[MG2475-RDK]
Getting Started

(No. ASW1008)
V0.96

REVISION HISTORY

Version	Date	Description
VER.0.91	**2015.05.12**	▪ The Beta version release.
VER.0.92	**2015.05.15**	▪ Images font modified.
VER.0.93	**2015.05.21**	▪ Contents link modified.
VER.0.94	**2015.05.29**	▪ HEX file name modified.
VER.0.95	**2015.05.29**	▪ RCS image modified.
VER.0.96	**2015.06.03**	▪ Fix Typo.

CONTENTS

1. INTRODUCTION

MG2475-RDK (Remote Controller Development Kit) is the development kit based on MG2475 which is an SOC chip including RF transceiver and 8051 micro controller, by RadioPulse.

This document explains how to start with MG2475-RDK.

Additionally, this document includes like below;

- How to install CP210X driver
- How to download the firmware using RadioPulse Device Programmer
- How to use Remote Controller Simulator.

2. REFERENCE

[R1] ADT0007-Remote Controller-Simulator User's Guide_V1 0.pdf

[R2] ADT0002-Device Programmer MD User's Guide_En_V2 2.pdf

3. DEFINITIONS

- MG2475: 2.4GHz RF Transceiver Chip in SoC type developed by RadioPulse, applied to ZigBee, IEEE802.15.4-2003, 2006.
- MG2475-Dongle: 'RF to USB Bridge Controller' module in USB dongle type which is connected to Host. It connects RF communication and USB communication.
- RDB: Remote controller Development Board.
- LM2475-C: Chip antenna type module for MG2470 RDK.
- MG2470-EVB(Evaluation Board): a PC interface board of LM2475-EM. This board makes it possible to download user programs to LM2475-EM or connect LM2475-EM to host programs in PC system.
- LM2475-EM(Evaluation Module): 2.4GHz ZigBee Module embedded with MG2475. It is applied to ZigBee 200X, IEEE802.15.4.
- CP210x Device Driver: Device Driver Program to connect MG2470B-RDB / MG2470-EVB to PC by USB cable. In installation procedure of Device Programmer MD, CP210x Device Driver installation is automatically questioned. A user can install it then.
- Target: The receiver which is connected with Remote Controller Simulator.
- Controller : Remote Controller
- Device Programmer MD: a PC GUI program for firmware downloading provided by RadioPulse. It is used to update the firmware for LM2475-C and MG2475-Dongle.
- MG2470-GS-MPU6150: 6-axis Motion Tracking Module(3-axis gyroscope, 3-axis accelerometer)
- MG2470-TP-TC30Q: Touch pad module embedded with 8bit MCU(TC30Q) including touch sensor of Coreriver

4. Kit Contents

- Remote Controller Development Board (MG2470B-RDB) with MG2475 Chip antenna type module(LM2475-C) and Touch pad module (MG2470-TP-TC30Q)
- Remote Controller Development Board (MG2470B-RDB) with MG2475 Chip antenna type module(LM2475-C) and Gyro Sensor module (Mg2470-GS-MPU6150)
- MG2470 evaluation Board(MG2470-EVB) with MG2475 evaluation module(LM2475-EM) and +2dBi Antenna
- MG2475-Dongle x 2
- MG2475-RCU
- MG2475 ZigBee Single Chip x 25
- USB ISP Downloader and cable for MG2475-Dongle x 2
- USB Cables

  (USB 2.0 Cable (A-B) x 1, MINI USB 2.0 Cable (USB 2.0 A/M To Mini USB 5PIN) x2)
- Software CD

Note: Provide Gyro hardware, but Gyro software and LIB not included.
Please contact the sales division for information of Gyro software and LIB.

5. Quick start guide

5.1. MG2475-Dongle(Target) to RDB(Controller)

MG2475-Dongle and RDB firmware are already downloaded.

Each firmware file is like below;

- **MG2475-Dongle** : MG2475_RdkTarget_DONGLE.hex
  - in [Package CD\0. Getting Started Manual\Firmware\]

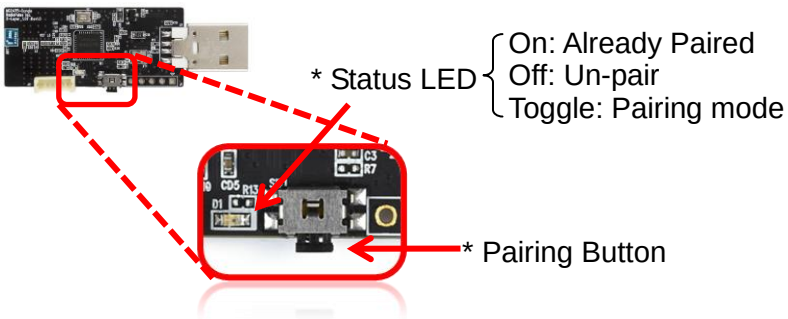
- **RDB** : MG2475_RdkController.hex
  - in [Package CD\0. Getting Started Manual\Firmware\]

