



RS-R2 User Manual

Bluetooth UHF RFID Swing Reader

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Chapter 1 Product intro

1.1 Intro

This is the latest convenient, stylish and efficient handheld data collector, featuring the excellent performance of the Cortex-M3 core processor. The body is light and thin, easy to operate, and the high-performance ultra-high frequency function helps the retail inventory of shoes and clothing. The device transmits the inventory data to the data center through bluetooth, and completes tasks such as inventory management, asset management, and inspection etc.

1.2 Precaution before using battery

- Do not leave battery unused for long time, no matter it is in device or inventory. If battery has been used for 6 months already, it should be checked for charging function or it should be disposed correctly.
- The lifespan of Li-ion battery is around 2 to 3 years, it can be circularly charged for 300 to 500 times. (One full battery charge period means completely charged and completely discharged.)
- When Li-ion battery is not in use, it will continue to discharge slowly. Therefore, battery charging status should be checked frequently and take reference of the related battery charging information on the manuals.
- Observe and record the information of a new unused and non-fully charged battery. On the basis of operating time of new battery and compare with a battery that has been used for long time. According to product configuration and application program, the operating time of battery would be different.
- Check battery charging status at regular intervals.
- When battery operating time drops below about 80%, charging time will be increased remarkably.
- If a battery is stored or otherwise unused for an extended period, be sure to follow the storage instructions in this document. If you do not follow the instructions, and the battery has no charge remaining when you check it, consider it to be damaged. Do not attempt to recharge it or to use it. Replace it with a new battery.
- Store the battery at temperatures between 5 °C and 20 °C (41 °F and 68 °F).

1.3 Charger

The charger type is GME10D-050200FGu, output voltage/current is 5V DC/2A. The plug considered as disconnect device of adapter.

1.4 Notes

Note:

Using the incorrect type battery has danger of explosion. Please dispose the used battery according to instructions.

Note:

Due to the used enclosure material, the product shall only be connected to a USB Interface of version 2.0 or higher. The connection to so called power USB is prohibited.

Note:

The adapter shall be installed near the equipment and shall be easily accessible.

Note:

The suitable temperature for the product and accessories is 0-10°C to 50°C.

Note:

CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Chapter 2 Installation Instructions

2.1 Appearance

RS-R2 back and front appearances are showing as follows:



Buttons and Indicating Lamps instruction

Buttons and Lamps		Description
Indicating Lamps	WIFI	Display WIFI connection status
	Power	Display power status
	Bluetooth	Display Bluetooth connection status
Main button	UP	Move up cursor
	DOWN	Move down cursor
	OK	Press to confirm current selection.
	. . .	Escape current page

2.2 Battery charge

By using USB Type-C contact, the original adaptor should be used for charging the device. Make sure not to use other adaptors to charge the device.

