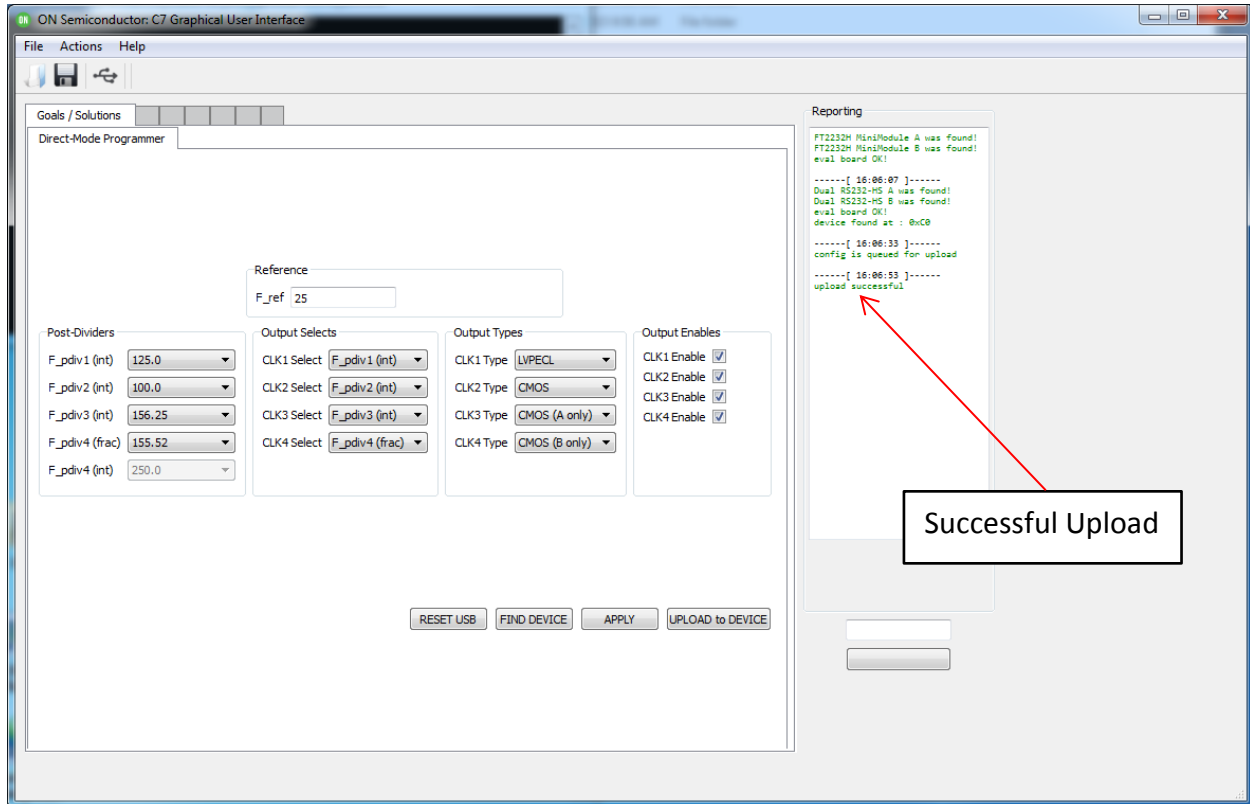


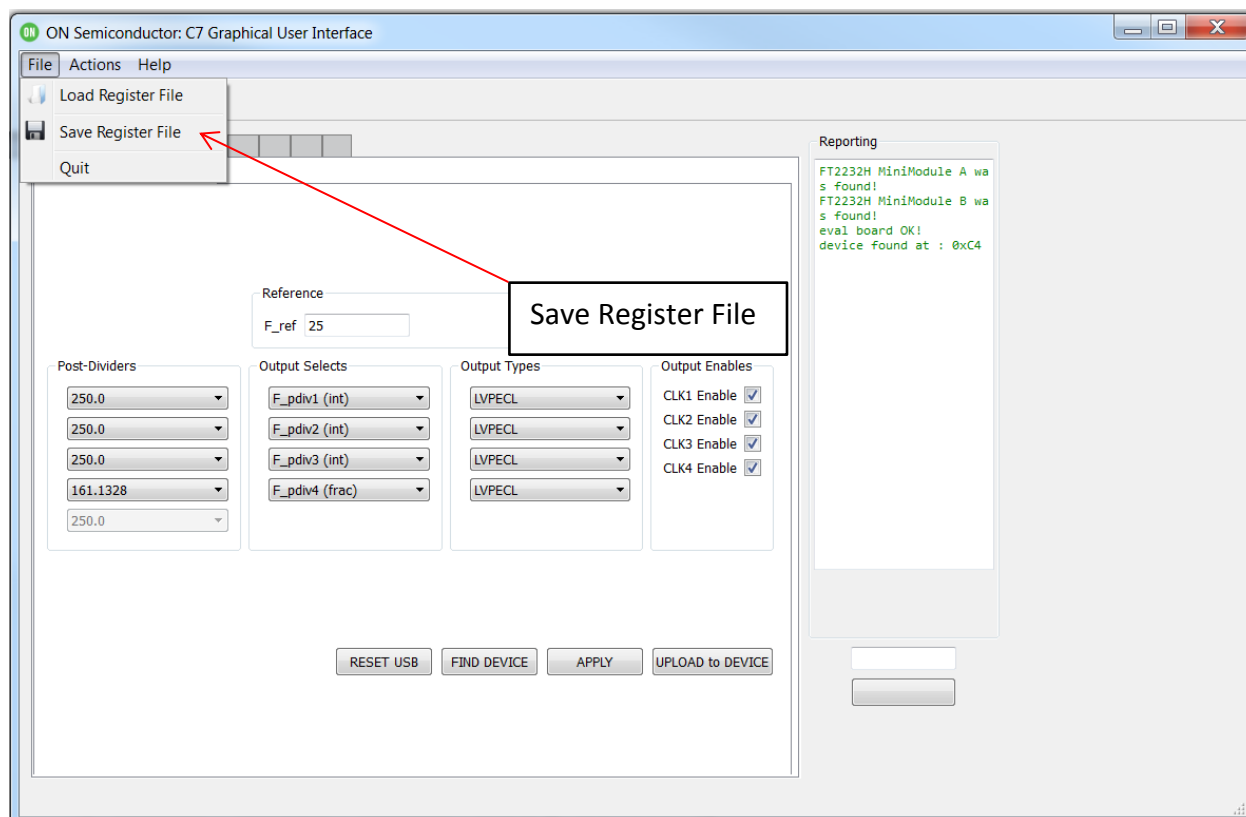
Figure 7: Successful Upload



### Step 6: Saving Register Files (Optional)

Your settings can be saved as a register file and recalled at any time.

- 1) Follow Steps 1-4 to set desired programming parameters.
- 2) Go to File→Save Register File, this will save current parameters in a .rgstr file.
- 3) This file can be stored anywhere on PC.

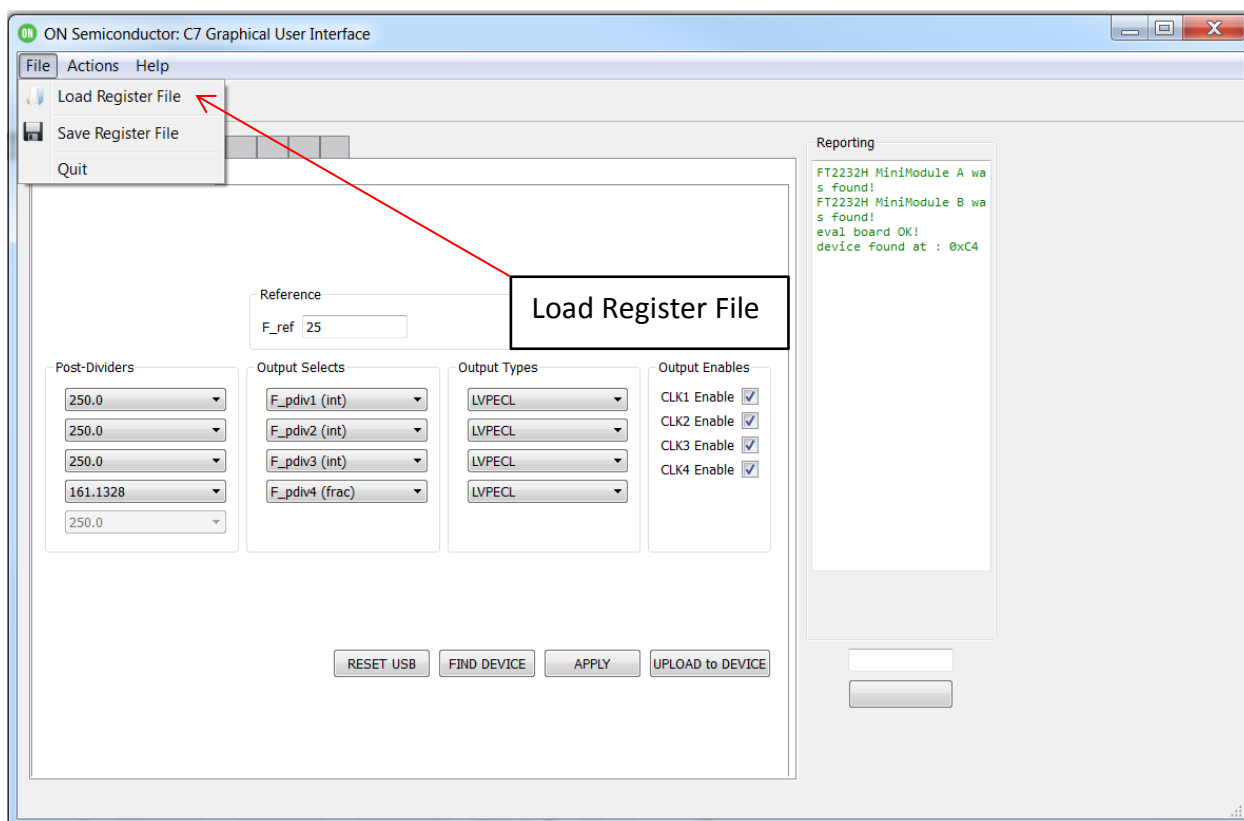


**Figure 8: Saving Register Files**

### Step 7: Loading Register Files (Optional)

Register files with previously saved parameter settings can be recalled via the GUI.

- 1) Go to File→Load Register File, navigate to your register file and open it.
- 2) Click on “Apply” button.
- 3) Click on “UPLOAD to DEVICE” button.
- 4) Verify “upload successful” message is displayed in reporting window. NB3H5150 has now been programmed with previously saved parameter settings. NB3H5150 performance can be monitored with appropriate equipment.



**Figure 9: Loading Register Files**