

SHENZHEN CHAINWAY INFORMATION TECHNOLOGY CO., LTD

# Fixed Android UHF Reader

## URA4 User Manual



# Statement

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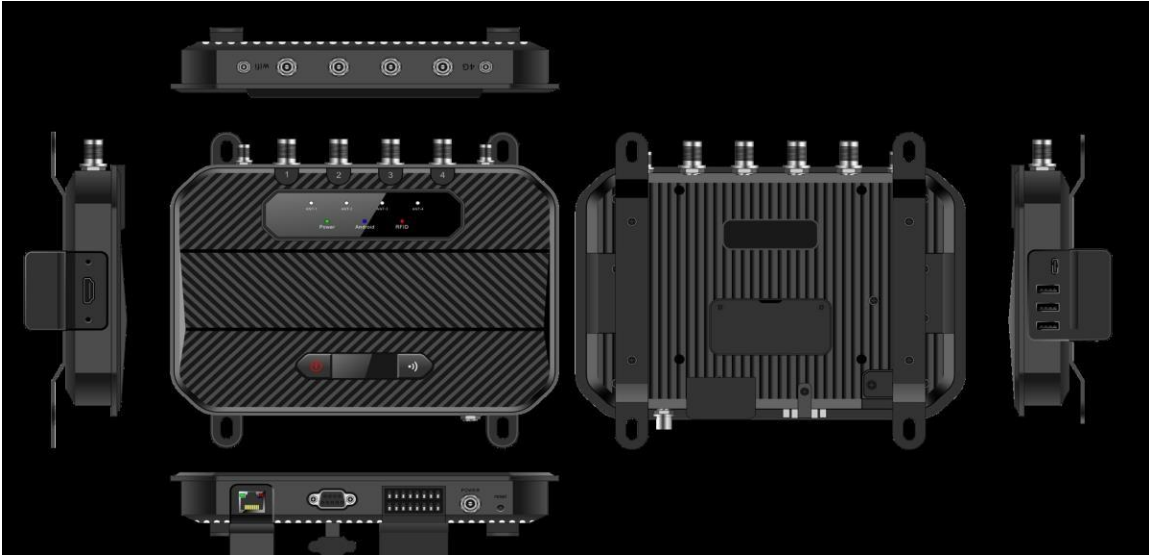
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# **Chapter 1 Product Intro**

## **1.1 Intro**

Chainway URA4 is a 4-channel fixed RFID reader, based on Android 13.0. Integrated with Impinj R2000 and E710 RFID chip, it supports RS232, RJ45 and HDMI, and can be compatible with various types of antennas. With high stability and outstanding performance, URA4 can be ideally applied to warehouse management, archives and library management, bank, clothing and footwear retail, jewelry monitoring, watch industry, laundry, production line management, medical instrument cabinet and vending machines.

## 1.2 Interface



Pic.1-1

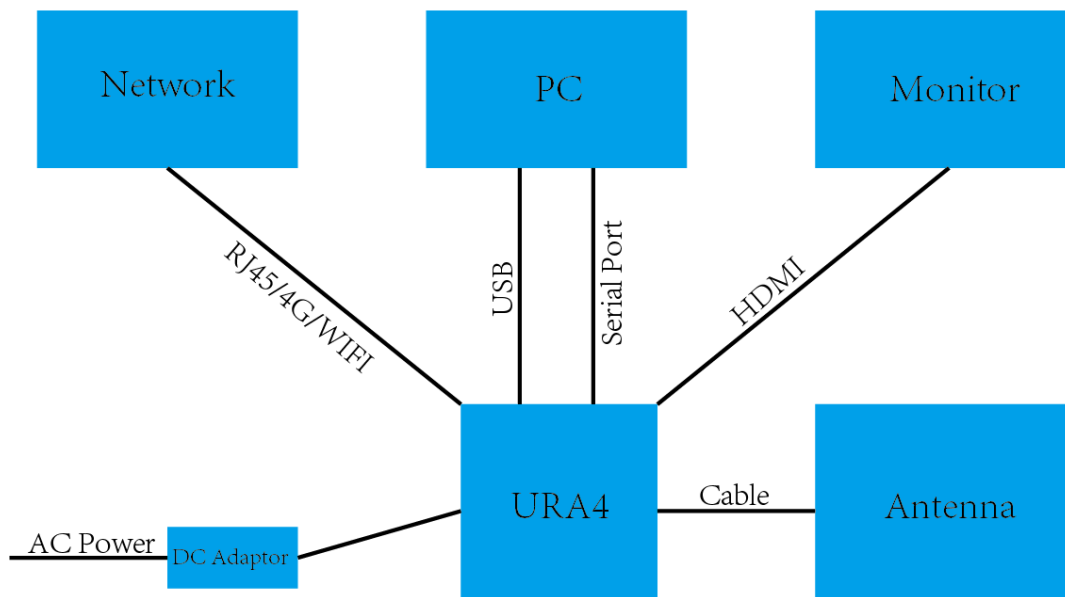
## 1.3 Necessary Parts List

1	URA4 reader, 12V power adaptor
2	UHF antenna, 5dBi, 9dBi, 12dBi etc.
3	Feeder line, SMA male side connects with device, interface on other side needs match with antenna.
4	RJ45 Ethernet cable
5	HDMI cable
6	4G external antenna
7	WIFI external antenna

## 1.4 Device installation

URA4 reader adopts Android operating system, it can be connected with Internet through RJ45, WIFI and 4G etc. And connect with monitor through HDMI cable.

