

# **MR18 UHF Sled Reader User's Manual**

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# **Chapter 1 Product intro**

## **Intro**

MR18 is a new UHF back clip product, featuring the Cortex-M3 STM32 processor with excellent working performance. The device can be used with any Android and IOS device as a host. The device combines powerful UHF (Read and write) functions with 2D scanning for greater sensitivity. It equipped with a host is widely used in clothing inventory, warehouse management, vehicle management, financial management and other fields.

## Appearance

MR18 reader has 1 power button and 1 Type-C port, 1 SCAN button.



## LED Indication

Indicator LEDs	Description
Power	LED lights up constantly (battery available) LED flashes (low battery)
Bluetooth	Constant light up (Bluetooth connected)
Work	Flash when read UHF tags

## **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 check 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 used, it will continue 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).

## Charger

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



## 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

### Charging the battery

With Type C USB cable, the original adaptor should be used for charging the device. Make sure not to use other adaptors to charge the device.



## Installing smartphone on MR18

1. Insert the smartphone between clamps. Position the smartphone to avoid that the buttons on the edges of smartphone match the clamp area.



2. Pull one of the clamps to the side, meanwhile push the smartphone down until it is firmly secured.



## Removing the battery

1. Rotate the switch at the bottom of handle counterclockwise.



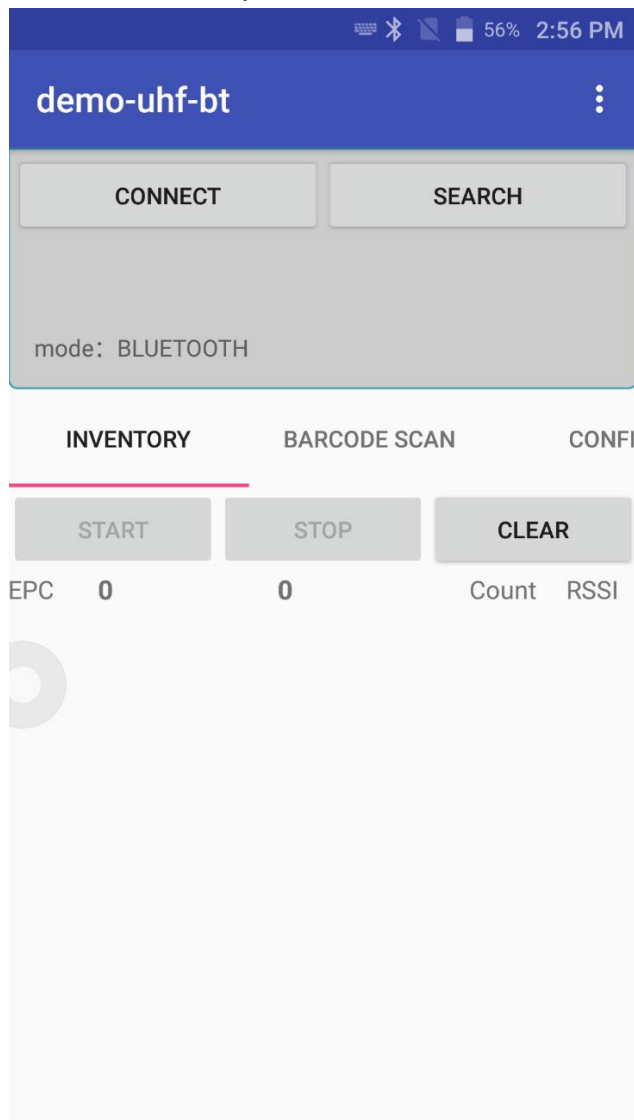
2. Open the cap at the bottom of handle and remove the battery.



