UMC-I210C User Manual

Revision History

Issue Date	Version	Description
2015/04/16	0.0	Initial Issued
2015/04/30	0.1	Add freq. mapping table and tx output power setting
2015/05/06	0.2	Modify Zigbee Test Center Frequency Setting (i.e. CH. No.)
2015/05/06	1.0	Change document file name to match FCC application form
2015/05/12	2.0	Add LTE antenna gain table
2015/05/26	2.1	Add FCC Warning Message and Note for LTE antenna gain
2015/05/27	2.2	Correct typo
2015/06/08	2.3	Add required description by FCC Part 15.21

Contents

1. Introduction

This User Manual of Victor CB (Communication Board) module is to describe how to use the following sections for lab test by specific qualified engineers or technicians. Furthermore, this module is NOT intended for commercial use but designed as part of Smart Meter product which mainly provides 4G LTE WAN access and/or Zigbee HAN access capabilities. For the procedure of CB installation into electric meter and the operation of CB in assembly factory, that information is described in assembly instruction document.

FCC Interference Statement

This module complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This module may not cause harmful interference and (2) this module must accept any interference received, including interference that may cause undesired operation.

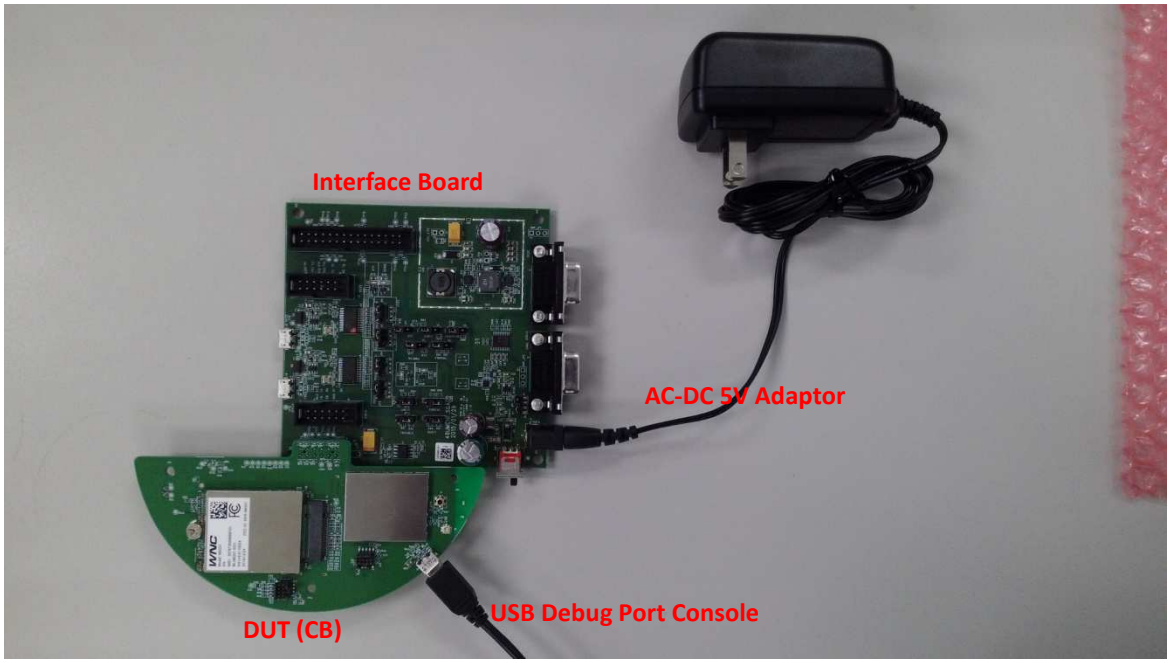
Radiation Exposure Statement

This module complies with FCC radiation exposure limits set forth for an uncontrolled environment. This module should be installed and operated with minimum distance of 20cm between radiator and human body.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

2. Test Setup Configuration

2.1 Power Supply and Debug Console Connection



Power on Sequence:

I. Connect 12-pin-to-Jig-baord cable

II. Attach AC-DC Adaptor & USB Debug Port Cable

III. Wait for 20 seconds when system ready (See Note 1)

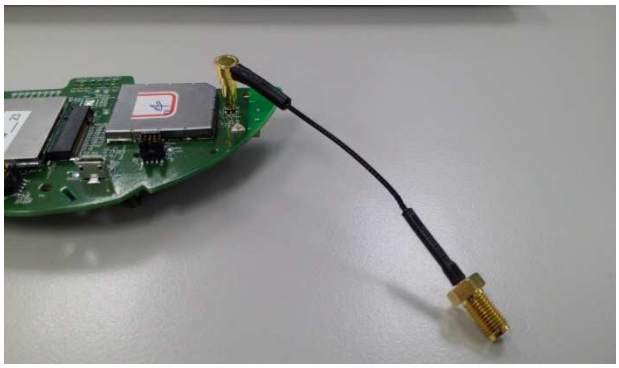
IV. Plug-in Console Port cable

[Caution] Improper power on sequence might lead to system boot-up failure!

