MEDIATEK

SP ATA Tool





ACS7/ST
Yintong Zhang
07/19/2013

Outline

1. ATA Tool Introduction
2. How To Use ATA Tool
3. Detail setting for some test item

ATA Tool Introduction

- ATA Tool is the abbreviation of **Assembly Test Assistant Tool**, which is used to provide convenience for **PCBA** testing on production line.
- All test items are implemented by **AT COMMAND**.
  - Communication between PC and DUT must be OK.
- ATA tool can support **max 4 DUT concurrent** testing.

ATA Tool Introduction

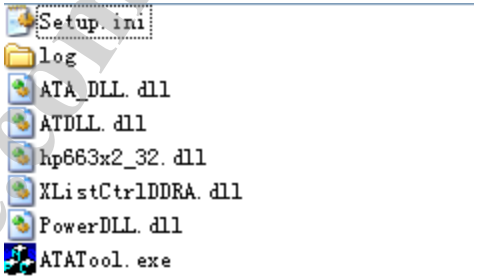
- **Supported Test Items Until Now**
  - SW Version
    - Modem version
    - AP version
  - Touch panel
  - Key Pad
  - T Card
  - EMMC
  - SIM Card
  - Charger
  - RTC
  - WIFI
  - BT
  - FM
  - Signaling Test

ATA Tool Introduction

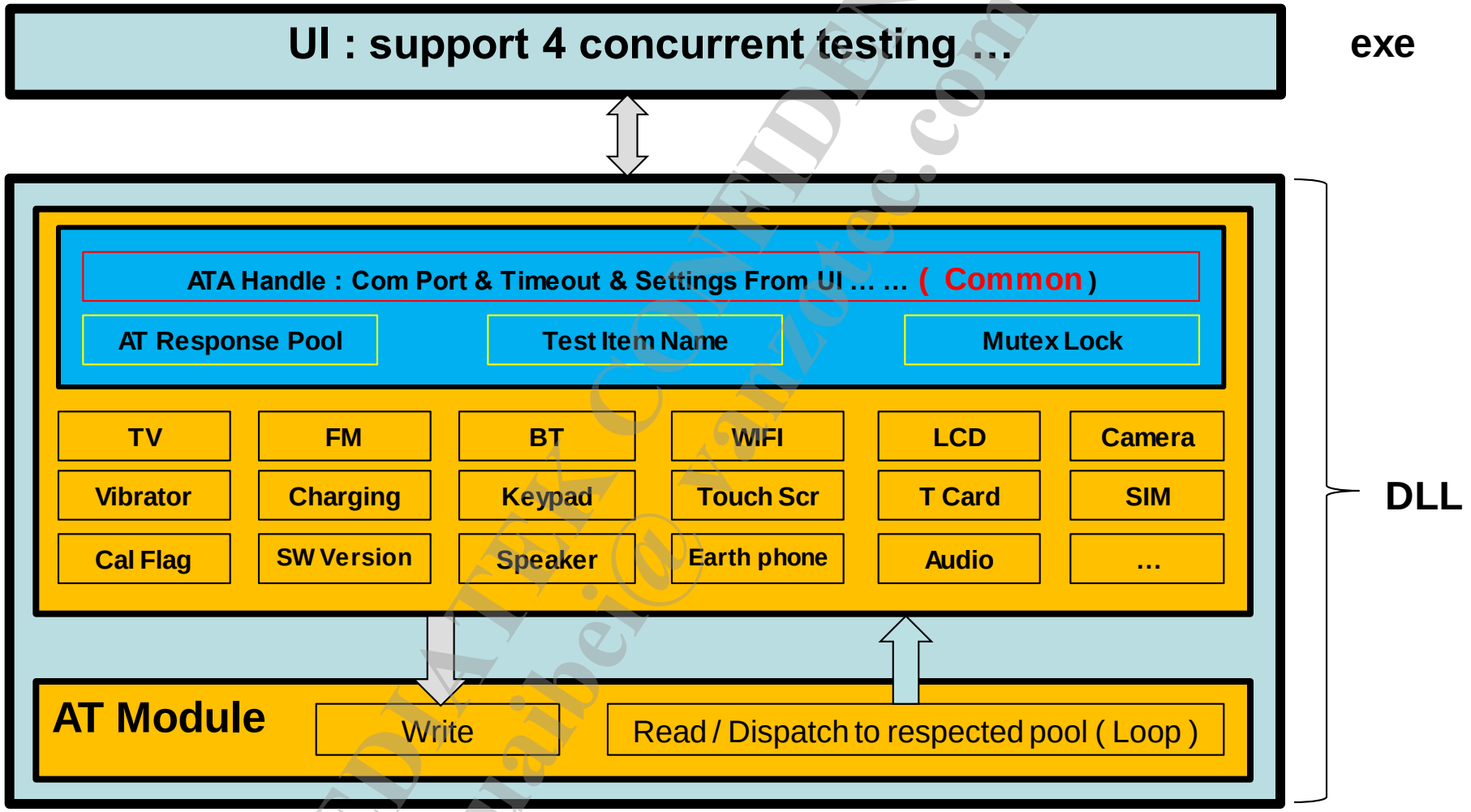
- **Supported Test Items Until Now**
  - Vibrator
  - Camera
  - LCM
  - Sensor
    - G-Sensor
    - M-Sensor
    - ALS/PS
    - Gyroscope