## Chapter 3 Demo Test

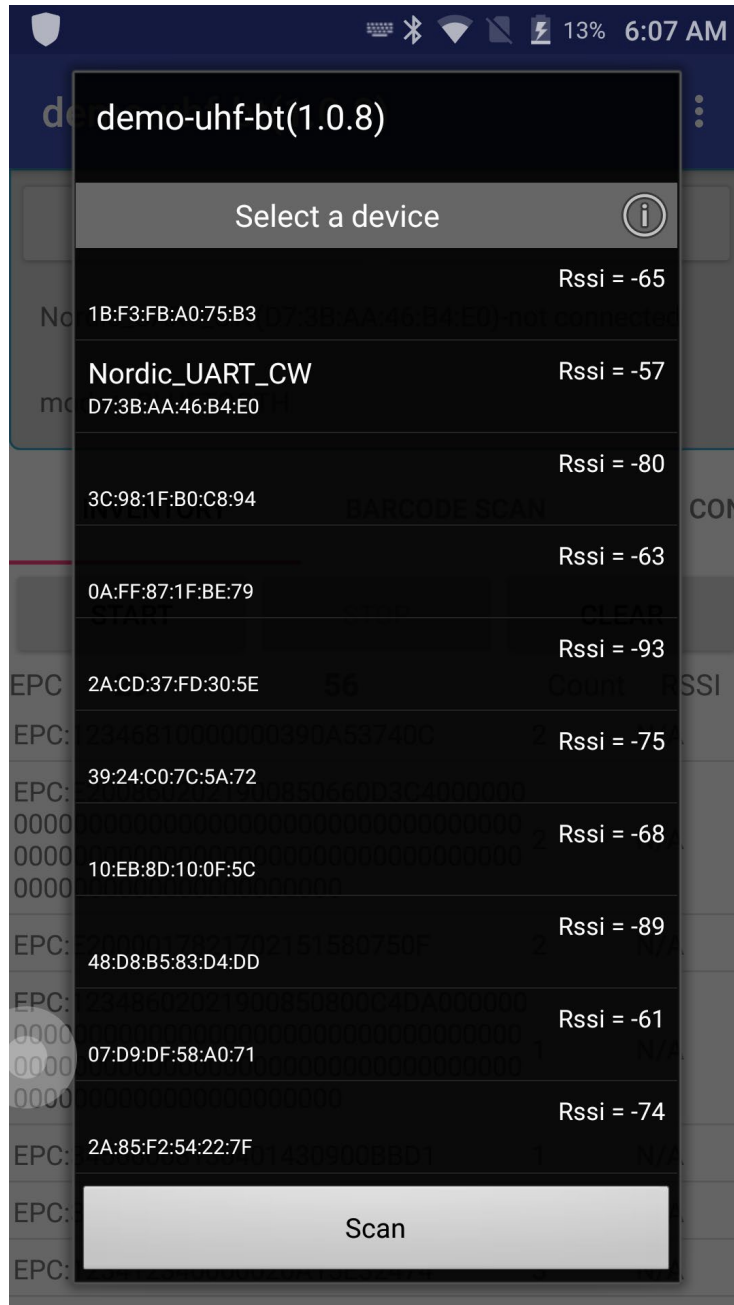
### Install demo-uhf-bt (1.0.8)

