



# MEDIATEK MT7925B22M Test Mode Software Application User Manual

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MEDIATEK MT7925B22M Test Mode Software Application



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Document Revision History

| Version | Date     | Author      | Change List            |
|---------|----------|-------------|------------------------|
| V1.0    | 20230407 | Henry Hsiao | Initial draft release. |

## System overview

### General Description

MT7925B22M chip is highly integrated single chip which have built in 2×2 dual-band wireless LAN and Bluetooth combo radio. It can be configured in test-mode for performance validation, production testing and regulatory certification. There are two software tools, QA-Tool and Combo-Tool responsible for evaluating WIFI and Bluetooth signal and performance testing. This document is introducing how to install and use QA-Tool.

### QA-Tool

Users have to install 3 major software before using QA-Tool.

- WinPcap
- Windows7 X64 security package
- QA-Tool Windows driver

MTK strongly recommends install QA-Tool on Windows 7-64bit operating system.

### How to install QA-tool

Please follow the procedure listed in below to install QA-Tool

- 1st : Install WinPcap
- 2nd : Update Windows7 security package to register x64 signature mechanism
- 3rd : Instal QA-Tool Windows driver.

### Install WinPcap

If users are the 1st time operating this tool, users should install WinPcap at first. Please follow below link and steps to install this software.

<https://www.winpcap.org/install/>

WinPcap version: 4.1.3 or later.



### winpcap 4-1-3.exe

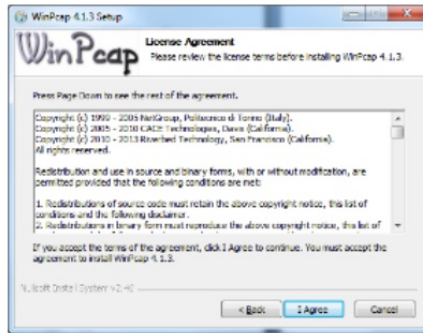
WinPcap 4.1.3 installer

Riverbed Technology, I c.

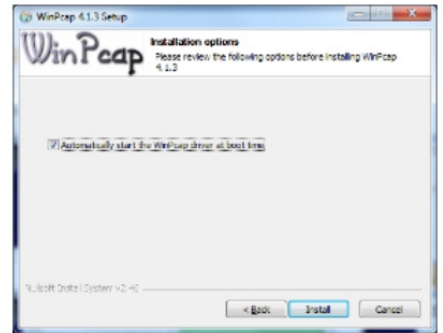
1



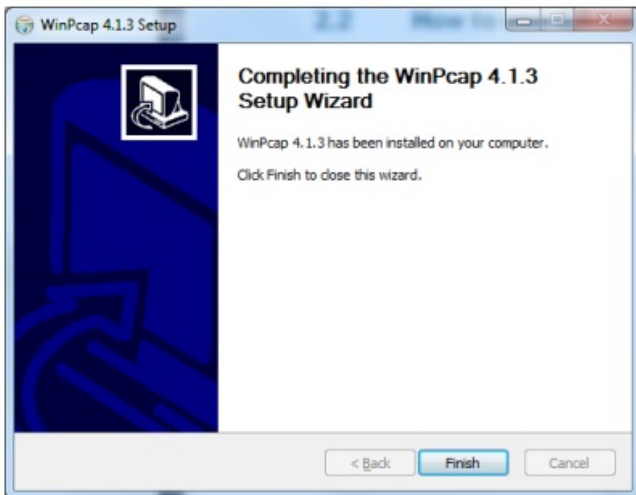
2



3



4



## Windows 10 install note

If users can't install the driver in Windows 10 due to driver integrity check. Try to disable the integrity check to allow installation.

- Disable Driver Integrity Check

1. Open cmd as Administrator.
2. Execute 'bcdedit /set nointegritychecks on'
3. Reboot
4. Then install again. If still fail, try do 'Disable Secure Boot' below.

**NOTE:** Re-enable the driver integrity check by executing 'bcdedit /set nointegritychecks off' and then rebooting.

- Disable Secure Boot

Please refer to:

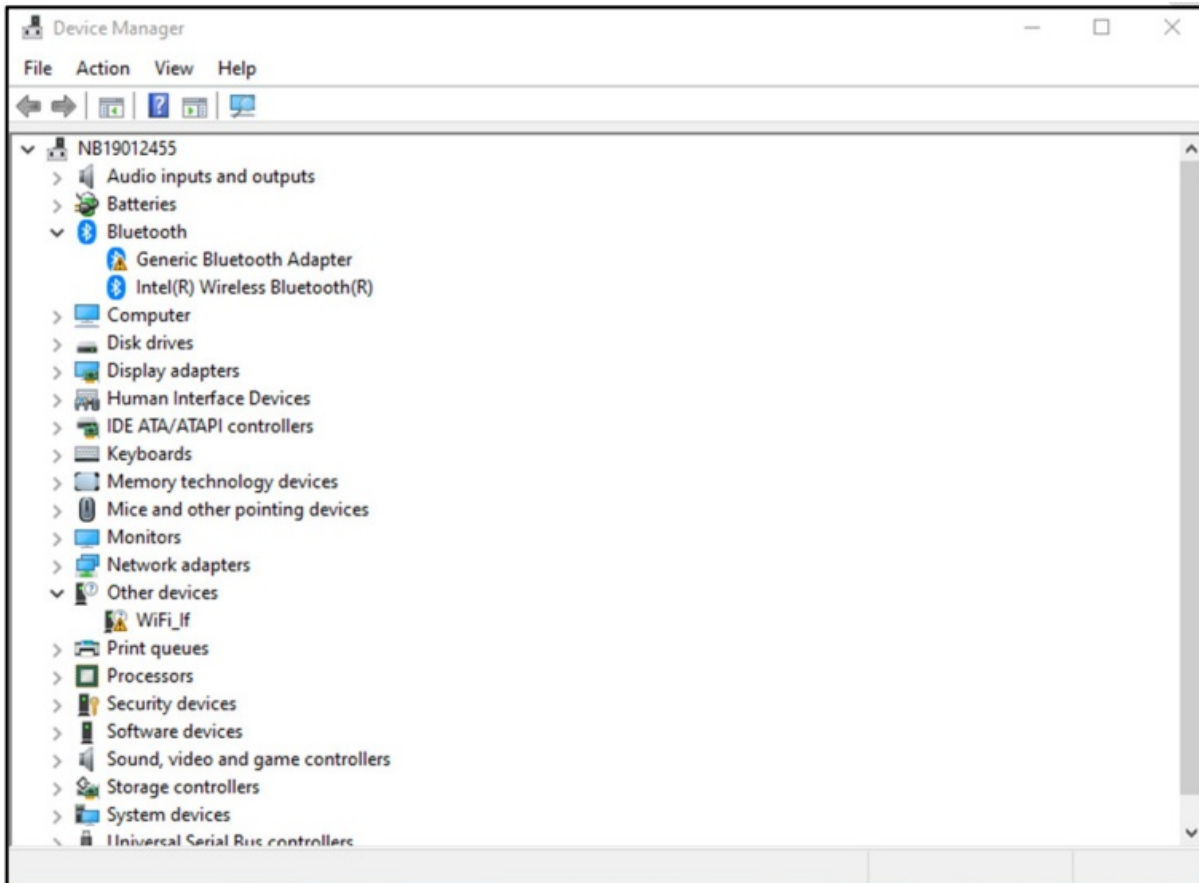
<https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/disabling-secure-boot>

## QA-Tool Windows driver

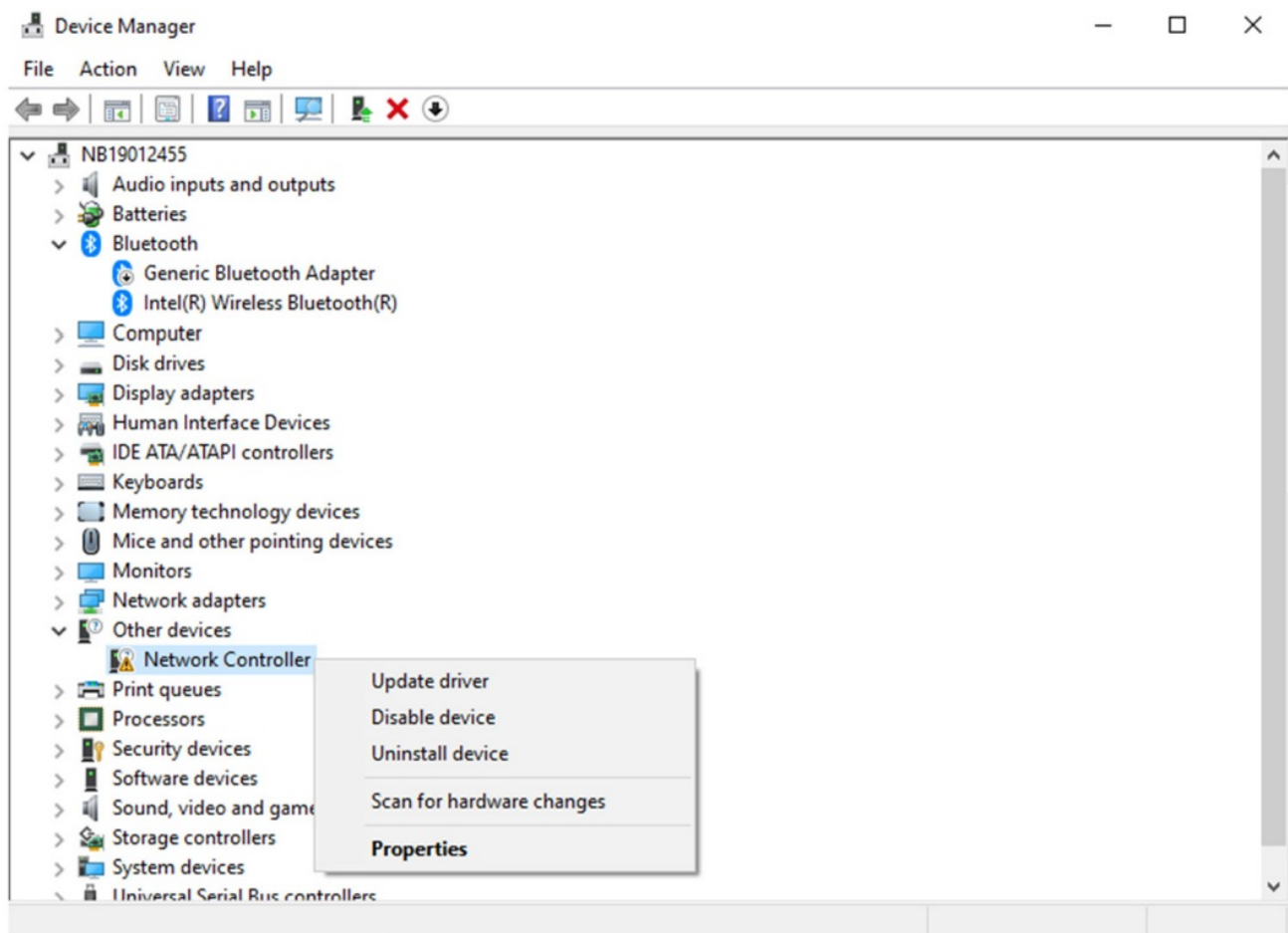
MT7925B22M supports USB, and PCIE interface. According to interface type of MT7925B22M on users' hand, please refer to steps shown below to install QA-Tool Windows driver:

### USB interface:

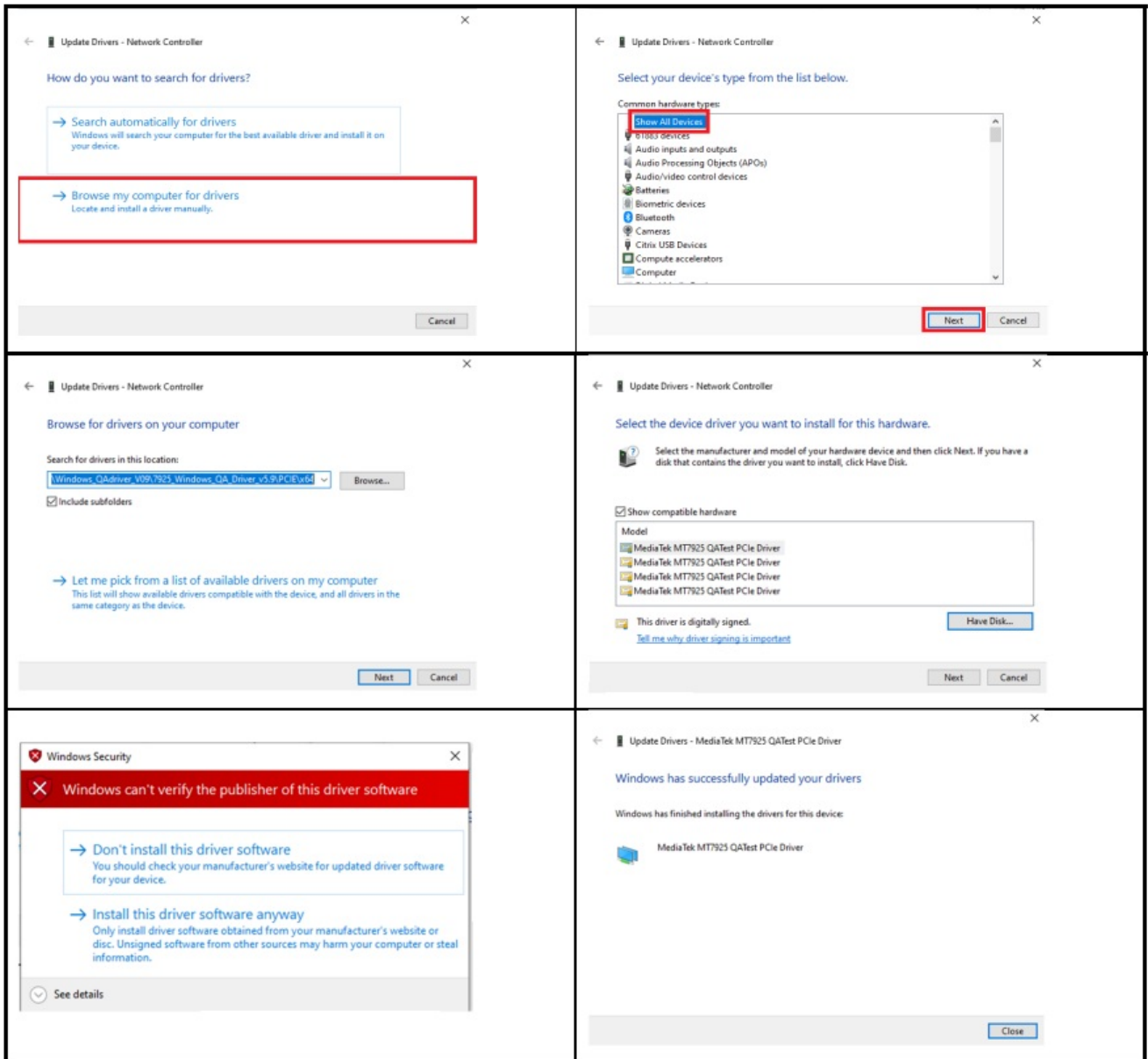
1. Connect DUT to PC/NB and check Windows Device Manager.
2. Window Device Manager would discover DUT shows “Generic Bluetooth Adapter”(BT device) and “WiFi\_If”(WiFi device).



3. Right-click on “WiFi\_If” Wifi device and Update Driver Software.



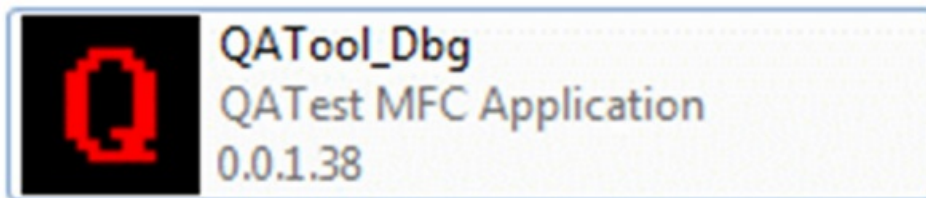
4. According user's Windows' OS to select and install test tool driver.



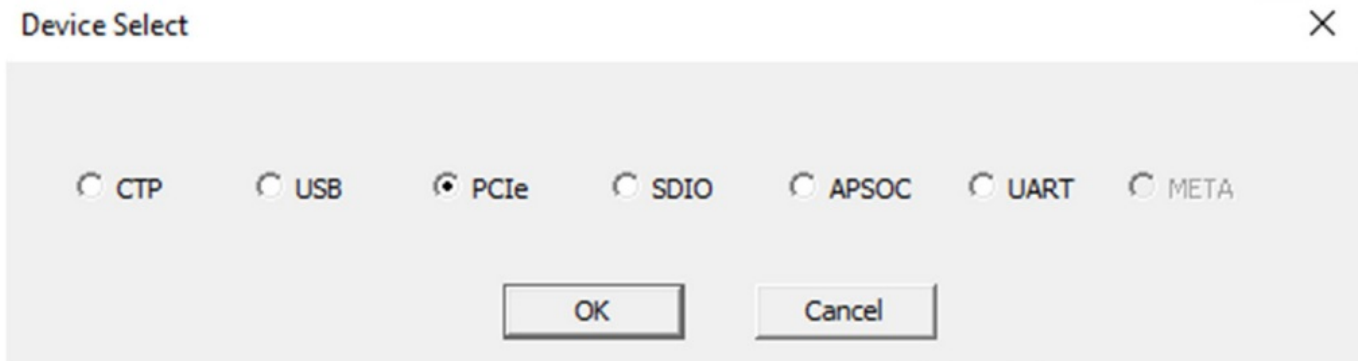
## How to use QA-tool

### Launch QA-Tool

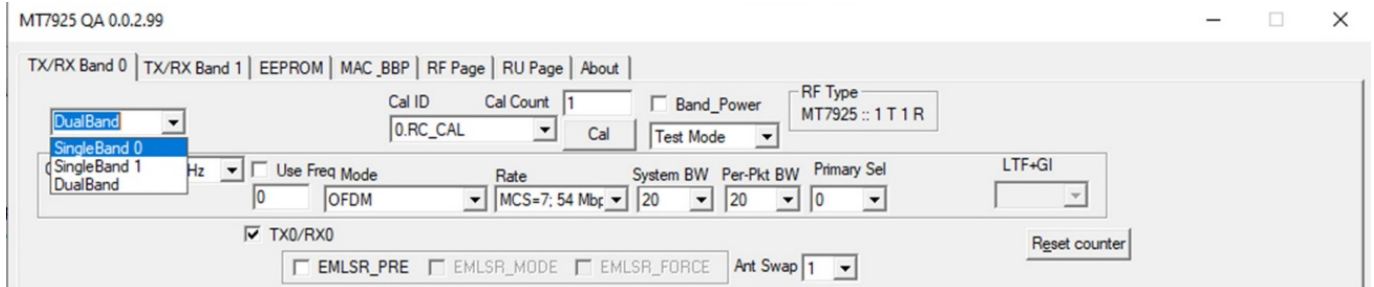
Double-click on QA-Tool icon "QATool\_Dbg.exe" and Device Select window will pop up.



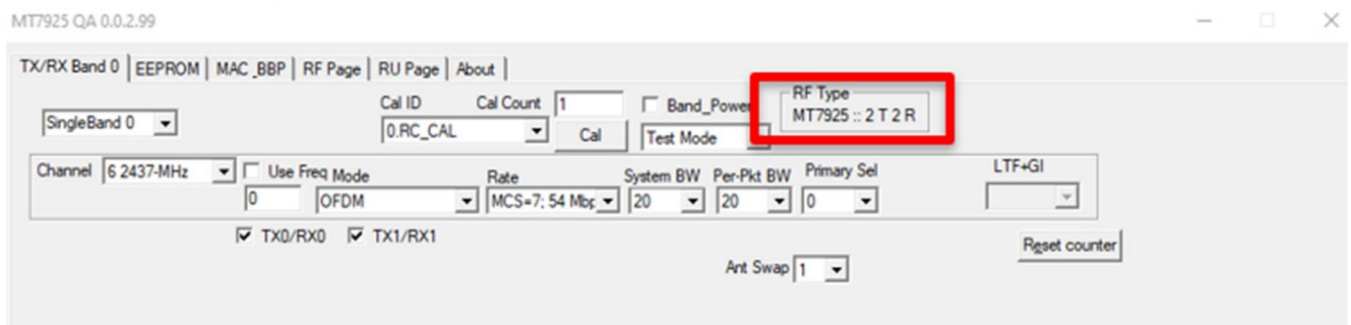
Select interface type and click "OK" button to launch QA-Tool.



After QA-Tool UI pops out, select “SingleBand 0”.



Users can check RF Type which should be shown MT7925B22M : 2 T 2 R to make sure the QA-Tool is working normally. There are two modes, BIN-file mode and E-fuse mode, supported by QA-tool. Section 2.2.2 & 2.2.3 provide details about respective mode.



## Start QA-Tool in BIN-file Mode

To start in BIN-file mode user can use “eeprom.bin” while launching QA tool. If “QATool\_Dbg.exe” accompanies “eeprom.bin” file in the same folder, QA-tool will start in BIN-file mode. After QA-tool is launched, users can check “EEPROM” sheet to have EEPROM Type : eeprom to know the mode of QA-Tool in operating.



### Start QA-Tool in E-fuse Mode

If “eeprom.bin” file leaves the folder of “QATool\_Dbg.exe”, QA-tool will starts in E-fuse mode. User also check EEPROM Type : E-fuse in “EEPROM” sheet.

### How to Use the QA-Tool

WIFI Packets Transmitting –1 stream

On TX/RX page:

- a. Select TX sub-page and “Test Mode” as following figure.
- b. Select “TX/RX Band0”.
- c. Set Channel/Mode/Rate.
  - i. 802.11b CCK, 802.11g OFDM, 802.11n HT Mix Mode, 802.11ac VHT,
  - ii. 802.11ax HESU, 802.11ax RU HETB (need to set step g and RU Need to set in RU Page)
  - iii. 802.11be EHTSU, 802.11be RU EHTTB (need to set step g and RU Need to set in RU Page)
- d. Set BW. (Generally, System BW = Pre-Packet BW).
- e. Select TX0 or TX1 only
- f. Select “Nss=1” and choose “TX/RX0” to do transmitting.
- g. Set LFT+GI index. (Generally, setting index3) (this step for HESU, HETB(RU), EHTSU, EHTTB(RU))
- h. Set packet number. (0 means infinite packets)
- i. Click “**Start TX**” button to start packet transmitting and click “**Stop TX**” button to stop.

- j. The transmitted packets number is shown at “Transmitted:” area.
  - k. Users can click “**Reset counter**” button to reset “Transmitted:” area.
  - l. Users can click “ ” button to modify power level of transmitting signal.
  - m. Users can click “ ” button to modify frequency offset of transmitting signal. If users want to adjust packets duty cycle
  - n. adjust packets lengths(L) to modify packets duty cycle (example 512)
- (Make sure “**Transmitted:**” area have counter when start TX. If not, reduce the packet lengths)
- Note:** Please \*re-trigger “**HWTX**” if users change Channel/Mode/Rate/BW. \*Re-trigger “**HWTX**”: click “**Stop TX**” button and un-click “**HWTX**”, and then click “**HWTX**” and click “**Start TX**” bottom again.

## WIFI Packets Transmitting –2 stream

### On TX/RX page:

- a. Select TX sub-page and “Test Mode” as following figure.
- b. Select “TX/RX Band0”.
- c. Set Channel/Mode/Rate.
  - i. 802.11b CCK, 802.11g OFDM, 802.11n HT Mix Mode, 802.11ac VHT,
  - ii. 802.11ax HESU, 802.11ax RU HETB (need to set step g and RU Need to set in RU Page)
  - iii. 802.11be EHTSU, 802.11be RU EHTTB (need to set step g and RU Need to set in RU Page)
- d. Set BW. (Generally, System BW = Pre-Packet BW).
- e. Both TX0 and TX1
- f. Select “Nss=2” and choose both TX0 and TX1 to do transmitting.
- g. Set LTF+GI index. (Generally, setting index3) (this step for HESU, HETB(RU), EHTSU, EHTTB(RU))

- h. Set packet number. (0 means infinite packets)
- i. Click “Start TX” button to start packet transmitting and click “Stop TX” button to stop.
- j. The transmitted packets number is shown at “Transmitted:” area.
- k. Users can click “Reset counter” button to reset “Transmitted:” area.



- l. Users can click “ ” button to modify power level of transmitting signal.



- m. Users can click “ ” button to modify frequency offset of transmitting signal.

If users want to adjust packets duty cycle

- n. adjust packets lengths(L) to modify packets duty cycle (example 512)

(Make sure “Transmitted:” area have counter when start TX. If not, reduce the packet lengths)

**Note:** Please \*re-trigger “HWTX” if users change Channel/Mode/Rate/BW. \*Re-trigger “HWTX”: click “Stop TX” button and un-click “HWTX”, and then click “HWTX” and click “Start TX” bottom again.

## WIFI Packets 11ax RU TX (HE TB (trigger based)) Transmitting setting

On RU page:

- a. Select RU sub-page
- b. Select band
- c. Set Category

| RU size | Category |
|---------|----------|
| RU26    | 26*9     |
| RU52    | 52*4     |
| RU106   | 106+106  |
| RU242   | 242*1    |
| RU484   | 484*1    |
| RU996   | 996*1    |
| RU996*2 | 996*2    |

d. Set RU index (wanted TB RU location).

Refer to the RU Index from below



e. Set data rate

f. Set MU NSS/LDPC/stream index/length

“MU Nss=1” for Antenna number.

Set LDPC or non-LDPC to do transmitting.

Set “Nss=1” to do transmitting.

Set “stream index=1”

Refer to the “Length” from below table. (For example, set to 128 at RU26/MCS0.....)

| RU site            | 0     | 1     | 2     | 3     | 4     | 5     | 6           | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14   | 15   |
|--------------------|-------|-------|-------|-------|-------|-------|-------------|-------|-------|-------|-------|-------|-------|-------|------|------|
| 26                 | 128   | 256   | 512   | 512   | 1024  | 1024  | 1024        | 1024  | 1024  | 2048  | 2048  | 2048  | 2048  | 2048  |      | 132  |
| 52                 | 256   | 512   | 1024  | 1024  | 1024  | 1024  | 1024        | 1024  | 1024  | 1024  | 1024  | 1024  | 1024  | 1024  |      | 64   |
| 78                 | 384   | 768   | 1536  | 1536  | 1536  | 1536  | 1536        | 1536  | 1536  | 1536  | 1536  | 1536  | 1536  | 1536  |      | 96   |
| 106                | 512   | 1024  | 2048  | 2048  | 2048  | 2048  | 2048        | 2048  | 2048  | 2048  | 2048  | 2048  | 2048  | 2048  |      | 128  |
| 132                | 768   | 1536  | 3072  | 3072  | 3072  | 3072  | 3072        | 3072  | 3072  | 3072  | 3072  | 3072  | 3072  | 3072  |      | 192  |
| <b>BW20-242</b>    | 1024  | 2048  | 4096  | 4096  | 4096  | 4096  | <b>4096</b> | 4096  | 4096  | 4096  | 4096  | 4096  | 4096  | 4096  |      | 256  |
| <b>BW40-484</b>    | 2048  | 4096  | 8192  | 8192  | 8192  | 8192  | 8192        | 8192  | 8192  | 8192  | 8192  | 8192  | 8192  | 8192  |      | 512  |
| <b>BW80*996</b>    | 4096  | 8192  | 16384 | 16384 | 16384 | 16384 | 16384       | 16384 | 16384 | 16384 | 16384 | 16384 | 16384 | 16384 | 512  | 1024 |
| <b>BW160-996*2</b> | 8192  | 16384 | 32768 | 32768 | 32768 | 32768 | 32768       | 32768 | 32768 | 32768 | 32768 | 32768 | 32768 | 32768 | 1024 | 2048 |
| <b>BW320-995*4</b> | 16384 | 32768 | 65536 | 65536 | 65536 | 65536 | 65536       | 65536 | 65536 | 65536 | 65536 | 65536 | 65536 | 65536 | 2048 | 4096 |

g. Click “**ADD**” button to added test case.

h. Click “**SET**” button to set test case.

i. If user wanted to test another case can select origin test case and click “Remove” button to remove old case and resetting another case again.

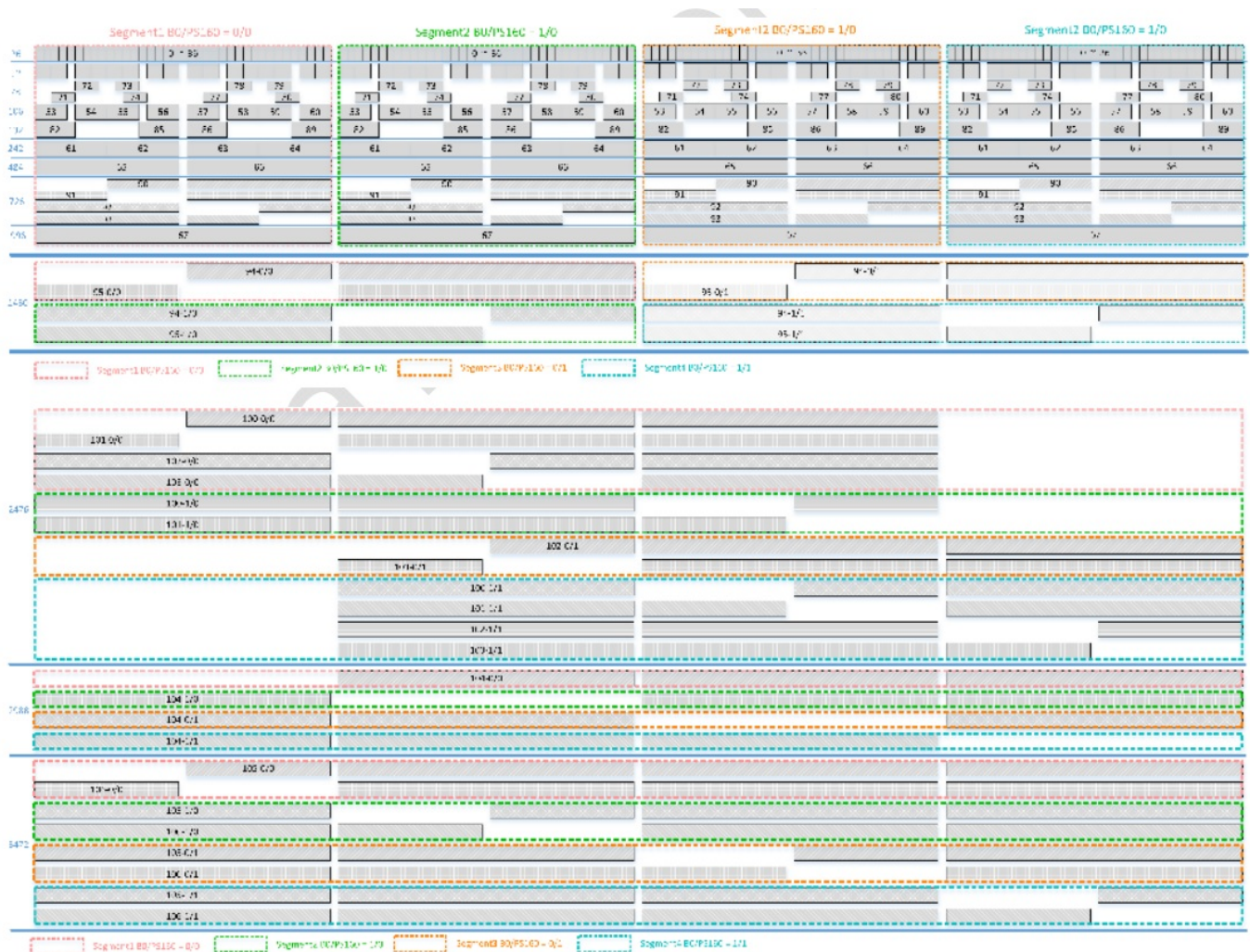
## h.

**RU**

- Select RU sub-page
- Select band
- Set Category

| RU size | Category |
|---------|----------|
| RU26    | 26*9     |
| RU52    | 52*4     |
| RU106   | 106+106  |
| RU242   | 242*1    |
| RU484   | 484*1    |
| RU996   | 996*1    |
| RU996*2 | 996*2    |
| RU996*4 | 996*4    |

d. Set RU index (wanted TB RU location).  
Refer to the RU Index from below



e. Set data rate  
f. Set MU NSS/LDPC/stream index/length  
"MU Nss=1" for Antenna number.

Set LDPC or non-LDPC to do transmitting.

Set "Nss=1" to do transmitting.

Set "stream index=1"

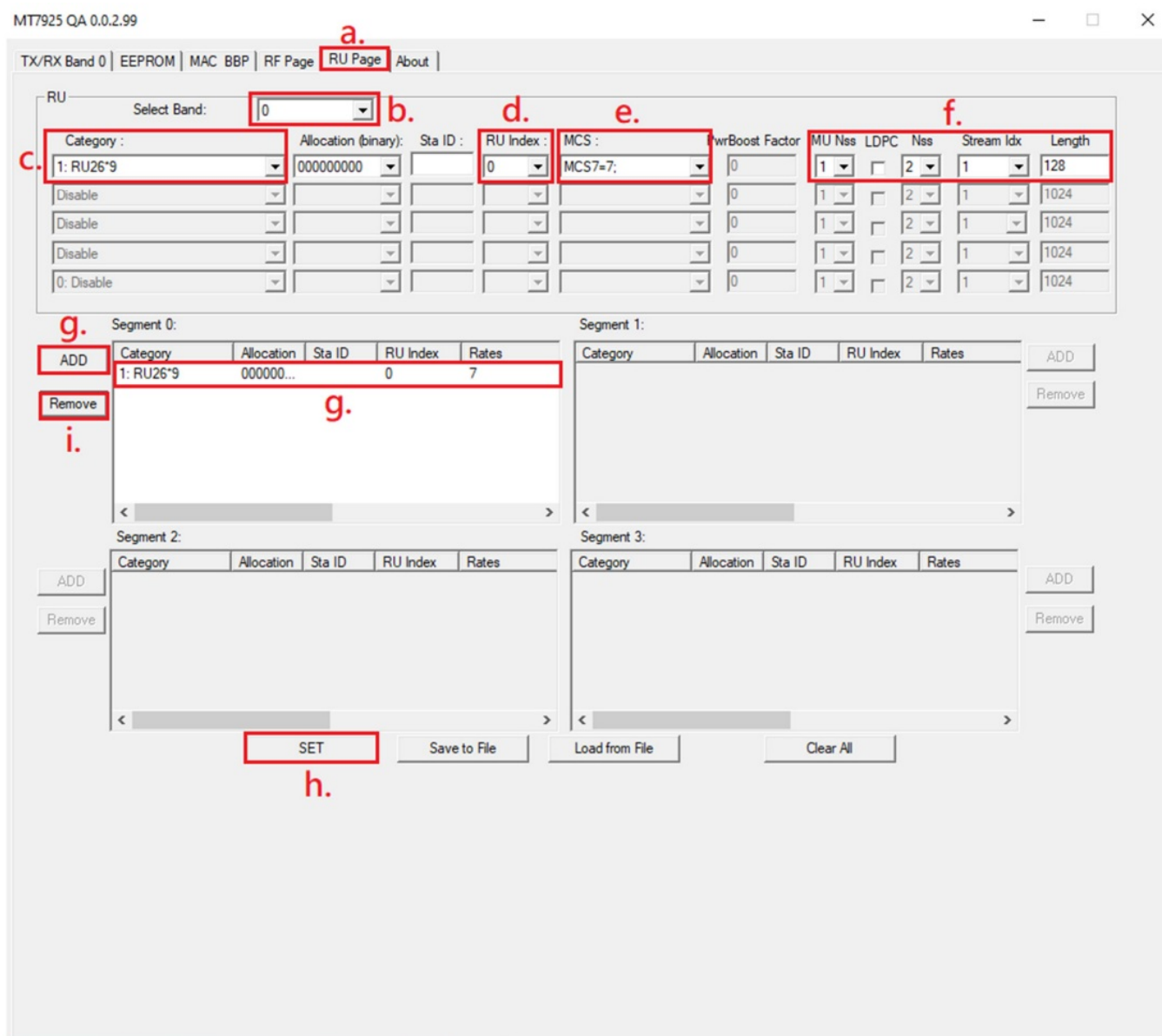
Refer to the "Length" from below table. (For example, set to 128 at RU26/MCS0.....)

| RU site               | 0     | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10          | 11    | 12    | 13    | 14   | 15   |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|-------|-------|-------|------|------|
| 26                    | 128   | 256   | 512   | 512   | 1024  | 1024  | 1024  | 1024  | 1024  | 2048  | 2048        | 2048  | 2048  | 2048  |      | 32   |
| 52                    | 256   | 512   | 1024  | 1024  | 1024  | 1024  | 1024  | 1024  | 1024  | 1024  | 1024        | 1024  | 1024  | 1024  |      | 64   |
| 78                    | 384   | 768   | 1536  | 1536  | 1536  | 1536  | 1536  | 1536  | 1536  | 1536  | 1536        | 1536  | 1536  | 1536  |      | 96   |
| 106                   | 512   | 1024  | 2048  | 2048  | 2048  | 2048  | 2048  | 2048  | 2048  | 2048  | 2048        | 2048  | 2048  | 2048  |      | 128  |
| 132                   | 768   | 1536  | 3072  | 3072  | 3072  | 3072  | 3072  | 3072  | 3072  | 3072  | son         | 3072  | 3072  | 3072  |      | 192  |
| <b>BW20 – 242</b>     | 1024  | 2048  | 4096  | 4096  | 4096  | 4096  | 4096  | 4096  | 4096  | 4096  | <b>4096</b> | 4096  | 4096  | 4096  |      | 256  |
| <b>BW40 – 484</b>     | 2048  | 4096  | 8192  | 8192  | 8192  | 8192  | 8192  | 8192  | 8192  | 8192  | 8192        | 8192  | 8192  | 8192  |      | 512  |
| <b>BW80 – 996</b>     | 4096  | 8192  | 16384 | 16384 | 16384 | 16384 | 16384 | 16384 | 16384 | 16384 | 16384       | 16384 | 16384 | 16384 | 512  | 1024 |
| <b>BW160 – 996*2</b>  | 8192  | 16384 | 32768 | 32768 | 32768 | 32768 | 32768 | 32768 | 32768 | 32768 | 32768       | 32768 | 32768 | 32768 | 1024 | 2048 |
| <b>BW 320 – 996*4</b> | 16384 | 32768 | 65536 | 65536 | 65536 | 65536 | 65536 | 65536 | 65536 | 65536 | 65536       | 65536 | 65536 | 65536 | 2048 | 4096 |

g. Click "ADD" button to added test case.

h. Click "SET" button to set test case.

i. If user wanted to test another case can select origin test case and click "Remove" button to remove old case and resetting another case again.

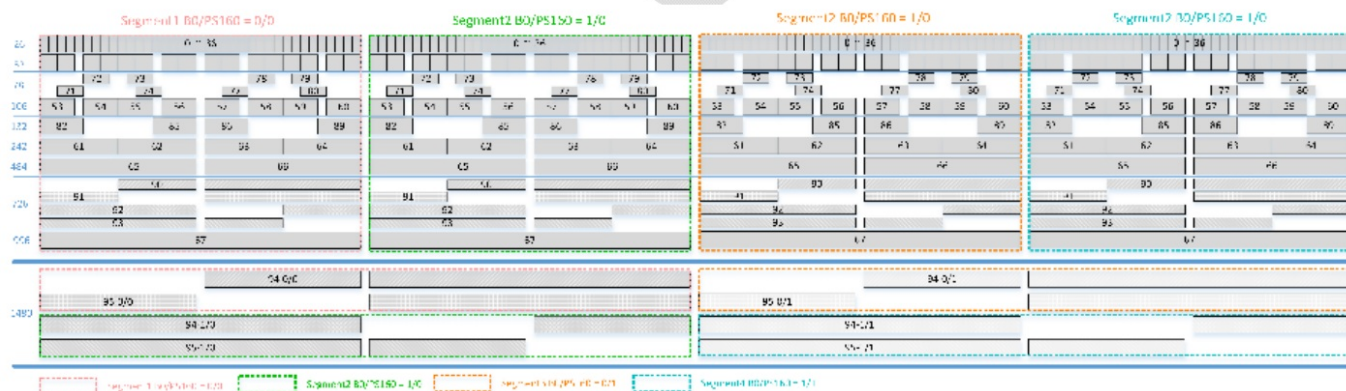
**MRU**

**On RU page:**

- a. Select RU sub-page
- b. Select band
- c. Set Category

|    | RU allocation (B8~B0) | #1                                     | #2 | #3  | #4  | #5  | #6  | #7  | #8  | #9 |           | RU allocation (B8~B0) | #1     | #2        | #3        | #4        | #5             | #6                 | #7                 | #8         | #9        |            |
|----|-----------------------|----------------------------------------|----|-----|-----|-----|-----|-----|-----|----|-----------|-----------------------|--------|-----------|-----------|-----------|----------------|--------------------|--------------------|------------|-----------|------------|
| 0  | 000000000             | 26                                     | 26 | 26  | 26  | 26  | 26  | 26  | 26  | 26 | 32        | 000100000             | 26     | 26        | 26        | 26        | 26             | 52+26              | 26                 | 96         | 001100000 | []-242-484 |
| 1  | 000000001             | 26                                     | 26 | 26  | 26  | 26  | 26  | 26  | 52  | 33 | 000100001 | 26                    | 26     | 52        | 26        | 52+26     | 26             | 104                | 001101000          | 242-[]-484 |           |            |
| 2  | 000000010             | 26                                     | 26 | 26  | 26  | 26  | 52  | 26  | 26  | 34 | 000100010 | 52                    | 26     | 26        | 26        | 52+26     | 26             | 112                | 001110000          | 484-[]-242 |           |            |
| 3  | 000000011             | 26                                     | 26 | 26  | 26  | 26  | 52  | 52  | 52  | 35 | 000100011 | 52                    | 52     | 26        | 52+26     | 26        | 120            | 001111000          | 484-242-[]         |            |           |            |
| 4  | 000000100             | 26                                     | 26 | 52  | 26  | 26  | 26  | 26  | 26  | 36 | 000100100 | 26                    | 52+26  | 26        | 26        | 26        | 26             | 128                | 010000000          | []-484-996 |           |            |
| 5  | 000000101             | 26                                     | 26 | 52  | 26  | 26  | 26  | 52  | 52  | 37 | 000100101 | 26                    | 52+26  | 26        | 26        | 26        | 52             | 136                | 010001000          | 484-[]-996 |           |            |
| 6  | 000000110             | 26                                     | 26 | 52  | 26  | 52  | 26  | 26  | 26  | 38 | 000100110 | 26                    | 52+26  | 26        | 52        | 26        | 26             | 144                | 010010000          | 996-[]-484 |           |            |
| 7  | 000000111             | 26                                     | 26 | 52  | 26  | 52  | 52  | 52  | 52  | 39 | 000100111 | 26                    | 52+26  | 26        | 52        | 52        | 52             | 152                | 010011000          | 996-484-[] |           |            |
| 8  | 000001000             | 52                                     | 26 | 26  | 26  | 26  | 26  | 26  | 26  | 40 | 000101000 | 26                    | 26     | 26        | 26        | 106+26    | 160            | 010100000          | []-996-996-996     |            |           |            |
| 9  | 000001001             | 52                                     | 26 | 26  | 26  | 26  | 26  | 26  | 52  | 41 | 000101001 | 26                    | 26     | 52        | 106+26    | 168       | 010101000      | 996-[]-996-996     |                    |            |           |            |
| 10 | 000001010             | 52                                     | 26 | 26  | 26  | 26  | 52  | 26  | 26  | 42 | 000101010 | 52                    | 26     | 26        | 106+26    | 176       | 010110000      | 996-996-[]-996     |                    |            |           |            |
| 11 | 000001011             | 52                                     | 26 | 26  | 26  | 26  | 52  | 52  | 52  | 43 | 000101011 | 52                    | 52     | 106+26    | 184       | 010111000 | 996-996-996-[] |                    |                    |            |           |            |
| 12 | 000001100             | 52                                     | 52 | 26  | 26  | 26  | 26  | 26  | 26  | 44 | 000101100 | 106+26                | 26     | 26        | 26        | 26        | 192            | 011000000          | []-484-996-996-996 |            |           |            |
| 13 | 000001101             | 52                                     | 52 | 26  | 26  | 26  | 26  | 52  | 52  | 45 | 000101101 | 106+26                | 26     | 26        | 52        | 26        | 200            | 011001000          | 484-[]-996-996-996 |            |           |            |
| 14 | 000001110             | 52                                     | 52 | 26  | 26  | 52  | 26  | 26  | 26  | 46 | 000101110 | 106+26                | 52     | 26        | 52        | 26        | 208            | 011010000          | 996-[]-484-996-996 |            |           |            |
| 15 | 000001111             | 52                                     | 52 | 26  | 52  | 26  | 52  | 52  | 52  | 47 | 000101111 | 106+26                | 52     | 52        | 106+26    | 216       | 011011000      | 996-484-[]-996-996 |                    |            |           |            |
| 16 | 000010000             | 26                                     | 26 | 26  | 26  | 26  | 106 | 106 | 106 | 48 | 000110000 | 106+26                | 106    | 52+26     | 26        | 26        | 224            | 011100000          | 996-996-[]-484-996 |            |           |            |
| 17 | 000010001             | 26                                     | 26 | 52  | 26  | 106 | 106 | 106 | 106 | 49 | 000110001 | 106                   | 106+26 | 106+26    | 26        | 26        | 232            | 011101000          | 996-996-484-[]-996 |            |           |            |
| 18 | 000010010             | 52                                     | 26 | 26  | 26  | 106 | 106 | 106 | 106 | 50 | 000110010 | 26                    | 52+26  | 106+26    | 26        | 26        | 240            | 011110000          | 996-996-996-[]-484 |            |           |            |
| 19 | 000010011             | 52                                     | 52 | 26  | 106 | 106 | 106 | 106 | 106 | 51 | 000110011 | 106                   | 26     | 52+26     | 106+26    | 26        | 248            | 011111000          | 996-996-996-484-[] |            |           |            |
| 20 | 000010100             | 106                                    | 26 | 26  | 26  | 26  | 26  | 26  | 26  | 52 | 000110100 | 26                    | 52+26  | 26        | 106       | 26        | 256            | 100000000          | []-484-996-996     |            |           |            |
| 21 | 000010101             | 106                                    | 26 | 26  | 26  | 26  | 26  | 52  | 52  | 53 | 000110101 | 26                    | 52+26  | 26        | 52+26     | 26        | 264            | 100001000          | 484-[]-996-996     |            |           |            |
| 22 | 000010110             | 106                                    | 26 | 52  | 26  | 26  | 26  | 26  | 26  | 54 | 000110110 | 26                    | 52+26  | 26        | 52        | 52        | 272            | 100010000          | 996-[]-484-996     |            |           |            |
| 23 | 000010111             | 106                                    | 26 | 52  | 26  | 52  | 52  | 52  | 52  | 55 | 000110111 | 52                    | 52+26  | 52        | 52        | 52        | 280            | 100011000          | 996-484-[]-996     |            |           |            |
| 24 | 000011000             | 52                                     | 52 | -   | 52  | 52  | 52  | 52  | 52  | 72 | 001001000 | 484                   | 996    | 288       | 100100000 |           |                |                    |                    |            |           |            |
| 25 | 000011001             | 106                                    | 26 | 106 | 106 | 106 | 106 | 106 | 106 | 80 | 001010000 | 996x2                 | 296    | 100101000 |           |           |                |                    |                    |            |           |            |
| 26 | 000011010             | Punctured 242-tone RU                  |    |     |     |     |     |     |     |    | 88        | 001011000             | 996x2  | 296       | 100101000 |           |                |                    |                    |            |           |            |
| 27 | 000011011             | Unassigned 242-tone RU                 |    |     |     |     |     |     |     |    |           |                       |        |           |           |           |                |                    |                    |            |           |            |
| 28 | 000011100             | 242-tone RU : contributes 0 user field |    |     |     |     |     |     |     |    |           |                       |        |           |           |           |                |                    |                    |            |           |            |
| 29 | 000011101             | 484-tone RU : contributes 0 user field |    |     |     |     |     |     |     |    |           |                       |        |           |           |           |                |                    |                    |            |           |            |
| 30 | 000011110             | 996-tone RU : contributes 0 user field |    |     |     |     |     |     |     |    |           |                       |        |           |           |           |                |                    |                    |            |           |            |

d. Set RU index (wanted TB RU location).

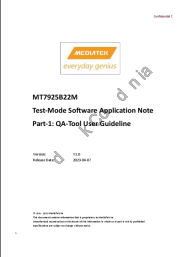


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|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b><a href="#">MEDIATEK MT7925B22M Test Mode Software Application</a></b> [pdf] User Manual<br/>MT7925B22M Test Mode Software Application, MT7925B22M, Test Mode Software Application, Mode Software Application, Software Application</p> |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

References

-  [Disabling Secure Boot | Microsoft Learn](#)
-  [WinPcap · Download](#)
- [User Manual](#)

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