2.2 Antenna Connection

Connect to LTE primary antenna

Connect to LTE diversity antenna



Connect to Zigbee antenna

2.3 Hardware Component Introduction

AC-DC 5V Adaptor

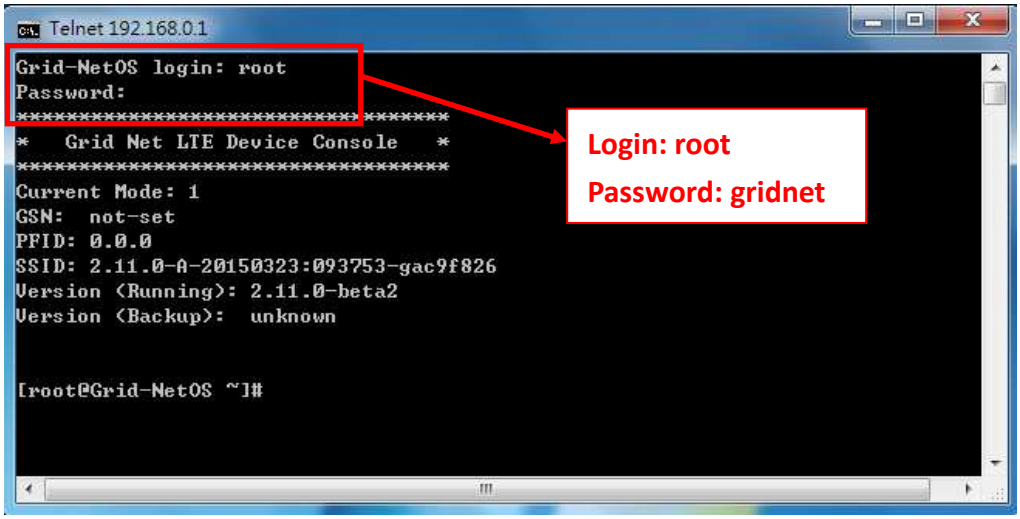
Interface Board

Victor CB

3. Zigbee Test

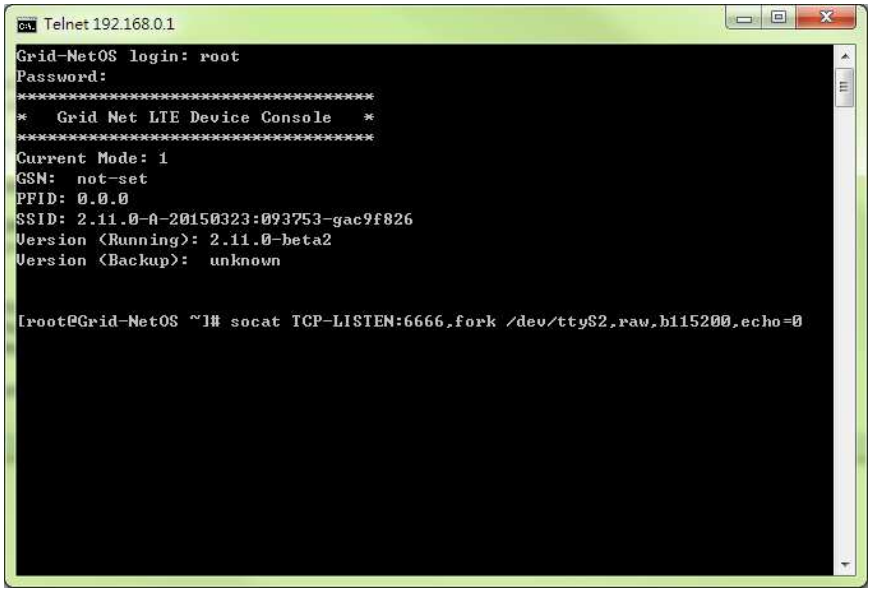
3.1 Setup socat Server in CB Device

Telnet 192.168.0.1 into CB and run the commands below.



[root@Grid –NetOS ~] # **socat TCP-LISTEN:6666,fork**

/dev/ttyS2,raw,b115200,echo=0



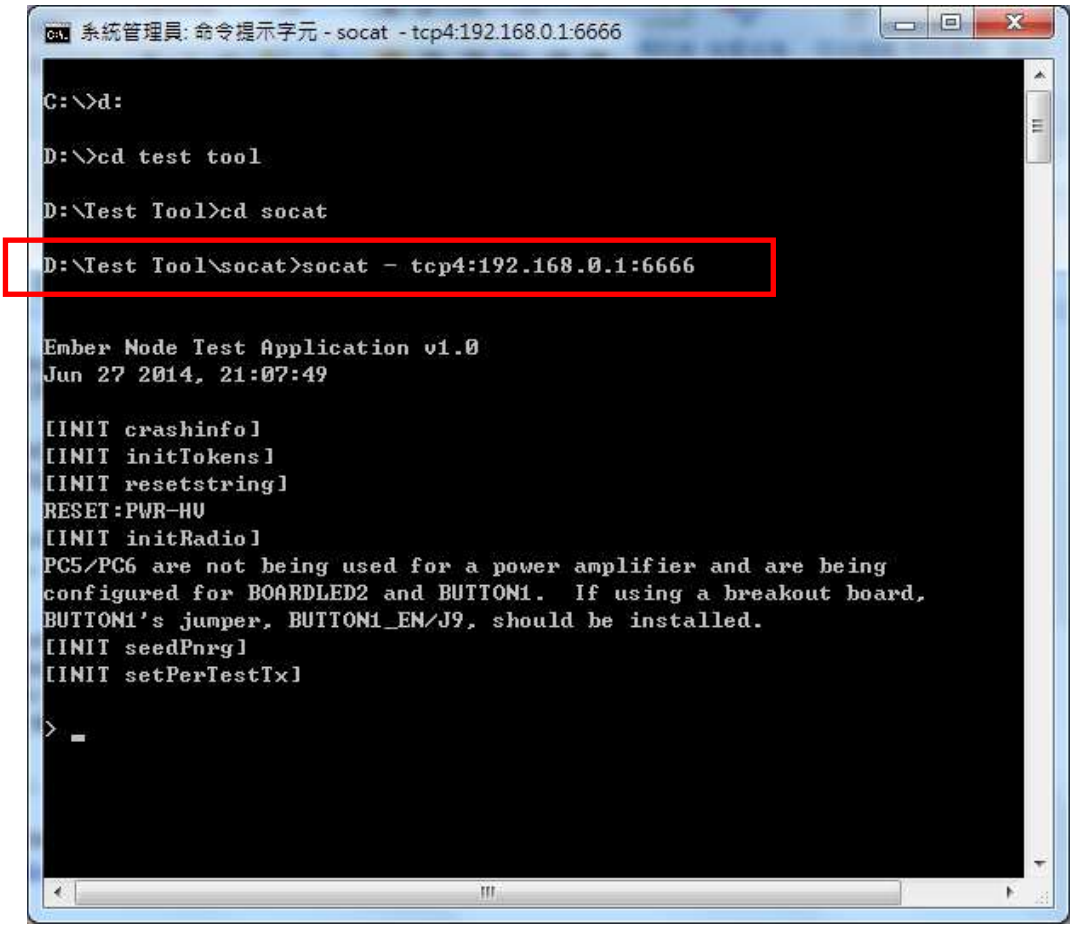
3.2 Setup socat Client in PC host

Unpack socat.7z and install into PC and change directory to that.

Execute the commands below.

D:\Test Tool\socat> **socat - tcp4:192.168.0.1:6666**

Press " Enter " twice.