2.3 Buttons and function area display

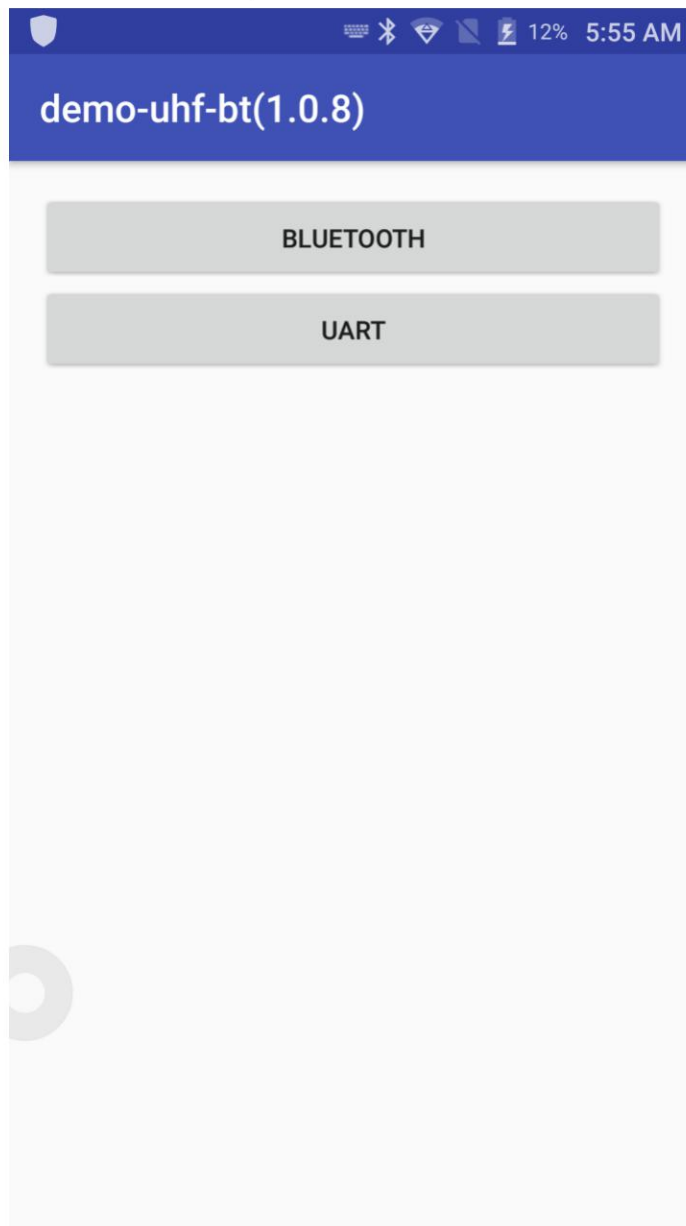
RS-R2 UHF swing reader has 4 function buttons and 1 SCAN button, UHF scanning area, 1 display screen. Power key on the right side.



Chapter 3 Demo Test

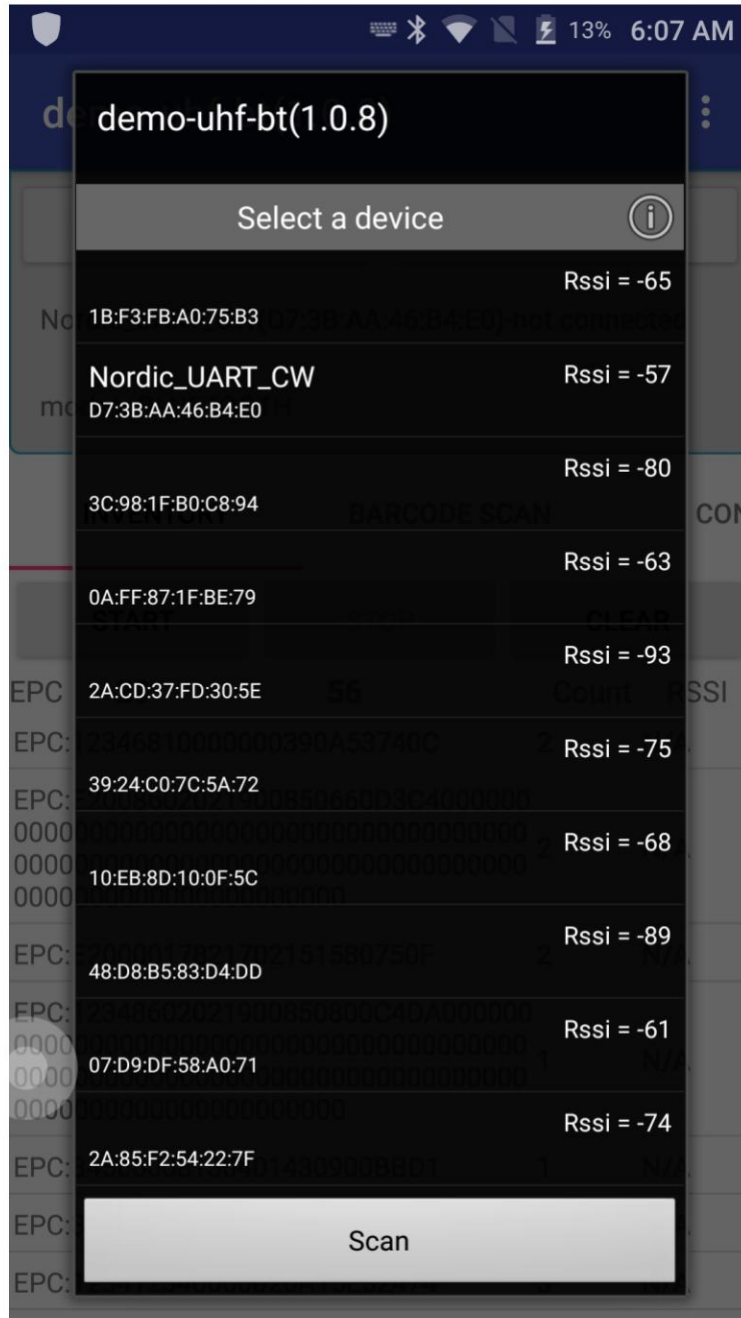
3.1 Install demo-uhf-bt (1.0.8)

