



# AzureWave AW-CU484 Wireless Microcontroller Stamp LGA Module User Guide

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## **AW-CU484**

IEEE 802.15.4 and Bluetooth LE 5.0 wireless microcontroller Stamp LGA Module

## **User Guide**

Rev. A

**(For Standard)**

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### **Revision History.**

Version	Revision Date	Description
A	2020/10/19	<ul style="list-style-type: none"> <li>*Initial Version</li> </ul>

## System Setup

### (1) Hardware Requirements

- AW-CU484 Module test board
- The host system needs to run the Window10 x64 operating system
- Vector Signal Analyzer/WLAN analyzer for transmitting measurements.
- LLAN signal generator for receiver measurements.
- RF isolation chamber for receiving measurements.
- RF attenuators
- RF cable
- NFC reader

### (2) Software Requirements

- PL-2303 GPIO Test (tool)

名稱	修改日期	類型	大小
PL-2303 4 GPIOTest.exe	2020/8/11 上午 1:00	應用程式	300 KB

- Tera Term (tool)

**Note:** Tera Term is our suggestion, you can try any terminal tool.

名稱	修改日期	類型	大小
teraterm-4.63.exe	2009/9/8 下午 04:00	應用程式	7,045 KB

- DK6Production flash programmer folder (please contact FAE)

**Note:** You must have the below files

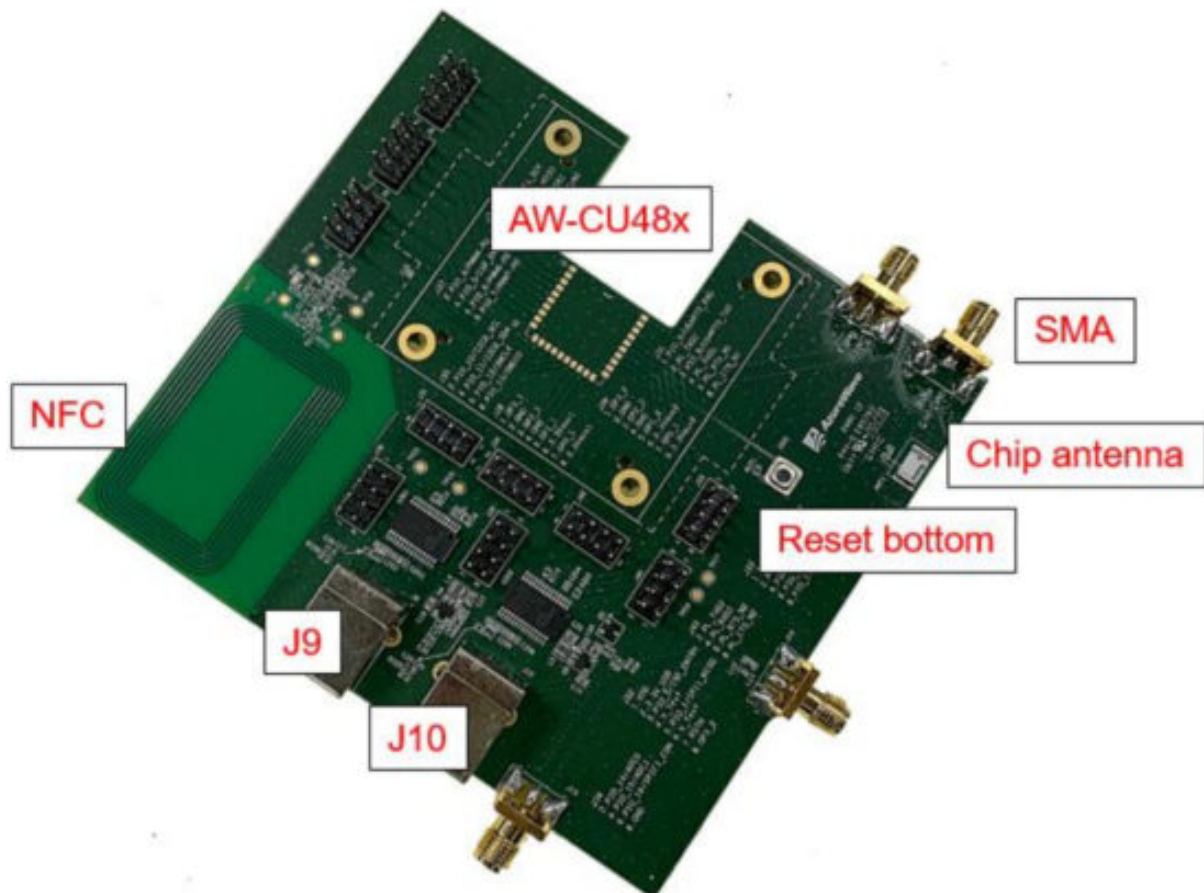
名稱	修改日期	類型	大小
DK6Programmer.exe	2019/11/16 上午 02:02	應用程式	588 KB
ftd2xx.dll	2019/5/28 下午 07:15	應用程式擴充	215 KB
jn5189dk6_hello_world.bin	2020/4/15 上午 10:11	BIN 檔案	17 KB
JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin	2020/2/28 下午 05:23	BIN 檔案	69 KB
JN-AN-1242-K32W061-Customer-Module-Evaluation-Tool.bin	2020/5/1 下午 09:52	BIN 檔案	56 KB
libgcc_s_dw2-1.dll	2019/5/28 下午 07:15	應用程式擴充	110 KB
pdccurses.dll	2019/5/28 下午 07:15	應用程式擴充	116 KB
programmer.dll	2019/11/16 上午 02:02	應用程式擴充	972 KB
qn9090dk6_hci_black_box_bm.bin	2020/3/3 下午 02:03	BIN 檔案	149 KB
qn9090dk6_hello_world.bin	2020/2/20 上午 10:53	BIN 檔案	21 KB
uninstall.exe	2020/2/13 下午 02:22	應用程式	323 KB

