SCT9389 HDK

Development Board

User's Manual

Version: 1.21

Change History

Version No.	Date	Change Description	Author
1.0	2018-1-26	Initial document	Kailin Gu
1.1	2018-3-16	Add the description of key in Section 2.1	Kailin Gu
1.2	2018-3-22	Add Section 4 for BER test process	Kailin Gu
1.21	2018-8-21	Edited for publishing to Technical Portal Remove Section 4	CML Microcircuits

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1 Introduction

The SCT9389 HDK Development Board is a comprehensive, evaluation, test and development platform that helps product designers to gain experience with the SCT9389 Modular Design Reference for the SCT3268. The SCT9389 utilises the SCT3268 digital radio base band IC, the CMX994A Direct Conversion Receiver IC and the CMX902 RF Power Amplifier in a compact DMR/dPMR/Analogue Radio design

The SCT9389 HDK provides the power supply and hardware interface components for the SCT9389 to realise a complete radio handset design. Please refer to the relevant Datasheets for each of the devices used.

2 Hardware Descriptions

2.1 SCT9389 HDK Development Board

SCT9389 HDK development board is shown in Figure 1 below. The main components on the board are SCT9389 Module. Other components on board are either interface components or supporting components.

The power is provided by 4.2V power connector (9).

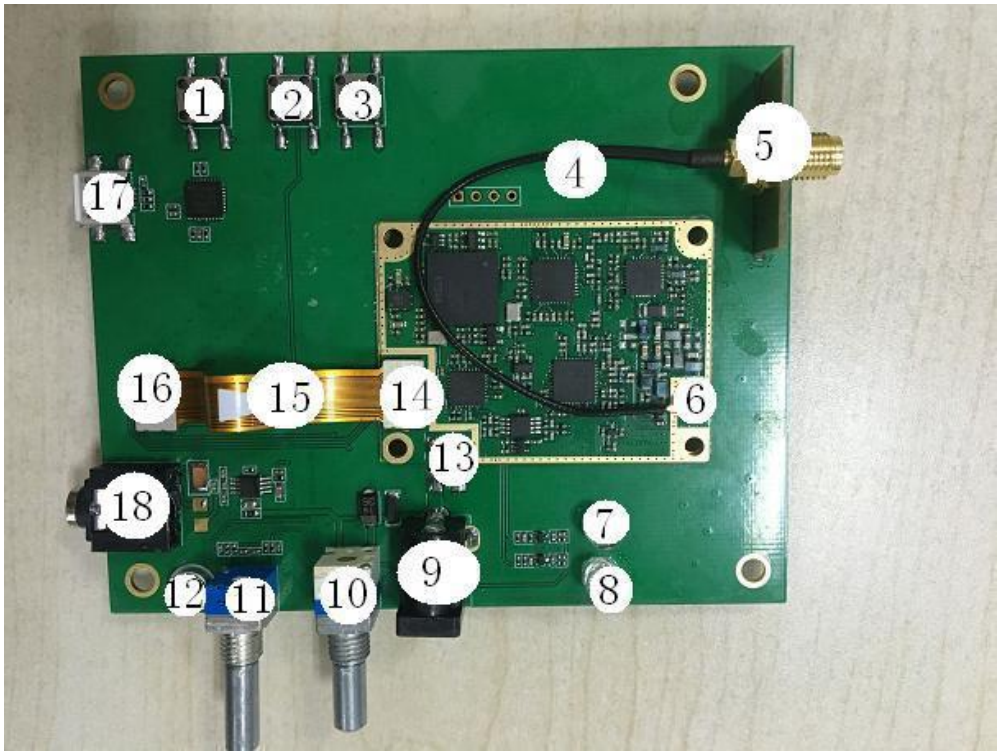


Figure 1 SCT9389 Development Board

List of Components on SCT9389 development board:

1. PTT key
2. Key 4 (Digital BER mode)
3. Key 3 (Analog SQ mode)
4. Connect line
5. RF interface
6. RF IPEX Socket
7. Indicator light 1
8. Indicator light 2
9. Power connector
10. Power and volume switch knob
11. Channel switch knob
12. On board microphone
13. Module power interface
14. FPC interface of module sub board
15. FPC
16. FPC interface of module main board
17. USB interface
18. 3.5mm earphone audio interface

2.2 Description of Channel Switch and Frequency Point

The channel switch knob of SCT9389HDK corresponds to the point 11 in the above list. SCT9389 module is set to three channels in default : Channel 1: DMR channel 46.00625MHz; Channel 2: Analog channel 446.00625MHz; Channel 3：dPMR channel 446.00625MHz.