ATA Tool Components

- **ATATool.exe**
- **DLLs**
  - ATA_DLL.dll
    - manage the main test flow.
  - ATDLL.dll
    - Manage AT command communication.
  - XListCtrlDDRA.dll
    - Manage list box layout on UI.
  - PowerDLL.dll
    - Mange power supply.
- **Log dir**
  - Test log will be saved here.
- **Setup.ini**
  - Auto generated file which save settings on UI.
  - Tool will load this file to initiate the UI settings when starting.



ATA Tool Architecture

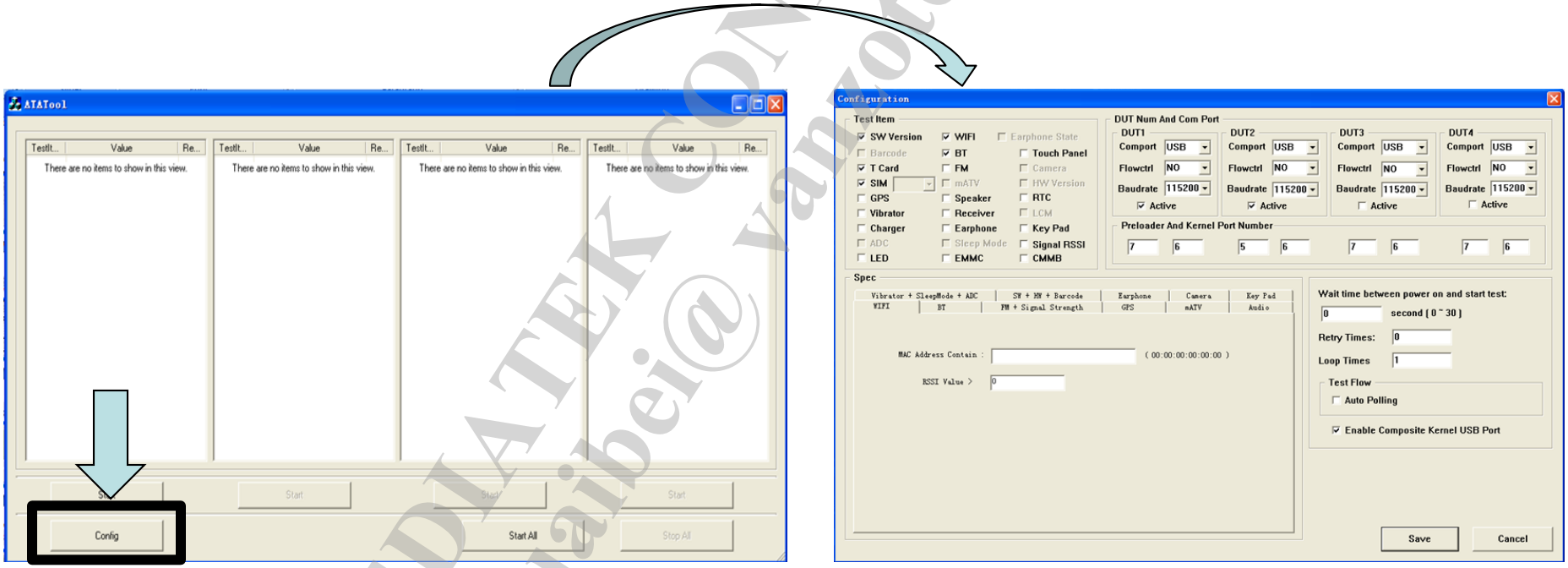


Outline

1. ATA Tool Introduction
2. **How To Use ATA Tool**
3. Detail setting for some test item

How To Use ATA Tool

- Run ATATool.exe
- Press Config button to configure test items.



How To Use ATA Tool

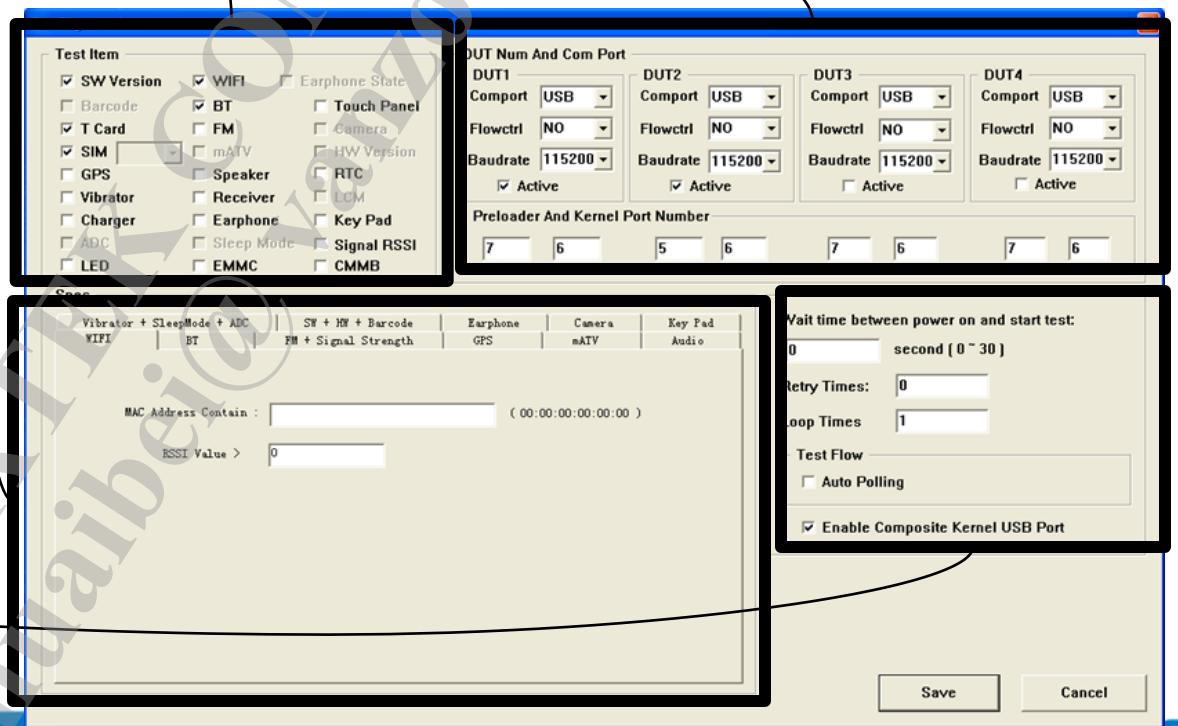
- **Configure test item settings.**

Which items to be tested.
1) Disabled items are for future development.