- Mbt.exe (please contact FAE)

**Note:** MBT is our suggestion, you can try any hcitool.

名稱	修改日期	類型	大小
 mbt.exe	2020/7/21 上午 1...	應用程式	50 KB
 mbt_setup.ini	2020/7/21 下午 0...	組態設定	1 KB

## AW-CU484 EVB

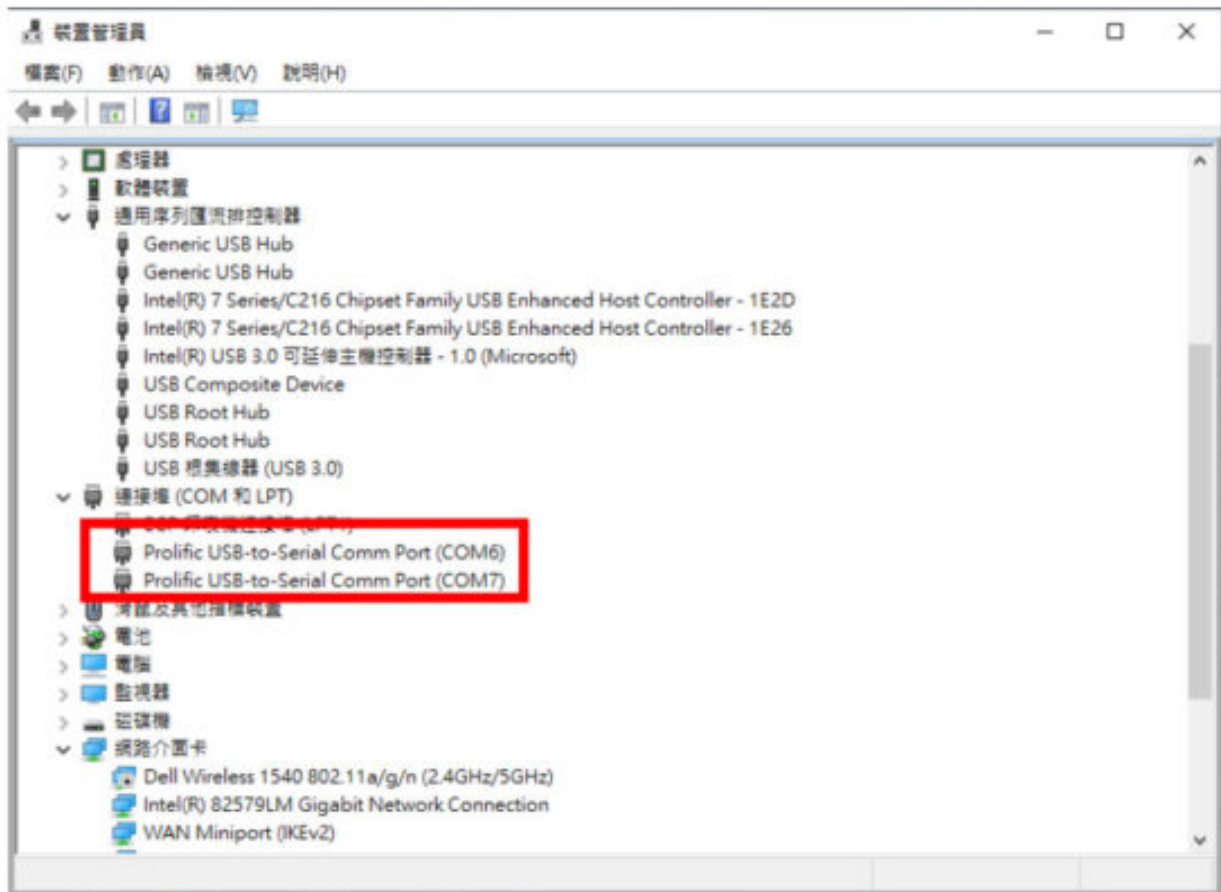


## How to download the image

1. You must check the COM number (can check the value by the following picture)

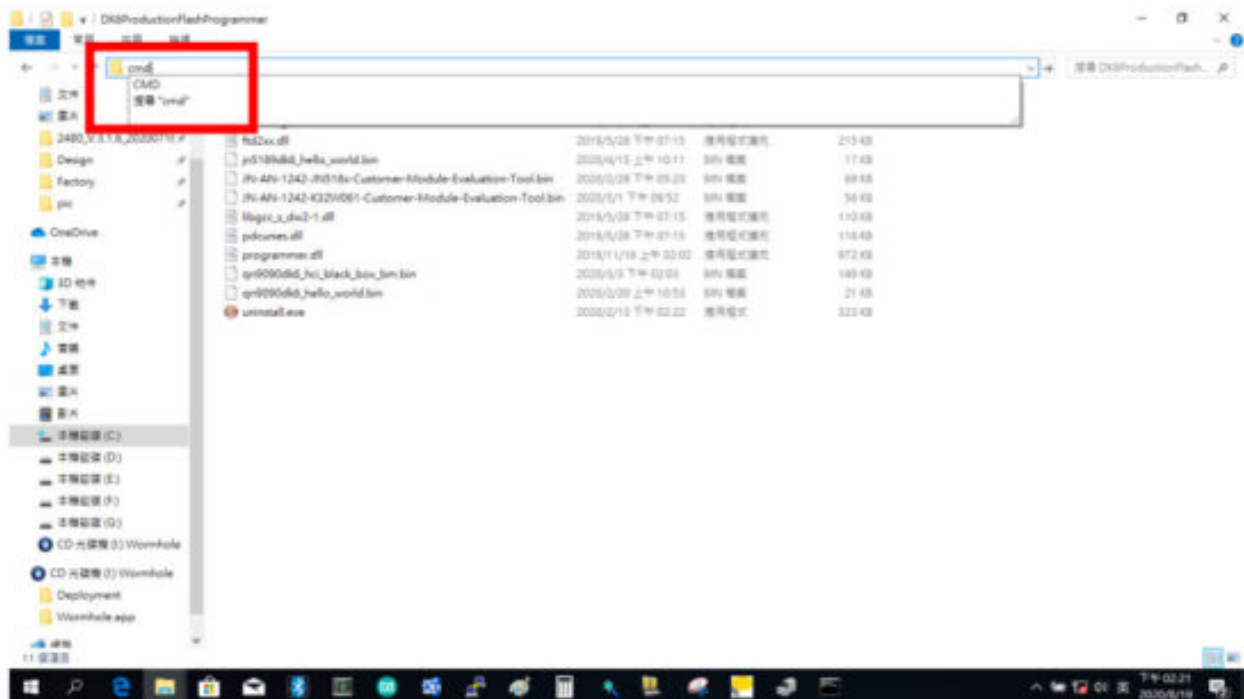
**Note:** J9 for DUT COM port

**J10 for PL2303 control Test/Normal mode.**



2. Find the folder of DK6ProductionFlashProgrammer.

And type cmd to get into the Dos window.



3. Key in

ZIGBEE IMAGE:


**DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin**

BLE IMAGE:

**DK6Programmer.exe -s com6 -p qn9090dk6\_hci\_black\_box\_bm.bin**

To open the tool and download the image file (com6 is your DUT J9 Com port )

```
系统管理員: C:\Windows\System32\cmd.exe
Microsoft Windows [版本 10.0.17763.1039]
(c) 2018 Microsoft Corporation. 著作權所有，並保留一切權利。
C:\xap\DK6ProdectionFlashProgrammer>DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin
```



#### 4. Select Y

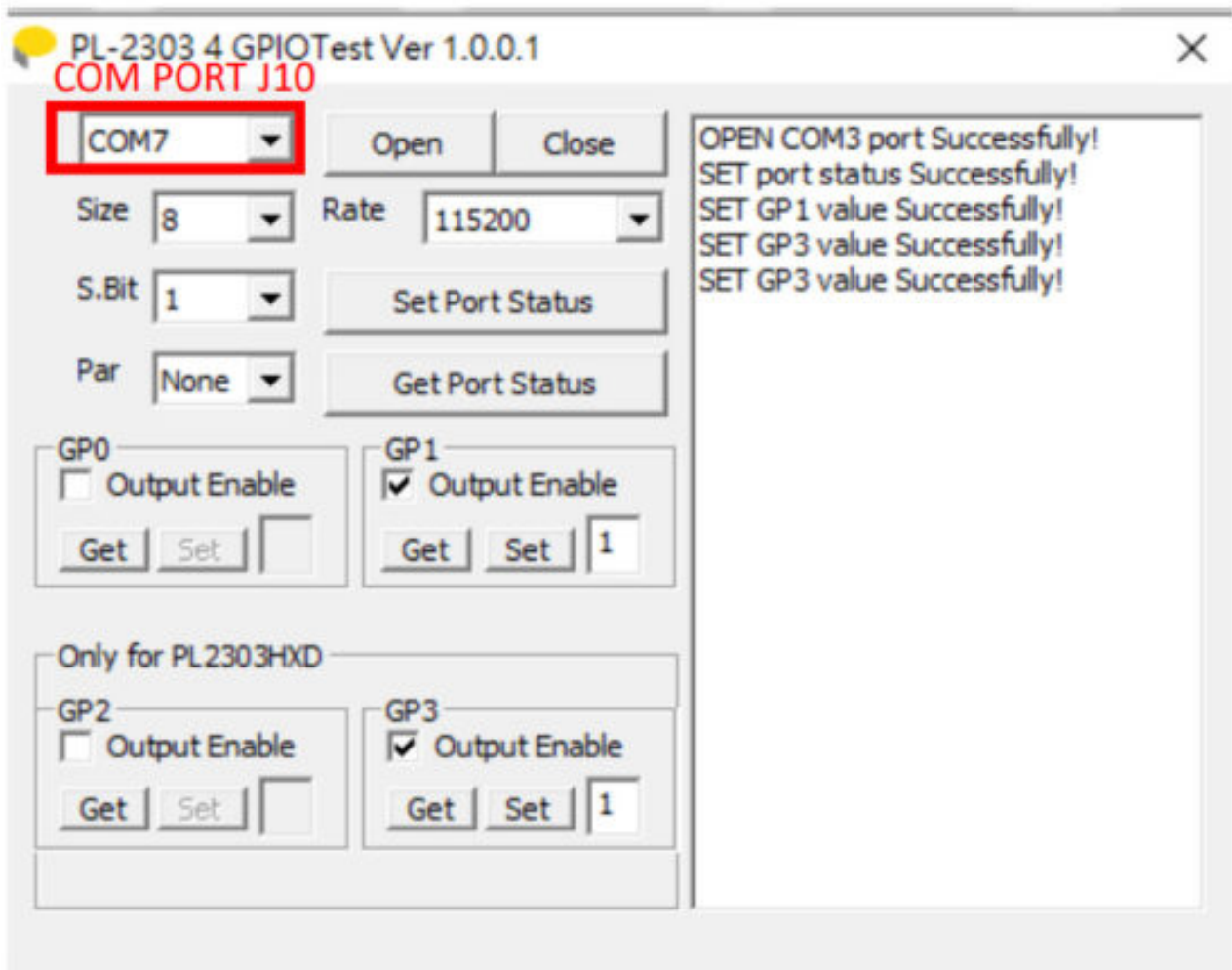
```
系统管理員: C:\Windows\System32\cmd.exe - DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin
NXP DK6 Device Programmer (Build 2282)
COM6
Detected JN5189. WARNING: Bootloader in device is out of date. See application note JN-AN-1263 or contact support for
Partial erase required on memory FLASH, addr=0x00000000, length=69676
Confirm Operation (COM6)
The area to erase is not an exact multiple of the erase
block size. Erase data from 0x00000000 to 0x00011200?
Y / N
```

#### 5. Finish

```
系统管理員: C:\Windows\System32\cmd.exe - DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin
NXP DK6 Device Programmer (Build 2282)
COM6
Detected JN5189. WARNING: Bootloader in device is out of date. See application note JN-AN-1263 or contact support for
Memory programmed successfully
=====] 100%
Operations Complete
Press any key
```

## How to get into the test mode

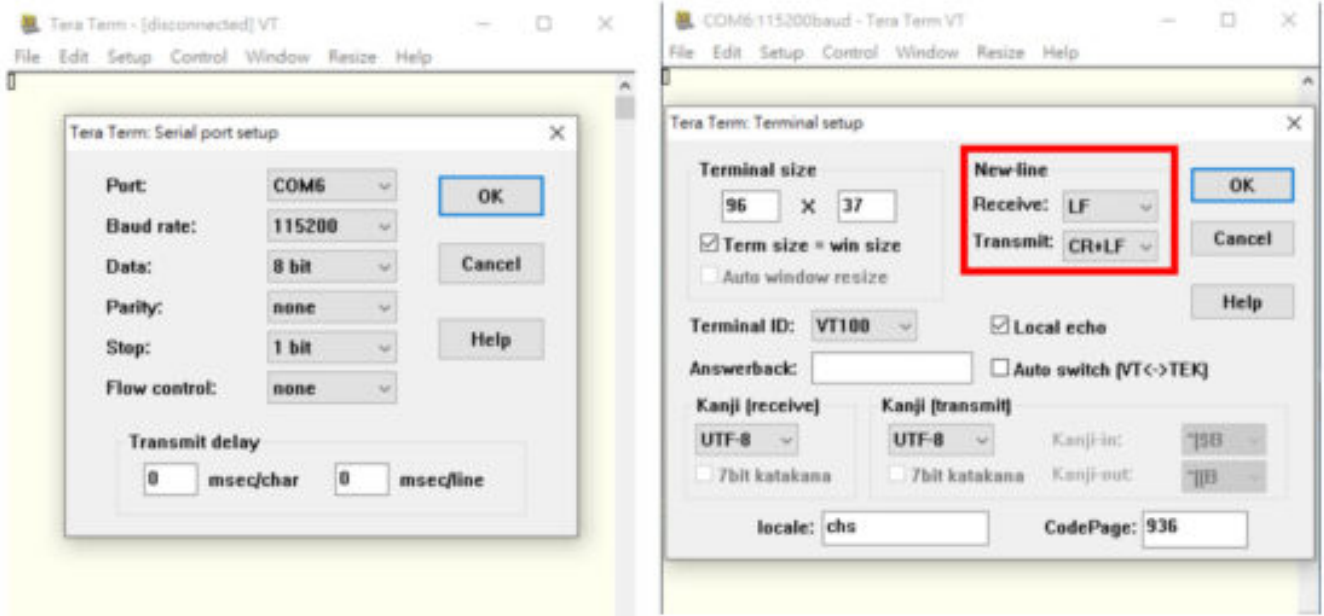
1. Open the PL-2303 GPIO Test
2. Setting Com port (J11 com port)
3. Baud rate is 115200
4. Setting the GP1  
Key in 1 and Select the set button. (open test mode)
5. Setting the GP3  
First Key in 0 and Select the set button  
Then Key in 1 and Select the set button again. (Reset)



## Test mode(In Zigbee)

1. Open the Tera Term
2. Select setup → Serial port
  - Setting COM port (J9 com port)
  - Baud rate is 115200
3. Select setup → Terminal
  - Receive select LF
  - Transmit select CR+LF





4. Select a) standard module

```

*****
*      Customer Module Evaluation Tool      *
*      Version 2038                        *
*      Compiled Feb 28 2020 10:23:14       *
*      Radio Test version 2041            *
*      Radio Driver version 2085          *
*      Chip ID 000e2111                   *
*****

a) Standard Module
b) High Power Module (RFTX/RFRX on PI04/5)
c) High Power Module (RFTX/RFRX on PI020/21)
/) Reset CMET

Please choose an option > A
Standard Module Selected

*****
*                      ZigBee Mode          *
*****

```

5. Select a) Regular

```

*****
*                      ZigBee Mode          *
*****

a) Regular
b) Proprietary 1
c) Proprietary 2

Please choose an option > A
ZigBee Regular Mode Selected

```

6. Customer Module Evaluation Tool (main menu)

- Select "g" trigger packet test (Rx test)
- Select "l" transmit packet test (Tx test)

```

*****
*      Customer Module Evaluation Tool      *
*****

a) TX Power Test (CW)
b) TX Power Test (Modulated)
c) Receive Test
d) Oscillator Frequency Test
e) Current Measurement Test
f) RF Power Measurement
g) Trigger Packet Test
h) Receive Packets Test
i) Transmit Packets Test
j) Connectionless Packet Error Rate Test
k) CCA Test
l) LQI Test
m) Turnaround Tests
n) NTAG Tests
/) Return to root menu

Please choose an option >

```

#### 7. RX test (Select g)

g → Start test (start to receive the package)

+/- → Increment or decrement channel

X → Return to the main menu

/→Reset

```

*****
*      Trigger Packet Test                  *
*****
* Key          Function                    *
*
* +    Increment Channel                  *
* -    Decrement Channel                  *
* ]    Increment Repetitions              *
* [    Decrement Repetitions              *
* >    Increase Trigger Delay              *
* <    Decrease Trigger Delay              *
* g    Go                                *
* x    Return to main menu                *
* /    Return to root menu                *
*
* Note:                                     *
* Connect pin DI02 to the trigger          *
* !!!!!! Trig on RAISING edge !!!!!!      *
* input on the signal generator            *
*****

Channel      11      (2.405 GHz)
Repetitions  100
Trigger delay 1 mS

```



## 8. TX test (Select i)

+/- → Can control the channel

F → Fast transmit rate (fast transmit can help modulation to catch signal)

X → Return to the main menu

/→Reset

```
*****
* Transmit Packet Test In Progress *
* Slow Rate (~1 Pkt/sec) *
*****
* Key          Function *
* *
* f  Faster transmit rate *
* l  Lower transmit rate  *
* +  Increment Channel    *
* -  Decrement Channel    *
* <  Reduce output power by 0.25 dBm *
* >  Increase output power by 0.25 dBm *
* p  Reduce power step    *
* P  Increase power step  *
* x  Return to main menu  *
* /  Return to root menu  *
* *
*****

Channel      11      (2.405 GHz)
Power Level  10.00 dBm
MAC Address  00:15:8D:00:04:A5:A8:3F

Packets Sent 9■
```

## 9. NTAG tests(Select n)

Select Internal or External NTAG

- Select a) internal NTAG NTAG Tests (Internal)
- Select a) read contents of EEPROM
- Select b) write data to EEPROM

```
*****
* Select Internal or External NTAG *
*****

a) Internal NTAG
b) External NTAG on DK6 (FD to PI01)

Please choose an option >A
*****
* NTAG Tests (Internal) *
*****

a) Read contents of EEPROM
b) Write data to EEPROM
c) Reset NTAG address to 0x55
d) Monitor FD pin
e) Test FD pin Wake up
x) Return to main menu
/) Return to root menu

Please choose an option >■
```

10. Read contents of EEPROM

Can read the NFC MAC in Block 0: 04830C3AE26180

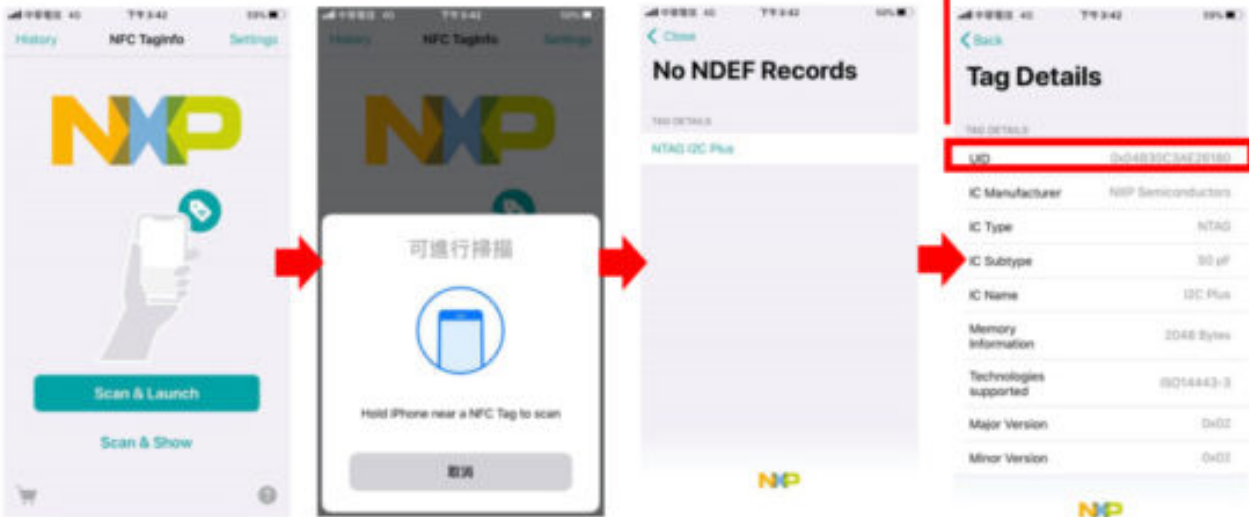
```

COM6:115200baud - Tera Term VT
File Edit Setup Control Window Resize Help
* NTAG Tests (Internal) *
*****
a) Read contents of EEPROM
b) Write data to EEPROM
c) Reset NTAG address to 0x55
d) Monitor FD pin
e) Test FD pin Wake up
x) Return to main menu
/) Return to root menu

Please choose an option >A
Found NTAG 100
lock 0: 04 83 0c 3a e2 61 80 00 44 00 00 00 00 00 00 00
lock 1: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 2: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 3: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 4: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 5: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 6: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 7: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 8: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 9: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 10: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 11: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 12: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 13: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 14: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 15: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 16: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 17: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 18: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 19: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 20: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
lock 21: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

Open the NFC Taginfo in you smart phone, and scan the NFC  
 Then you will get the information from NFC



- 11. Write data to EEPROM
- Use this test to write data to EEPROM, Format is:
- 1:0 1 2 3 4 5 6 7 8 9 A B C D E F
- Programs 0 to F in block 1



```

*****
* NTAG Tests (Internal) *
*****

a) Read contents of EEPROM
b) Write data to EEPROM
c) Reset NTAG address to 0x55
d) Monitor FD pin
e) Test FD pin Wake up
x) Return to main menu
/) Return to root menu

```

Please choose an option >

Using Address: 0x55

Enter Data to Program: 1:0 1 2 3 4 5 6 7 8 9 0 A B C D E F

Check the Format again.

```

*****
* NTAG Tests (Internal) *
*****

```

```

a) Read contents of EEPROM
b) Write data to EEPROM
c) Reset NTAG address to 0x55
d) Monitor FD pin
e) Test FD pin Wake up
x) Return to main menu
/) Return to root menu

```

Please choose an option >

Found NTAG I2C address: 0x55

Block 0:	04	83	0c	3a	e2	61	80	00	44	00	00	00	00	00	00	00	00
Block 1:	00	01	02	03	04	05	06	07	08	09	0a	0b	0c	0d	0e	0f	00
Block 2:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Block 3:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Block 4:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Block 5:	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

## Test mode(In BLE)

1. Open the folder of MBT



2. Open the mbt\_setup.ini

Setting MBT\_TRANSPORT=COM3 (your DUT COM port J9)

DOWNLOAD\_BAUDRATE=115200

APPLICATION\_BAUDRATE=115200

Enable\_Debug\_Message=1

DOWNLOAD\_DELAY = 50

[Solution]

Type=2





```
[System]
MBT_TRANSPORT=COM3
DOWNLOAD_BAUDRATE=115200
APPLICATION_BAUDRATE=115200
Enable_Debug_Message=1

DOWNLOAD_DELAY = 50

[Solution]
Type = 2

; 0 = Broadcom/Cypress
; 1 = Dialog
; 2 = Atmel and NXP
```

3. And type cmd to get into the Dos window.



4. Key in mbt.exe



5. Main menu

If you need more information, please key in mbt help.

```
系统管理工具: C:\Windows\System32\cmd.exe
Send HCI Success
Success
** mbt command finish **

C:\Users\shihhua\Desktop\mbt>mbt help
MBT_TRANSPORT: COM3
DOWNLOAD_BAUDRATE: 115200
APPLICATION_BAUDRATE: 115200
Usage: mbt help
Usage: mbt reset
Usage: mbt le_receiver_test <rx_channel>
Usage: mbt le_transmitter_test <tx_channel> <data_length> <packet_payload>
Usage: mbt le_test_end
Usage: mbt set_tx_frequency_arm <carrier on/off> <tx_frequency> <tx_mode> <tx_modulation_type> <tx_power>
Usage: mbt receive_only <rx_frequency>
Usage: mbt read_bd_addr
Usage: mbt write_bd_addr <bd_addr>
Usage: mbt radio_tx_test <bd_addr> <frequency> <modulation_type> <logical_channel> <bb_packet_type> <packet_length> <tx_power>
Usage: mbt radio_rx_test <bd_addr> <frequency> <modulation_type> <logical_channel> <bb_packet_type> <packet_length>
Usage: mbt connectionless_data_loopback_mode
Usage: mbt download <hcd_pathname>

Check Bluetooth Core 4.1 spec vol. 2 Sections 7.8.28-7.2.30
for details of LE Transmitter and Receiver tests
** mbt command finish **

C:\Users\shihhua\Desktop\mbt>
```

6. Key in MBT reset


Make sure the DUT has been reset.

```
C:\Users\shihhua\Desktop\mbt>mbt reset
MBT_TRANSPORT: COM3
DOWNLOAD_BAUDRATE: 115200
APPLICATION_BAUDRATE: 115200
Sending HCI Command:
0000 < 03 0C 00 >
Received HCI Event:
0000 < 0E 04 05 03 0C 00 >
Send HCI Success
Success
** mbt command finish **

C:\Users\shihhua\Desktop\mbt>
```



[Documents / Resources](#)

<div><div><p>AzureWave</p></div><div>AW-CU484</div><div>IEEE 802.15.4 and Bluetooth LE 5.0 wireless microcontroller Stamp LGA Module</div><div>User Guide</div><div>Rev. A</div><div>For Version 1</div><div><small>© 2019 AzureWave Technology Inc. All rights reserved. This document is confidential and its disclosure is prohibited.</small></div></div>	<div><div><a href="#">AzureWave AW-CU484 Wireless Microcontroller Stamp LGA Module</a> [pdf] User Guide</div><div>AW-CU484 Wireless Microcontroller Stamp LGA Module, AW-CU484, Wireless Microcontroller Stamp LGA Module</div></div>
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