Developer could use USB cable to connect device with PC for developing application, device could also be connected with PC through serial port cable.

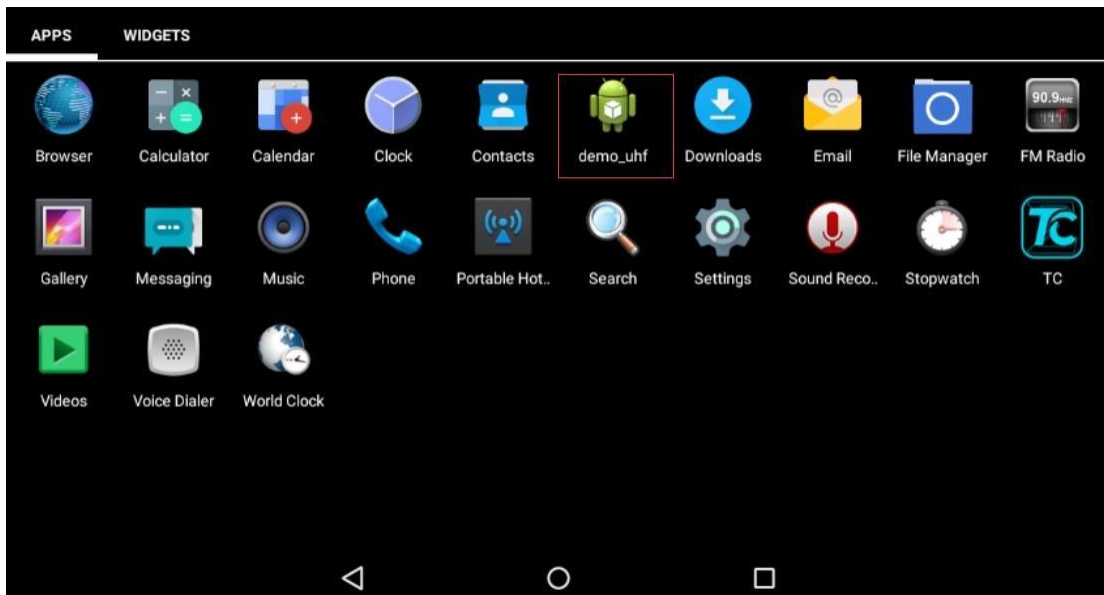


Pic.3-1



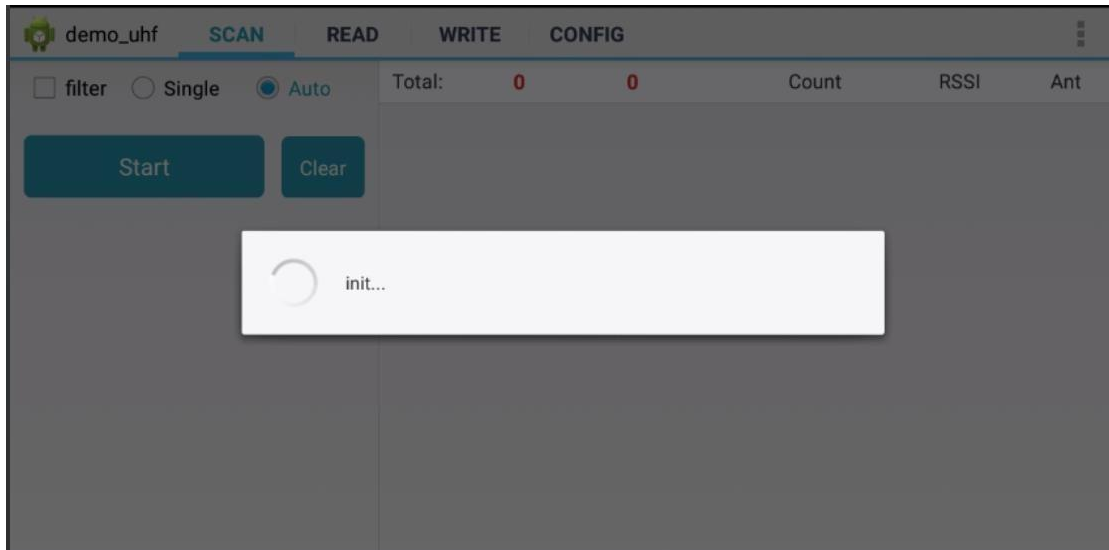
# Chapter 2 UHF demo

## 2.1 Operating Interface



Pic.4-1

Connect monitor through HDMI cable and long-press power button for 3 seconds to switch on device. Click demo\_uhf icon to enter demo as Pic.4-1, UHF module will initiate as Pic.4-2, if there is no error messages show up, then initiation process has been successfully finished. “init. fail” means UHF module failed to initiate, need to exit application and repeat operation. If initiation cannot successfully finished, need to contact tech support for further.



Pic.4-2

# Chapter 3 UHF tag scanning

Click SCAN on top of navigation bar to enter tags reading page.

## 3.1 Auto Scanning

Select “Auto”, then click “Start” button to start tags scanning circularly, the information such as EPC or TID, Count, RSSI and Ant. number. As Pic.5-1.