How many DUT be tested.
1) Max support 4 DUT concurrent testing.
2) Check **Active checkbox** to enable this port.
3) Input Preloader & Kernel port number
   -- Port number should be set according to the value displayed in system device manger.

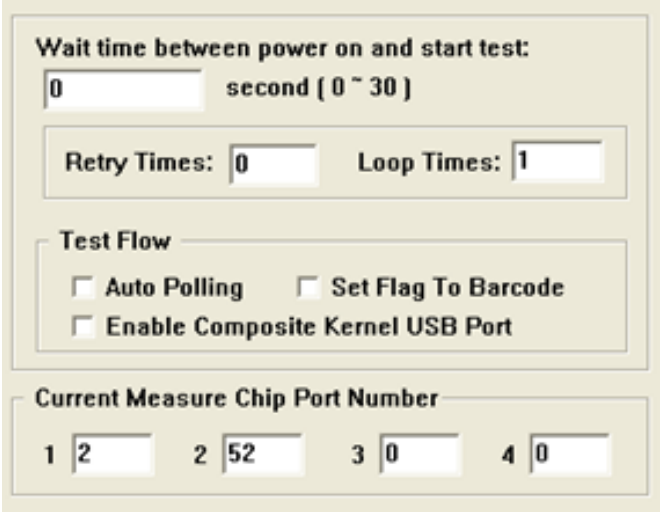
Define **pass or fail limit** in the spec region.
Detail criterion will be introduced in the following page.

Test flow control parameters.
Detailed info will be introduced in the next page.