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



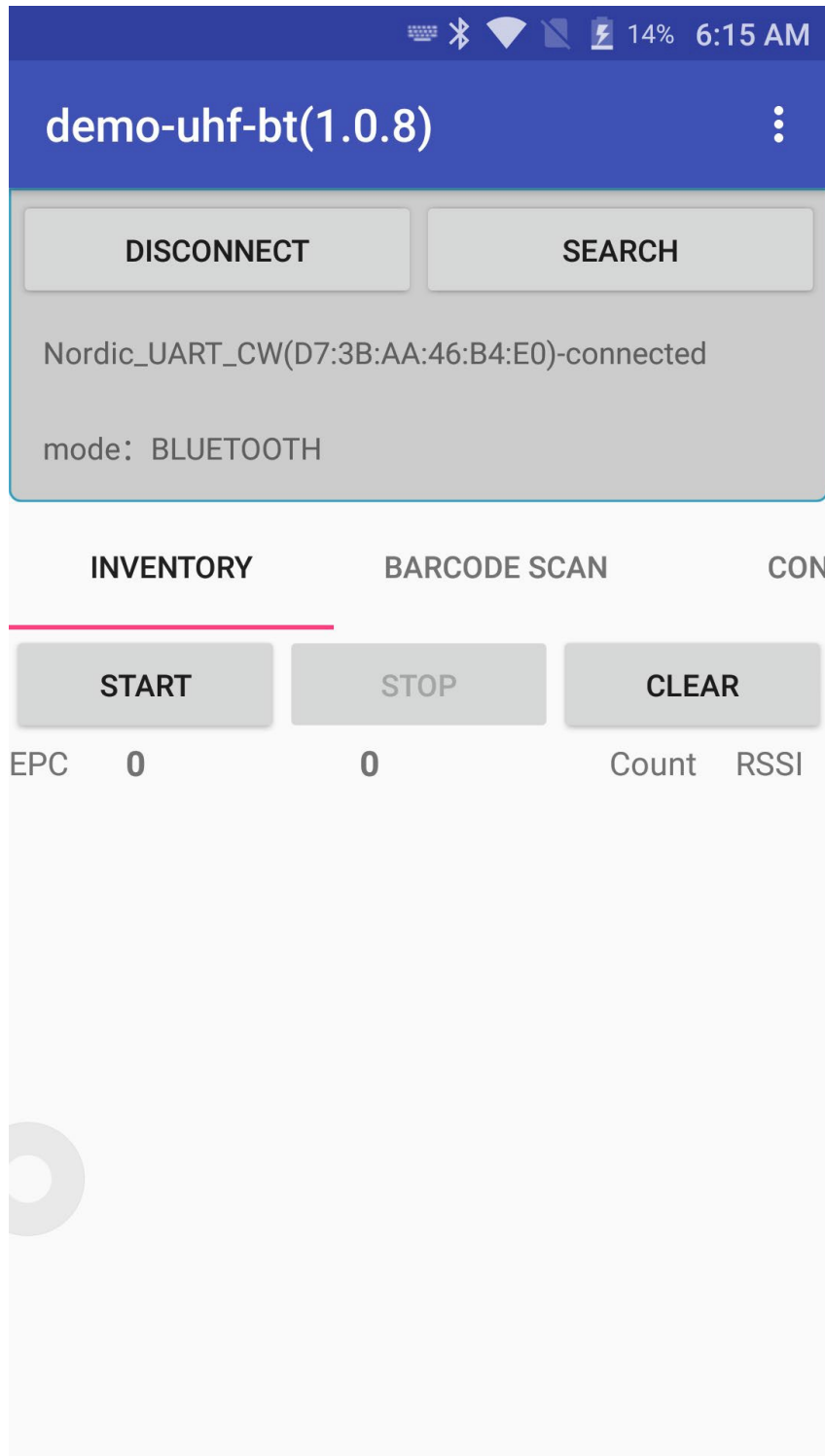
## Pairing Device

1. Switch on Bluetooth function of smartphone or C7x device.
2. Power on MR18.
3. Click BLUETOOTH in the demo.
4. Click SEARCH to search for MAC of MR18.



5. Click the correct MAC to connect.

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



# UHF Scan Function

1. Click START in demo or pull the trigger on MR18, 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.

demo-uhf-bt(1.0.8)

