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AzureWave AW-CU484 Wireless Microcontroller Stamp LGA Module User Guide

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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Contents

Revision History.

Version	Revision Date	Description
A	2020/10/19	• *Initial Version

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)

- Tera Term (tool)
  Note: Tera Term is our suggestion, you can try any terminal tool.

- DK6Production flash programmer folder (please contact FAE)
  Note: You must have the below files

- Mbt.exe (please contact FAE)

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

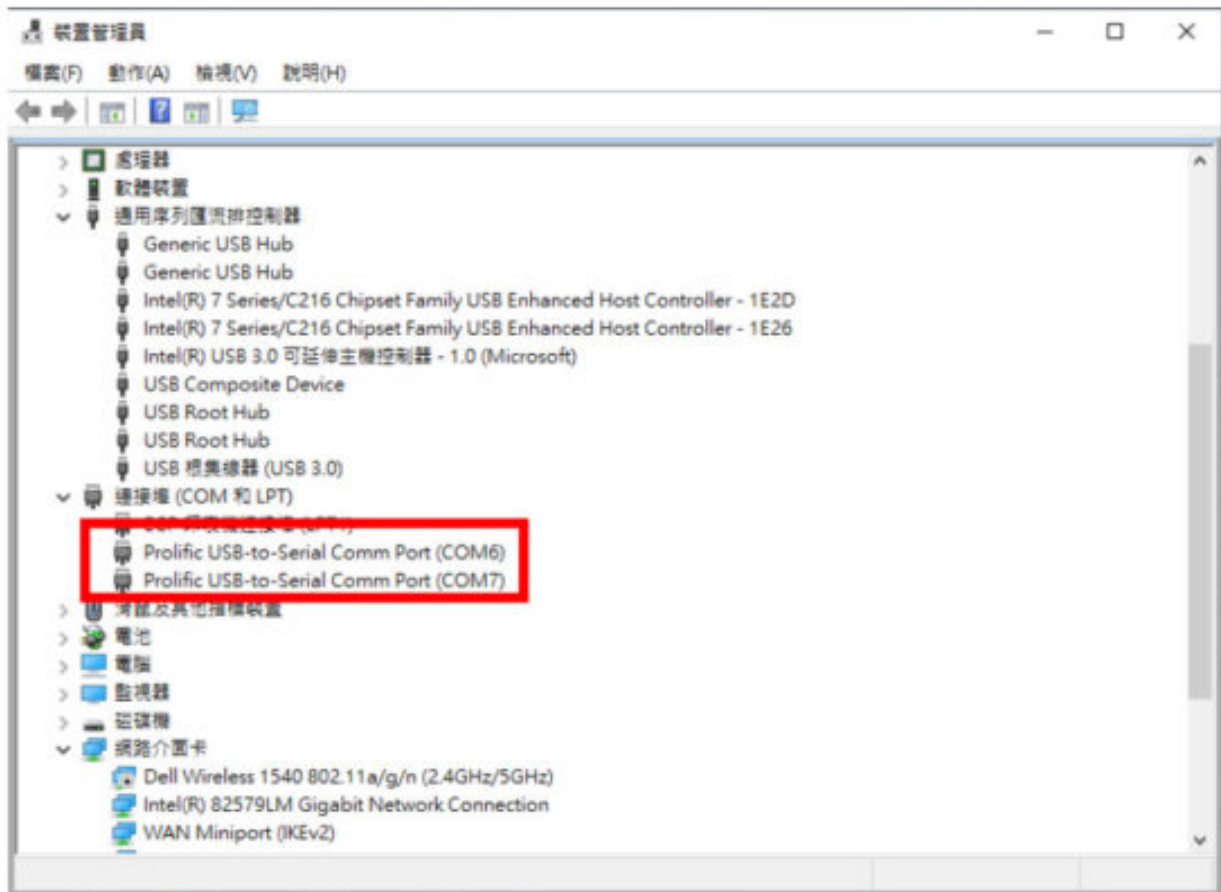| 名稱	修改日期	類型	大小
mbt.exe	2020/7/21 上午 1...	應用程式	50 KB
mbt_setup.ini	2020/7/21 下午 0...	組態設定	1 KB