5.1.1. Usage of MG2475-Dongle

Install MG2475-Dongle

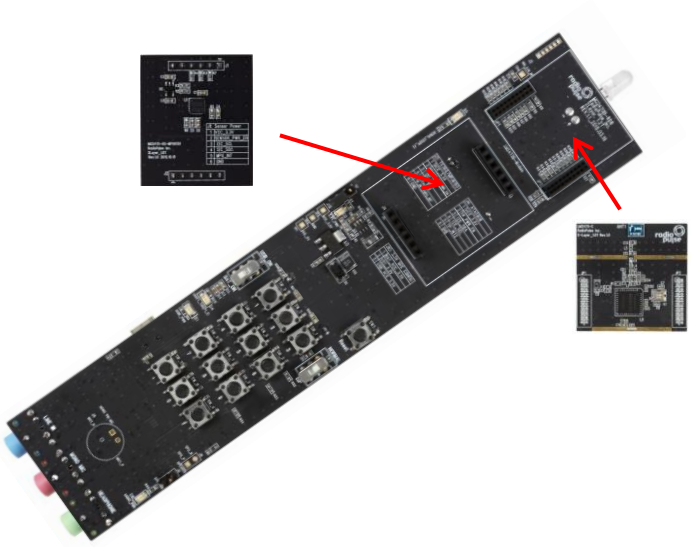
Enter the pairing mode

** Pairing mode will remain 30 seconds.



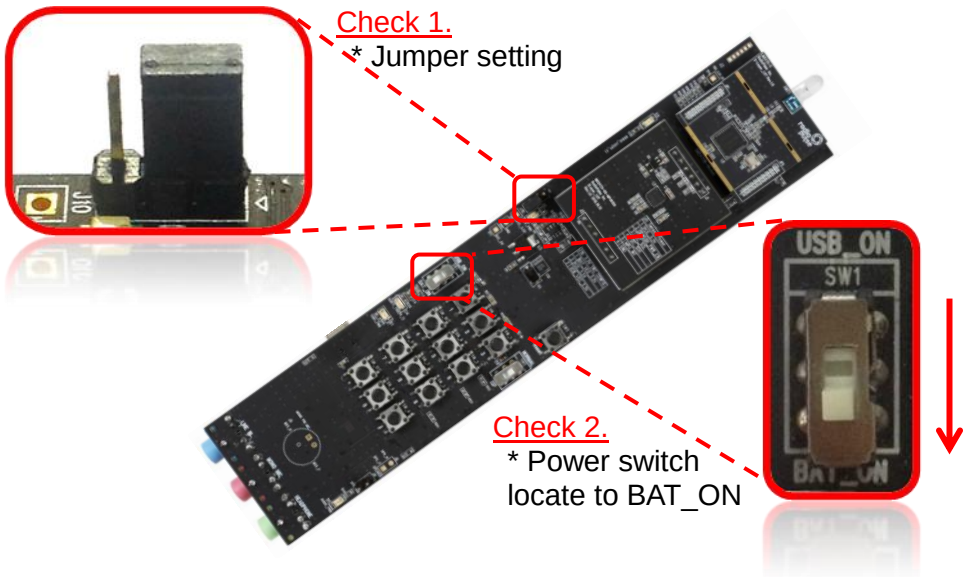
5.1.2. Usage of RDB

Install RDB: Modules

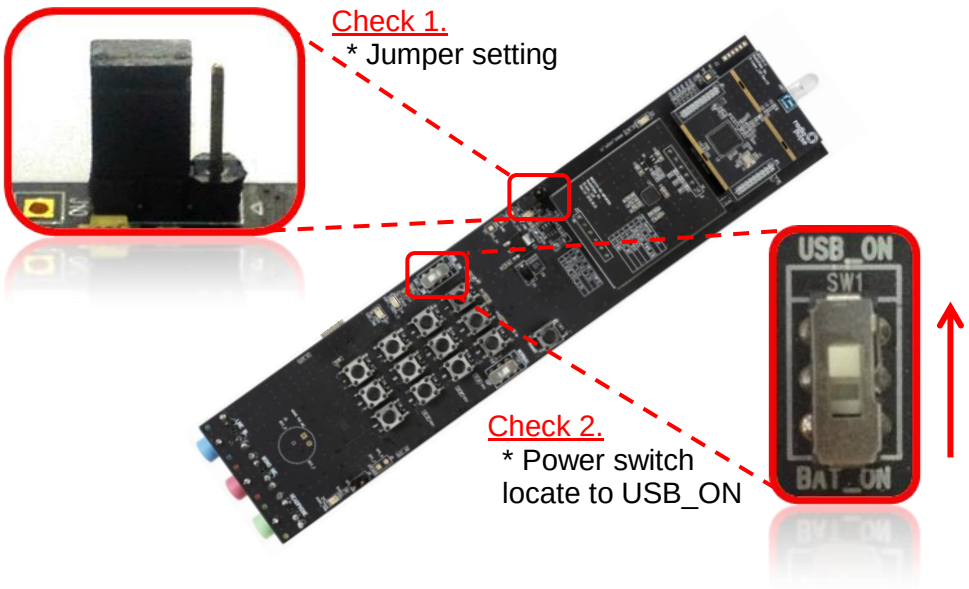


Install power in RDB: Battery or USB

Battery power

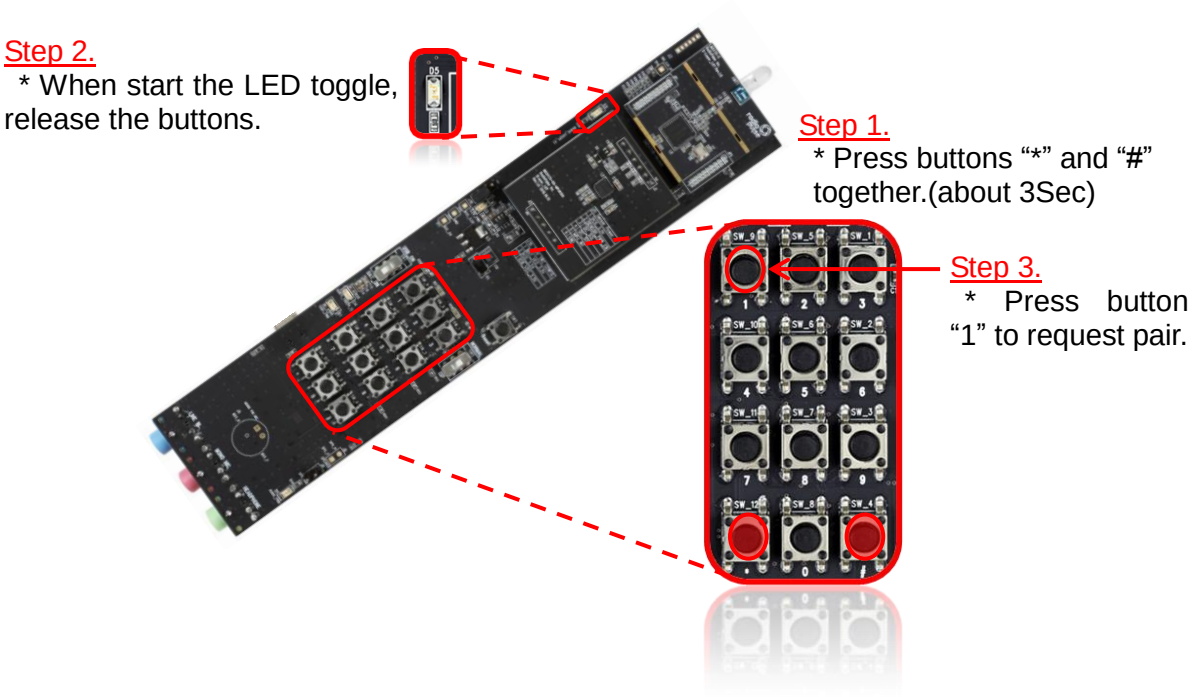


USB power



Enter the paring mode

** Pairing mode will remain 30 seconds.



Operating: KEY

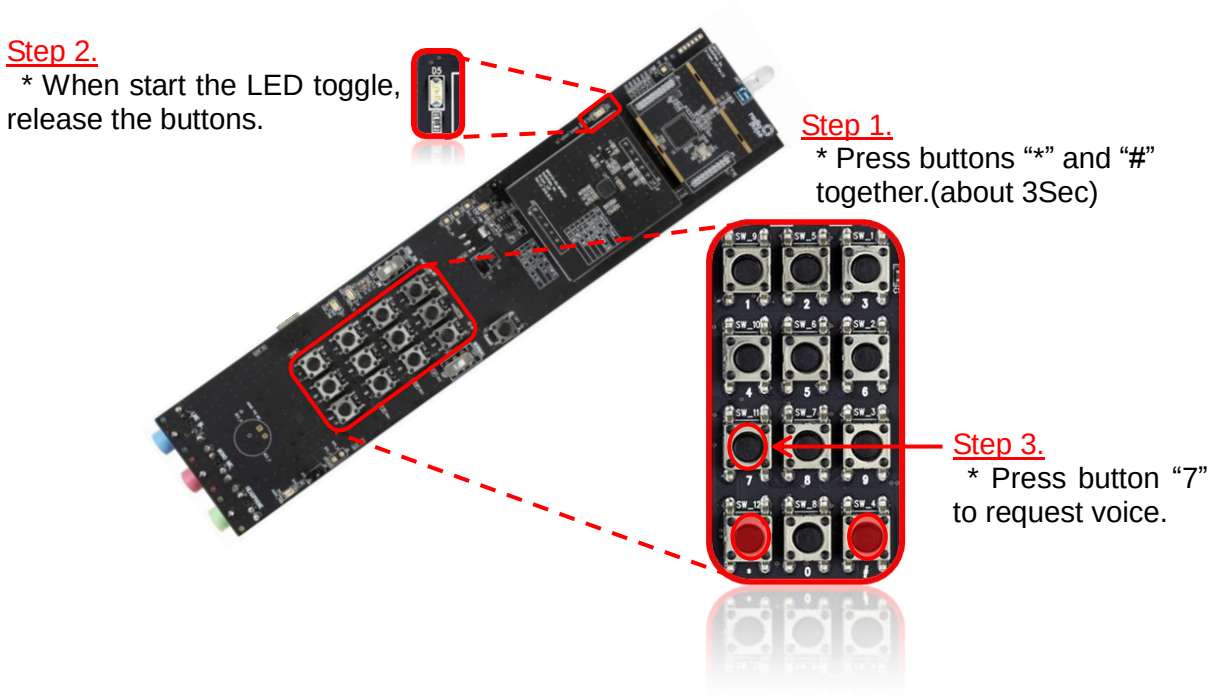
Open the “Notepad” and Press the buttons.

Operating: MOUSE

Move like the air mouse.

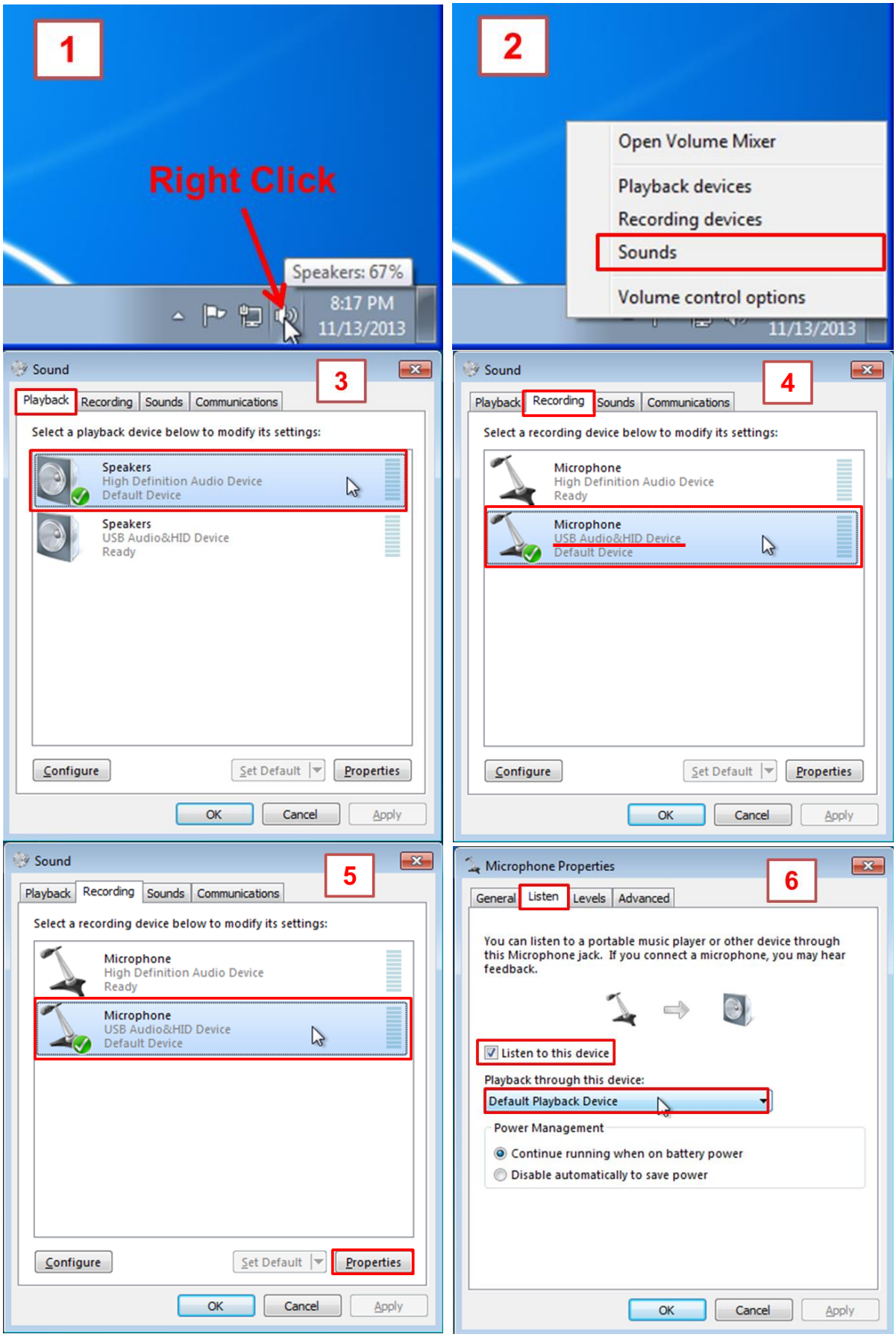
Operating: VOICE

Enter the “Voice” mode.

