CC2530-CC2592EM Development Kit Quick Start Guide

Opening the Box and Running the Packet Error Rate Test

1. Kit Contents

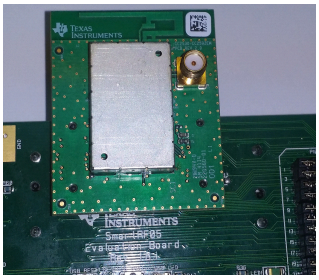
- 2 x CC2530-CC2592 EM
- 2 x 2.4GHz Antennas
- Documentation

Caution! The kit contains ESD sensitive components. Handle with care to prevent permanent damage.

2. Hardware Requirements

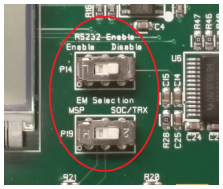
The CC2530-CC2592EM is an add-on module that can be plugged onto a SmartRF05EB. To run the example in this Quick Start Guide, two SmartRF05 boards are required to establish an RF link between the evaluation modules.

More information about SmartRF05EB can be found here: www.ti.com/lit/pdf/swru210



The CC2530-CC2592EM can also be plugged into the SmartRF05 battery boards for standalone applications.

3. SmartRF05 Board Setup



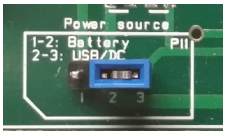
Set the EM Selection switch in the position SOC/TRX.
For best performance, it is recommended to turn off the RS232 interface.

4. Power Options

There are a few ways of applying power to the SmartRF05 board.

- 2 x 1.5V AA Alkaline Batteries
- USB
- External Power Supply

For the batteries and USB, there are voltage regulators on the SmartRF05 board that will set the on-board voltage to 3.3V. The external power supply should set a voltage that does not exceed 3.3V. **Note that there should be only one active power source at any given time.**

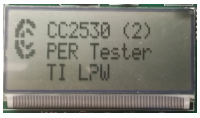


Select power source with jumper on header P11:

- Position 1-2 Batteries
- Position 2-3 USB or DC supply.

Once P11 is set, locate P8 switch on Smart05EB to power up the board.

5. Packet Error Rate Setup

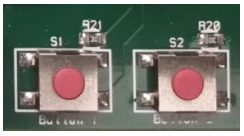


After power up, the preloaded PER test application on the CC2530 will start. The LCD will display the screen as shown in the picture above. The number in the parentheses is the revision of the CC2530. Press Button S1 to enter the menu.

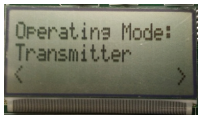
Note: if you don't see anything on the screen make sure the board is correctly powered (see step 5 and 6 above).

6. Select Channel

Select a channel between 11 and 26 (2405- 2480 MHz). The channel is selected by navigating the joystick to the right or left. Confirm the selection by pressing Button S1.

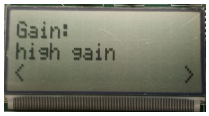


7. Select Mode



Select receiver on one of the SmartRF05EB's and transmitter on the other. Use the joystick to select mode. Confirm the selection by pressing Button S1.

8. RX: Select Gain



For the receiver select LNA gain on the CC2592 with the joystick. Either high gain or low gain mode are possible settings. Normally, high gain mode should be selected. Confirm the selection with Button S1. The receiver is now ready to receive packets.

9. TX: Select Output Power

On the transmitter node, select the TX output power (signal strength).Use the joystick (move right or left) to select the output power in dBm. Confirm the selection with Button S1.

10. TX: Select # of Packets

Select burst size (number of packets to send) by moving the joystick right or left. Confirm the selection with Button S1.

11. TX: Select Packet Rate

Select packet rate (number of packets transmitted per second) on the transmitter. Confirm the selection with Button S1.

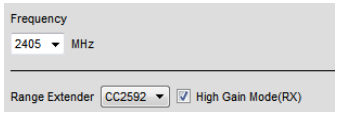
12. TX: Start PER Test

The transmitter is now configured for the PER test. The PER test is started by pushing the joystick (as a button). The transmitter will display the number of packets sent during the PER test. The PER test is stopped by pushing the joystick again.

13. Display PER Information

The PER test receiver will display the PER value (number of lost and erroneous packets divided by the total number of packets sent, displayed as a fraction of 1000). It will also display a moving average RSSI value (received signal strength). The test can be reset by pressing Button S1.

14. SmartRF Studio



SmartRF® Studio supports the CC2530-CC2592. When the board is connected to the SmartRF05EB, it is possible to tick the CC2591 box in the “Range Extender” pane.

Studio will then make sure that I/O on the CC2530 is set up for proper control of the CC2592.

15. References

Please visit www.ti.com and

http://www.ti.com/tool/

On the kit product page, you will find additional documentation, links to updated software examples and software tools like SmartRF Studio.

You will also find a lot of information on the TI E2E forum at http://e2e.ti.com

We hope that you will enjoy working with the CC2530-CC2592 combo design.

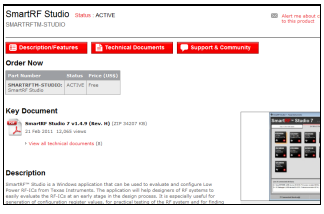
16. Troubleshooting

It you are experiencing problems with this test, please check the following:

- Nothing is shown in the display! Make sure the board is powered correctly.

Please visit the kit web page and check for updated SW and documentation.

1. Download and Install

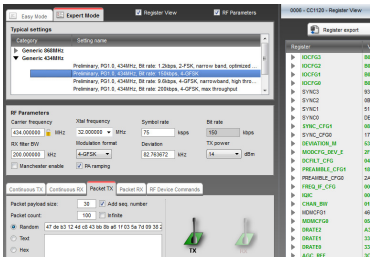


Before connecting SmartRF05EB to your PC, download and install SmartRF Studio from www.ti.com/smartrfstudio.

2. Launch SmartRF Studio

After installing the tool, connect the EB to the PC using the USB cable and start SmartRF Studio. Select the “2.4 GHz” tab and double click the highlighted CC2530 device icon.

3. Test the Radio



You can now configure the radio, run performance tests, export register settings and run link tests with another CC2530 on a SmartRF05EB connected to the PC.

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