“filter” button can be used to setup tag which has been filtered, user could setup address, data length to filter tags. EPC, TID and USER areas can be selected, setup data length to 0 and clear EPC list, then click “Setup” to confirm in Pic.5-2.

demo_uhf						SCAN	READ	WRITE	CONFIG	
<input type="checkbox"/> filter	<input type="radio"/> Single	<input checked="" type="radio"/> Auto	Total: 58 61			Count	RSSI	Ant		
<div>Start</div> <div>Clear</div>			E2005157881801812330261F			1	-59.80	1		
			E2005157881801671890526F			1	-56.90	1		
			E20051578818018121803368			1	-54.70	1		
			E20051578818016723702276			1	-50.90	1		
			E20051578818018122802BC1			1	-53.80	1		
			E2005157881801812800047B			1	-64.20	1		
			E20051578818016719504E2A			1	-55.70	1		
			E20051578818016723602433			1	-51.50	1		
			E20051578818018113708C70			1	-54.70	1		
			E20051578818016721303956			1	-50.90	1		
			E20051578818018123402456			1	-55.70	1		
			E20051578818016722602BA6			1	-44.20	1		

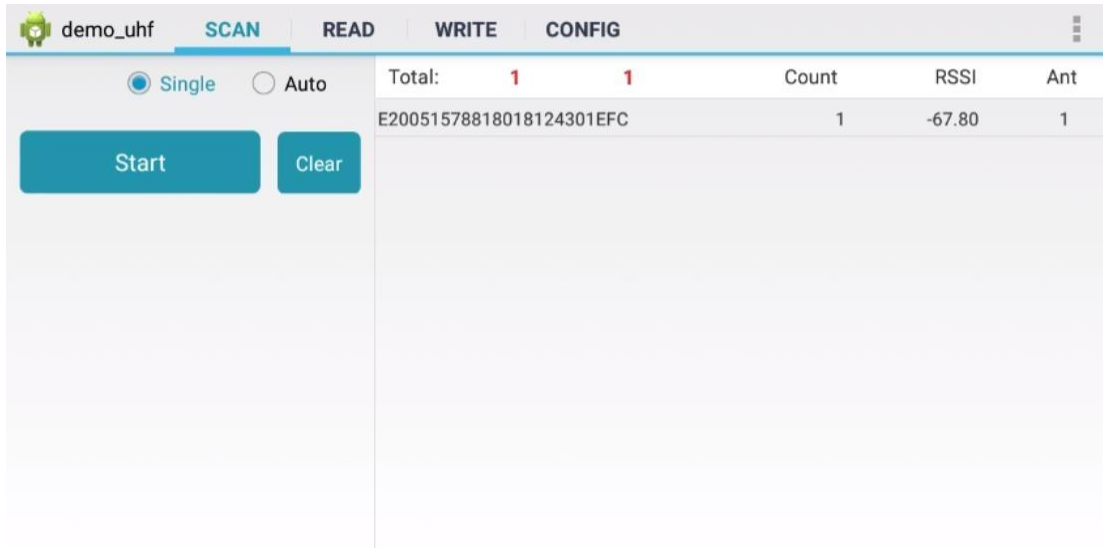
Pic.5-1

demo_uhf		SCAN	READ	WRITE	CONFIG			
<input checked="" type="checkbox"/> filter <input type="radio"/> Single <input checked="" type="radio"/> Auto		Total:		57	57	Count	RSSI	Ant
Ptr : 32 (bit) Len 0 (bit)		E20051578818016724301EE9		1	-55.70	1		
Data :		E20051578818018114708374		1	-50.30	1		
<input type="button" value="EPC"/> <input type="button" value="TID"/> <input type="button" value="USER"/>		E20051578818018113708C70		1	-55.70	1		
<input type="button" value="Setup"/>		E20051578818018124201D57		1	-52.90	1		
R2000 module only		E20051578818018122802BC1		1	-50.90	1		
<input type="button" value="Start"/> <input type="button" value="Clear"/>		E200515788180181252016B4		1	-55.70	1		
		E20051578818016721303956		1	-48.70	1		
		E20051578818016722602BA6		1	-39.50	1		
		E2005157881801671890526F		1	-57.50	1		
		E20051578818016723702276		1	-47.80	1		
		E20051578818018115507A74		1	-65.00	1		
		E20051578818018121803368		1	-52.90	1		

Pic.5-2

## 3.2 Single Scanning

Select “Single” button and click “Start” to start scanning tag, EPC or TID, Count, RSSI and Ant.number will display on right side, as Pic.5-3.



Pic.5-3

### 3.3 Read UHF Tag

Click “READ” on top of navigation bar to enter page of tag reading.

User could read data of 4 areas, RESERVED, EPC, TID and USER, setup address and data length, default password is “00000000”, click “Read” to read tags in Pic.6-1.

The screenshot shows the 'demo\_uhf' application interface with the 'READ' tab selected. The interface includes the following elements:

- Navigation bar: demo\_uhf, SCAN, READ (selected), WRITE, CONFIG.
- Fields: Ptr : 32 (bit), 长度: 0 (bit), Data : , Bank : RESERVED, Ptr : 0 (word), Len : 4 (word), Access Pwd : 00000000, Data : .
- Buttons: EPC, TID, USER (radio buttons), Read (large blue button).