DISCONNECT

SEARCH

Nordic\_UART\_CW(D7:3B:AA:46:B4:E0)-connected

mode: BLUETOOTH

INVENTORY

BARCODE SCAN

CONNECTION

START

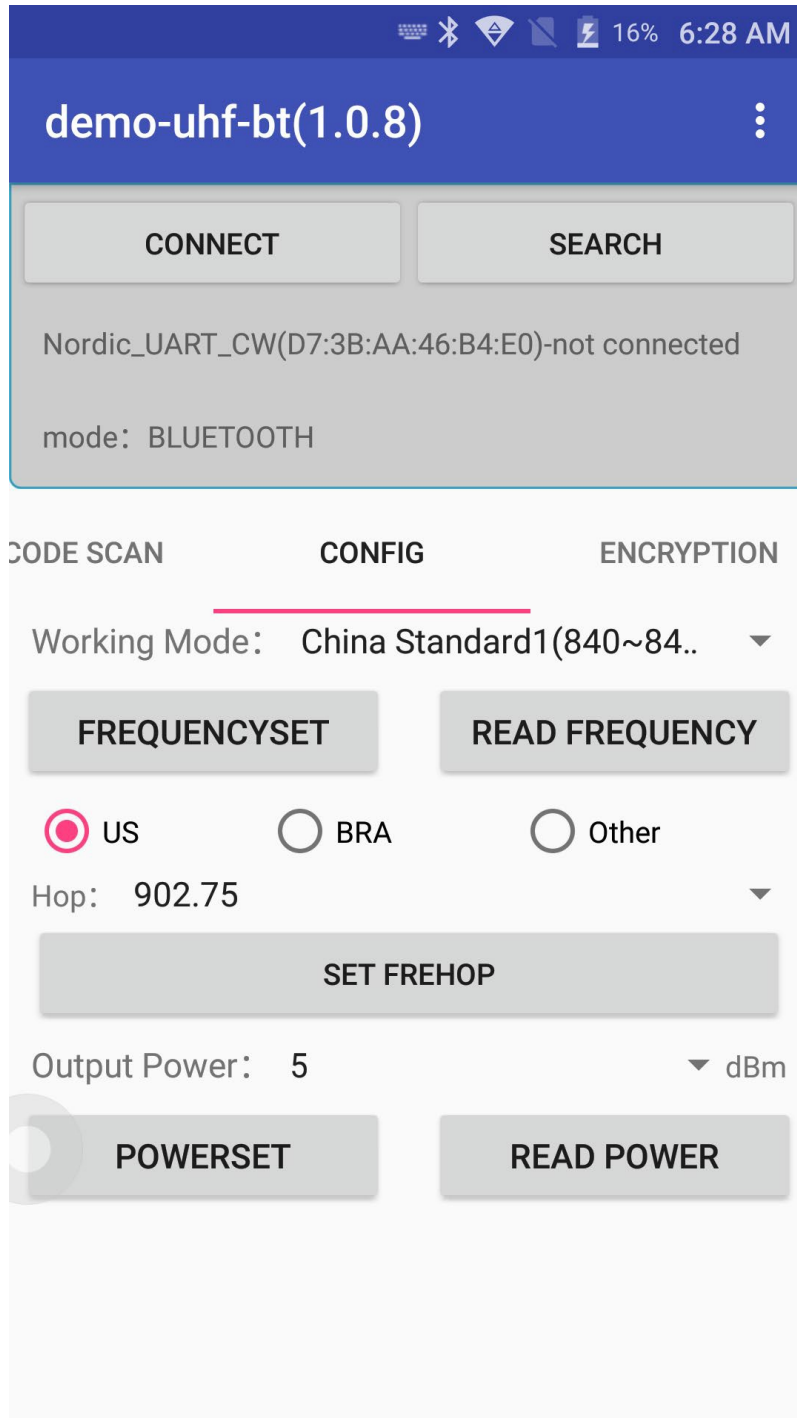
STOP

CLEAR

EPC	36	64	Count	RSSI
EPC:300ED89F3350007FE25EAE85			2	N/A
EPC:12348602021900850800C4DA000000 00000000000000000000000000000000 00000000000000000000000000000000 00000000000000000000000000000000			1	N/A
EPC:300ED89F3350007FE25EADC2			2	N/A
EPC:E2008602021900850660D3C4000000 00000000000000000000000000000000 00000000000000000000000000000000 00000000000000000000000000000000			2	N/A
EPC:E20040007806007915707535			2	N/A
EPC:34566008130401430900BBD1			1	N/A
EPC:E2004000780600801570752E			2	N/A