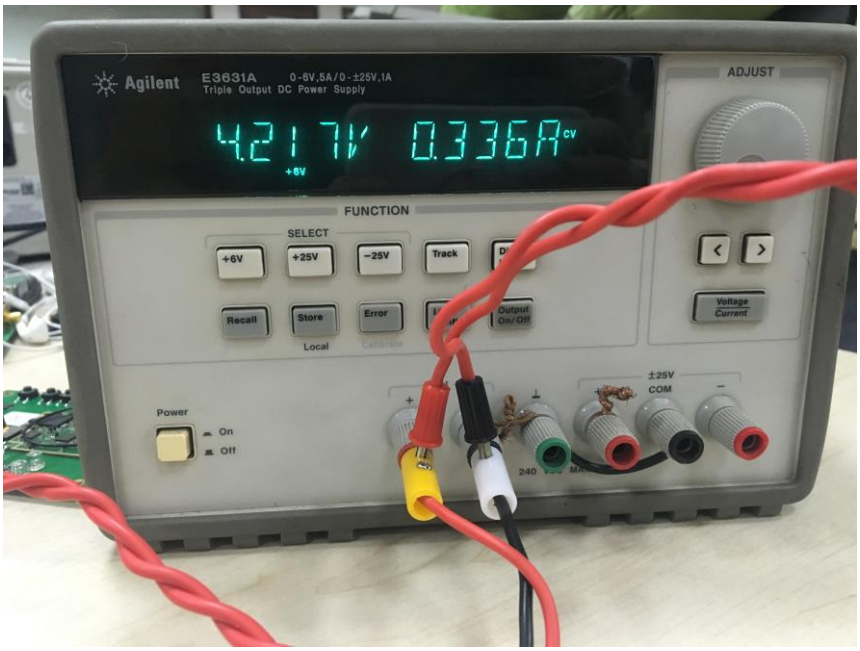
3 Application

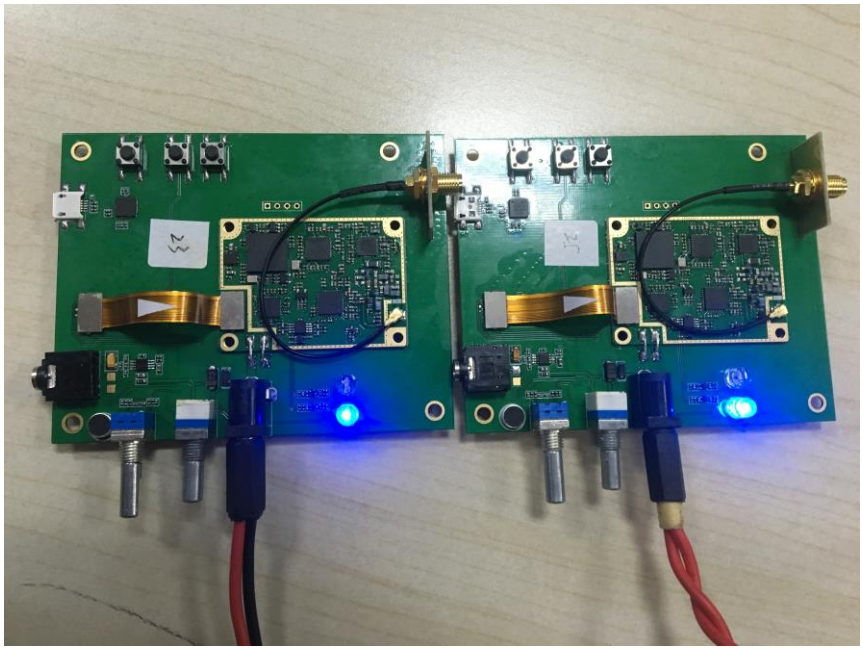
Before the communication test, user should connect a 50Ohm load. User should prepare:

1) one external power supply rated at 2A per device,
2) two power connect lines,
3) two SCT9389 modules (board 1 and board 2)
4) 3.5mm earphone.

The communication process of SCT9389 module is shown as below:

1) SCT9389 is supplied by 4.2V external power, connect SCT9389 module with power via connect line. The connect method is shown as below:



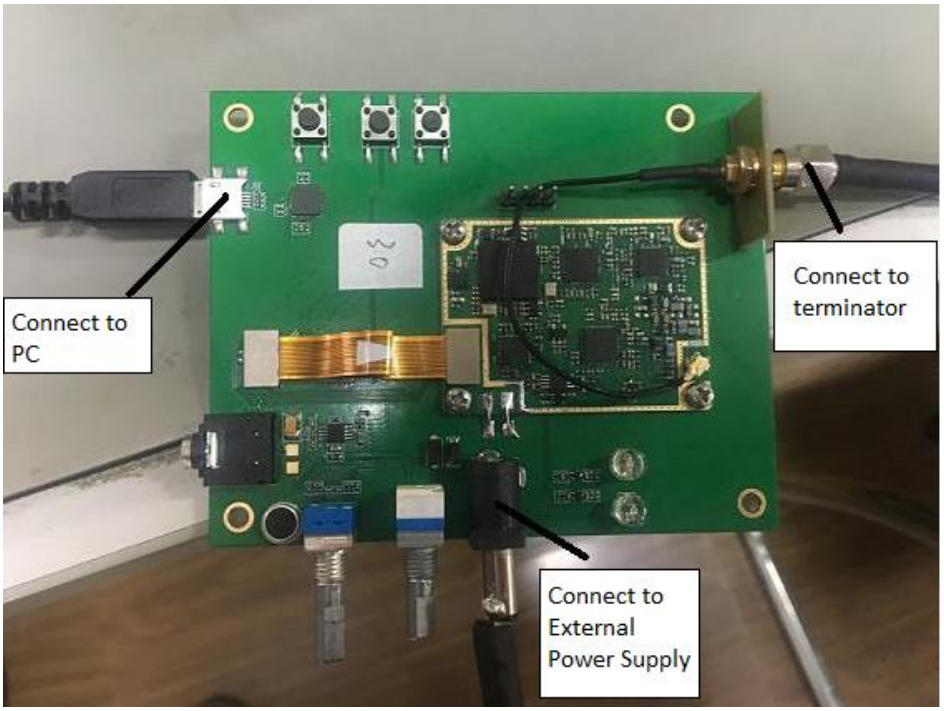


Set the power output to 4.2V. The current is around 170MA for a single SCT9389 board. The power connects with two SCT9389 board so the screen shows that the current is around 330MA.

2) The red & blue indicator lights (7&8) on board will be lighted together once SCT9389 was powered on. And then the indicator lights will go off automatically after SCT9389 was powered on successfully.
3) Set the two boards to the same channel. Then user can press PTT key of board 1, the red light indicates the board is on transmitting state; considering for board 2, the blue light indicates board 2 is on receiving state. At this time, the voice can be received via earphone in board 2 if there is voice call in board 1.
4) Release the PTT key of board 1, the red & blue indicator lights are lighted together which indicates the end of the call.