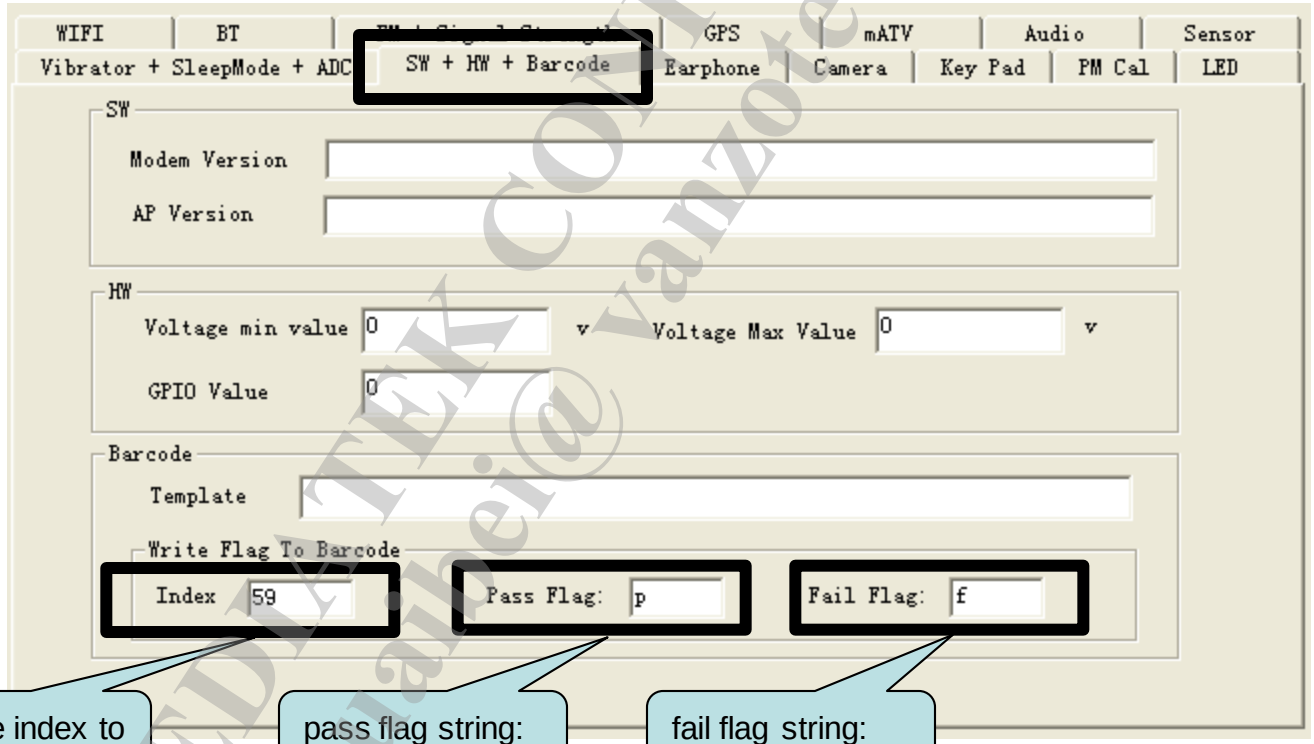
How To Use ATA Tool

- **Configure test item settings.**
  - **Wait time between power on and start test**
    - Specify the time that will be delayed between entering factory mode and starting test.
    - Provide enough time for DUT stability.
  - **Retry times**
    - Retry times if the test item fail to enhance stability.
  - **Loop Times (Reserved)**
  - **Auto polling**
    - Specify if need to press start button when starting to test next DUT.



How To Use ATA Tool

- **Set Flag To Barcode**
  - Write test result flag into barcode.