## UHF Configuration

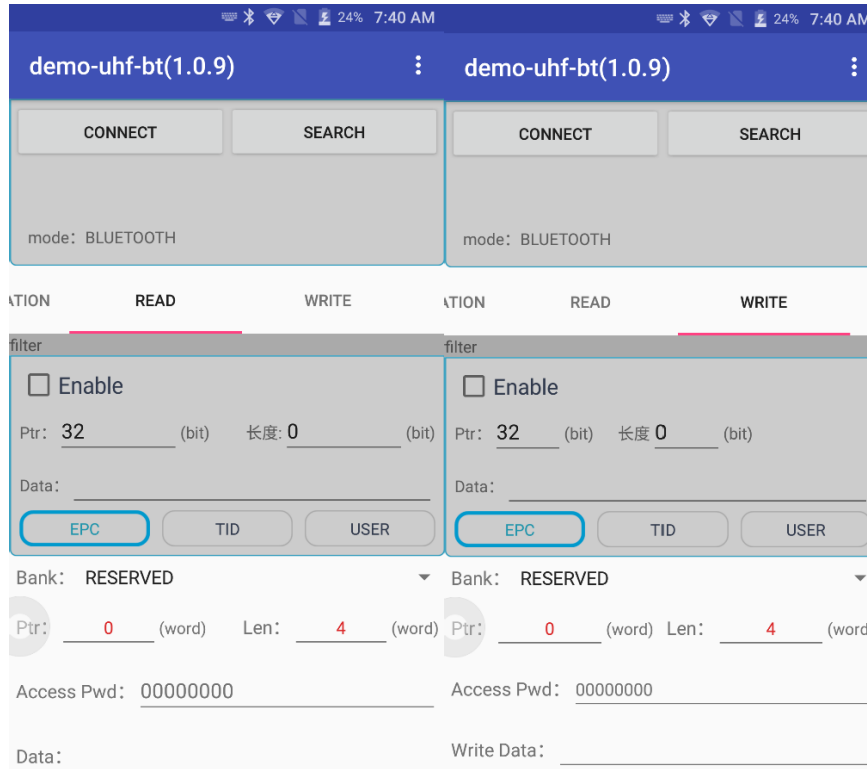
1. Click CONFIG in demo to adjust working mode and output power.



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 title bar, there are two buttons: 'CONNECT' and 'SEARCH'. The status text indicates 'Nordic\_UART\_CW(D7:3B:AA:46:B4:E0)-not connected' and 'mode: BLUETOOTH'. The main interface has three tabs: 'CODE SCAN', 'CONFIG' (which is selected and underlined in red), and 'ENCRYPTION'. Under the 'CONFIG' tab, the 'Working Mode' is set to 'China Standard1(840~84..'. There are two buttons: 'FREQUENCYSET' and 'READ FREQUENCY'. Below these, there are three radio buttons: 'US' (selected), 'BRA', and 'Other'. The 'Hop' is set to '902.75'. There is a 'SET FREHOP' button. The 'Output Power' is set to '5 dBm'. At the bottom, there are two buttons: 'POWERSET' and 'READ POWER'.