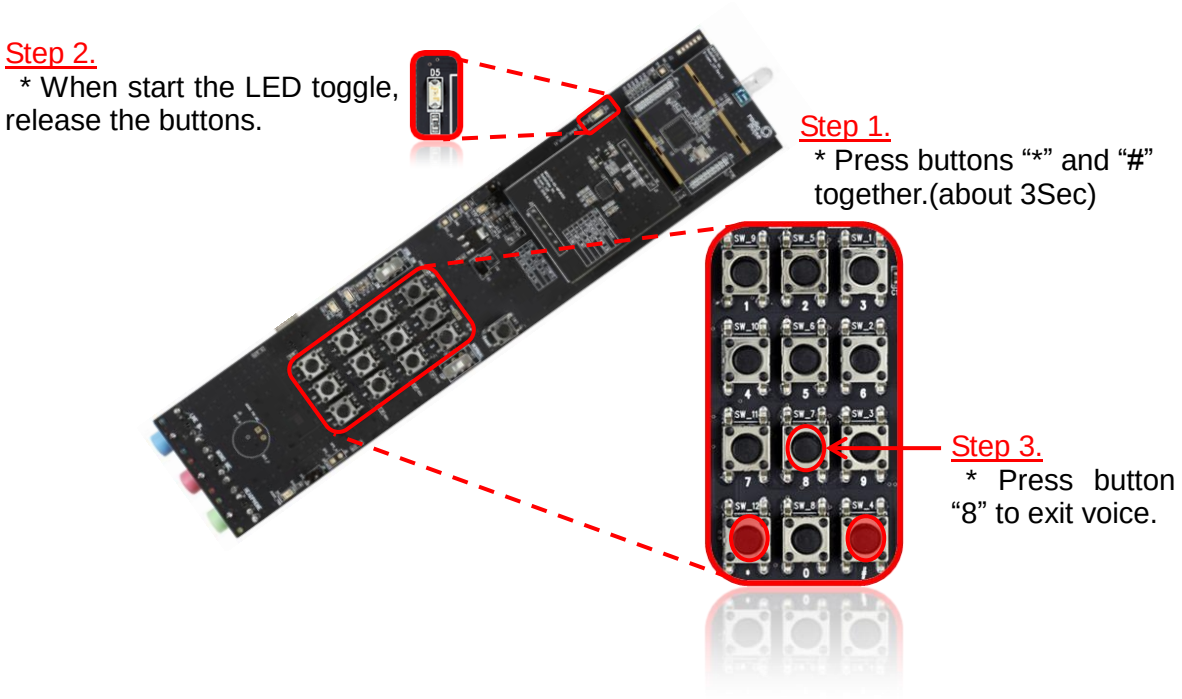


Use the “Voice”

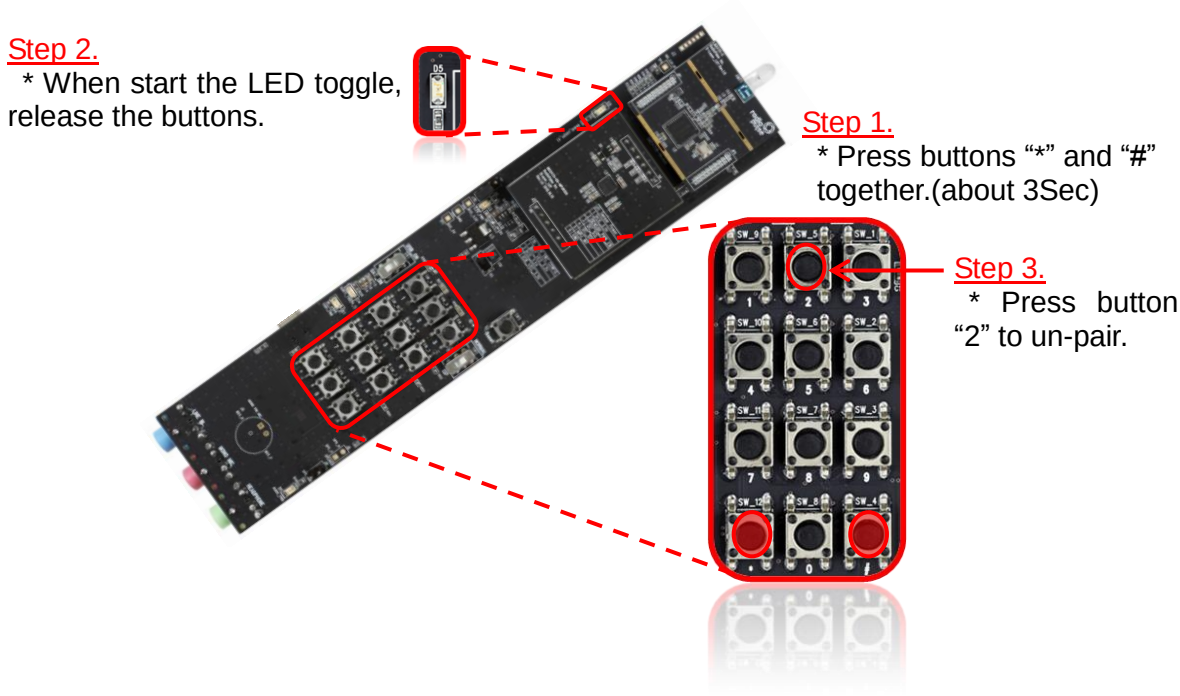
PC setting.


1
Right Click
Speakers: 67%
8:17 PM
11/13/2013
2
Open Volume Mixer
Playback devices
Recording devices
Sounds
Volume control options
11/13/2013
Sound
3
Playback
Recording
Sounds
Communications
Select a playback device below to modify its settings:
Speakers
High Definition Audio Device
Default Device
Speakers
USB Audio&HID Device
Ready
Configure
Set Default
Properties
OK
Cancel
Apply
Sound
4
Playback
Recording
Sounds
Communications
Select a recording device below to modify its settings:
Microphone
High Definition Audio Device
Ready
Microphone
USB Audio&HID Device
Default Device
Configure
Set Default
Properties
OK
Cancel
Apply
Sound
5
Playback
Recording
Sounds
Communications
Select a recording device below to modify its settings:
Microphone
High Definition Audio Device
Ready
Microphone
USB Audio&HID Device
Default Device
Configure
Set Default
Properties
OK
Cancel
Apply
Microphone Properties
6
General
Listen
Levels
Advanced
You can listen to a portable music player or other device through this Microphone jack. If you connect a microphone, you may hear feedback.
Listen to this device
Playback through this device:
Default Playback Device
Power Management
Continue running when on battery power
Disable automatically to save power
OK
Cancel
Apply

Exit the “Voice” mode.



Un-pair



5.2. MG2470-EVB(Target) to RDB(Controller) : Operating with RC-Simulator

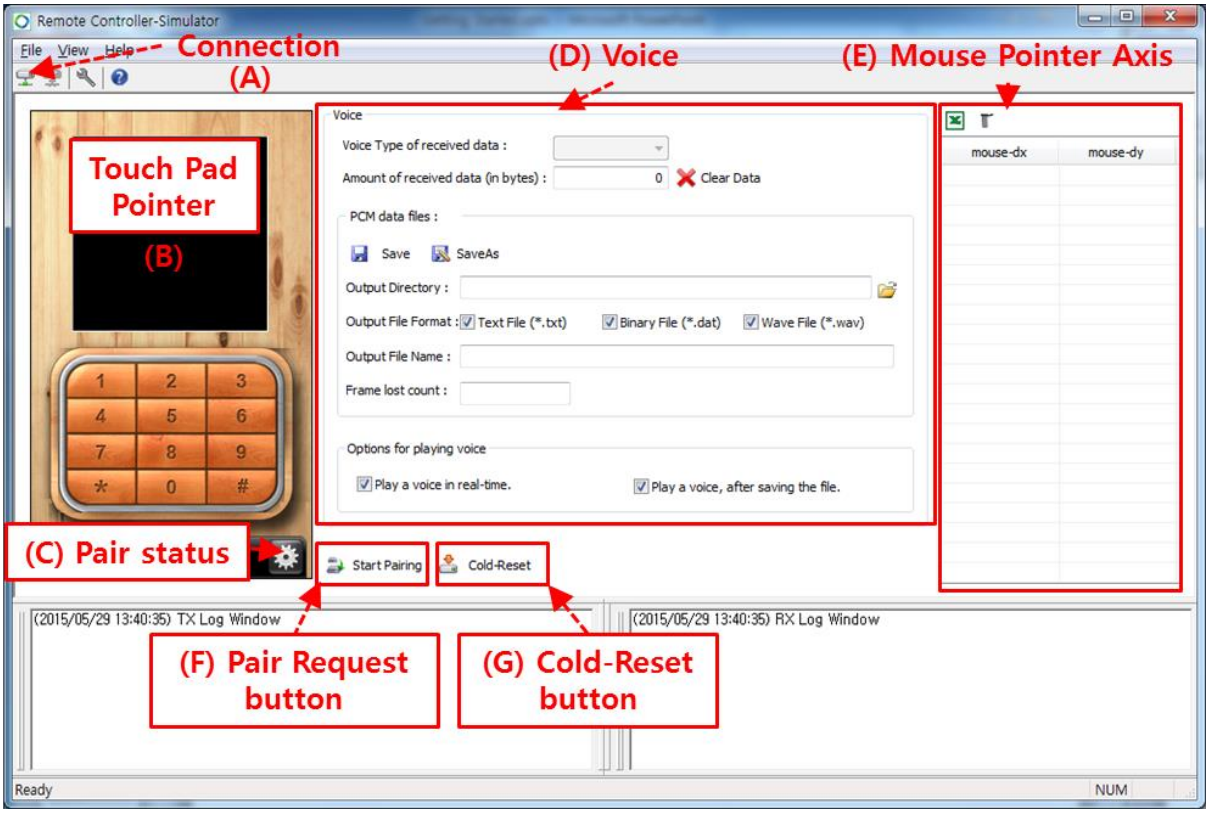
Each firmware file is like below;

