

# Quick Start Instructions

Rev. 1.0

## CC1020/1070DK Development Kit

### Introduction

The CC1020/1070DK development kit is designed to make it very easy for users to evaluate the CC1020 transceiver chip and the CC1070 transmitter chip performance and in a short time develop their own applications. The CC1020/1070DK development kit is available in two versions: 433 and 868/915 MHz.

The CC1020/1070DK development kit includes two CC1020EB evaluation boards, two CC1020EMX evaluation modules and one CC1070EM evaluation module. The CC1020EMX evaluation module includes the CC1020 transceiver chip with the external components necessary for operation. The CC1070EM evaluation module includes the CC1070 transmitter chip with the external components necessary for operation.

The CC1020EMX/CC1070EM evaluation modules are mounted onto the CC1020EB evaluation board, which is equipped with a voltage regulator and a PC interface circuitry. Using the CC1020EB evaluation board connected to a PC running the SmartRF® Studio software, various CC1020 and CC1070 system parameters can be changed and tested. The CC1020EB evaluation board includes a number of components for great flexibility. However, only a minor part of these components are required in an actual application. Check the CC1020 and CC1070 datasheets for typical application circuits. The loop filter mounted on the CC1020EMX / CC1070EM evaluation modules can be used for data rates up to 4.8 kBaud.

The hardware is documented in the CC1020/1070DK User Manual, while SmartRF® Studio is documented in the SmartRF® Studio User Manual. All documentation and software should be downloaded from the Chipcon web site. Please visit the Chipcon web site regularly for updates to the documentation and software.

### Important:

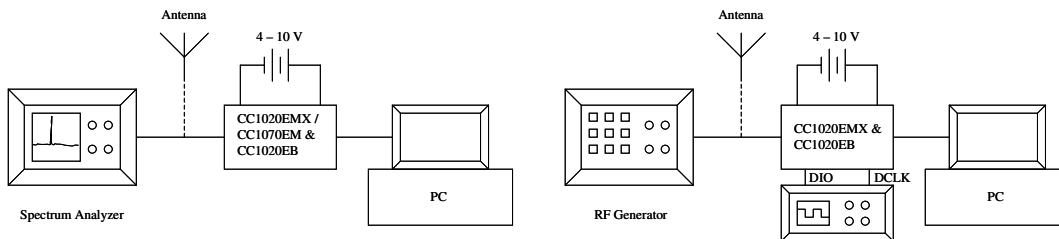
*The use of radio transceivers and transmitters is regulated by international and national rules. Before transmitting an RF signal out on the antenna, please contact your local telecommunication authorities to check if you are licensed to operate the transceiver/transmitter.*

## Getting started

1. Connect the CC1020EB evaluation board to an external power supply. If you are using a 4-10 V supply, connect it to the 4-10 V and 0 V terminals on the power connector. If you are using a 3 V regulated supply, connect it to the 3 V and 0 V terminals. Set the voltage selector switch to the correct position.
2. If you are going to measure the CC1020 / CC1070 IC current consumption, insert an ampere-meter between the I\_IN and I\_OUT terminals on the power connector, otherwise make sure that a jumper is inserted between these terminals.
3. Connect the PC parallel port extension cable between the CC1020EB evaluation board and the PC parallel port.
4. Connect the CC1020EMX / CC1020EM evaluation module to the CC1020EB evaluation board through the 2x10 pinrows. The SMA antenna connector shall be facing away from the PC parallel port interface on the CC1020EB evaluation board.
5. Start up the SmartRF® Studio software.
6. Select device (CC1020 or CC1070)
7. Select system parameters.
8. Select Reset.
9. Select Update Device.
10. Select Calibrate.

Three options are available for the data transmission format used over RF: Synchronous NRZ, Synchronous Manchester and Transparent UART mode. In Manchester mode, the data rate is half the baud rate, while in UART and NRZ mode, the data rate and baud rate are equal. When measuring the carrier frequency, use the NRZ or UART mode, as in Manchester mode the carrier will be modulated when the DIO (CC1020) / DI (CC1070) signal is static. Regardless of the mode selected, data at the DIO / DI pin should be in NRZ format.

The CC1020 and CC1070 have a built-in test pattern generator that generates a PN9 pseudo random sequence. The PN9 generator can be used for transmission of 'real-life' data when measuring narrow-band ACP (Adjacent Channel Power), modulation bandwidth or occupied bandwidth. Please see the CC1020 and CC1070 data sheets for more details.



The above figures show typical evaluation connections for TX (left) and RX (right). For details on how to use the SmartRF® Studio software please refer to the SmartRF® Studio User Manual.