## 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.

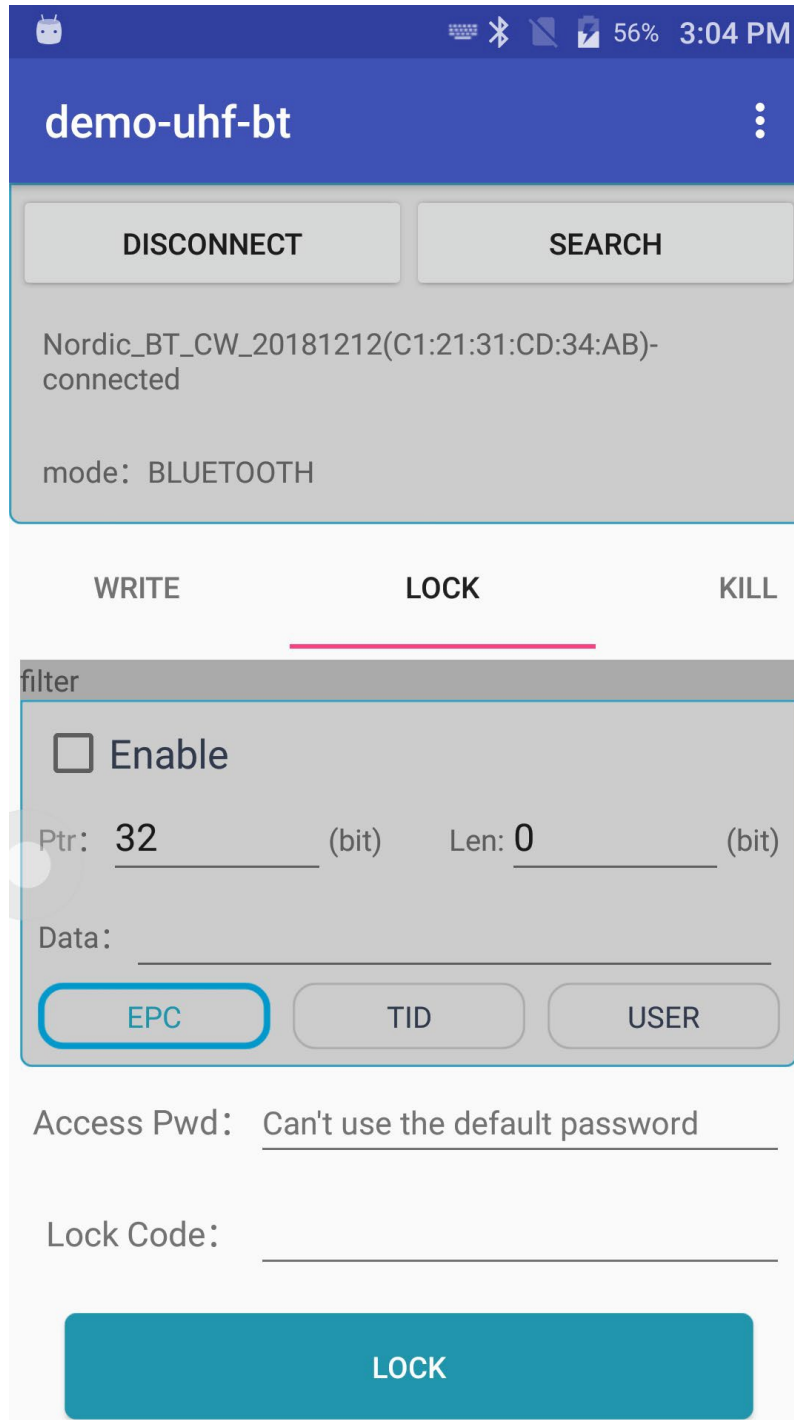


The image shows two side-by-side screenshots of the 'demo-uhf-bt(1.0.9)' application interface. Both screens have a blue header with the title 'demo-uhf-bt(1.0.9)' and a status bar at the top showing 24% battery and 7:40 AM. The left screen is in 'READ' mode, and the right screen is in 'WRITE' mode. Both screens have a 'CONNECT' button and a 'SEARCH' button. Below these buttons, the mode is set to 'BLUETOOTH'. The main area of the left screen shows a 'filter' section with an 'Enable' checkbox, 'Ptr: 32 (bit)', '长度: 0 (bit)', and 'Data:'. Below this are buttons for 'EPC', 'TID', and 'USER'. The 'Bank' is set to 'RESERVED'. The 'Ptr' is 0 (word) and 'Len' is 4 (word). The 'Access Pwd' is 00000000. The 'Data' field is empty. The right screen is in 'WRITE' mode and has the same layout, but with a 'Write Data' field instead of 'Data'.