- **MG2470-EVB** : MG2475_RdkTarget_SIM.hex
  - ■ in [Package CD\0. Getting Started Manual\Firmware\]

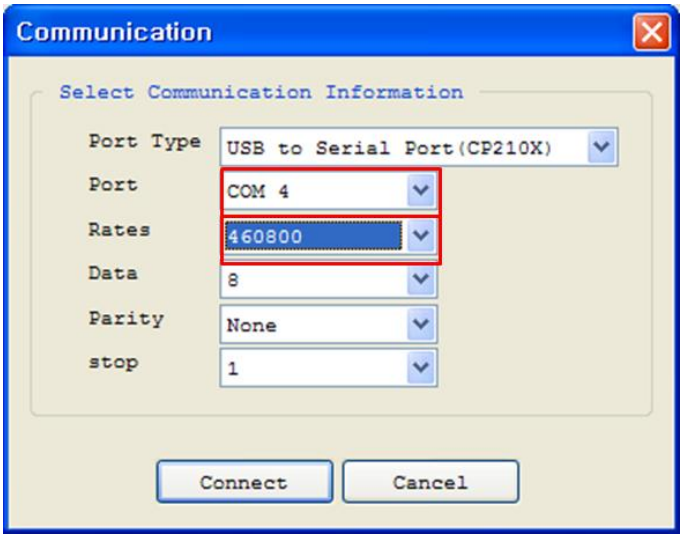
- **RDB** : MG2475_RdkController.hex
  - ■ in [Package CD\0. Getting Started Manual\Firmware\]

5.2.1. Usage of Remote Controller-Simulator

- Install **RCS Setup Vx.xx.exe** file to PC
  - ■ in [Package CD\3. Development Tool and Drivers\RadioPulse Remote-Controller Simulator\Remote Controller-Simulator 1.10\](see also [R1])



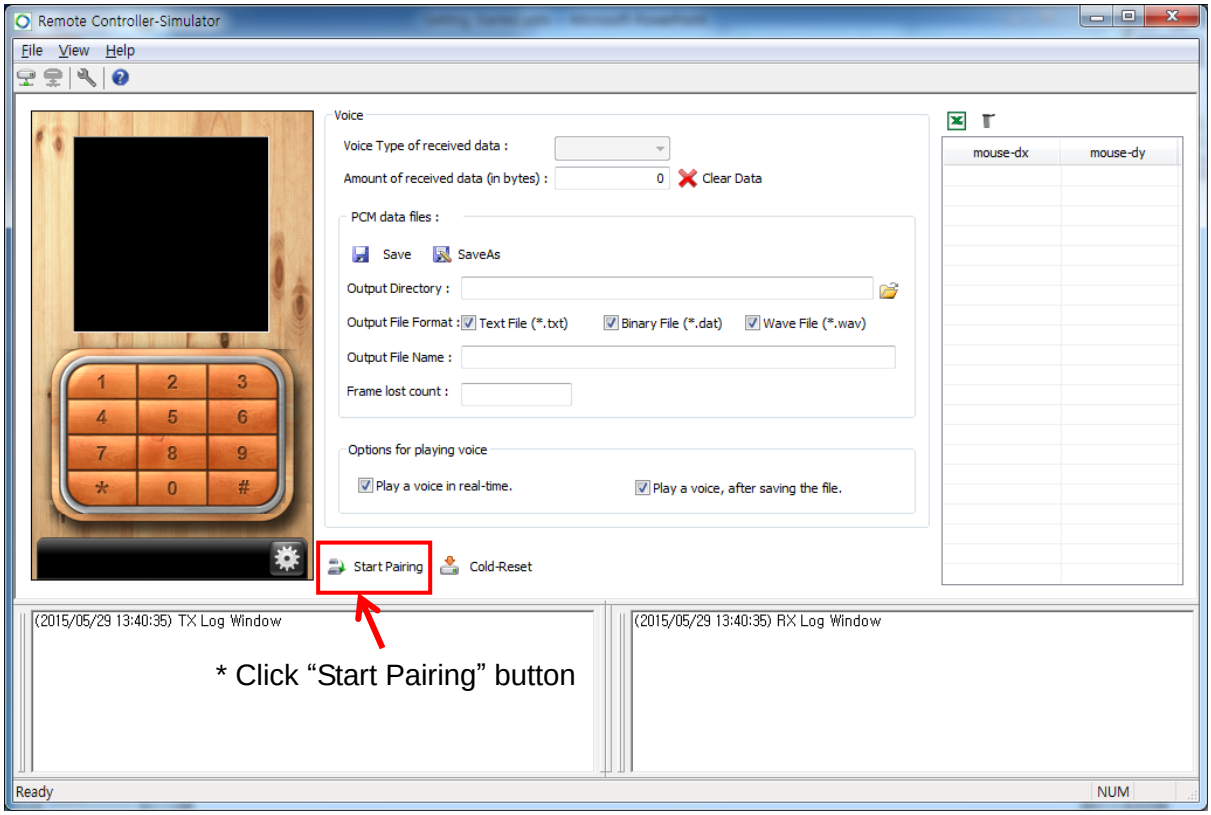
(A) Connection button.
  a) Port : Target's COM port
  b) Rates : 460,800



(B) Touch Pad pointer position
(C) Pair status indicator.
(D) Handle the received voice data
(E) Mouse position information window.
(F) Pair Request button.
(G) Cold-Reset button.

Install MG2470-EVB+LM2475-EM

Pairing

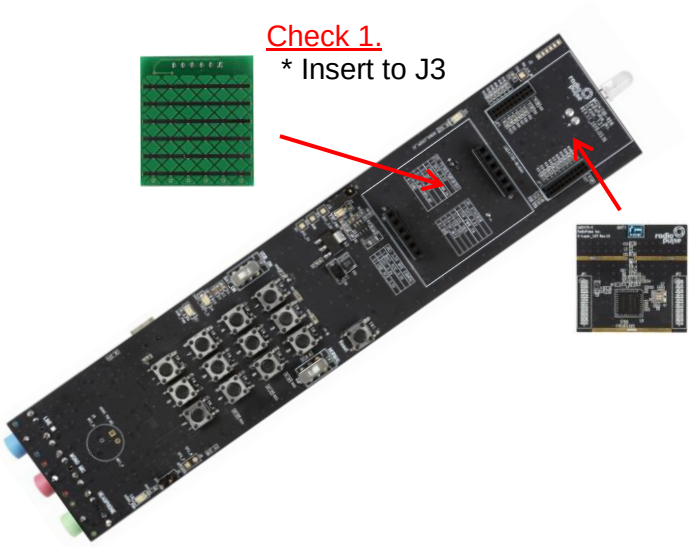


Pairing Success

When the pairing is completed, the pair status image of Remote-controller simulator is changed as below;

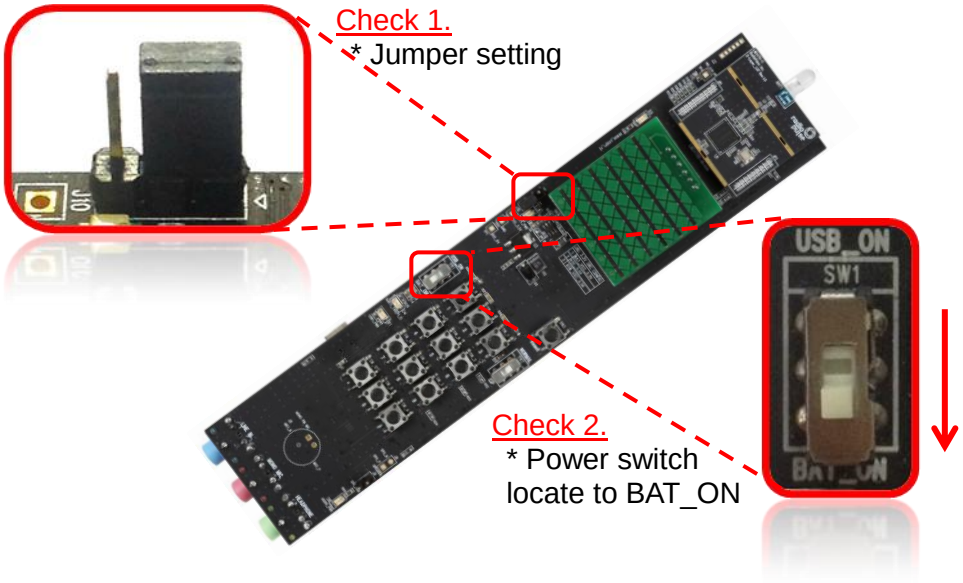
5.2.2. Usage of RDB

Install RDB: Modules

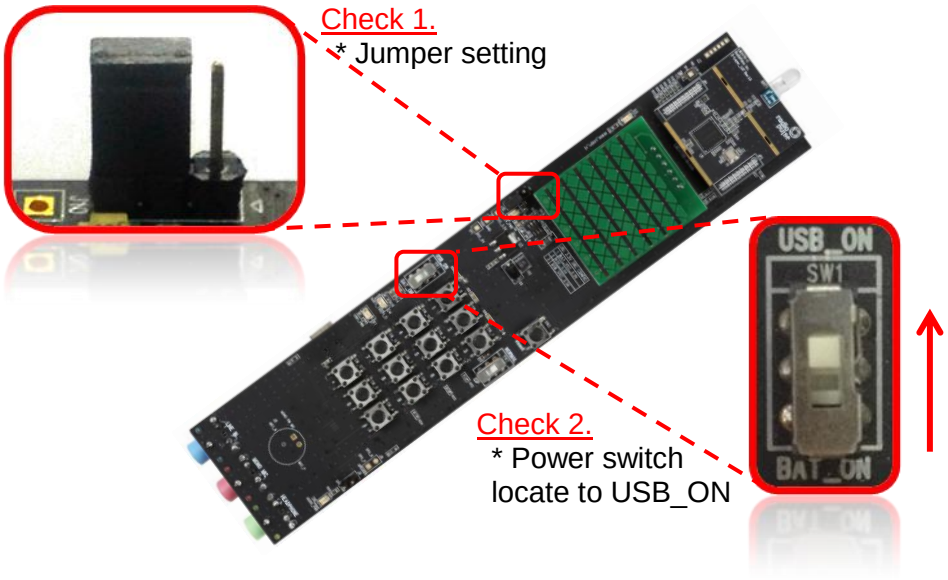


Install power in RDB: Battery or USB

Battery power

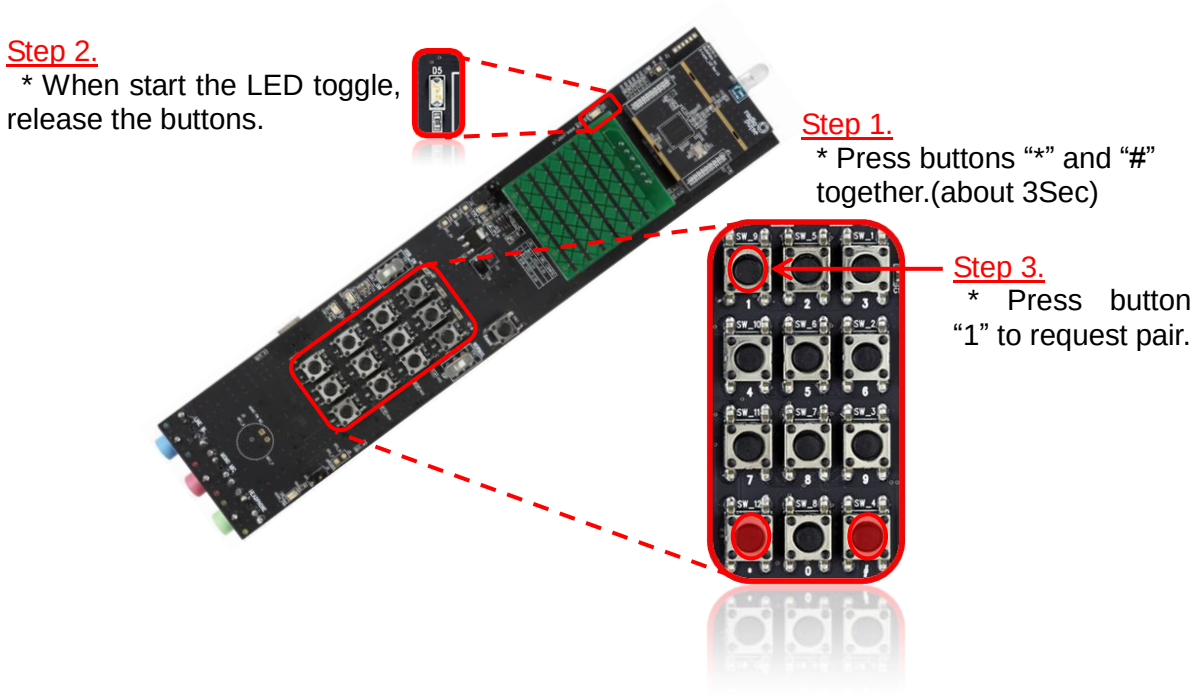


USB power



Enter the paring mode

** Pairing mode will remain 30 seconds.



5.3. MG2475-Dongle(Target) to RCU(Controller)

MG2475-Dongle and RCU firmware are already downloaded.

Each firmware file is like below;

- **MG2475-Dongle** : MG2475_RdkTarget_DONGLE.hex
  - in [Package CD\0. Getting Started Manual\Firmware\]

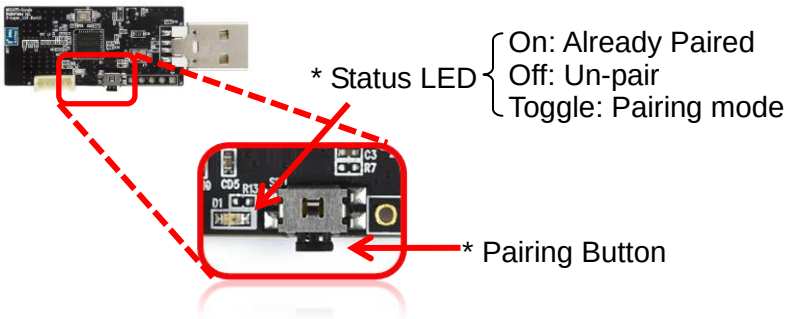
- **RCU** : Firmware is not provided.

5.3.1. Usage of MG2475-Dongle

Install MG2475-Dongle

Enter the pairing mode

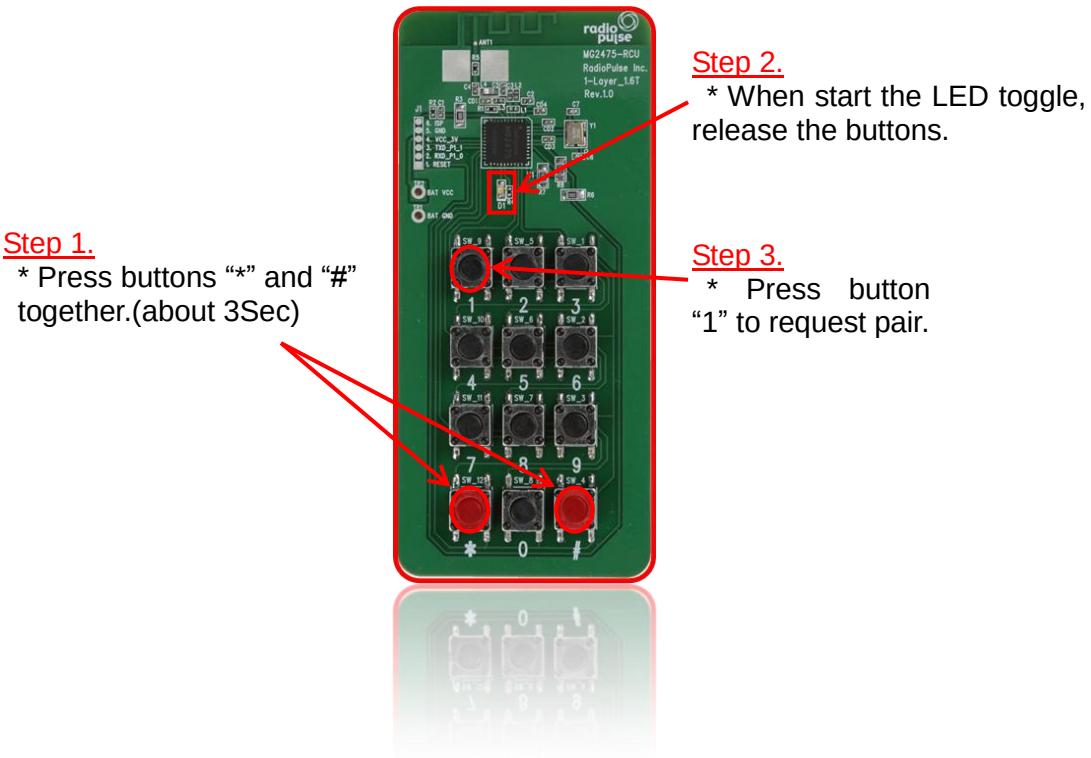
** Pairing mode will remain 30 seconds.



5.3.2. Usage of RCU

Enter the paring mode

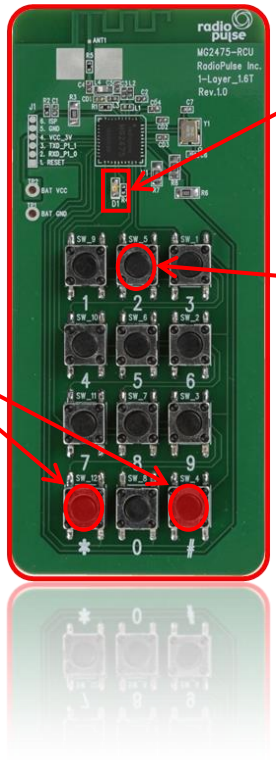
* Before using RCU, the user must attach the battery (alkaline AA * 2) to the RCU.
** Pairing mode will remain 30 seconds.



Operating: KEY

Open the “Notepad” and Press the buttons.

Un-pair



Step 1.
* Press buttons “*” and “#” together.(about 3Sec)

Step 2.
* When start the LED toggle, release the buttons.

Step 3.
* Press button “2” to un-pair.

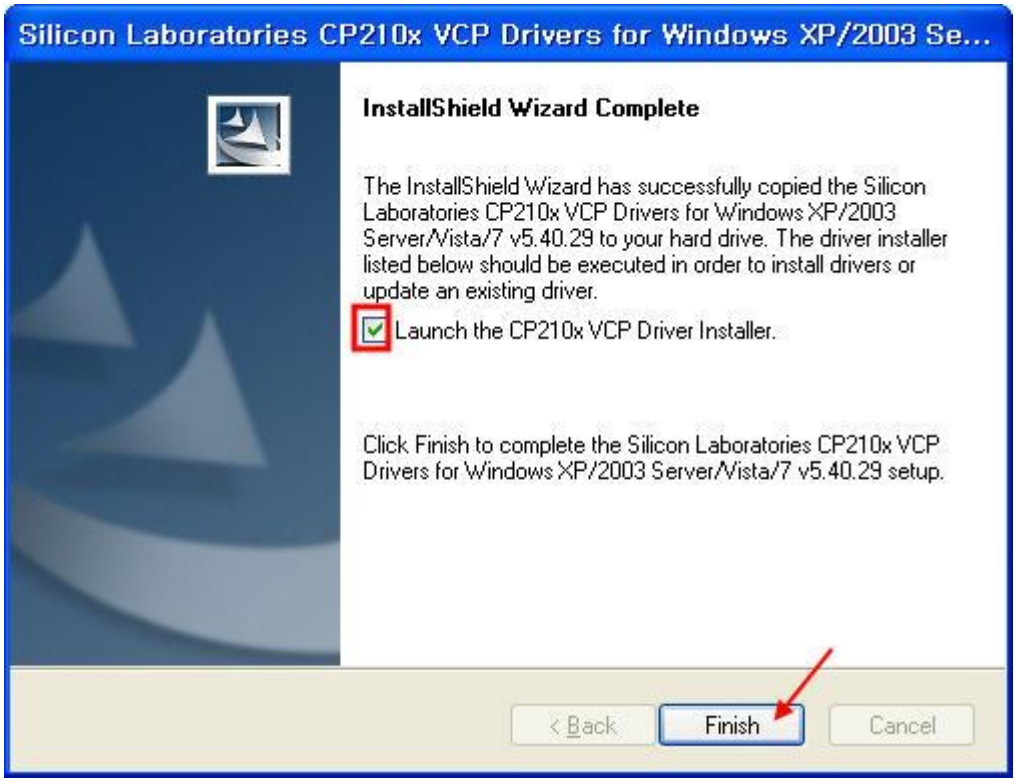
Appendix A. Firmware download.

CP210X DRIVER INSTALLATION

The CP210x on EVB is USB-to-UART controller. The driver for CP210x should be installed first, because it makes a PC to recognize the EVB.
The following is the installation step.

(A) Execute CP210X_VCP_Win_XP_S2K3_Vista_7.exe to install CP210x VCP drivers.

(B) At the final step of installation, check “Launch the CP210x VCP Driver Installer” and press “Finish”.



If it is not checked, it can be reinstalled later by executing
“C:\SiLabs\MCU\CP210x\Windows...Vista_7\CP210xVCPInstaller.exe”.

(C) Press “Install”. The “CP210x USB to UART Bridge Driver” is installed on the PC.

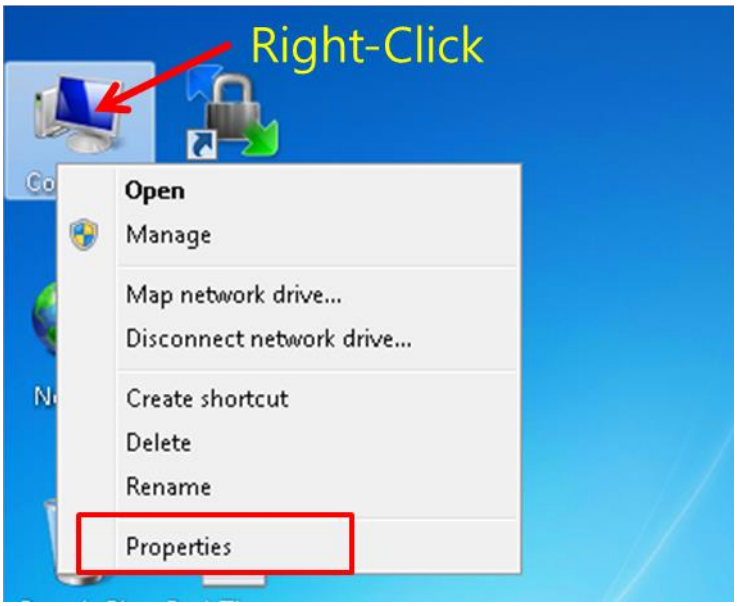
(D) If the driver is not installed, it can be installed manually when CP210x is connected to the PC. The driver is located in “C:\Program Files\Silabs\MCU\CP210x” folder.

NOTICE
For other OS, the driver is available from www.silabs.com

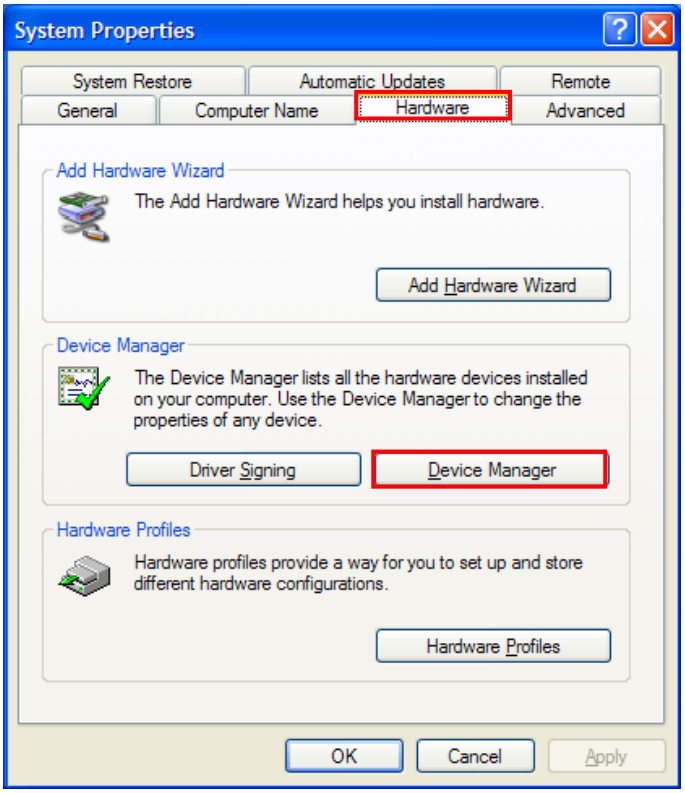
CHECK COM PORT

Connect MG2470B-RDB to PC using "**USB Receptacle Mini B 5pin**" port of MG2470B-RDB. Set the power switch to "USB_ON". Then, The PC recognizes MG2470B-RDB as COM port. The number of COM port is checked as follows.

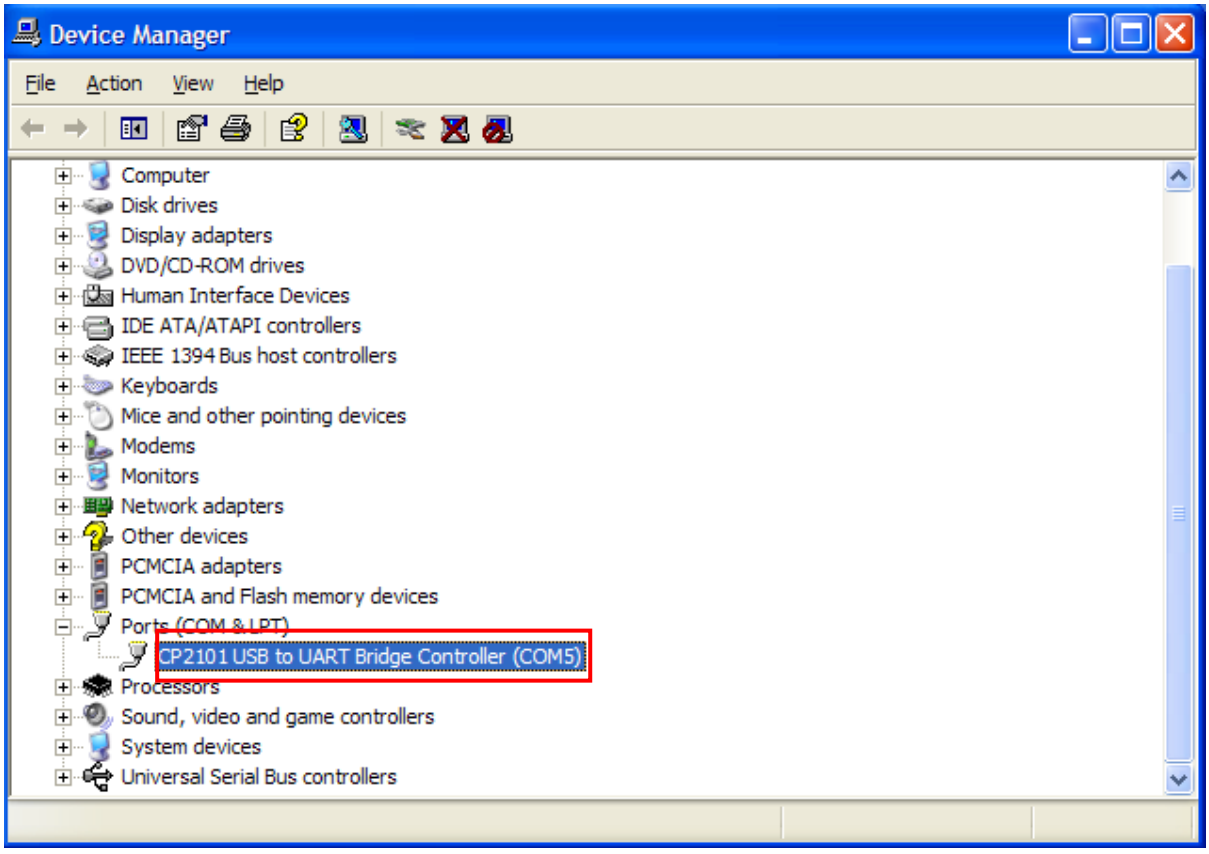
(A) Right-click on "My Computer" icon and select "Properties".



(B) Select "Hardware" tab.

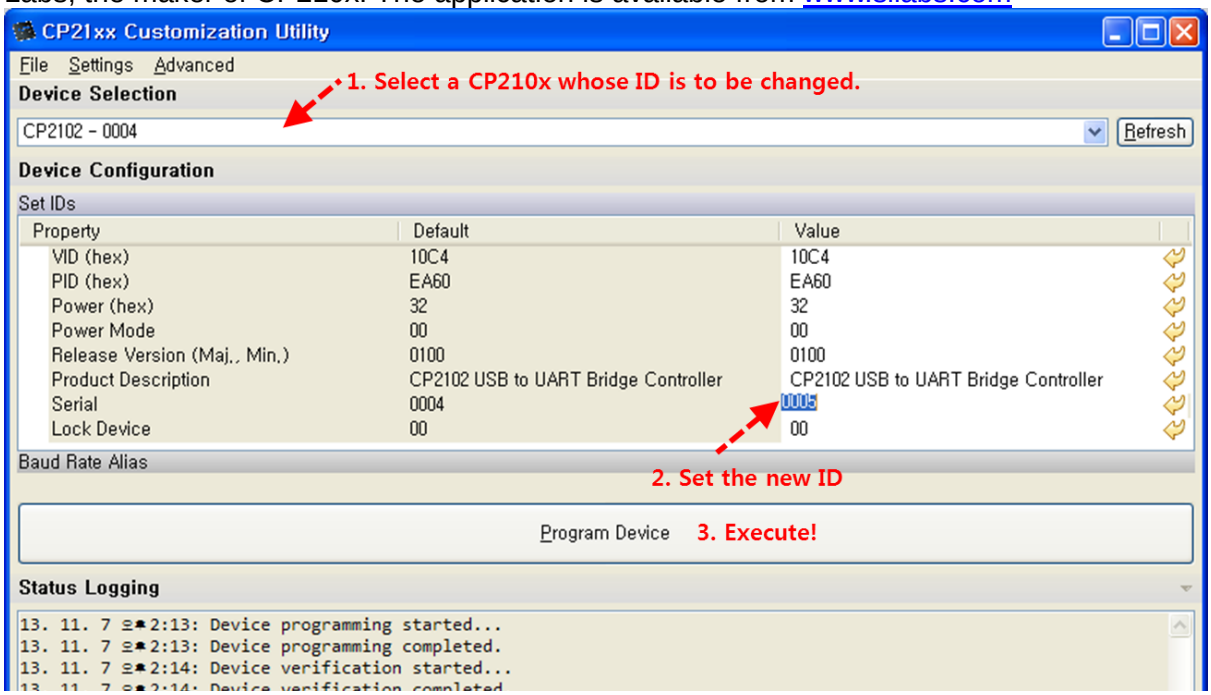


(C) Port (COM & LPT)



NOTICE

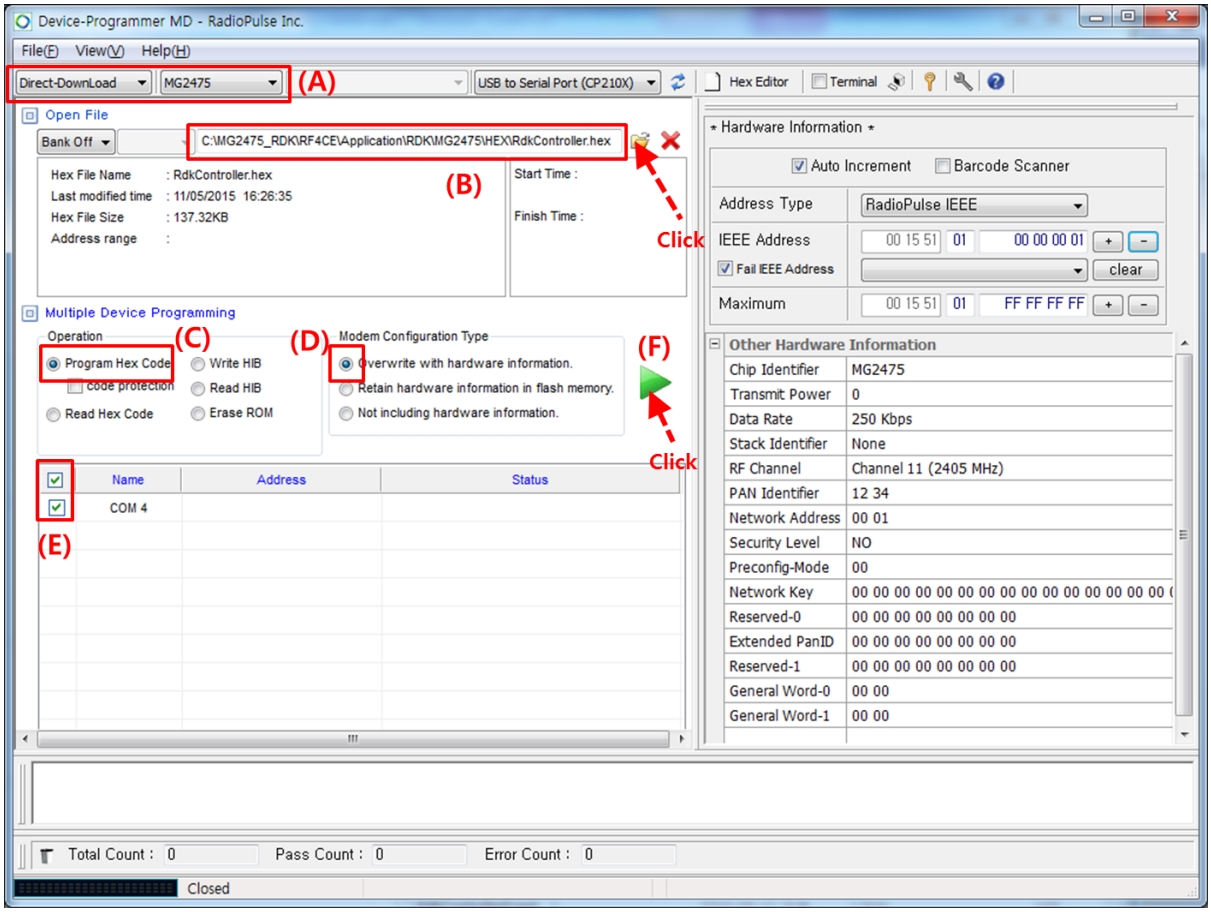
If two or more EVBs are connected to one PC and the CP210x's IDs are same, all expected ports are not displayed because the number of ports are same. Then, the CP210x's ID should be unique by using "CP21xx Customization Utility" application released by Silicon Labs, the maker of CP210x. The application is available from www.silabs.com



FIRMWARE DOWNLOAD

To download the firmware (*.hex) of sample application, first, set the ISP switch to “ISP” and press “Reset”.
Then, execute “RadioPulse Device Programmer MD”.(see also [R2])

(A) Select the device as “**MG2475**” and download method as “Direct-Download”.
(B) Select the file to download.
(C) Select “**Program Hex Code**” in Operation.
(D) Select “**Overwrite with hardware information**” in Modem Configuration Type.
(E) Select COM ports.
(F) Click the button to run.



Appendix B. Operating with RDB-RDB

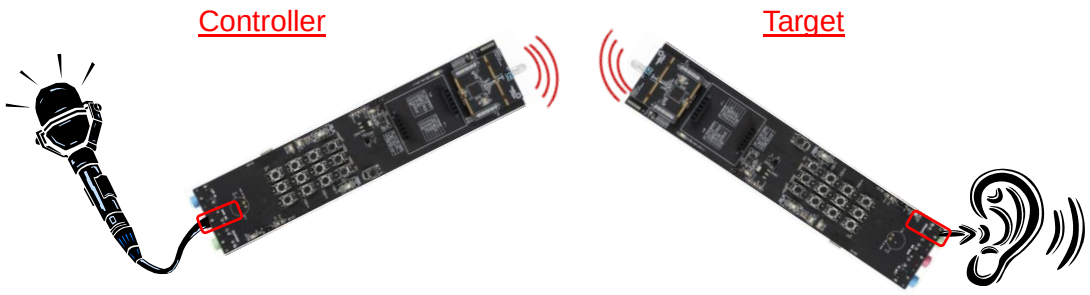
RDB to RDB scenario operates like microphone(Controller) & speaker(Target).

Each firmware file is like below;

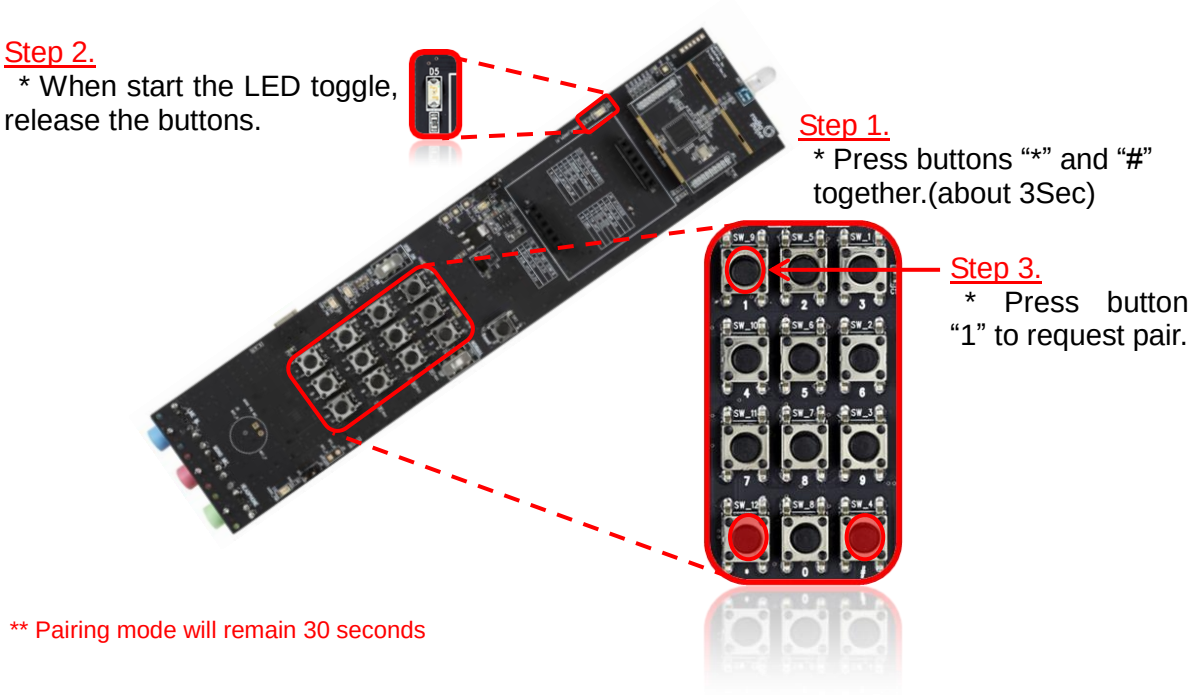
- **Controller RDB**: MG2475_RdkController.hex
  - in [Package CD\0. Getting Started Manual\Firmware\]

- **Target RDB** : MG2475_RdkTarget_RDB.hex
  - in [Package CD\0. Getting Started Manual\Firmware\]

Operation

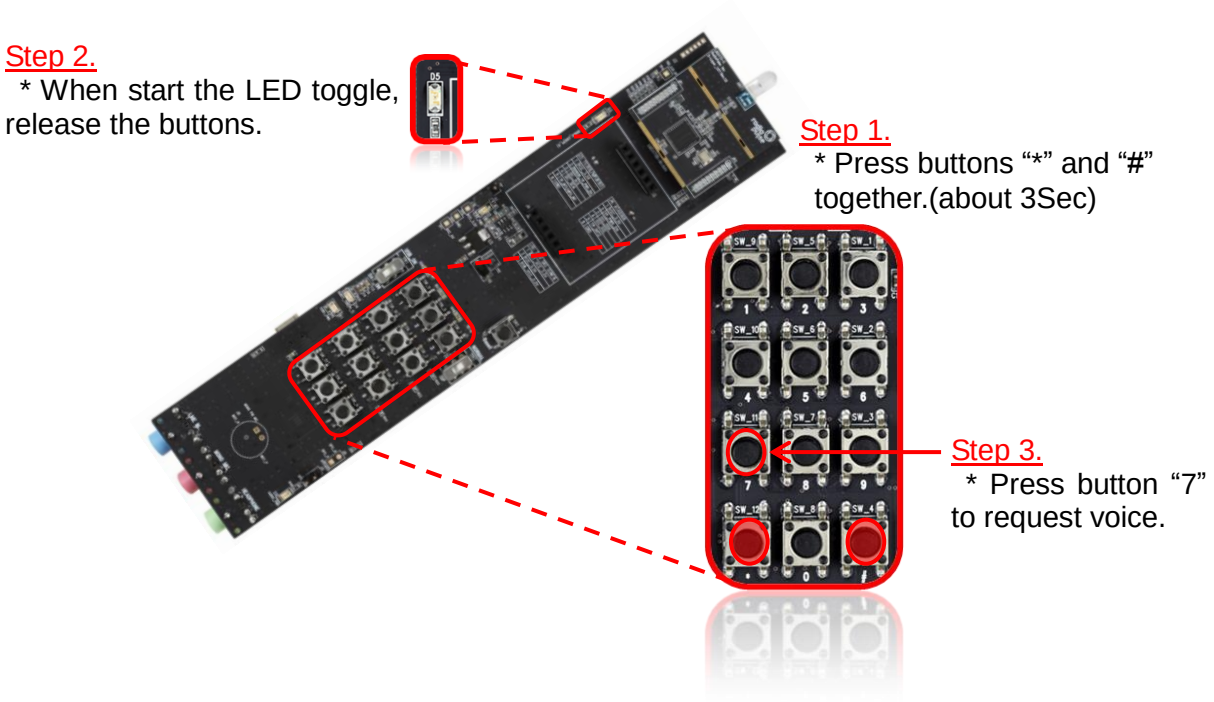


Pairing (Controller & Target)

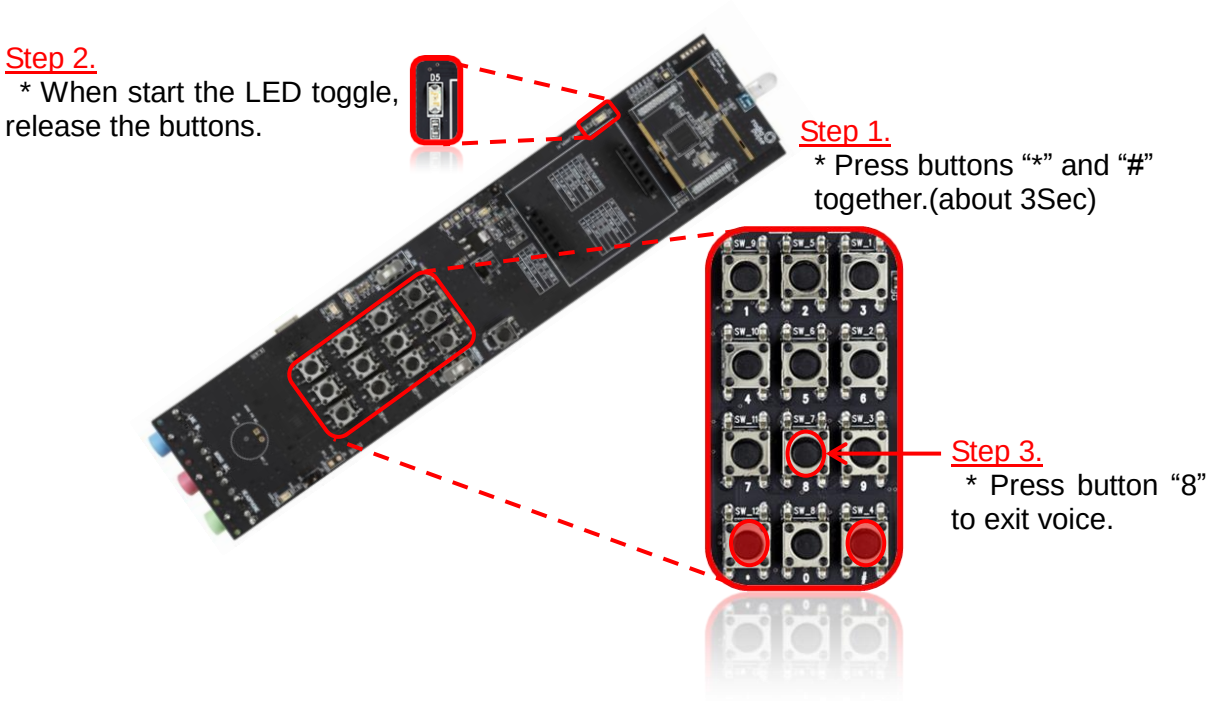


** Pairing mode will remain 30 seconds

Voice: Connect (Only Controller)



Voice: Disconnect (Only Controller)

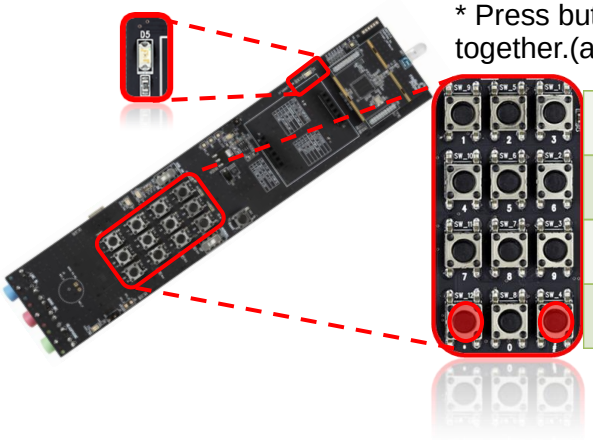


Appendix C. Usage of MG2470B-RDB Key Scan

Key mapping – Function mode

Step 2.
* When start the LED toggle, release the buttons.

Step 1.
* Press buttons “*” and “#” together.(about 3Sec)



1 Request Pair	2 Request Un-pair	3 Initialize(Cold start)
4	5	6
7 Request Voice	8 Exit Voice	9
*	0	# Exit Function mode

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About RadioPulse Inc.

RadioPulse is a Being Wireless solution provider offering wireless communication & network technologies and developing next generation wireless networking technologies.

The new wireless networking solutions envisioned by RadioPulse will enable user to enjoy wireless technologies with easy interface.

Founded in April of 2003, the company maintains it headquarters and R&D center in Seoul, Korea.