Test Procedure for the NCV78723R1GEVK

Required Equipment:
- Bench power supply with current limitation of 3A minimum or with huge output capacitor
- Complete set of boards NCV78723R1GEVK evaluation kit is consisting of:
  - NCV78723R1DAGEVB: NCV78723 Daughter Board
  - NCV78702R1DAGEVB: NCV78702 Daughter Board
  - NCV78XXXDRVR1GEVB: LED Driver Mother Board
  - ONCTRLDILR1GEVB: MCU Control Board
  - LEDMODULE6R1GEVB: LED module 6 LEDs round shape
- GUI SW LED Driver EVK installed on PC

Initial setup:
1. Put all boards together, connect voltmeter to booster output
2. Connect power supply to VBAT (positive) and GND (negative) 4mm bananas, set voltage to 13 V with current limitation app. 2 A and switched it on
3. Connect USB mini cable to ONMCU_DIL control board
4. Start GUI SW LED Driver EVK. In status bar click icon to refresh information about available virtual COM ports.
   Select port where EVK is connected:

   Click button connect
5. The detected boards should appear automatically in GUI SW.
6. Click on graphical representation of NCV78723 daughter board or select it in menu "Application" via "NCV78723 (BUCK)" item. For booster device follow the same procedure if needed. Window allowing high level control of application and access to all registers will appear.

Test procedure
7. Check whether SPI communication is working correctly:
   a. On NCV78723 daughter board go to "Trimming constants" tab and click "Read all" button. In the register REVID (Address 1Fhex) the REVID corresponding to used device on daughter board should appear.
8. Check whether booster device provides requested output voltage:
   a. Default configuration of the board in GUI SW should ensure that 20 V booster voltage is present, go to "Application" tab and click "Read ADC" VBOOST button:
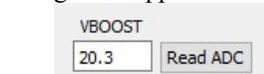
   b. Alternative way is to measure booster output voltage by voltmeter on testpoint (VBST) on booster daughter board.
   c. If boosted voltage is not present (and only battery voltage is visible in VBOOST ADC on VBST testpoint) check on booster daughter board in "Application" tab whether ENABLE1 checkbox is set, whether Boost Voltage control is set to 20.3 V, checkboxes BOOST1_EN and BOOST2_EN are enabled and BSTSYNC Clock is set correctly:
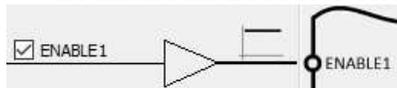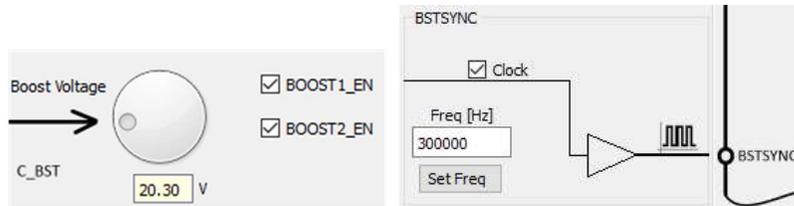
9. Try to switch on the LEDs:
   a. Connect LED module to channel 1 if not yet connected
   b. On "Application" tab for Buck channel 1 set Ripple to 20 usV, current range to 1 (57 - 448 mA), threshold VTHR to 127, enable output by "BUCK_EN1"
   c. Enable channel by putting LEDCTRL1 pin to log. 1
   d. Output should be active and LED lighting
   e. Repeat bullets c., d. and e. for the Buck channel 2
   f. Put both LEDCTRLx pins to log. 0 to deactivate the outputs, switch off the booster by unchecking BSTSYNC clock and BOOST1_EN and BOOST2_EN checkboxes (booster output voltage should drop to battery level) and click "Disconnect" in status bar, disconnect mini USB cable and switch off power supply.