## UHF Tag Lock and Kill

### 1. Lock Function:

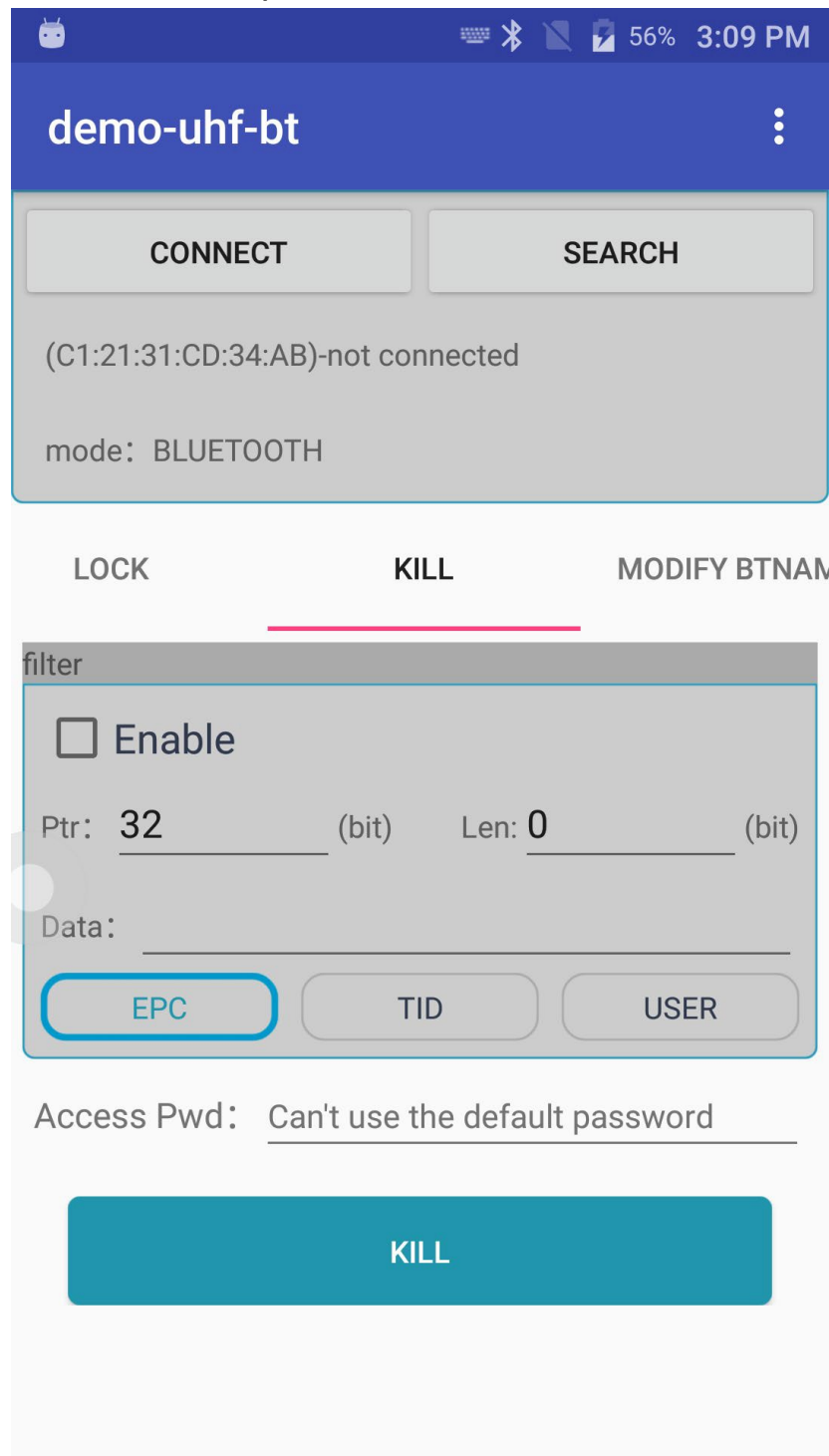
For example. User could try to lock down EPC zone.



The screenshot shows the 'demo-uhf-bt' application interface. At the top, there's a status bar with icons for keyboard, Bluetooth, signal strength, battery (56%), and time (3:04 PM). Below the title bar, there are two buttons: 'DISCONNECT' and 'SEARCH'. The main area displays 'Nordic\_BT\_CW\_20181212(C1:21:31:CD:34:AB)-connected' and 'mode: BLUETOOTH'. Below this, there are three tabs: 'WRITE', 'LOCK', and 'KILL'. The 'LOCK' tab is selected, indicated by a red underline. Under the 'LOCK' tab, there's a 'filter' section with a checkbox for 'Enable'. Below the checkbox, there are input fields for 'Ptr: 32 (bit)' and 'Len: 0 (bit)'. There's also a 'Data:' label followed by a text input field. Below these fields are three buttons: 'EPC' (highlighted with a blue border), 'TID', and 'USER'. At the bottom, there are two labels with text input fields: 'Access Pwd: Can't use the default password' and 'Lock Code:'. At the very bottom, there's a large blue button labeled 'LOCK'.