  - You can specify flag & index in tag SW+HW+Barcode



How To Use ATA Tool

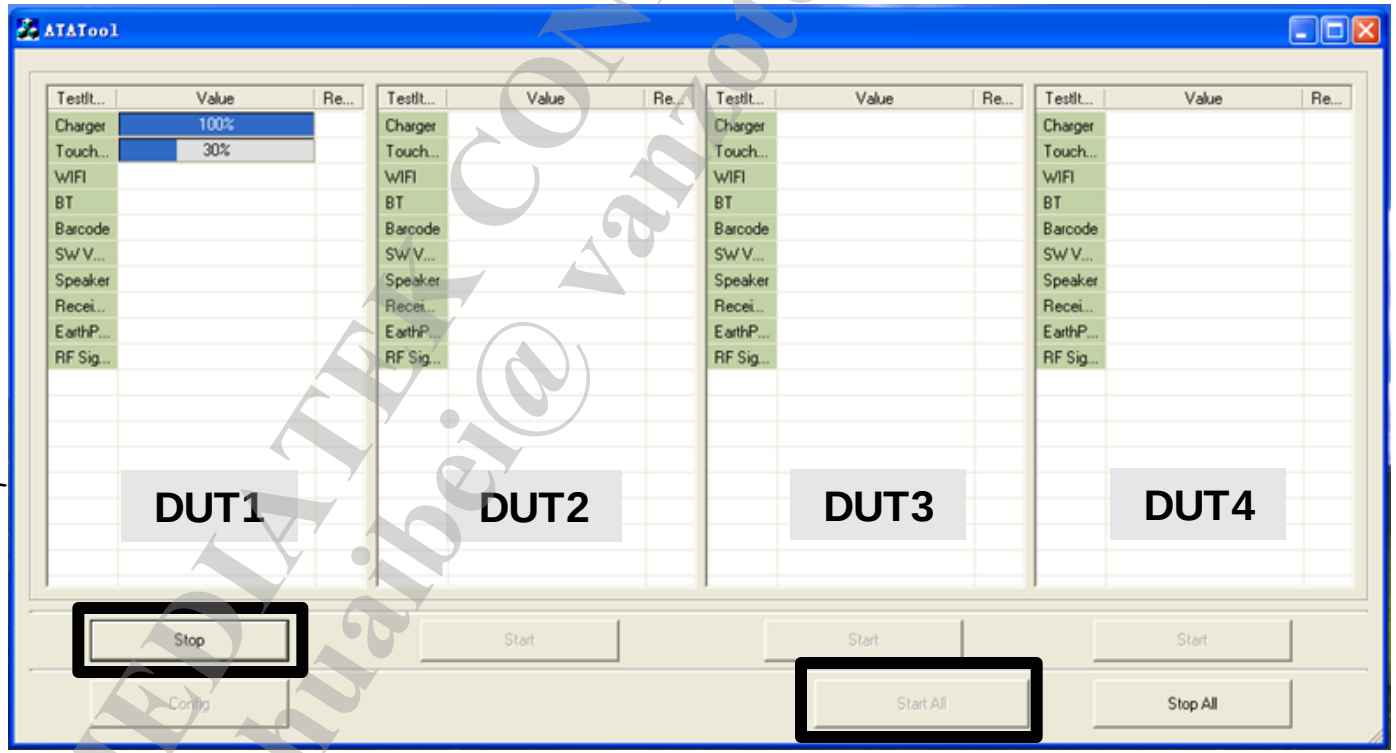
- **Enable Composite Kernel USB Port**
  - If to use composite kernel USB port.
  - **Uncheck** it if you want to do more than 2 DUTs **con-current testing**
    - enumerate different port number for each DUT (Single kernel USB port)
  - **Check** it if you want to **catch ADB log** from DUT.
    - ADB port will display in device manager (Composite kernel USB port)
  - **Note:**
    - The kernel port number may be different of the two state.
    - Pre-loader port number is equal.