Note, the socat binaries compiled for windows can be found in

http://blog.gentilkiwi.com/downloads/socat-1.7.2.1.zip

3.3 Zigbee Test Command (Refer to Ember Node Test)

Freq. channel setting: ***setchannel 0x0B***

Channel Low : 0x0B -> CH11

Channel Middle : 0x12 -> CH18

Channel High : 0x19 -> CH25

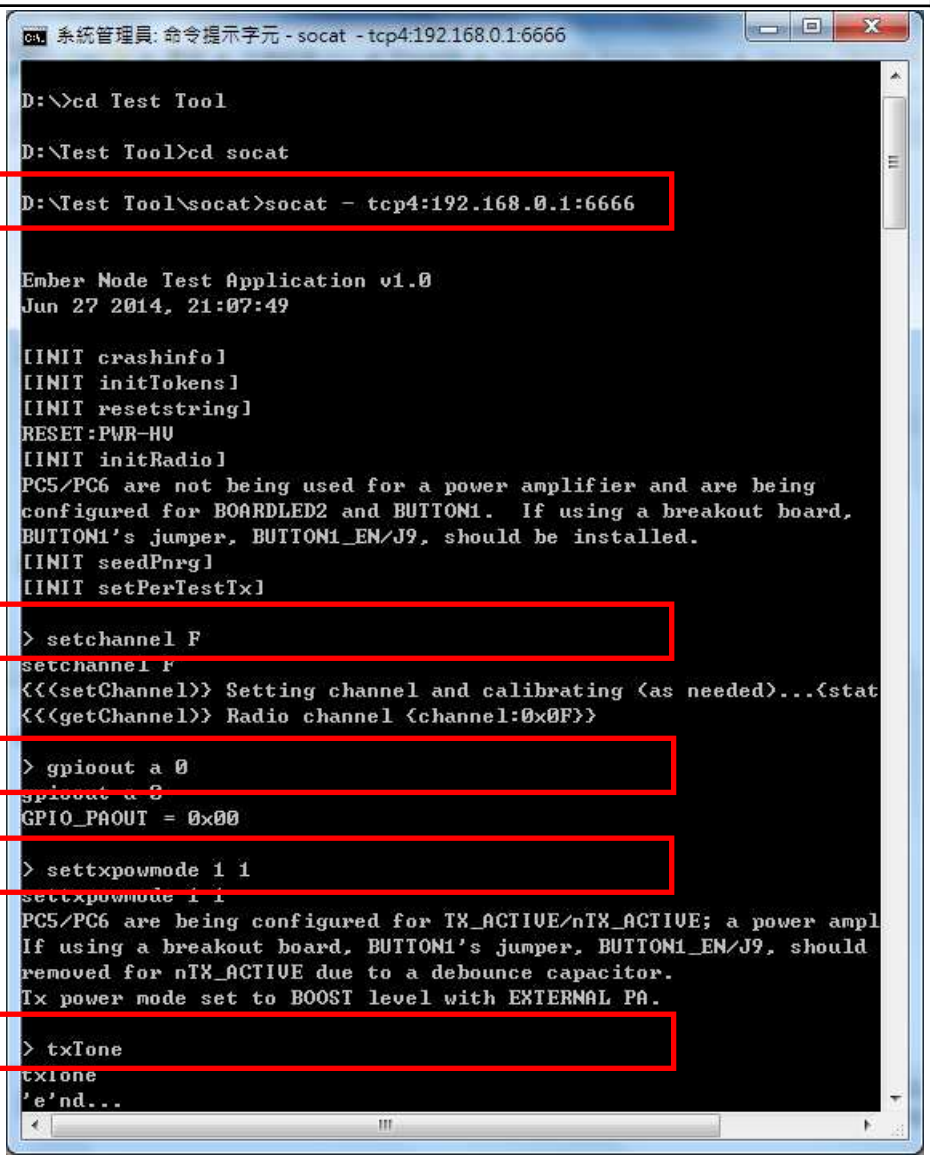
Antenna selection: ***gpioout a 0***

Power mode setting: ***settxpowmode 1 1***

Power level setting: ***setTxPower -3***

Single tone output: ***txTone***

Modulation signal output: ***txStream***


系統管理員: 命令提示字元 - socat - tcp4:192.168.0.1:6666
D:\>cd Test Tool
D:\Test Tool>cd socat
D:\Test Tool\socat>socat - tcp4:192.168.0.1:6666
Ember Node Test Application v1.0
Jun 27 2014, 21:07:49
[INIT crashinfo]
[INIT initTokens]
[INIT resetstring]
RESET:PWR-HV
[INIT initRadio]
PC5/PC6 are not being used for a power amplifier and are being
configured for BOARDLED2 and BUTTON1. If using a breakout board,
BUTTON1's jumper, BUTTON1_EN/J9, should be installed.
[INIT seedPnrg]
[INIT setPerTestTx]
> setchannel F
setchannel F
{{{setChannel}} Setting channel and calibrating (as needed)...{stat
{{{getChannel}} Radio channel {channel:0x0F}}
> gpioout a 0
GPIO_PAOUT = 0x00
> settxpowmode 1 1
PC5/PC6 are being configured for TX_ACTIVE/nTX_ACTIVE; a power ampl
If using a breakout board, BUTTON1's jumper, BUTTON1_EN/J9, should
removed for nTX_ACTIVE due to a debounce capacitor.
Tx power mode set to BOOST level with EXTERNAL PA.
> txTone
txTone
'e'nd...

4. LTE B4/B13 Test

It is suggested to use Anritsu MT8820C for RF conductive tests.

For LTE radiation tests, the LTE antenna gain lists below.

- LTE Main Antenna
  - Band 13 Peak Gain: 2.0 dBi ~ 2.5 dBi
  - Band 4 Peak Gain: 4.5 dBi ~ 5.0 dBi

- LTE Diversity Antenna
  - Band 13 Peak Gain: 2.0 dBi ~ 2.5 dBi
  - Band 4 Peak Gain: 2.5 dBi ~ 3.0 dBi