## 2. Kill Function:

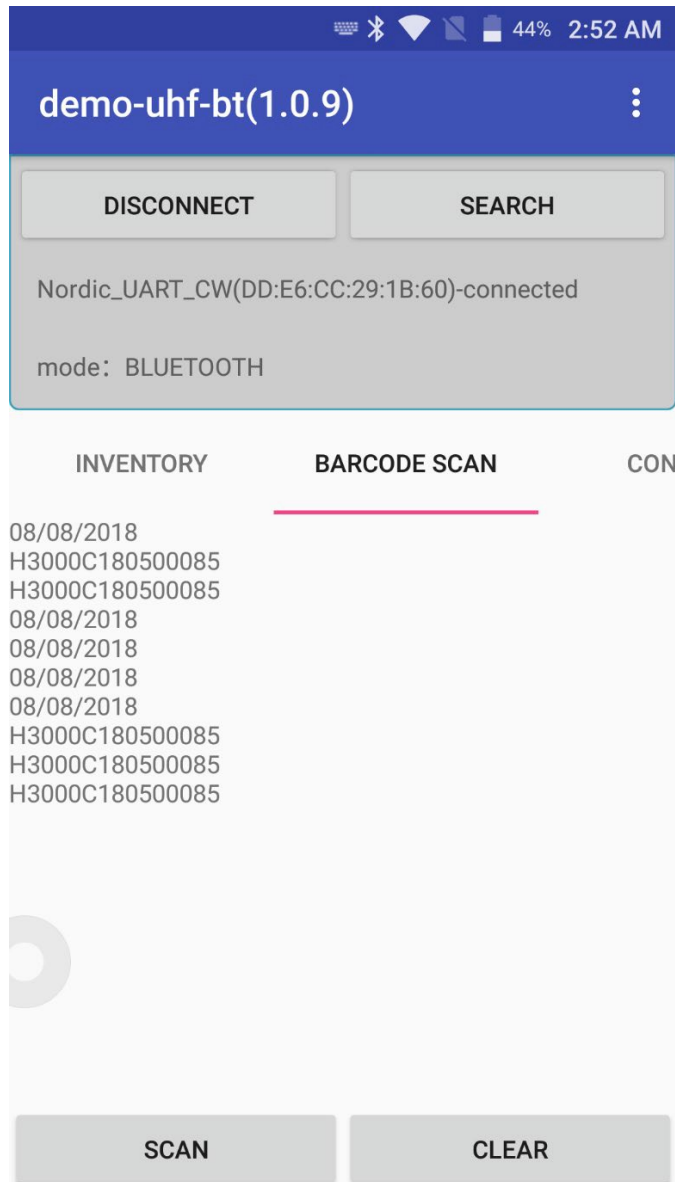
Kill function can be used to kill the tag permanently. Input the correct access password and click kill.



The screenshot shows the 'demo-uhf-bt' application interface. At the top, there's a status bar with a battery icon, Bluetooth icon, 56% battery, and 3:09 PM. Below the title bar, there are 'CONNECT' and 'SEARCH' buttons. The status text indicates '(C1:21:31:CD:34:AB)-not connected' and 'mode: BLUETOOTH'. A tabbed interface shows 'LOCK', 'KILL' (selected), and 'MODIFY BTNAME'. The 'KILL' tab contains a 'filter' section with an 'Enable' checkbox, 'Ptr: 32 (bit)', 'Len: 0 (bit)', and a 'Data:' field. Below these are three buttons: 'EPC' (highlighted), 'TID', and 'USER'. At the bottom, there's an 'Access Pwd:' field with the text 'Can't use the default password' and a large 'KILL' button.

## 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

<b>Size</b>	153.96x76x129.08mm
<b>Weight</b>	445g
<b>Color</b>	Black
<b>Appearance material</b>	Plastic
<b>Product material</b>	Plastic
<b>Battery specification</b>	2600mAh/5200mAh
<b>Indicator LED</b>	Power, Work, Bluetooth
<b>Buzzer</b>	Support
<b>Interfaces</b>	Micro-USB

### Performance

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

### User environment

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

### Barcode scanning

<b>2D Imager Scanner</b>	SE2707
<b>1D Symbolologies</b>	UPC/EAN, Code128, Code39, Code93,

	Code11, Interleaved 2 of 5, Discrete 2 of 5, Chinese 2 of 5, Codabar, MSI, RSS, etc.
<b>2D Symbologies</b>	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

<b>Antenna</b>	Circular Polarized Antenna (3dBic)
<b>Frequency</b>	920-925MHz/902-928MHz/865-868MHz
<b>Protocol</b>	EPC C1 GEN2 / ISO18000-6C
<b>Module power</b>	1W (30dBm, support +5~+30dBm adjustable) 2W Optional (33dBm, for Lati America, etc.)
<b>R/W range</b>	>28m(indoors); >12m(open outdoors)
<b>Reading rate</b>	>200 tags/s * Ranges and rates depend on tags and environment

## **Declaration**

The simplified EU declaration of conformity referred to in Article 10(9) shall be provided as follows: Hereby, Marson Technology Co., Ltd. declares that the radio equipment type UHF Sled Reader is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following.