1. Copy demo-uhf-bt (1.0.8) into internal storage of smart phone or RS-C7x device.
2. Click to install.
3. Click icon to open demo.



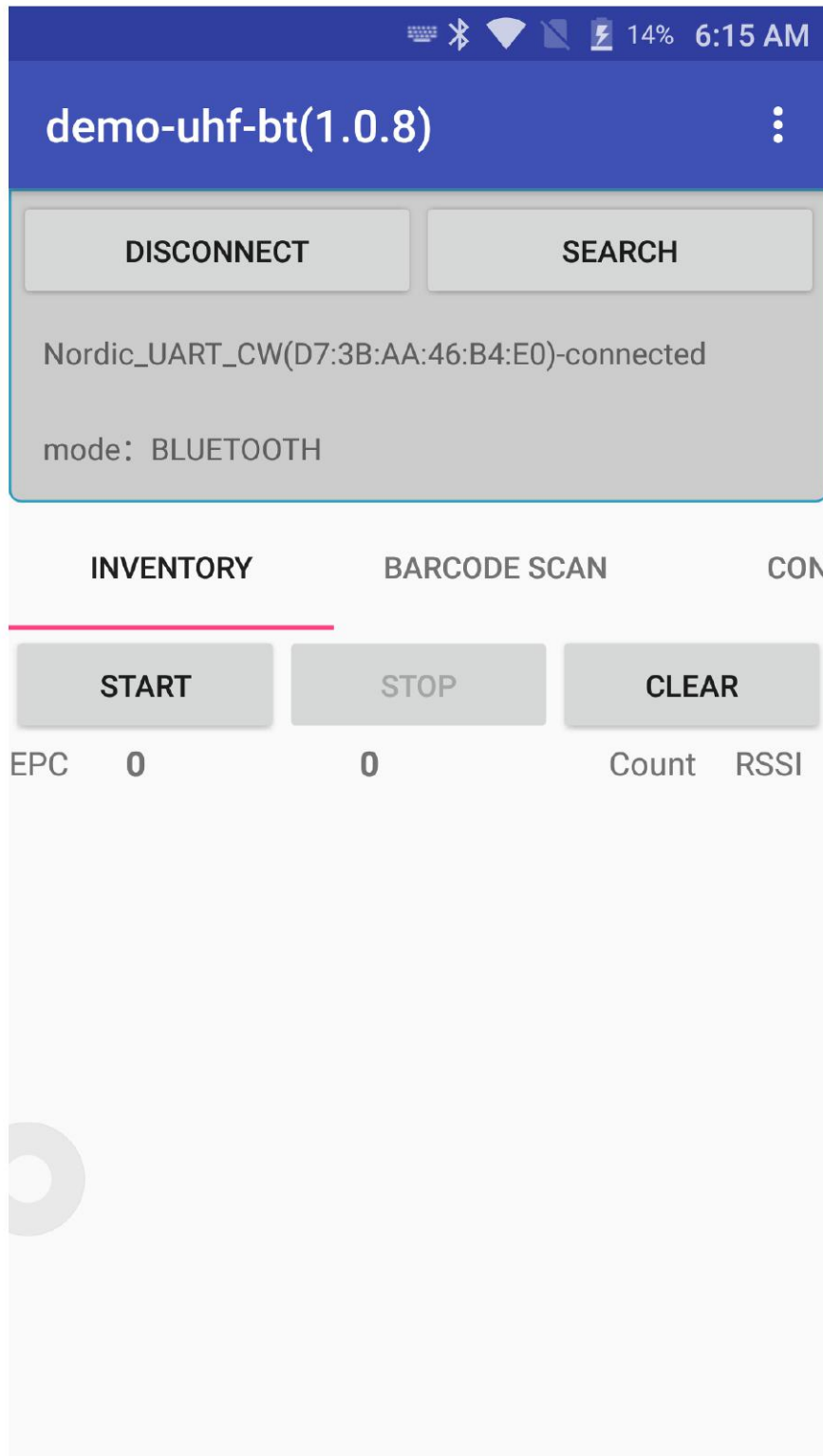
3.2 Pairing Device

