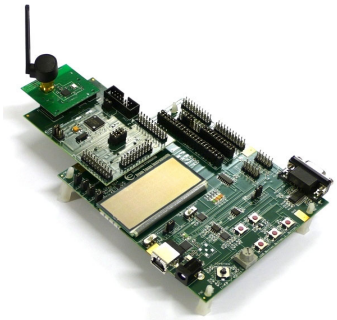
CC2520DK Quick Start Guide

1. Kit Contents

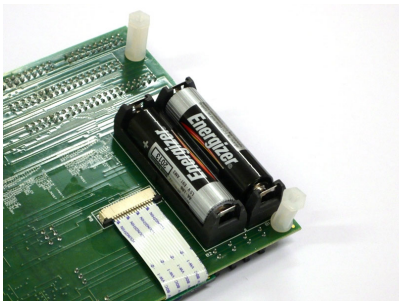
3 x SmartRF05EB
2 x CCMSP-EM430F2618
3 x CC2520EM with antennas
1 x MSP-FET430UIF Debug Interface
Cables
Documentation

2. Assemble the boards



Insert a CCMSP-EM430F2618 into both the SmartRF05EB's. The connectors will only fit in one position. Connect antennas to both of the CC2520EM. Insert this board into the CCMSP-EM430F2618. These connectors will also fit in only one position. Do not force the boards.

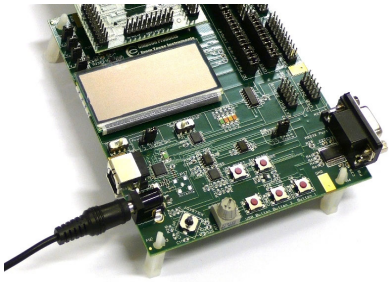
3A. Apply power



There are three different ways of applying power to the SmartRf05EB. The first method is to insert 2 AA batteries to the battery connectors underneath the board.

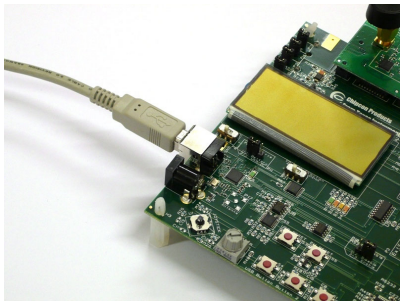
Set the power source jumper on the SmartRf05EB in position Battery.

3B. DC Power



Alternatively a 4-10V DC power source using the jack connector can be applied. The centre pin is + and the sleeve is connected to ground.
Set the power source jumper on the EB in position USB/DC.

3C. USB



The SmartRf05EB can also be powered from the USB cable.

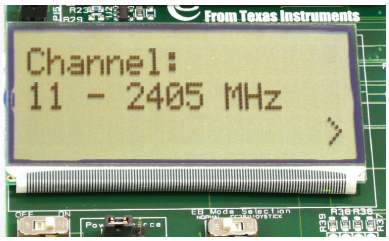
Make sure that SmartRF Studio is installed before connecting the USB. This ensures that the correct USB drivers are installed.

Set the power source jumper on the EB in position USB/DC.

4. Packet Error Rate tester

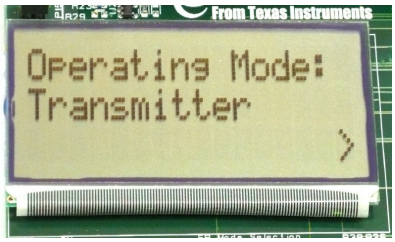
When power is applied to the board set the power switch in the ON position and the PER test program will start. The LCD will display the screen as shown in the picture above. Press Button 1 to enter the menu.

5. Set channel



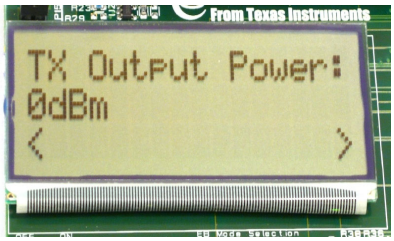
Select a channel between 11 and 26 (2405-2480 MHz). The channel is selected by navigating the joystick to the right or left. Confirm the selection by pressing Button 1.

6. Select Transmitter/Receiver



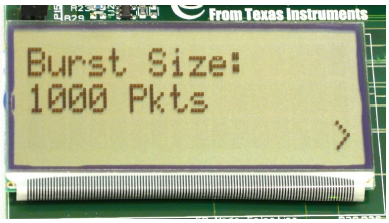
Select transmitter on one of the SmartRF05EB's and receiver on the other by navigating with the joystick. Confirm the selection by pressing Button 1 on both devices. The receiver is now ready to receive packets.

7. Select Output Power



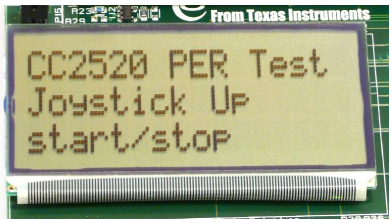
On the transmitter node, selection of TX output power and burst size (number of packets to send) is also needed. Select TX output power by navigating the joystick, either -4 dBm, 0 dBm or 4 dBm, and confirm with Button 1.

8. Select Burst Size



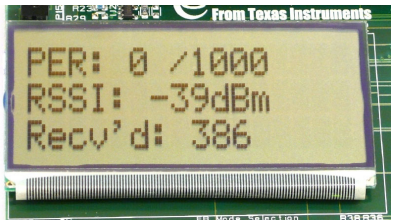
Select burst size by navigating the joystick, either 1000, 10K, 100K or 1M packets. Confirm the selection with Button 1.

9. PER test transmitter



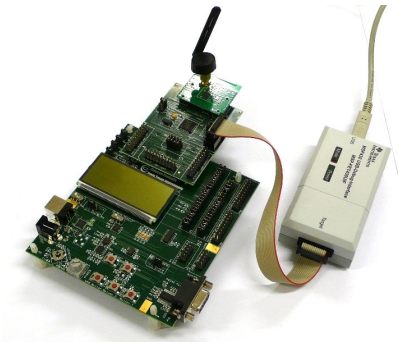
The transmitter is now configured for the PER test. The PER test is started by moving the joystick UP. The transmitter will display the number of packets sent during the PER test. The PER test is stopped by moving the joystick UP again.

10. PER test receiver



The PER test receiver will display the total PER (calculated based on the received sequence numbers), and moving average RSSI value on the display. It will also display the number of packets received during the PER test.

11. Download your own SW



In order to program the MSP430 MCU on the CCMSP-EM430F2618 board the MSP430 Debug Interface is needed. Connect the MSP430 debug interface to JTAG connector P12 on the CCMSP-EM430F2618. Connect the debug interface to the PC with a USB cable.

12. SmartRF Studio

In order to use the SmartRF Studio the CC2520EM is connected directly to the SmartRf05EB.

SmartRF Studio can be downloaded from the kit's website (See the next section). After downloading install the program. Connect the EB to the PC with a USB cable.

13. Documentation

Hardware
A comprehensive description of the hardware included in the CC2520 Development kit is found in the CC2520DK_Users_Manual.

Software
The PER tester and other software examples are documented in the CC2520_Software_Examples_Users_Guide document. This document also describes how to download the application to the MSP microcontroller on the CCMSP-EM430F2618.

Kit website
The user manuals are found on the CC2520DK website:
www.ti.com/cc2520dk

Document History

Revision	Date	Description/Changes
-	2007-12-14	Initial release

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