AW-CU484 EVB
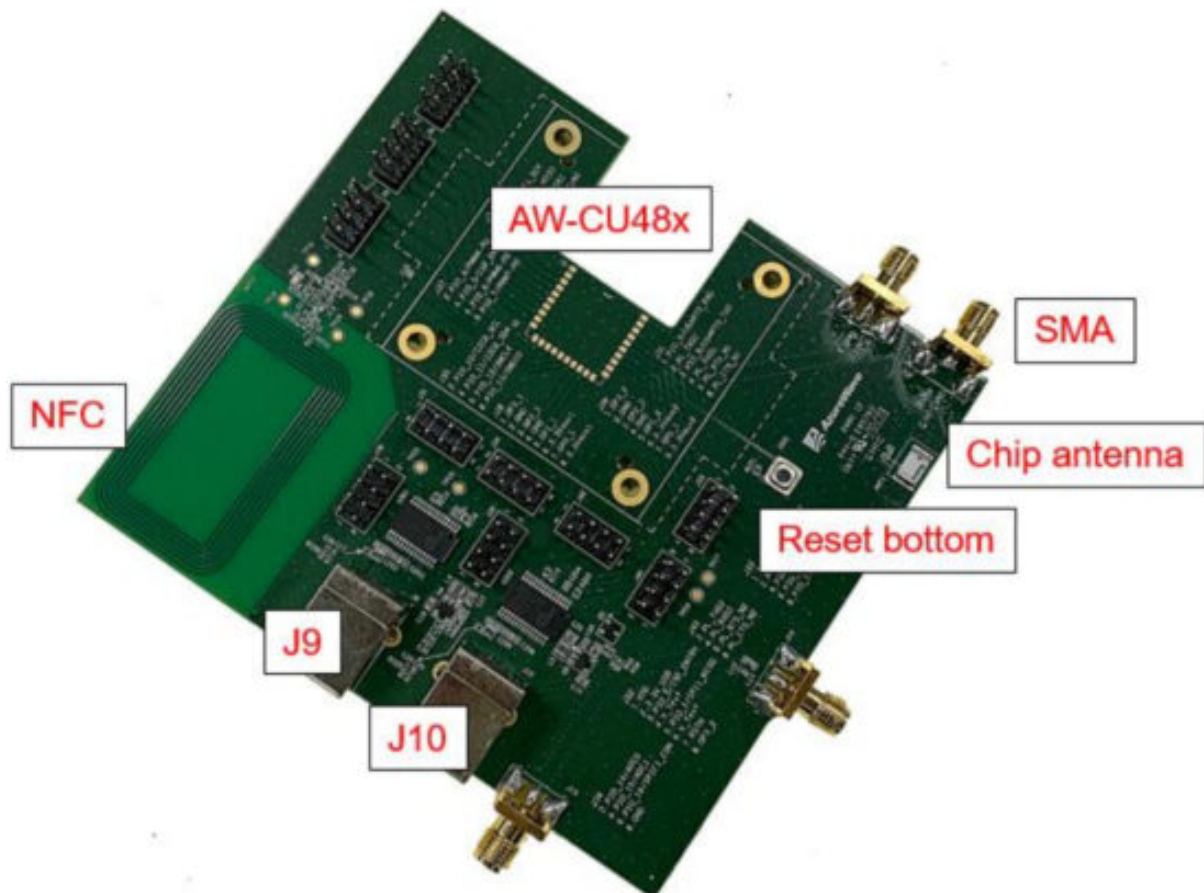
How to download the image

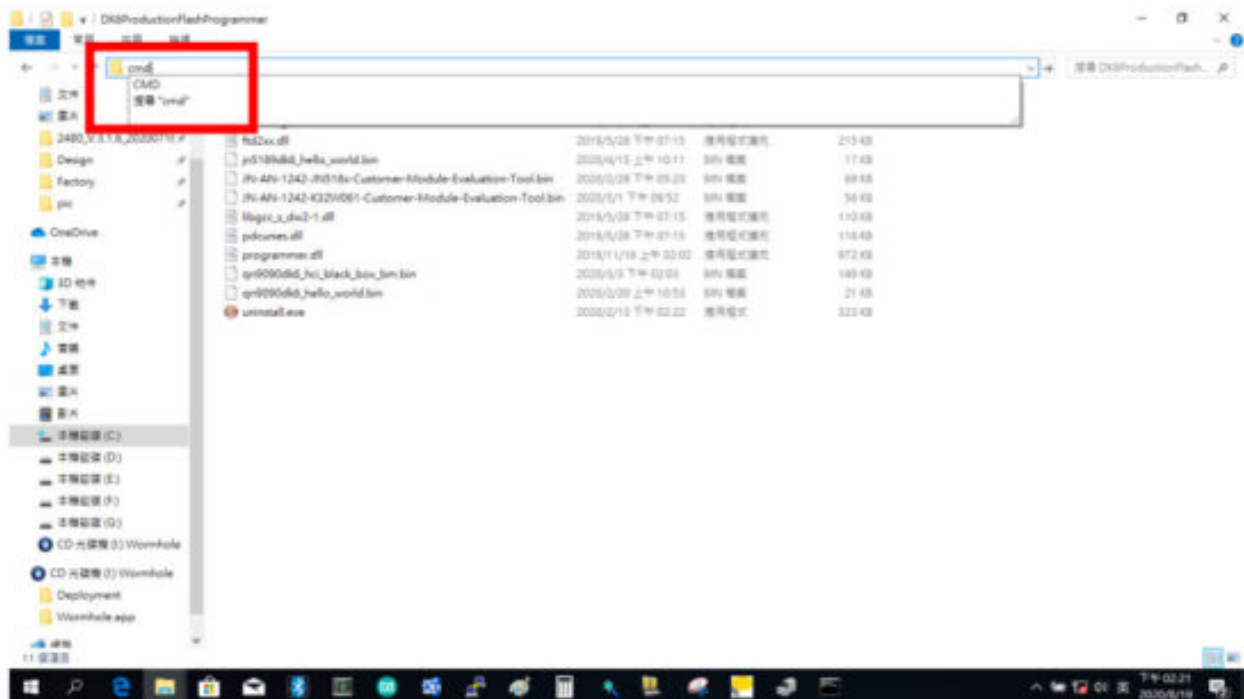1. You must check the COM number (can check the value by the following picture)

   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)