1. Switch on Bluetooth function of smartphone or RS-C7x device.
2. Power on RS-R2.
3. Click BLUETOOTH in the demo.
4. Click SEARCH to search for Nordic_UART_CW.



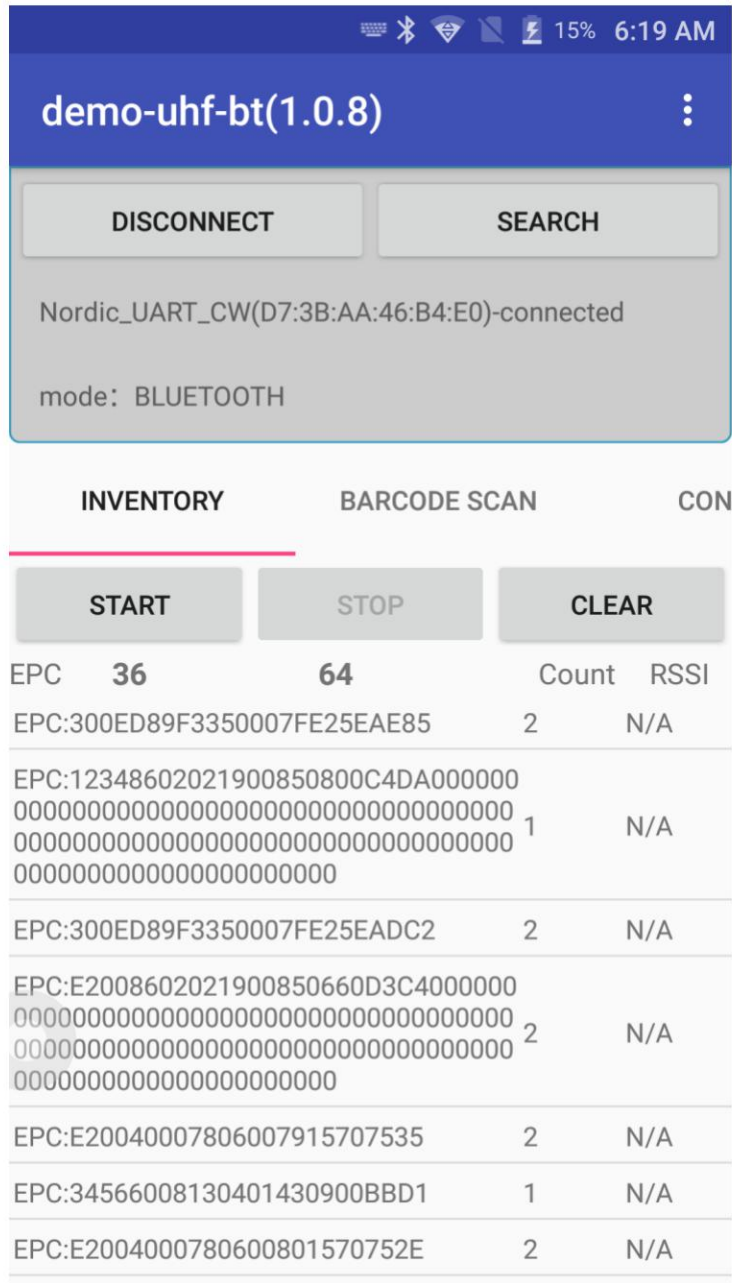
5. Click Nordic_UART_CW to connect.