Pic.6-1

Comment: user could filter tags by setup address, data length and data in EPC, TID and USER areas, select “Enable” button to switch on filter function in Pic.6-2.

demo\_uhf    SCAN    **READ**    WRITE    CONFIG

filter

☐ Enable

Ptr : 32 (bit)    长度: 0 (bit)

Data :

**EPC**    TID    USER

Bank : RESERVED

Ptr : 0 (word)    Len : 4 (word)

Access Pwd : 00000000

Data :

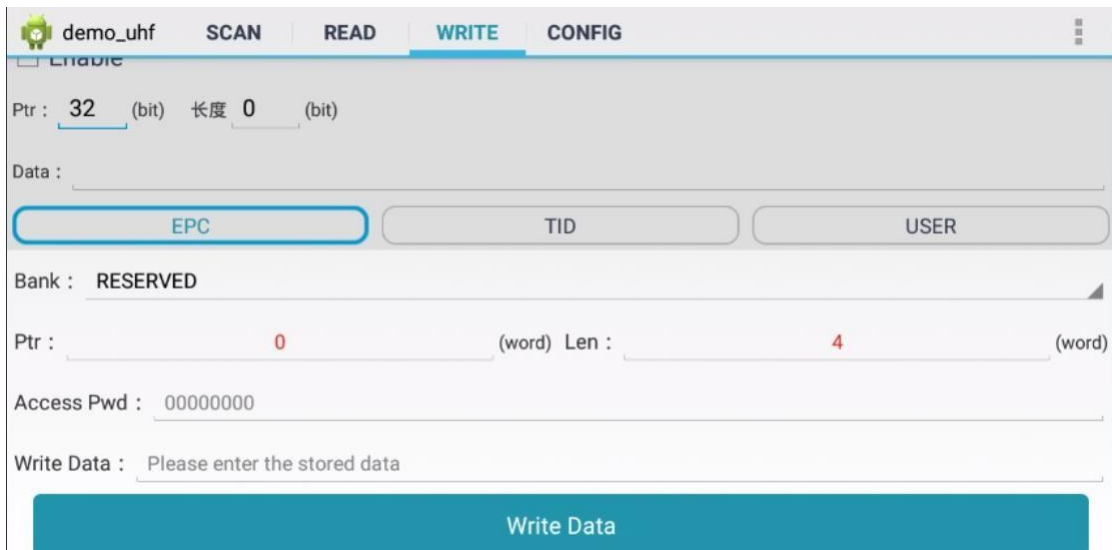
Pic.6-2

## 3.4 Write Tag

Click “WRITE” on top of navigation bar to enter tag writing page.

User could write data in RESERVED, EPC, TID and USER areas, setup start address and data length, input access password and data(hex), click “Write Data” to write data in Pic.7-1.

Comment: user could filter tags by setup address, data length and data in EPC, TID and USER areas, select “Enable” button to switch on filter function.



The screenshot shows a software interface for writing data to a tag. At the top, there is a navigation bar with tabs: 'demo\_uhf', 'SCAN', 'READ', 'WRITE' (which is active and highlighted in blue), and 'CONFIG'. Below the navigation bar, there is a section with an 'Enable' checkbox and a 'Ptr' field set to '32' (bit) and a '长度' (length) field set to '0' (bit). Below this is a 'Data' input field. Further down, there are three buttons: 'EPC' (highlighted in blue), 'TID', and 'USER'. Below these buttons is a 'Bank' dropdown menu currently set to 'RESERVED'. Below the 'Bank' menu, there are two input fields: 'Ptr' with a red '0' and '(word)' label, and 'Len' with a red '4' and '(word)' label. Below these is an 'Access Pwd' field containing '00000000'. At the bottom, there is a 'Write Data' section with a text input field containing 'Please enter the stored data' and a large blue 'Write Data' button.

Pic.7-1



## 3.5 Lock Tag

Click “LOCK” on top of navigation bar to enter tag locking page.

Input access password( DONOT input default password.), then click column of “Lock Code”, it will display window for selecting different methods of locking, click “OK” to generate lock code automatically, then click “Lock” to lock tags in Pic.8-1 and Pic.8-2.

Comment: user could filter tags by setup address, data length and data in EPC, TID and USER areas, select “Enable” button to switch on filter function.

NOTE: If permanent mask has been locked, then it cannot be unlocked. Vice versa.

demo\_uhf   SCAN   READ   WRITE   CONFIG   **LOCK**

filter

☐ Enable

Ptr : 32 (bit)   Len 0 (bit)

Data :

EPC   TID   USER

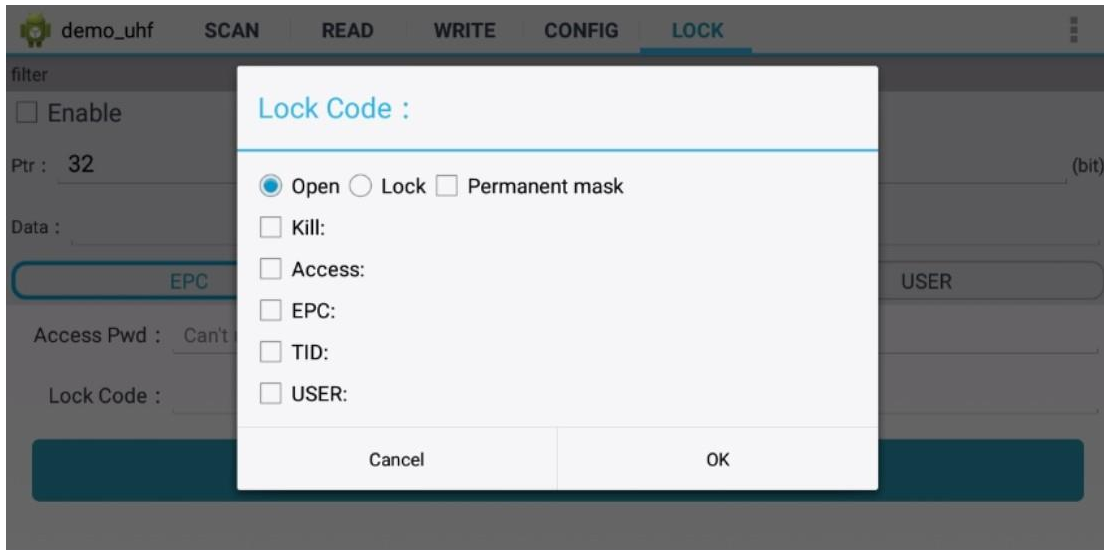
Access Pwd : Can't use the default password

Lock Code :

Lock

Tips : After permanent lock, unable to unlock;After permanent unlock, not locked

Pic. 8-1



Pic.8-2

## 3.6 Kill Tag

Click “KILL” on top of navigation bar to enter operating page.

Input access password (DONOT input default password.), click “Kill” button to destroy tags in Pic.9-1.

Comment: user could filter tag by setup address, data length and data for selecting EPC, TID or USER area.

demo\_uhf   SCAN   READ   WRITE   CONFIG   **KILL**

☒ filter

Ptr : 32 (bit)   Len : 96 (bit)

Data : hexadecimal data

☐ EPC   ☐ TID   ☐ USER

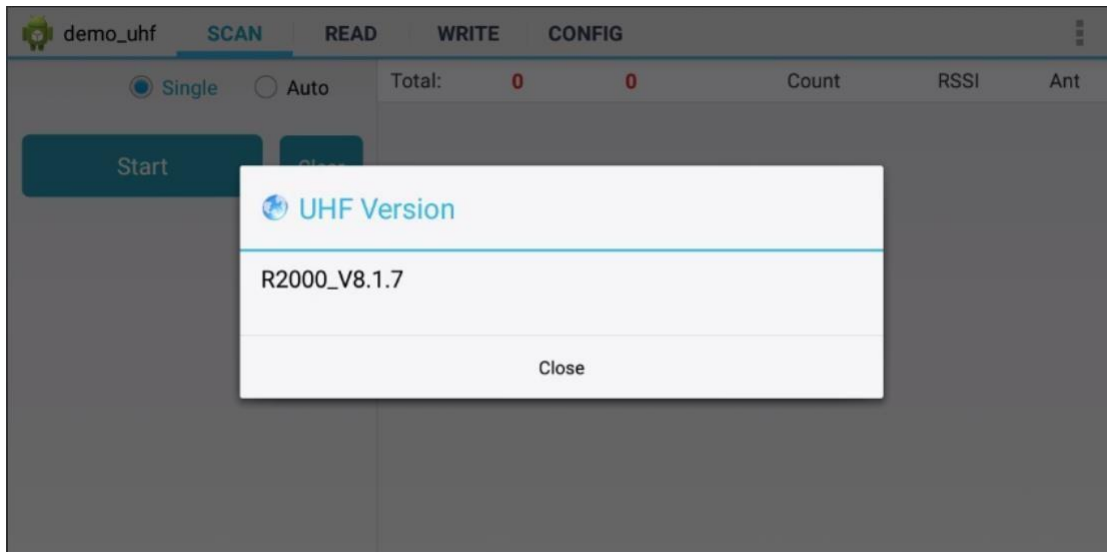
Access Pwd : Can't use the default password

**Kill**

Pic.9-1

## 3.7 UHF Module Version

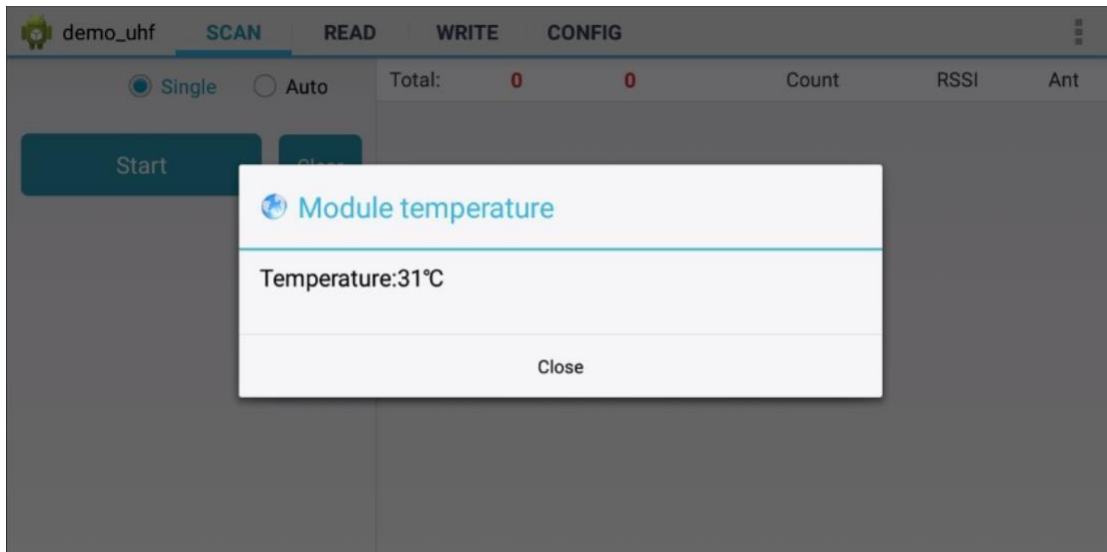
Click 3 dots on top right of application and click “About” in list to check version of UHF module in Pic.10-1.



Pic.10-1

## 3.8 Module Temperature

Click 3 dots on top right of application, click “Module temperature” in list to check UHF module temperature in Pic.11-1.



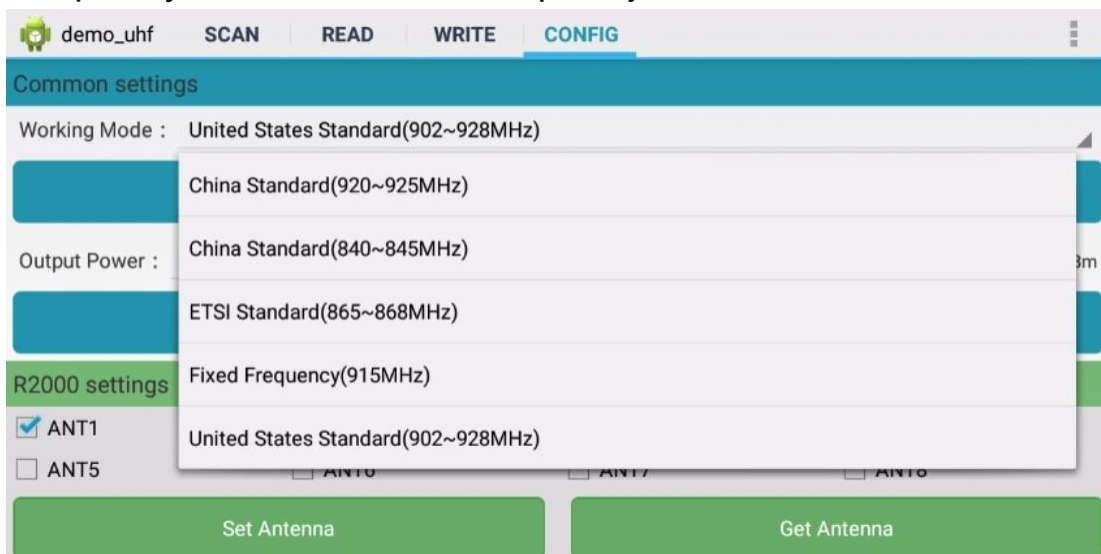
Pic.11-1

# Chapter 4 Config

Click “CONFIG” on top of navigation bar to enter setup page.

## 4.1 Working mode

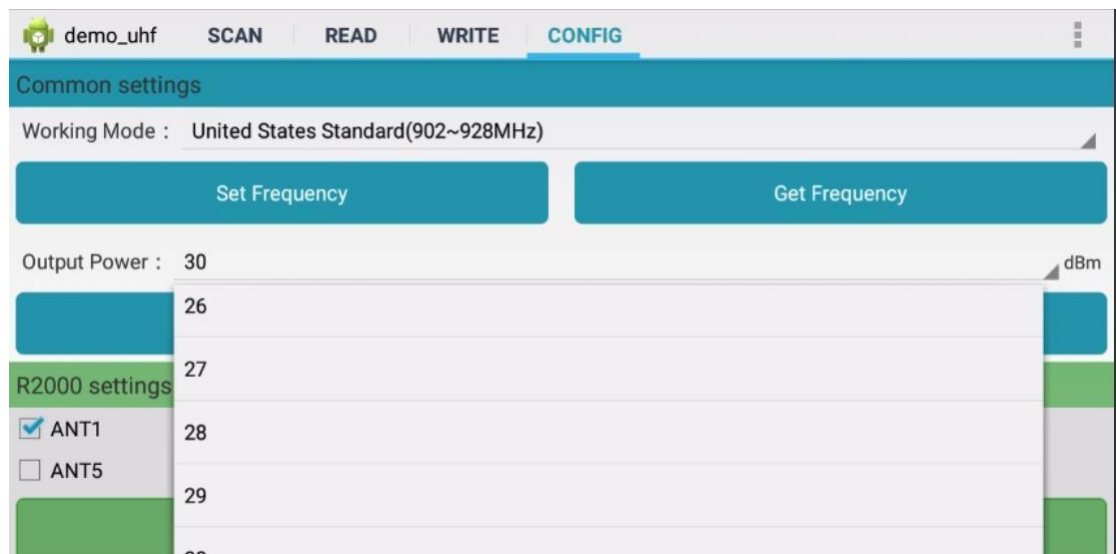
User could setup different frequency band for different countries, as Pic.12-1, click “Set Frequency” to confirm frequency band. Click “Get Frequency” to check current frequency band.



Pic.12-1

## 4.2 Output Power

User could select different output power from 5 to 30dBm in Pic.12-2, click “Set Power” to confirm setup. Click “Get Power” to get current output power.

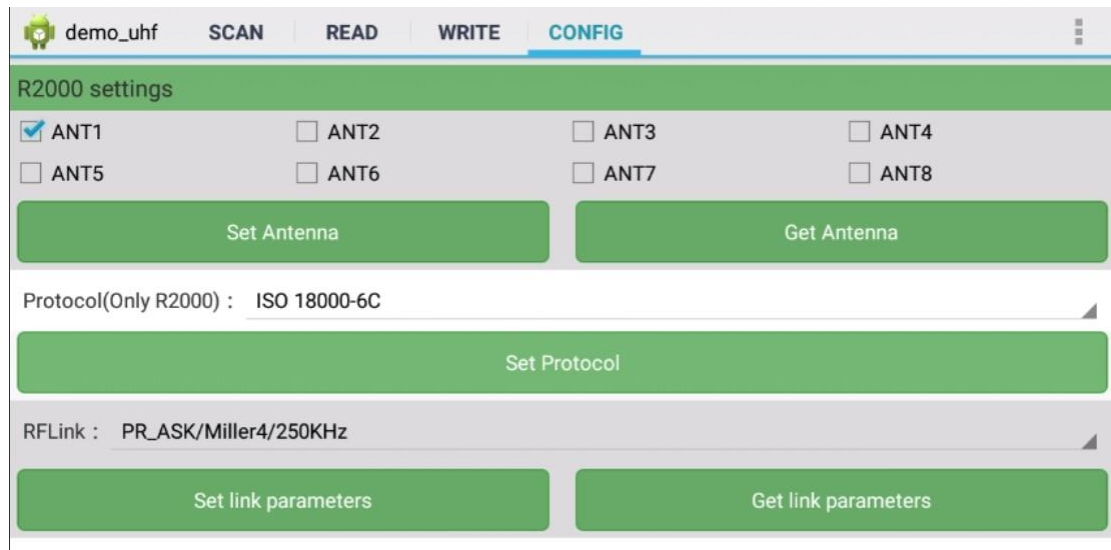


Pic.12-2

## 4.3 R2000 settings

Select ANT1-ANT8 to setup antenna, selected antenna will start functioning, unselected antenna will in OFF in Pic.12-3.

Click “Set Antenna” to confirm setup, “Get Antenna” to check current antenna status.



The screenshot shows the 'demo\_uhf' application interface with the 'CONFIG' tab selected. The 'R2000 settings' section is highlighted in green. It contains eight checkboxes for antennas: ANT1 (checked), ANT2, ANT3, ANT4, ANT5, ANT6, ANT7, and ANT8. Below the checkboxes are two green buttons: 'Set Antenna' and 'Get Antenna'. The 'Protocol(Only R2000)' dropdown is set to 'ISO 18000-6C', with a 'Set Protocol' button below it. The 'RFLink' dropdown is set to 'PR\_ASK/Miller4/250KHz', with 'Set link parameters' and 'Get link parameters' buttons below it.

R2000 settings			
<input checked="" type="checkbox"/> ANT1	<input type="checkbox"/> ANT2	<input type="checkbox"/> ANT3	<input type="checkbox"/> ANT4
<input type="checkbox"/> ANT5	<input type="checkbox"/> ANT6	<input type="checkbox"/> ANT7	<input type="checkbox"/> ANT8
<button>Set Antenna</button>		<button>Get Antenna</button>	
Protocol(Only R2000) : ISO 18000-6C			
<button>Set Protocol</button>			
RFLink : PR_ASK/Miller4/250KHz			
<button>Set link parameters</button>		<button>Get link parameters</button>	

Pic.12-3



## 4.4 Protocol

There are two protocols can be selected in Pic.12-4, click “Set Protocol” to confirm.

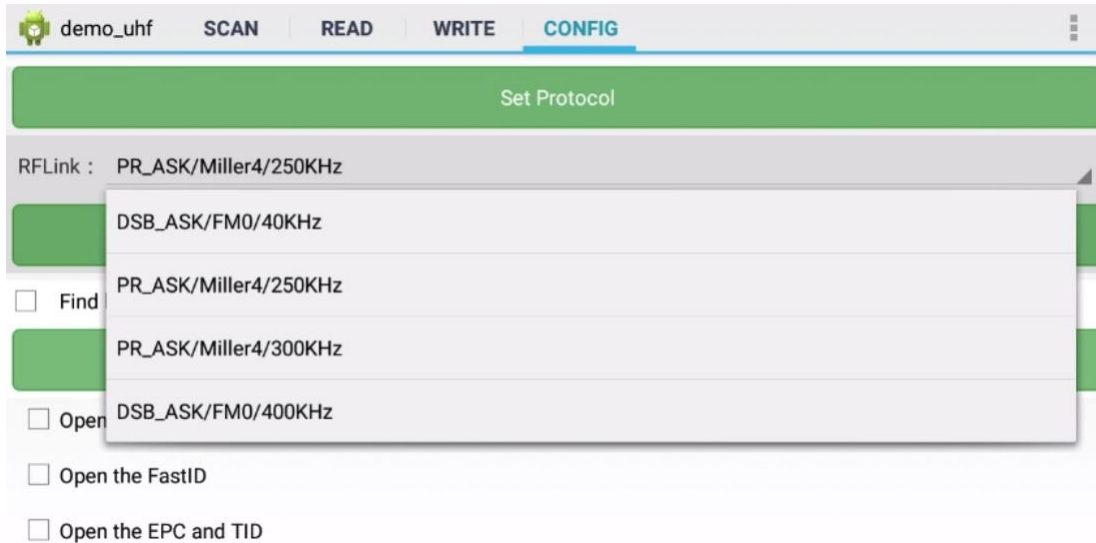
The screenshot shows the 'demo\_uhf' application interface with the 'CONFIG' tab selected. The 'R2000 settings' section includes checkboxes for ANT1 through ANT8. ANT1 is checked. Below these are 'Set Antenna' and 'Get Antenna' buttons. The 'Protocol(Only R2000)' field is set to 'ISO 18000-6C'. A dropdown menu is open, showing 'ISO 18000-6C' and 'ISO 18000-6D'. The 'RFLink' field is set to 'PR\_ASK/Mille'. At the bottom are 'Set link parameters' and 'Get link parameters' buttons.

R2000 settings			
<input checked="" type="checkbox"/> ANT1	<input type="checkbox"/> ANT2	<input type="checkbox"/> ANT3	<input type="checkbox"/> ANT4
<input type="checkbox"/> ANT5	<input type="checkbox"/> ANT6	<input type="checkbox"/> ANT7	<input type="checkbox"/> ANT8
Set Antenna		Get Antenna	
Protocol(Only R2000) : ISO 18000-6C			
ISO 18000-6C			
ISO 18000-6D			
RFLink : PR_ASK/Mille			
Set link parameters		Get link parameters	

Pic.12-4

## 4.5 RF link

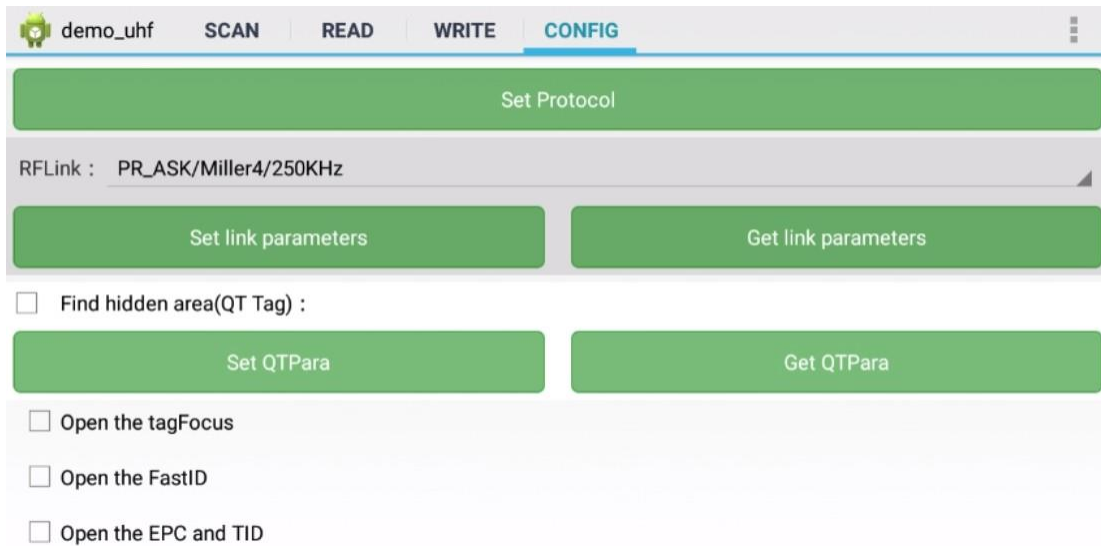
There are four parameters can be selected in this parameter, as Pic.12-5. Click “Set link parameter” to confirm, click “Get link parameters” to check current RF link parameters.



Pic.12-5

## 4.6 QT Tag

Select “Set QTPara” to switch ON and OFF hidden areas of QT tag, click “Get QTPara” to check current status.



Pic.12-6

## 4.7 Open tagFocus

Select ON/OFF of tagFocus in Pic.12-6.

## 4.8 Open FastID

Select ON/OFF of “Open the EPC and TID” in Pic.12-6.

## 4.9 Open EPC and TID

Select ON/OFF of “Open the EPC and TID” in Pic.12-6.

## 4.10 WWAN Specification

WWAN		
Frequency Band		Maximum output power (dBm)
GSM 900		33
GSM 1800		32
UMTS B1/B8		22.5
FDD LTE B1/B3/B7/B8/B20		22.5
WLAN		
Standard	Frequency	EIRP Power(dBm)
802.11b	2.412GHz~2.472GHz	15.51
802.11g	2.412GHz~2.472GHz	11.68
802.11n	2.412GHz~2.472GHz	10.74
RFID		
865MHz~868MHz		ERP Power(dBm)
		27.65

## **Chapter 5 SIMPLIFIED EU DECLARATION OF CONFORMITY**

Hereby, Shenzhen Chainway Information Technology Co.,Ltd.  
declares that the radio equipment type Fixed Android UHF Reader is  
in compliance with Directive 2014/53/EU. The full text of the EU  
declaration of conformity is available at the following internet  
address:([www.chainway.net](http://www.chainway.net))

# Chapter 6 Warning

CE:

RF exposure information: The Maximum Permissible Exposure (MPE) level has been calculated based on a distance of  $d=20$  cm between the device and the human body. To maintain compliance with RF exposure requirement, use product that maintain a 20cm distance between the device and human body.

FCC:

Federal Communication Commission (FCC) Radiation Exposure Statement. When using the product, maintain a distance of 20cm from the body to ensure compliance with RF exposure requirements.

FCC statements:

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

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio

or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.