DUT COM PORT J9

4. **Select Y**

5. **Finish**

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)
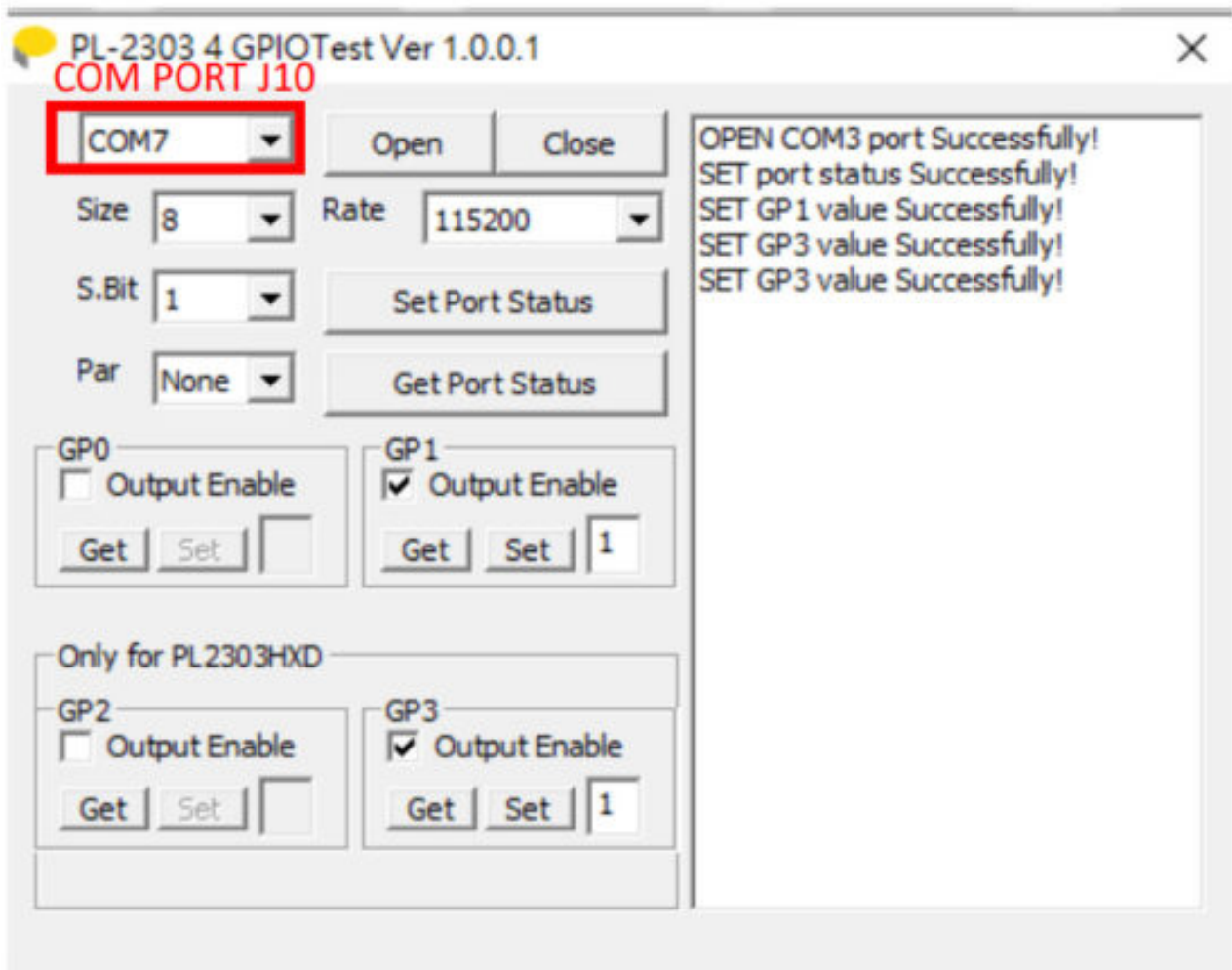
Test mode(In Zigbee)

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
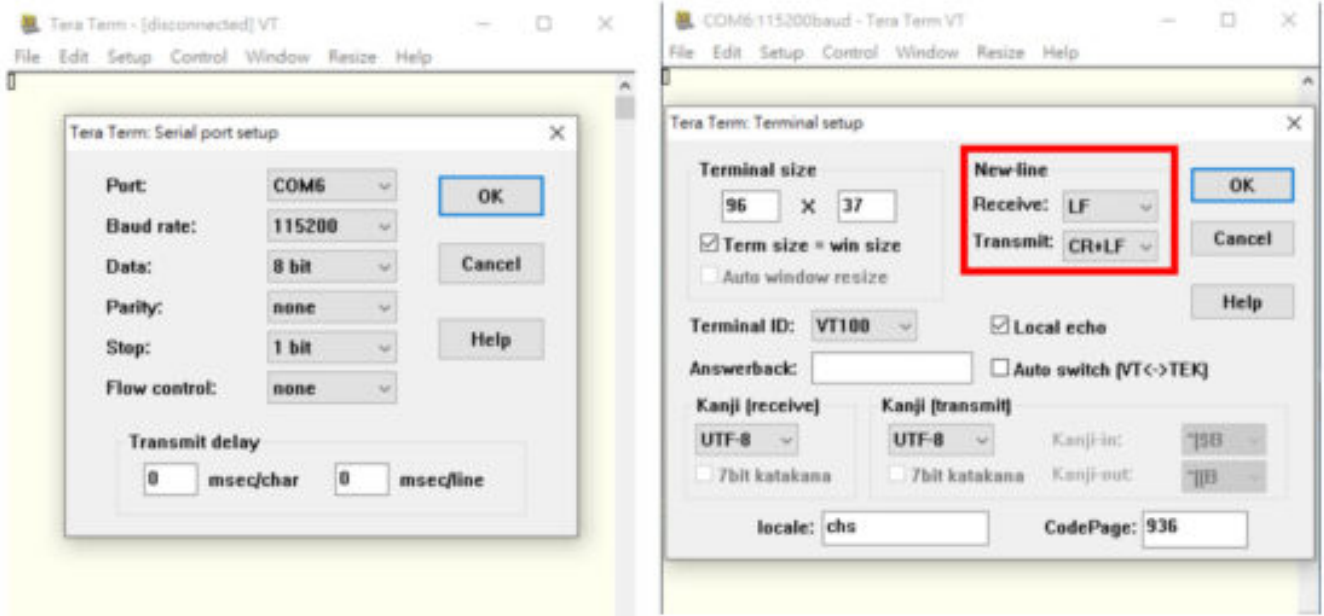
4. Select a) standard module

5. Select a) Regular

6. Customer Module Evaluation Tool (main menu)

   • Select "g" trigger packet test (Rx test)

   • Select "I" 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 DIO2 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 PIO1)

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
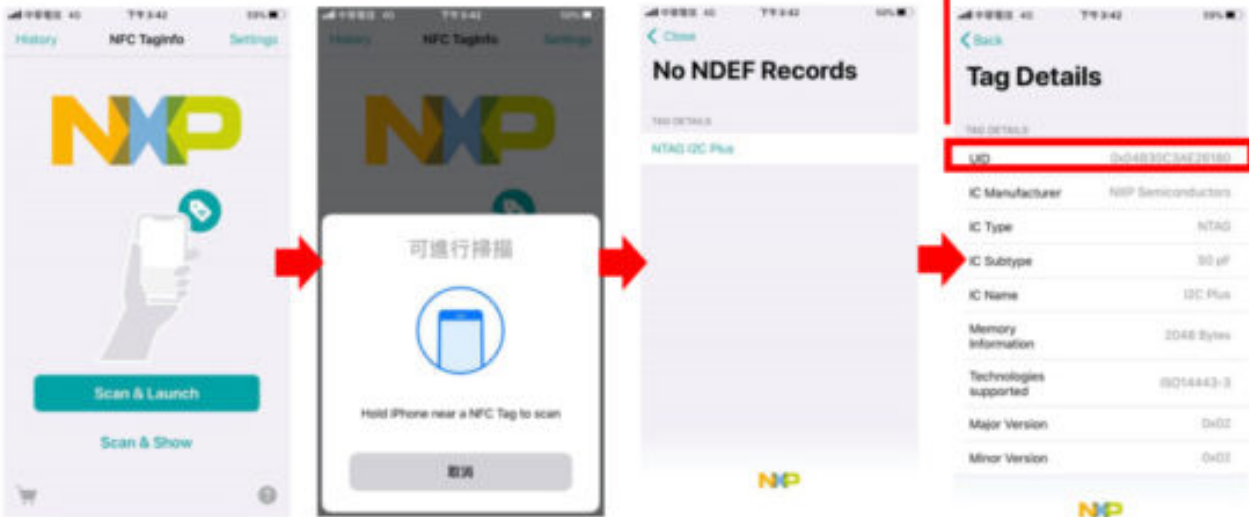
Can read the NFC MAC in Block 0: 04830C3AE26180

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
Block   1: 00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
Block   2: 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
Block   4: 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
```

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 = Atmosic 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.

系統管理員: 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_dut_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>
```


AzureWave

AzureWave Technologies, Inc.

Documents / Resources

AzureWave AW-CU484 Wireless Microcontroller Stamp LGA Module [pdf] User Guide
AW-CU484 Wireless Microcontroller Stamp LGA Module, AW-CU484, Wireless Microcontroller
Stamp LGA Module

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