6. After connecting successfully, user could click 3 dots on top right to check UHF version, battery percentage and UHF module temperature.



3.3 Scan Function

1. Click START in demo or press SCAN button on RS-R2, the UHF tags could be read.
2. Click STOP in demo to stop reading of UHF tags.
3. Click CLEAR to clean all EPC information.



3.4 UHF Configuration

1. Click CONFIG in demo to adjust working mode and output power.

The screenshot shows the 'demo-uhf-bt(1.0.8)' application interface. At the top, there's a status bar with icons for keyboard, Bluetooth, Wi-Fi, signal strength, battery (16%), and time (6:28 AM). Below the status bar is a blue header with the app name 'demo-uhf-bt(1.0.8)' and a menu icon. The main content area has two buttons: 'CONNECT' and 'SEARCH'. Below these buttons, it says 'Nordic_UART_CW(D7:3B:AA:46:B4:E0)-not connected' and 'mode: BLUETOOTH'. There are three tabs: 'CODE SCAN', 'CONFIG' (which is selected and underlined in red), and 'ENCRYPTION'. Under the 'CONFIG' tab, there's a 'Working Mode:' dropdown menu currently set to 'China Standard1(840~84..'. Below this are two buttons: 'FREQUENCYSET' and 'READ FREQUENCY'. There are three radio buttons for 'US' (selected), 'BRA', and 'Other'. Below the radio buttons is a 'Hop:' dropdown menu set to '902.75'. Below that is a 'SET FREHOP' button. At the bottom, there's an 'Output Power:' dropdown menu set to '5' dBm. Below this are two buttons: 'POWERSET' and 'READ POWER'.

demo-uhf-bt(1.0.8)

CONNECT SEARCH

Nordic_UART_CW(D7:3B:AA:46:B4:E0)-not connected

mode: BLUETOOTH

CODE SCAN CONFIG ENCRYPTION

Working Mode: China Standard1(840~84..

FREQUENCYSET READ FREQUENCY

☒ US ☐ BRA ☐ Other

Hop: 902.75

SET FREHOP

Output Power: 5 dBm

POWERSET READ POWER

3.5 UHF Encryption

1. Click ENCRYPTION to decrypt and encrypt the special zones of UHF tags such as USER, EPC, etc.

The screenshot shows the 'demo-uhf-bt(1.0.9)' application interface. At the top, there's a status bar with icons for keyboard, Bluetooth, Wi-Fi, signal strength, battery (19%), and time (6:51 AM). Below the title bar, there are two buttons: 'CONNECT' and 'SEARCH'. The mode is set to 'BLUETOOTH'. The interface has three tabs: 'MAN', 'CONFIG', and 'ENCRYPTION'. The 'ENCRYPTION' tab is active, showing options for '设置密钥' (Set Key) and '获取密钥' (Get Key). Below these, there's a dropdown menu for 'mode' set to 'ECB'. There are input fields for '密 钥' (Key) and '初始值' (Initial Value). At the bottom, there are buttons for '加密' (Encrypt) and '解密' (Decrypt). The '加密、解密前的数据(hex)' (Data before encryption/decryption (hex)) field contains the value '11112222333344445555666677778888'. The '加密、解密后的数据(hex)' (Data after encryption/decryption (hex)) field is empty.

demo-uhf-bt(1.0.9)

CONNECT SEARCH

mode: BLUETOOTH

MAN CONFIG ENCRYPTION

设置密钥 获取密钥

mode ECB ▼

密 钥

初始值

加密 解密

加密、解密前的数据(hex)
11112222333344445555666677778888

加密、解密后的数据(hex)

3.6 UHF Tag Reading and Writing

1. The storage of one tag has 4 zones: RESERVED, EPC, TID and USER. Normally, the default password is 00000000. And TID zone can only be read, other zones can be read and written.