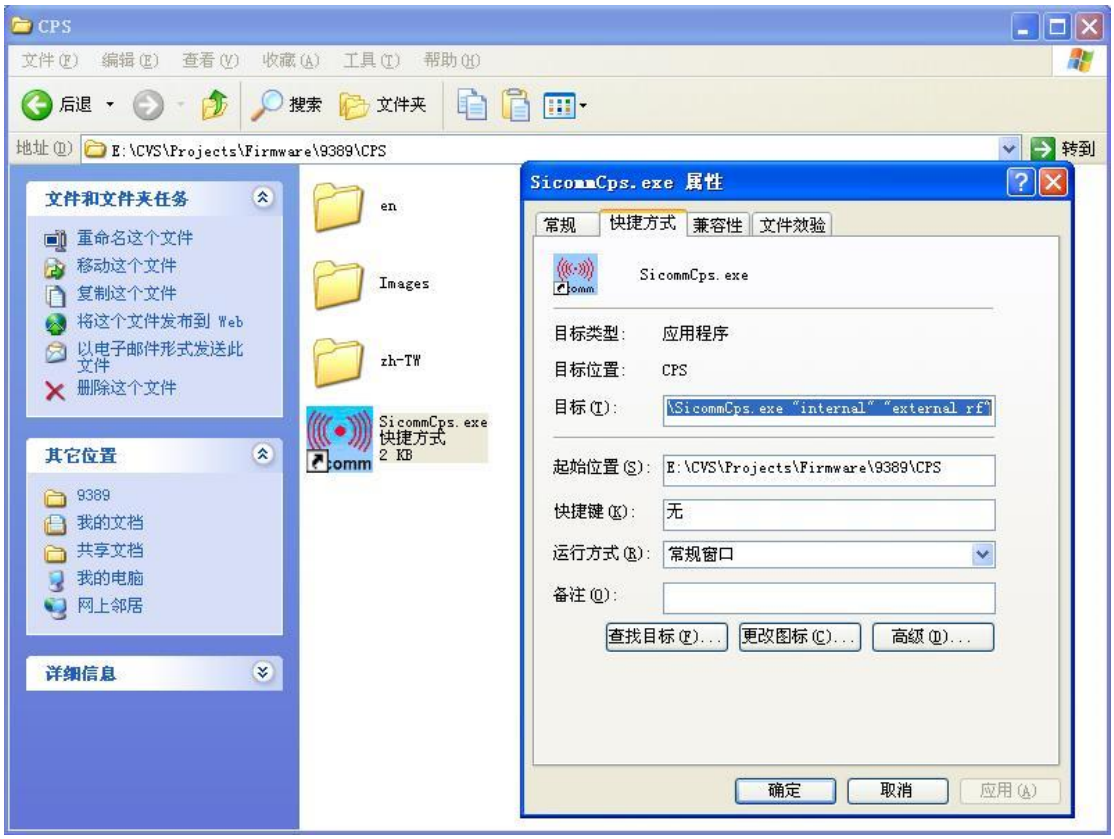
4 Configure the SCT9389

Before configuring, user needs to contact SCT9389 with PC



1) Create shortcut

Enter into program folder, left click the mouse to create a shortcut of Sicomm_CPS.exe. Left click the shortcut and select attribute. Add "internal" "external rf" into the end of "Target" .

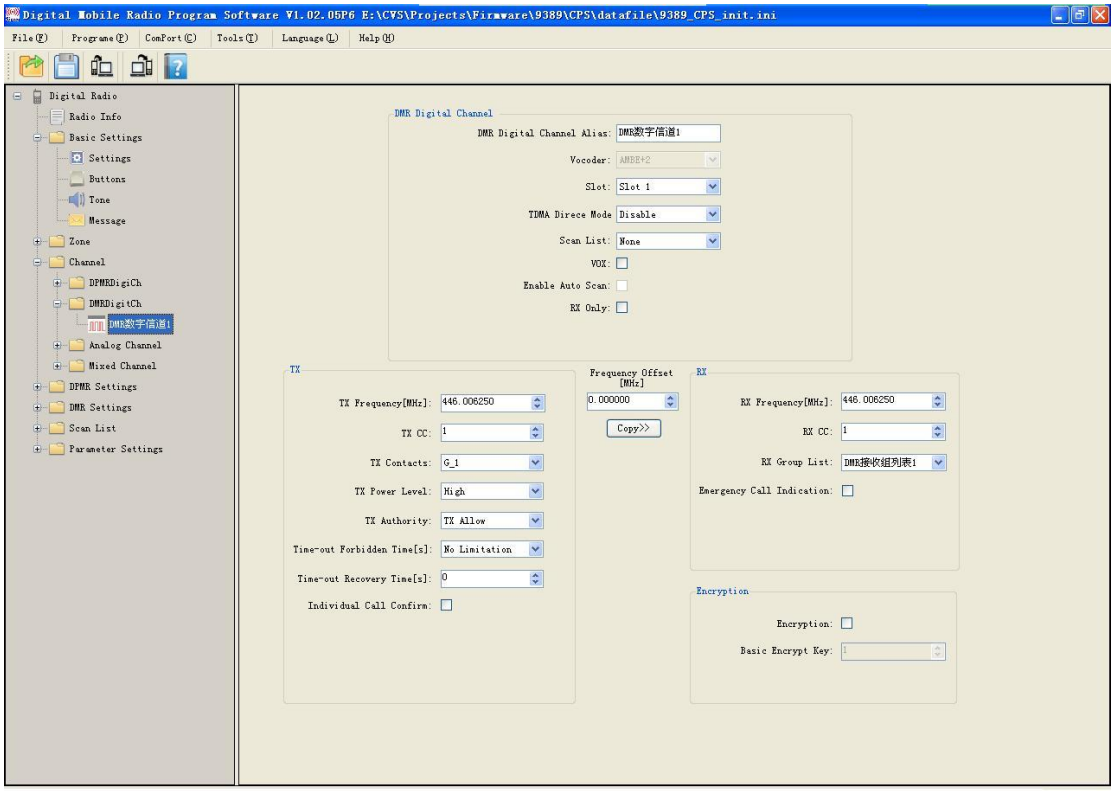


2) Double click the shortcut of CPS to start up the internal CPS.

3) Set the COM port

4) Read out the local parameters of SCT9389: Program → Read

5) Confirm DMR channel frequency: channel→DMR digital channel→DMR digital channel 1(default configuration)→Tx /Rx frequency



Note: The default factory setting of 9389EVB is DMR and the frequency is 446.00625MHz. For 9389EVB, it is channel 1 (DMR digital channel 1) when counter-clockwise rotation to the end.

6) Write parameter

7) Close CPS program

5 Basic Setting

Please refer to the Section 4.2 in the document "SCT9389 Datasheet" for further information of basic setting.

Appendix：

The circuit diagram of SCT9389 HDK board is shown as below: