AW-CU485

IEEE802.15.4 Wireless Microcontroller Zigbee 3.0 Stamp LGA Module

User Guide

Rev. A

(For Standard)

Revision History

Version	Revision Date	Description	Initials	Approved
A	2020/10/19	● Initial Version	Jeff Kuo	N.C. Chen

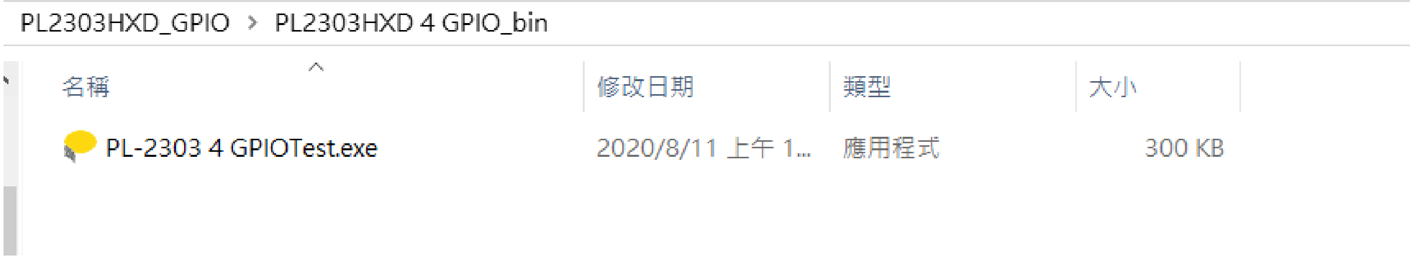
1. System Setup

(1) Hardware Requirements

- AW-CU485 Module test board
- Host system need running the Window10 x64 operating system
- Vector Signal Analyzer/WLAN analyzer for transmit measurements.
- WLAN signal generator for receiver measurements.
- RF isolation chamber for receive measurements.
- RF attenuators
- RF cable
- NFC reader

(2) Software Requirements

- PL-2303 GPIO Test (tool)

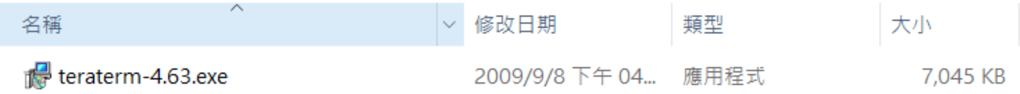


PL2303HXD_GPIO › PL2303HXD 4 GPIO_bin

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

- Tera Term (tool)

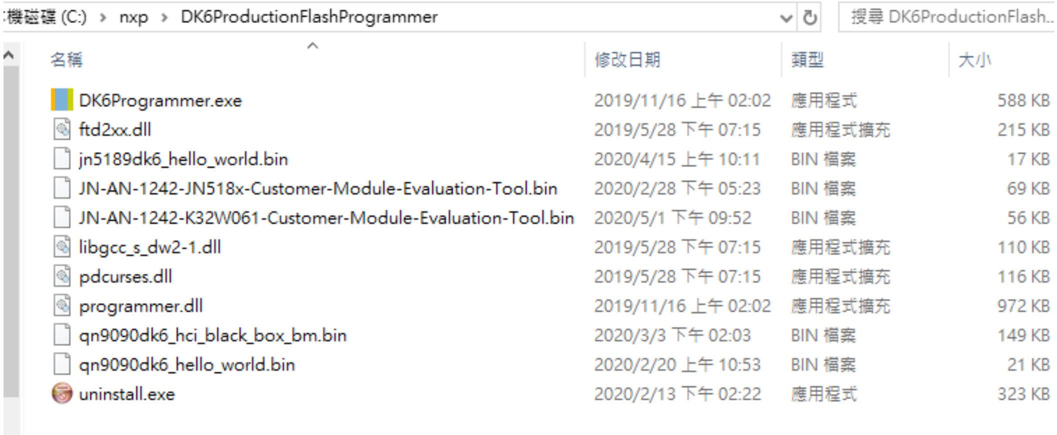
Note: Tera Term is our suggestion, you can try any terminal tool.



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

- DK6Production flash programmer folder (please contact FAE)

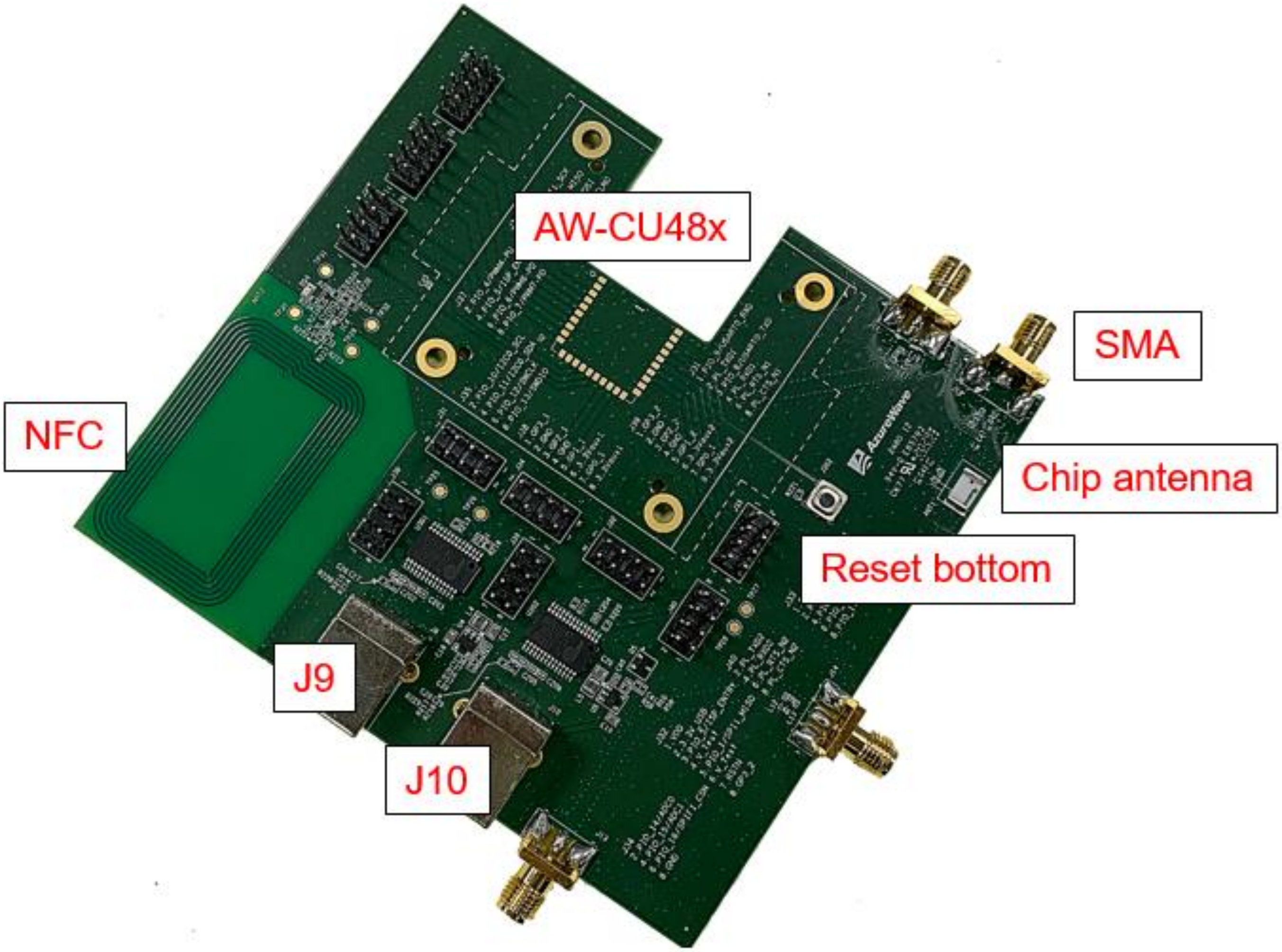
Note: You must have below files



:機磁碟 (C:) › nxp › DK6ProductionFlashProgrammer

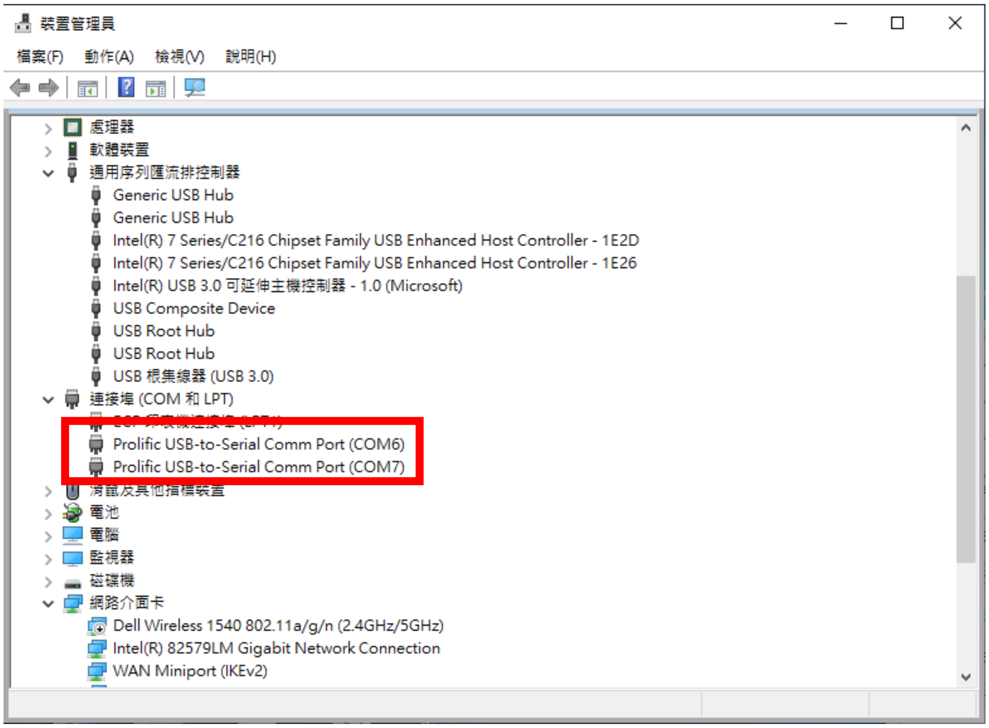
名稱	修改日期	類型	大小
DK6Programmer.exe	2019/11/16 上午 02:02	應用程式	588 KB
ftd2xx.dll	2019/5/28 下午 07:15	應用程式擴充	215 KB
jn5189dk6_hello_world.bin	2020/4/15 上午 10:11	BIN 檔案	17 KB
JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin	2020/2/28 下午 05:23	BIN 檔案	69 KB
JN-AN-1242-K32W061-Customer-Module-Evaluation-Tool.bin	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
pdcurses.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

2. AW-CU485 EVB


AW-CU48x
SMA
NFC
Chip antenna
Reset bottom
J9
J10

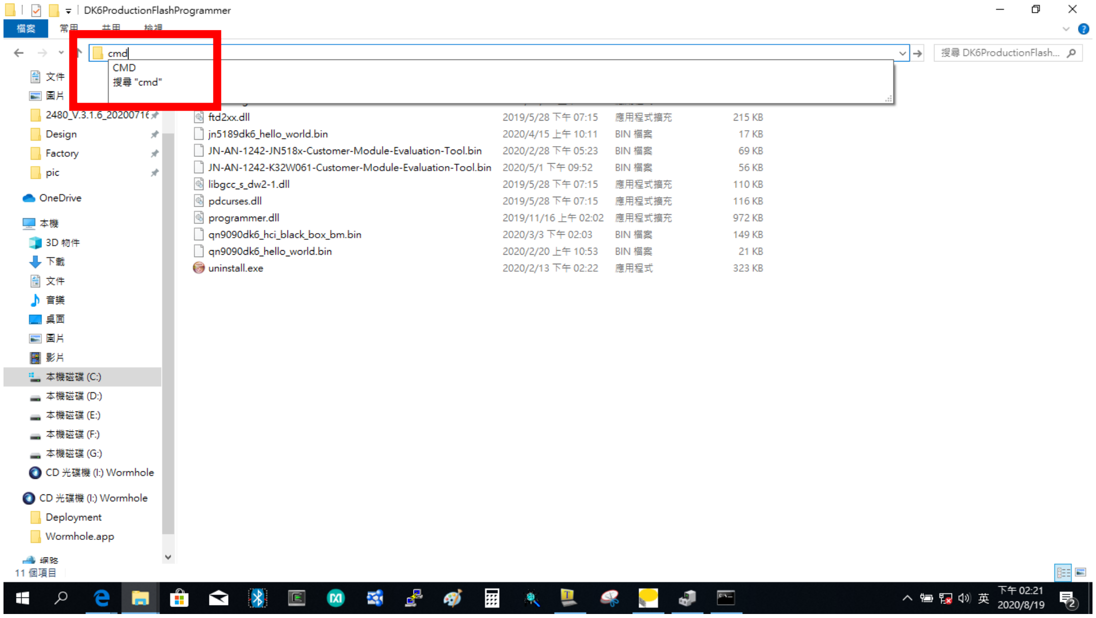
3. How to download the image

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.


裝置管理員
檔案(F)
動作(A)
檢視(V)
說明(H)

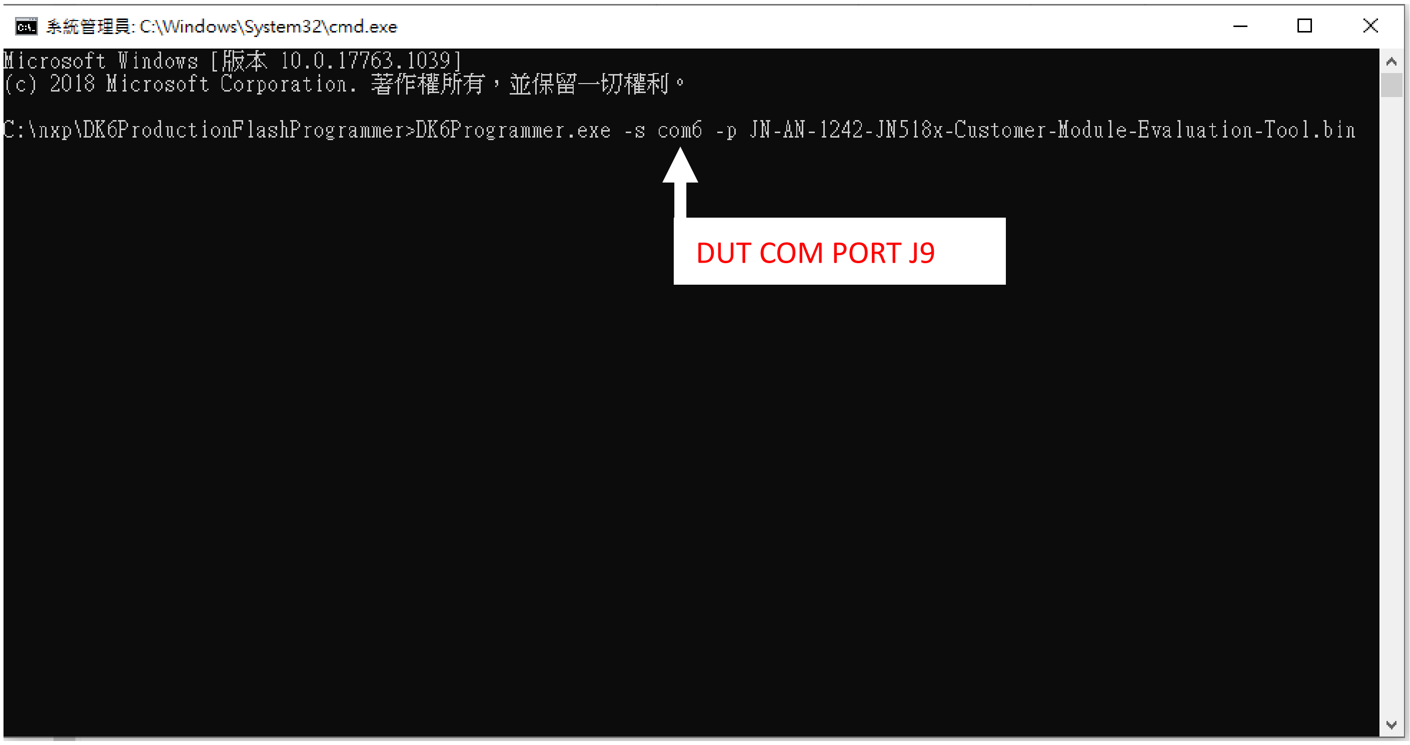
- 處理器
- 軟體裝置
- 通用序列匯流排控制器
  - Generic USB Hub
  - Generic USB Hub
  - Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
  - Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
  - Intel(R) USB 3.0 可延伸主機控制器 - 1.0 (Microsoft)
  - USB Composite Device
  - USB Root Hub
  - USB Root Hub
  - USB 根集線器 (USB 3.0)
- 連接埠 (COM 和 LPT)
  - ECP 印表機連接埠 (LPT1)
  - Prolific USB-to-Serial Comm Port (COM6)
  - Prolific USB-to-Serial Comm Port (COM7)
- 滑鼠及其他指標裝置
- 電池
- 電腦
- 監視器
- 磁碟機
- 網路介面卡
  - Dell Wireless 1540 802.11a/g/n (2.4GHz/5GHz)
  - Intel(R) 82579LM Gigabit Network Connection
  - WAN Miniport (IKEv2)

2. Find the folder of DK6ProductionFlashProgrammer.
   And type cmd to get into the Dos window.


DK6ProductionFlashProgrammer
檔案
常用
共用
檢視
cmd
CMD
搜尋 "cmd"
搜尋 DK6ProductionFlash...
文件
圖片
2480_V.3.1.6_20200716
Design
Factory
pic
OneDrive
本機
3D 物件
下載
文件
音樂
桌面
圖片
影片
本機磁碟 (C:)
本機磁碟 (D:)
本機磁碟 (E:)
本機磁碟 (F:)
本機磁碟 (G:)
CD 光碟機 (I:) Wormhole
CD 光碟機 (I:) Wormhole
Deployment
Wormhole.app
網路
11 個項目
下午 02:21
2020/8/19

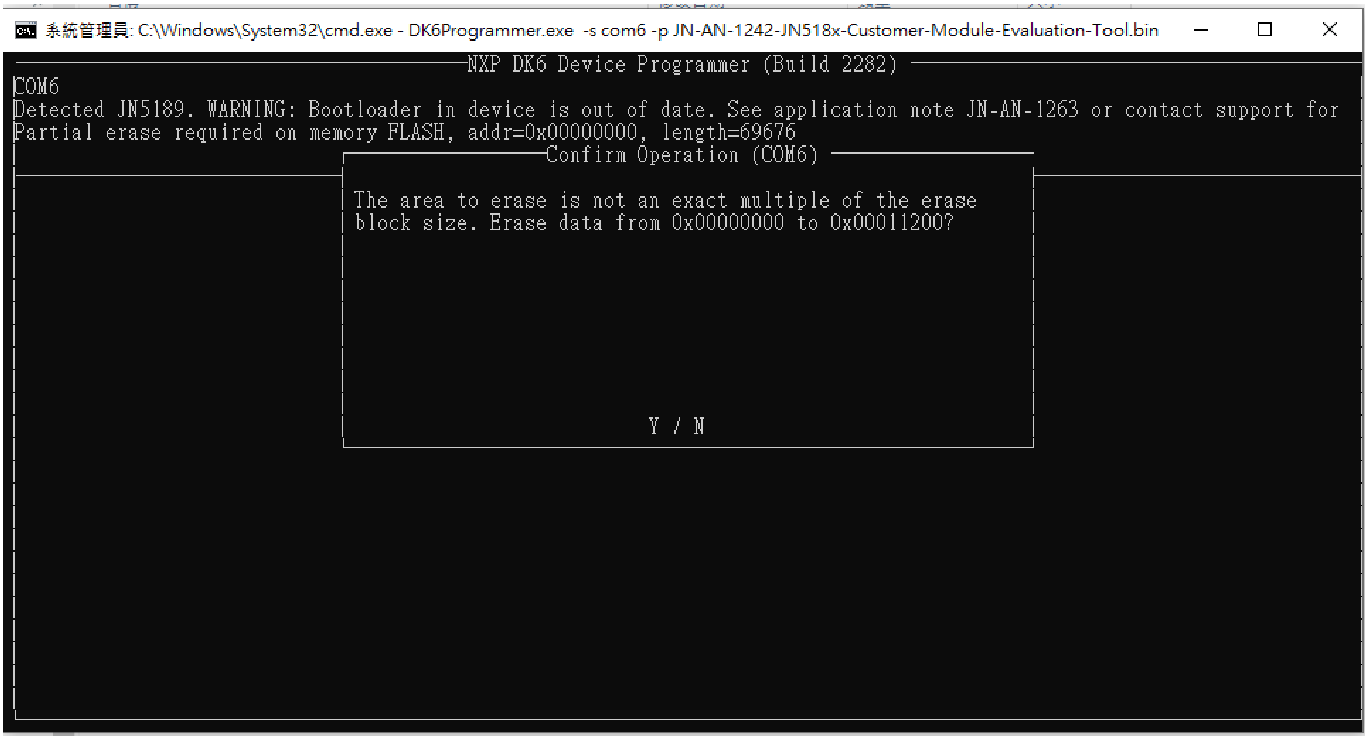
ftd2xx.dll	2019/5/28 下午 07:15	應用程式擴充	215 KB
jn5189dk6_hello_world.bin	2020/4/15 上午 10:11	BIN 檔案	17 KB
JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin	2020/2/28 下午 05:23	BIN 檔案	69 KB
JN-AN-1242-K32W061-Customer-Module-Evaluation-Tool.bin	2020/5/1 下午 09:52	BIN 檔案	56 KB
libgcc_s_dw2-1.dll	2019/5/28 下午 07:15	應用程式擴充	110 KB
pdcurses.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

3. Key in DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin
   To open the tool and download the image file (com6 is your DUT J9 Com port)


系統管理員: C:\Windows\System32\cmd.exe
DUT COM PORT J9

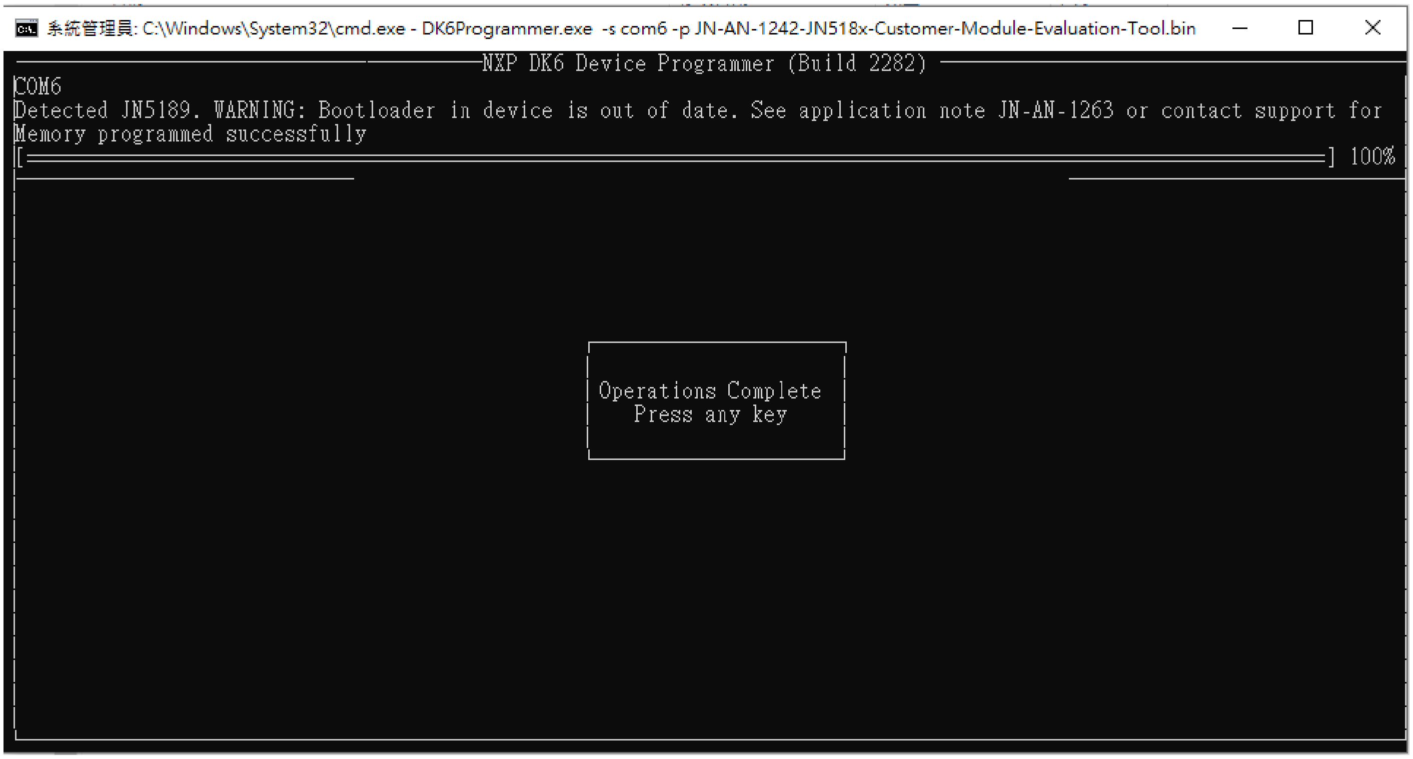
```
Microsoft Windows [版本 10.0.17763.1039]
(c) 2018 Microsoft Corporation. 著作權所有，並保留一切權利。

C:\nxp\DK6ProductionFlashProgrammer>DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin
```

4. Select Y


系統管理員: 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

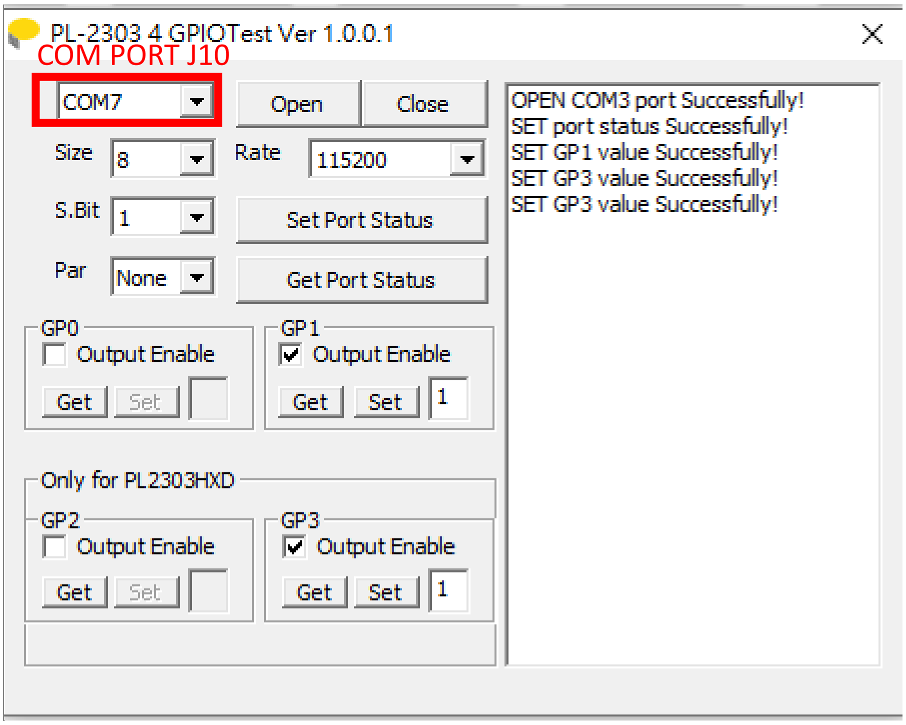


系統管理員: C:\Windows\System32\cmd.exe - DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin

```
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
```

4. 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 set button.(open test mode)
5. Setting the GP3
   First Key in 0 and Select set button
   Then Key in 1 and Select set button again. (Reset)


PL-2303 4 GPIOTest Ver 1.0.0.1
Open
Close
Set Port Status
Get Port Status
Get
Set
Only for PL2303HXD

COM PORT J10

COM7

Size 8

Rate 115200

S.Bit 1

Par None

GP0 ☐ Output Enable

GP1 ☑ Output Enable 1

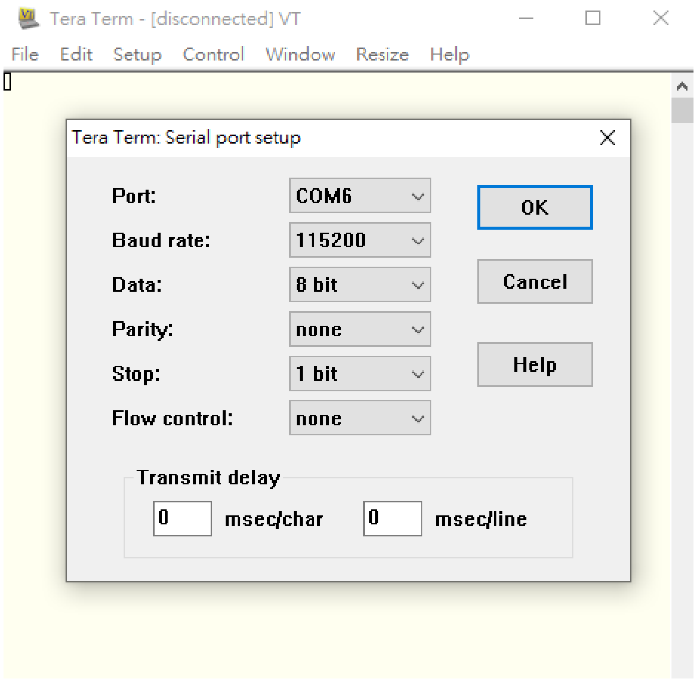
GP2 ☐ Output Enable

GP3 ☑ Output Enable 1

```
OPEN COM3 port Successfully!
SET port status Successfully!
SET GP1 value Successfully!
SET GP3 value Successfully!
SET GP3 value Successfully!
```

5. Test mode

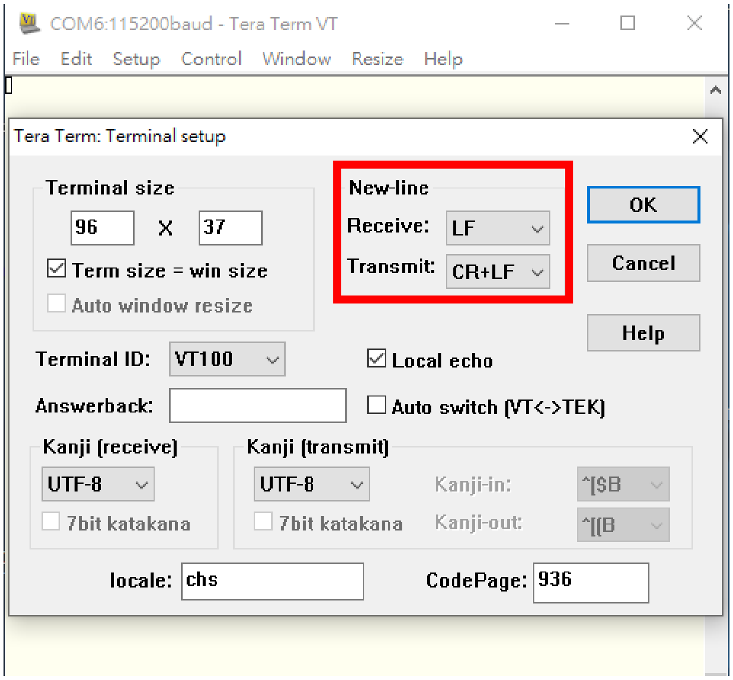
1. Open the Tera Term
2. Select setup →Serial port
   - Setting COM port (J9 com port)
   - Baud rate is 115200
3. Select setup →Terminal
   - Receive select LF
   - Transmit select CR+LF


Tera Term - [disconnected] VT
File Edit Setup Control Window Resize Help
OK
Cancel
Help

Tera Term: Serial port setup

Port: COM6
Baud rate: 115200
Data: 8 bit
Parity: none
Stop: 1 bit
Flow control: none

Transmit delay
0 msec/char 0 msec/line


COM6:115200baud - Tera Term VT
File Edit Setup Control Window Resize Help
OK
Cancel
Help

Tera Term: Terminal setup

Terminal size
96 X 37
☑ Term size = win size
☐ Auto window resize

New-line
Receive: LF
Transmit: CR+LF

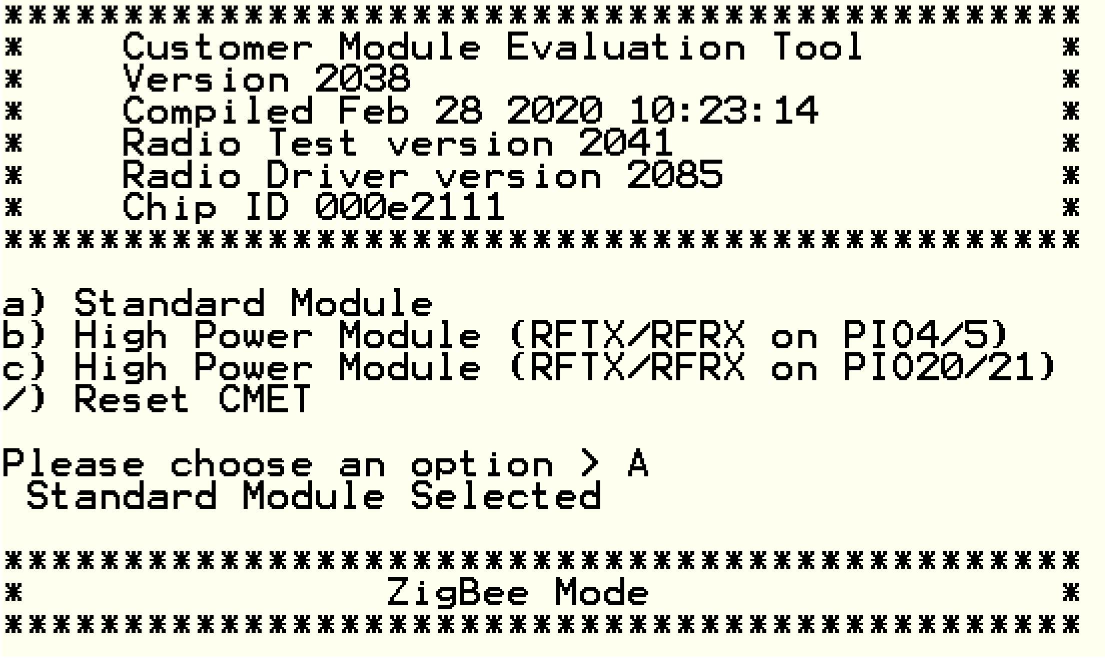
Terminal ID: VT100
☑ Local echo
Answerback:
☐ Auto switch (VT<->TEK)

Kanji (receive)
UTF-8
☐ 7bit katakana

Kanji (transmit)
UTF-8
☐ 7bit katakana
Kanji-in: ^[$B
Kanji-out: ^[(B

locale: chs
CodePage: 936

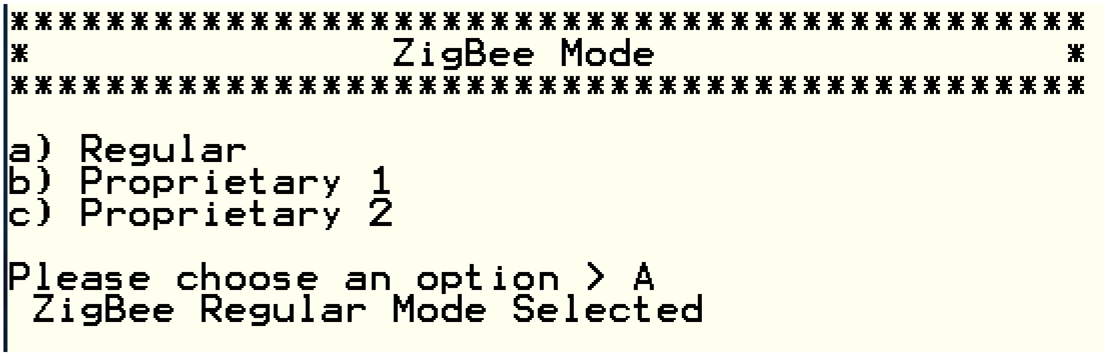
4. Select a) standard module



```
*********************************************
*    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 PIO4/5)
c) High Power Module (RFTX/RFRX on PIO20/21)
/) Reset CMET

Please choose an option > A
 Standard Module Selected

*********************************************
*               ZigBee Mode                 *
*********************************************
```

---

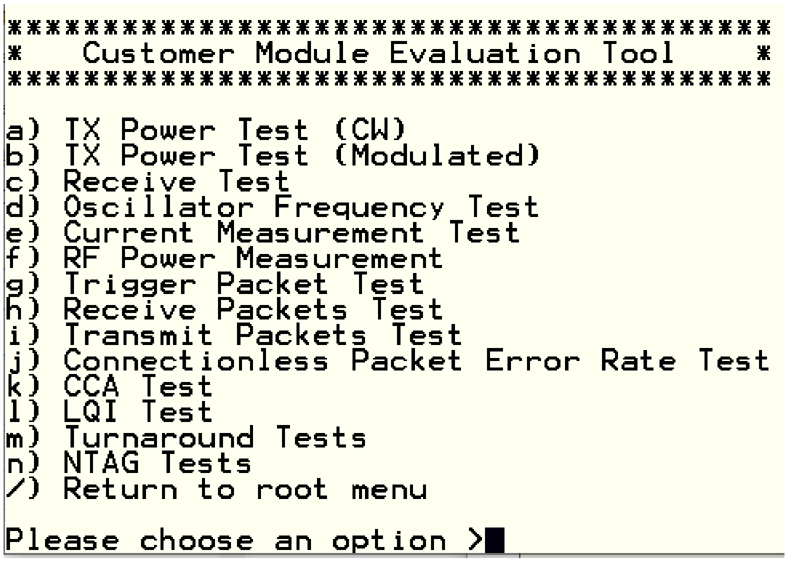
5. Select a) Regular



```
*********************************************
*               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 >
```

---

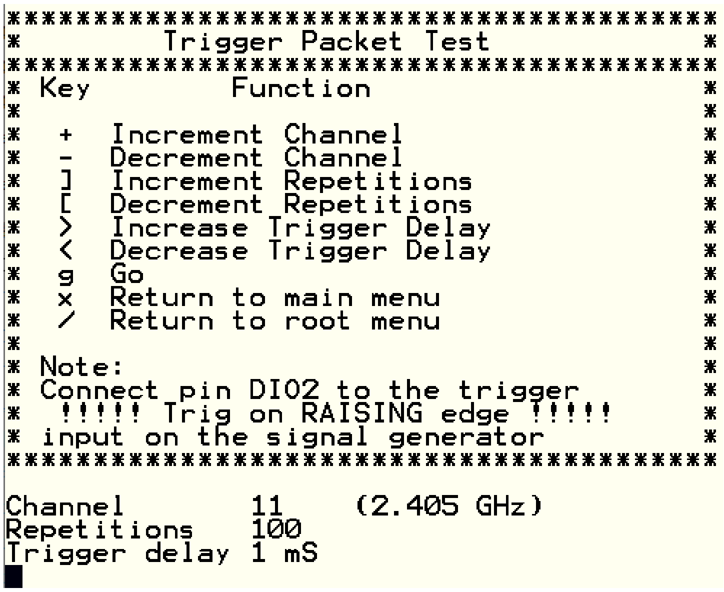
6. RX test (Select g)

g → Start test (start to receive the package)

+/- → Increment or decrement channel

X → Return to 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
```

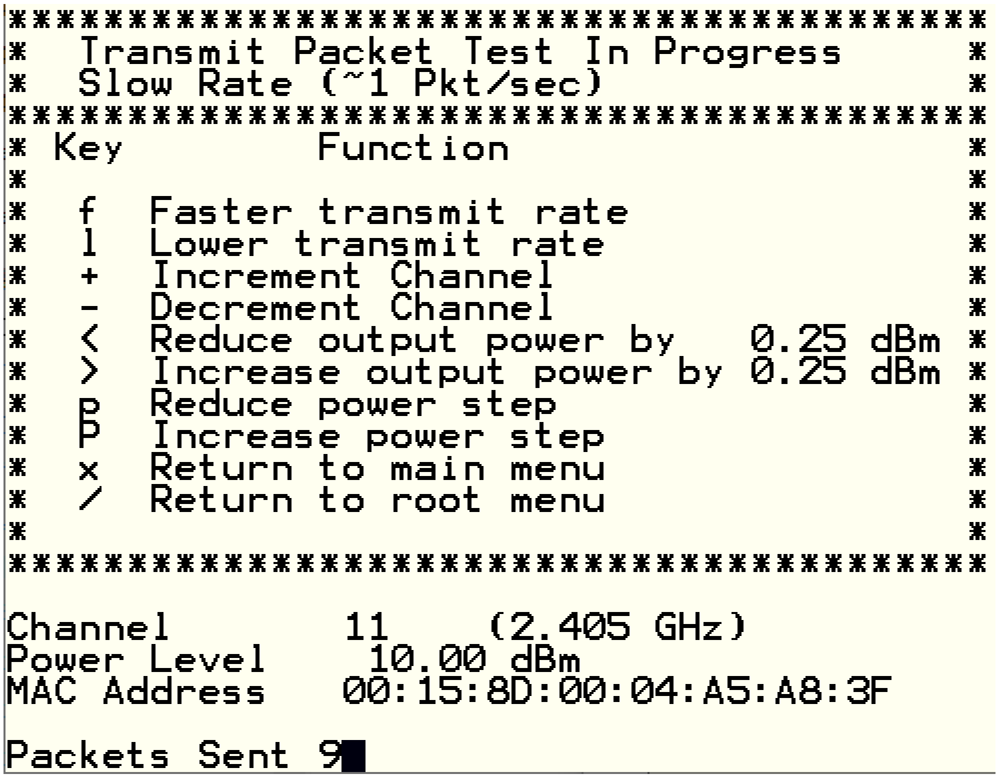
7. TX test (Select i)

    +/- → Can control the channel

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

    X → Return to 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
```

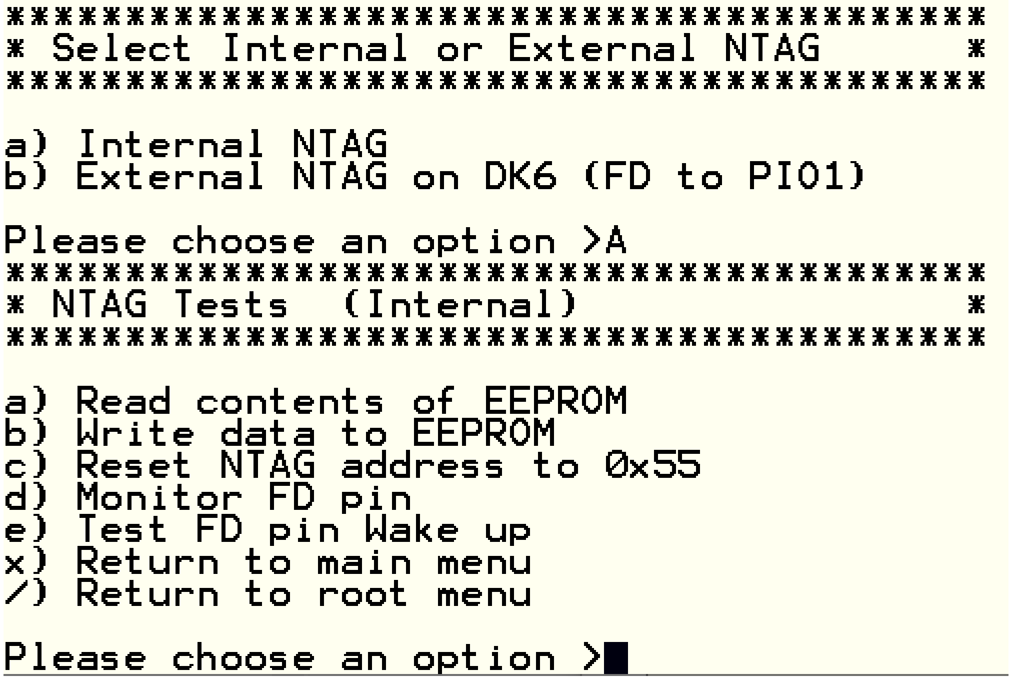
8. NTAG tests(Select n)

Select Internal or External NTAG

- Select a) internal NTAG

NTAG Tests (Internal)

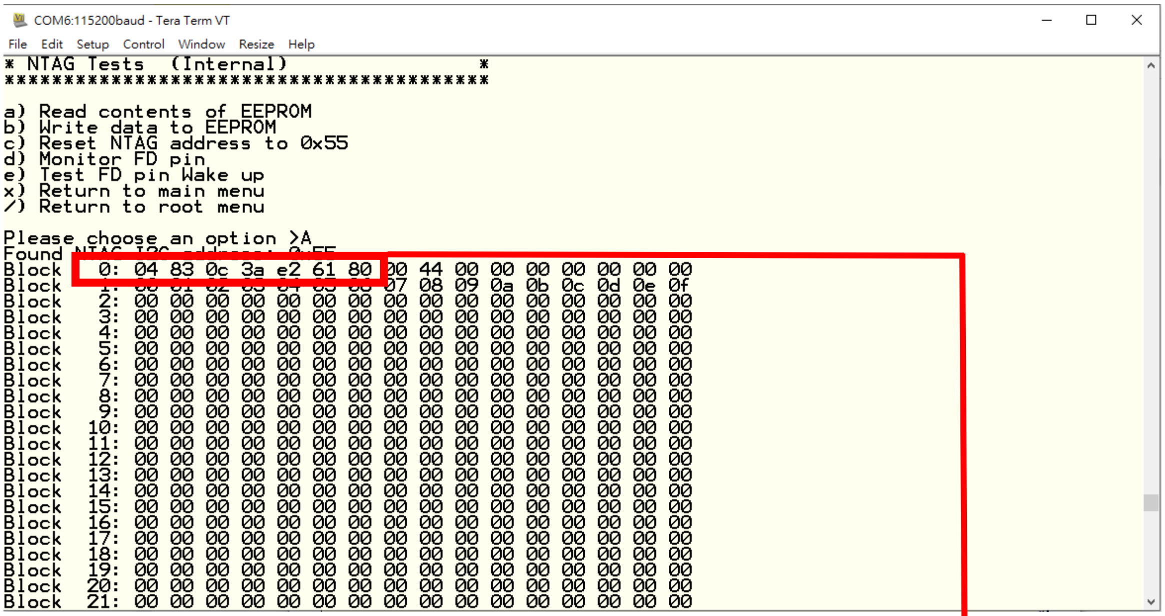
- Select a) read contents of EEPROM
- Select b) write data to EEPROM



```
****************************************
* 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 >
```

9. Read contents of EEPROM

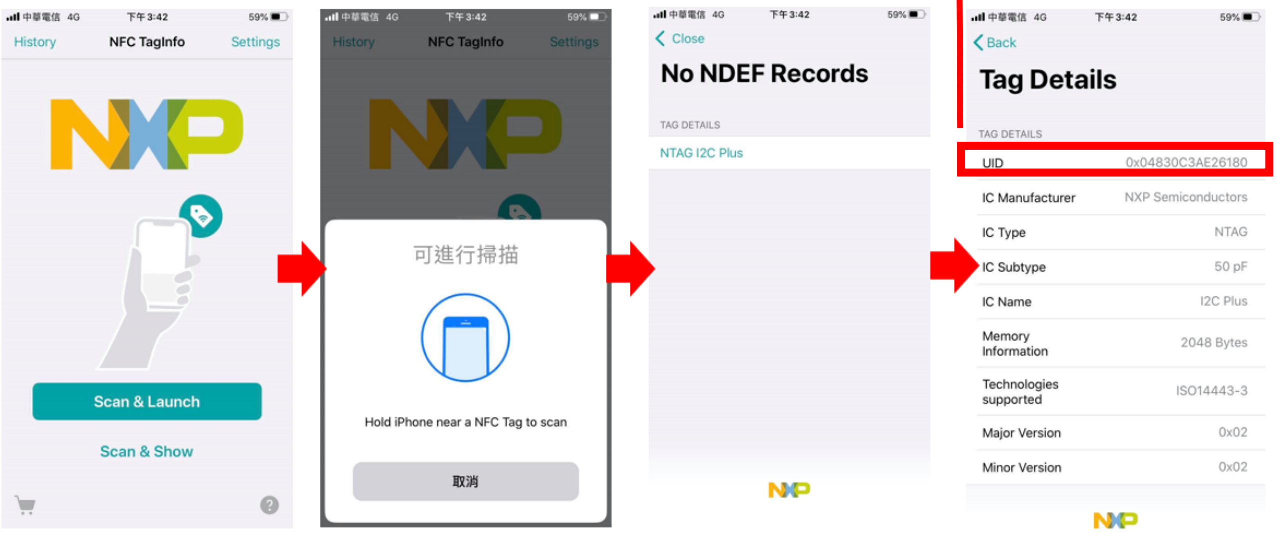
   Can read the NFC MAC in Block 0: 04830C3AE26180


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 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
Block   6: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block   7: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block   8: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block   9: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  10: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  11: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  12: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  13: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  14: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  15: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  16: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  17: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  18: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  19: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  20: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Block  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



Hold iPhone near a NFC Tag to scan

No NDEF Records

TAG DETAILS

NTAG I2C Plus

Tag Details

TAG DETAILS

UID	0x04830C3AE26180
IC Manufacturer	NXP Semiconductors
IC Type	NTAG
IC Subtype	50 pF
IC Name	I2C Plus
Memory Information	2048 Bytes
Technologies supported	ISO14443-3
Major Version	0x02
Minor Version	0x02

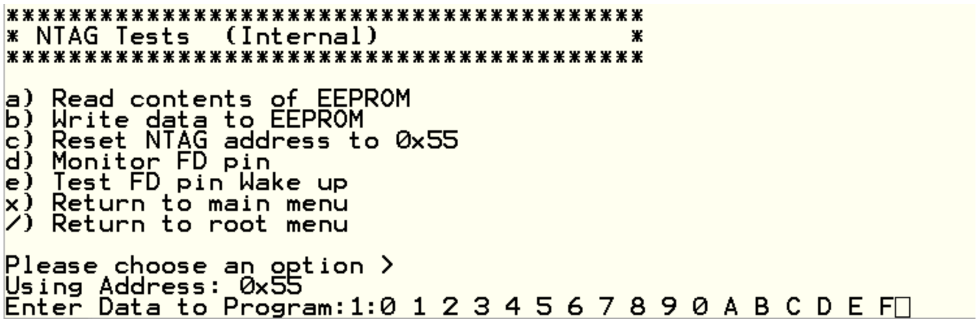
---

10. Write data to EEPROM

    Use this test to write data to EEPROM, Format is:

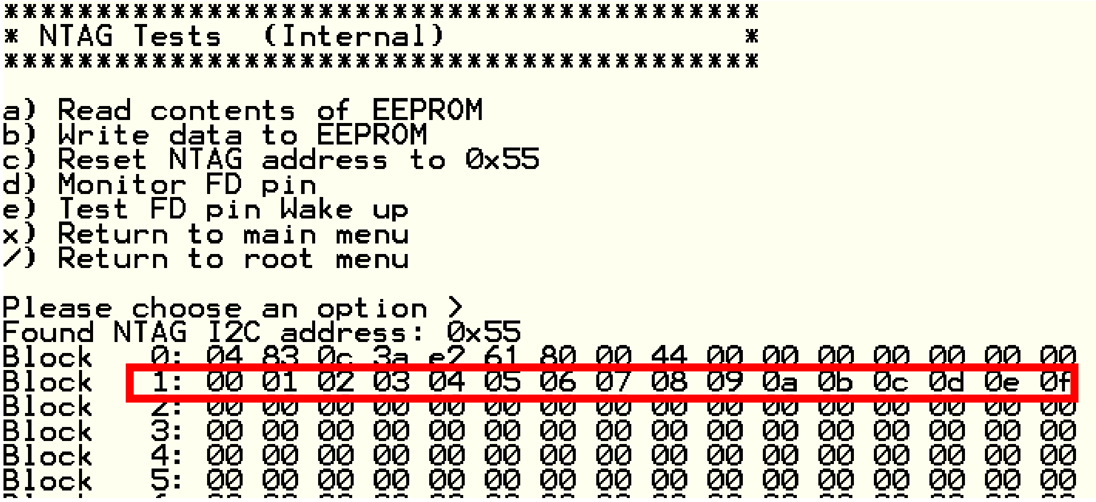
    1:0 1 2 3 4 5 6 7 8 9 A B C D E F

    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
```