The screenshot displays the 'demo-uhf-bt(1.0.9)' application interface on a mobile device. The top status bar shows 24% battery and 7:40 AM. The app title 'demo-uhf-bt(1.0.9)' is visible on the left and right sides of the top bar. Below the title bar, there are two main panels, each with 'CONNECT' and 'SEARCH' buttons. The left panel is currently in 'mode: BLUETOOTH' and has tabs for 'ACTION', 'READ', and 'WRITE'. The 'READ' tab is selected. Below the tabs, there is a 'filter' section with an 'Enable' checkbox, 'Ptr: 32 (bit)', '长度: 0 (bit)', and a 'Data:' field. Below this, there are three buttons: 'EPC' (highlighted with a blue border), 'TID', and 'USER'. At the bottom of the left panel, there is a 'Bank: RESERVED' dropdown, 'Ptr: 0 (word)', 'Len: 4 (word)', 'Access Pwd: 00000000', and a 'Data:' field. The right panel is identical but has the 'WRITE' tab selected and a 'Write Data:' field at the bottom.

ACTION	READ	WRITE
☐ Enable Ptr: 32 (bit) 长度: 0 (bit) Data: _____ EPC TID USER Bank: RESERVED Ptr: 0 (word) Len: 4 (word) Access Pwd: 00000000 Data: _____	☐ Enable Ptr: 32 (bit) 长度: 0 (bit) Data: _____ EPC TID USER Bank: RESERVED Ptr: 0 (word) Len: 4 (word) Access Pwd: 00000000 Write Data: _____	

3.7 UHF Tag Lock and Kill

1. Lock Function:

For example. User could try to lock down EPC zone.

The screenshot shows the 'demo-uhf-bt(1.0.9)' application interface. At the top, there's a status bar with icons for keyboard, Bluetooth, Wi-Fi, signal strength, battery (25%), and time (8:00 AM). Below the title bar, there are two buttons: 'CONNECT' and 'SEARCH'. The mode is set to 'BLUETOOTH'. The interface has three tabs: 'E', 'LOCK' (selected), and 'KILL'. Under the 'LOCK' tab, there's a 'filter' section with an 'Enable' checkbox (unchecked). Below this, there are input fields for 'Ptr: 32 (bit)' and '长度: 0 (bit)'. A 'Data:' label is followed by a text input field. There are three buttons: 'EPC' (highlighted with a blue border), 'TID', and 'USER'. Below these, there's an 'Access Pwd:' label followed by a text input field containing '00000000'. Below that, there's a 'Lock Code:' label followed by a text input field containing '008020'. At the bottom, there's a large blue button labeled 'LOCK'.

2. Kill Function:

Kill function can be used to kill the tag permanently. Input the correct access password and click kill.

The screenshot shows the 'demo-uhf-bt(1.0.9)' application interface. At the top, there is a status bar with icons for keyboard, Bluetooth, Wi-Fi, and battery (27% at 8:12 AM). Below the title bar, there are two buttons: 'CONNECT' and 'SEARCH'. The mode is set to 'mode: BLUETOOTH'. A tabbed interface at the bottom has three tabs: 'E', 'LOCK', and 'KILL'. The 'KILL' tab is selected and highlighted with a pink underline. Below the tabs, there is a 'filter' section with an 'Enable' checkbox (unchecked). Below the checkbox, there are two input fields: 'Ptr: 32 (bit)' and '长度: 0 (bit)'. Below these, there is a 'Data:' label followed by a text input field. At the bottom of the filter section, there are three buttons: 'EPC' (highlighted with a blue border), 'TID', and 'USER'. Below the filter section, there is an 'Access Pwd:' label followed by a text input field containing '00000000'. At the very bottom, there is a large blue button labeled 'KILL'.

demo-uhf-bt(1.0.9)

CONNECT SEARCH

mode: BLUETOOTH

E LOCK KILL

filter

☐ Enable

Ptr: 32 (bit) 长度: 0 (bit)

Data:

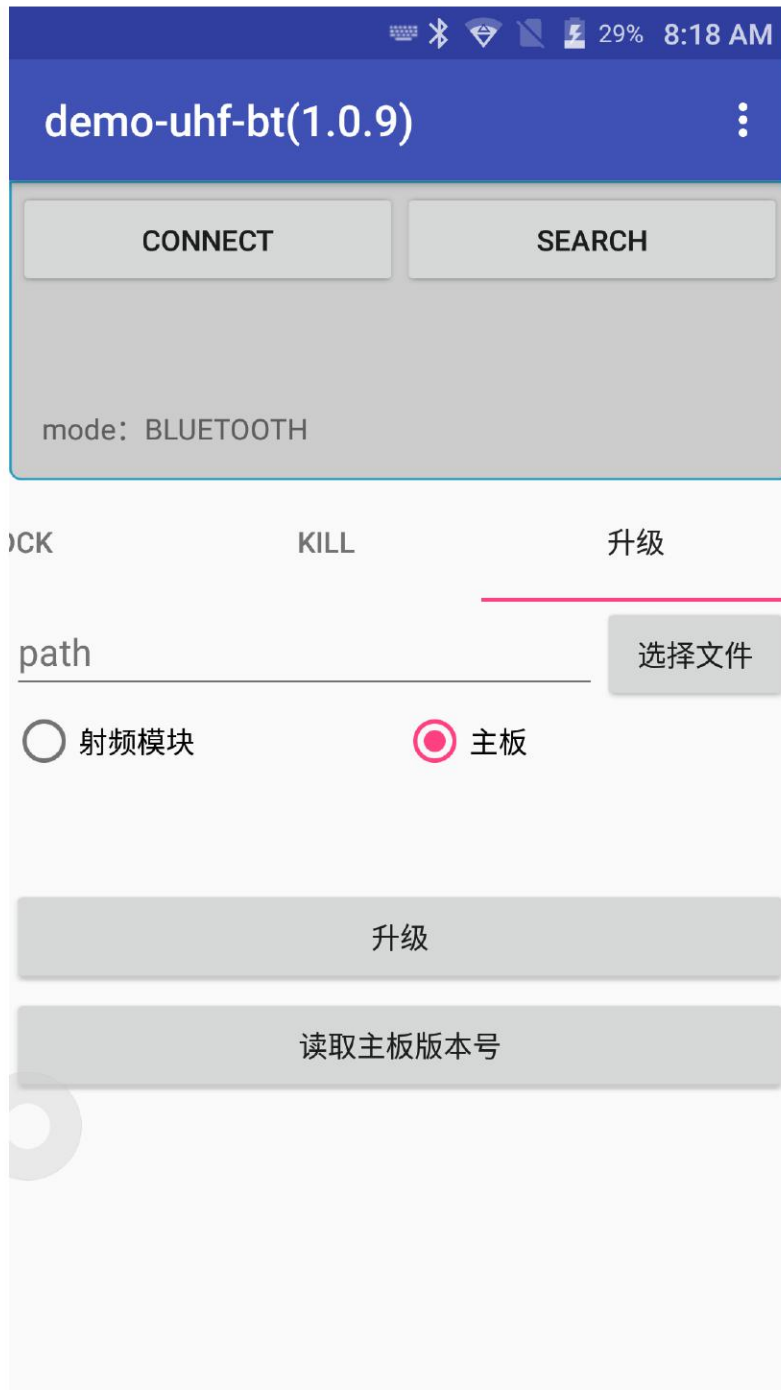
EPC TID USER

Access Pwd: 00000000

KILL

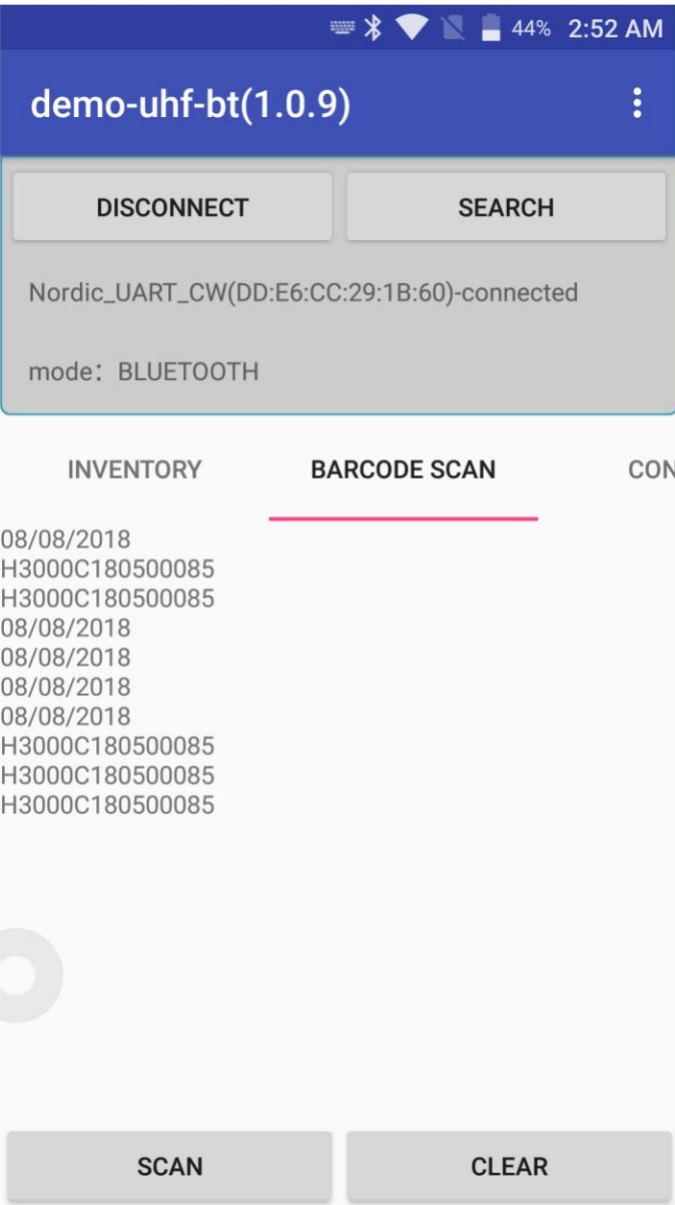
3.8 Firmware Upgrade

1. Copy the firmware bin. file into internal storage.
2. Click Select file to search for bin.
3. Click Upgrade to upgrade firmware.



3.9 Barcode Scan Test

Select BARCODE SCAN in the demo and click SCAN button on the screen to scan barcodes.



Chapter 4 Device characteristic

Physical characteristics

Size	275x117.5x48.5mm
Weight	324g/ 11.43oz (with battery)
Color	White
Appearance material	Plastic
Keypad	PWR button (side), up, down, return, ok, SCAN button (front)
Battery specification	5200mAh 4.35V
Display	1.77 inch, 128X160
Indicator LED	Power, Work, Bluetooth
Buzzer	Support
Interfaces	Micro-USB

Performance

MCU	Cortex-M3/72 MHz
RAM+ROM	64M+4G

User environment

Operating temp.	-20°C to 50°C
Storage Temp.	-40°C to 70°C
Humidity	5%RH - 95%RH non condensing

Data collection

2D Imager Scanner	SE2707
1D Symbolologies	UPC/EAN, Code128, Code39, Code93, Code11, Interleaved 2 of 5, Discrete 2 of 5, Chinese 2 of 5, Codabar, MSI, RSS, etc.
2D Symbolologies	PDF417, MicroPDF417, Composite, RSS, TLC-39, Datamatrix, QR code, Micro QR code, Aztec, MaxiCode; Postal Codes: US PostNet, US Planet, UK Postal, Australian Postal, Japan Postal, Dutch Postal (KIX), etc.

UHF

Antenna	Linear Polarized antenna (4dBi)
Frequency	920-925MHz/902-928MHz/865-868MHz
Protocol	EPC C1 GEN2 / ISO18000-63
Module power	1W (30dBm, support +5~+30dBm adjustable)
R/W range	>28m(indoors);>12m(open
Reading rate	outdoors) >200tags/s

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