How To Use ATA Tool

- **Save settings and click Start All button to start all testing or Start button to start the dedicated testing.**

Insert USB cable with the target powered off to enter factory mode:

1) The first column show test item name.
2) The second column show test progress for each test item via progress bar.
3) The third column show test result pass or fail after test finished.

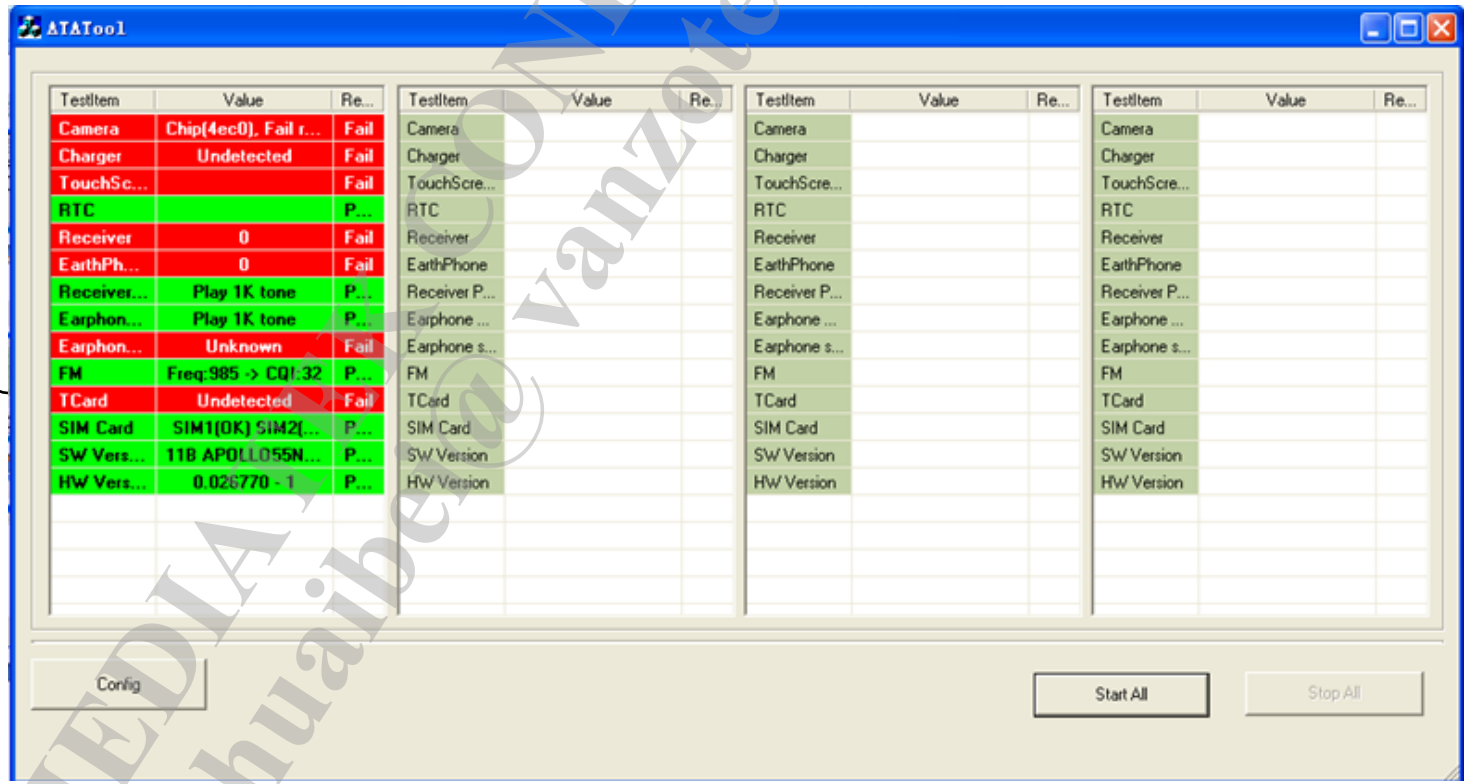


How To Use ATA Tool

- **ATA Tool show test result after test finished.**

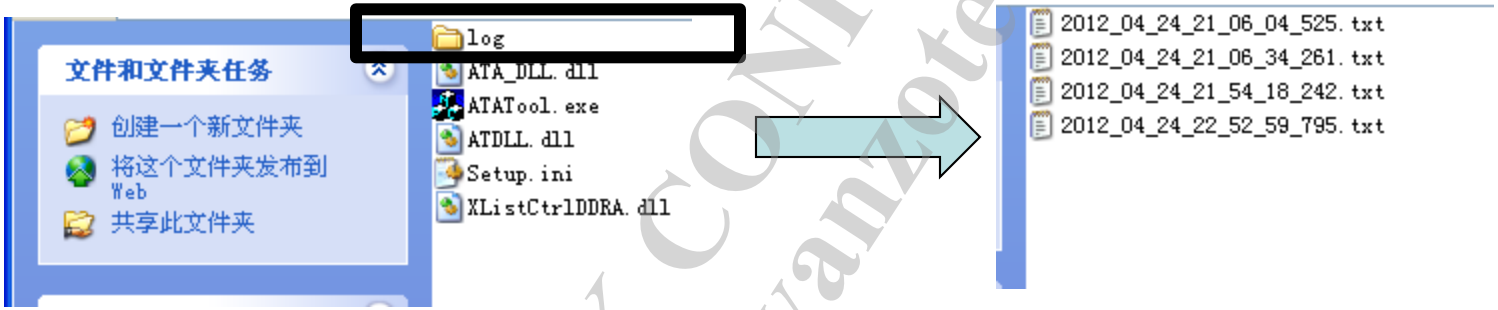
Test Finished

1) **Passed** items will be set **green**, while **failed** will be set **deep red**.
2) The second column will show detail data of each test item.
3) The third column show test result (Pass or Fail).

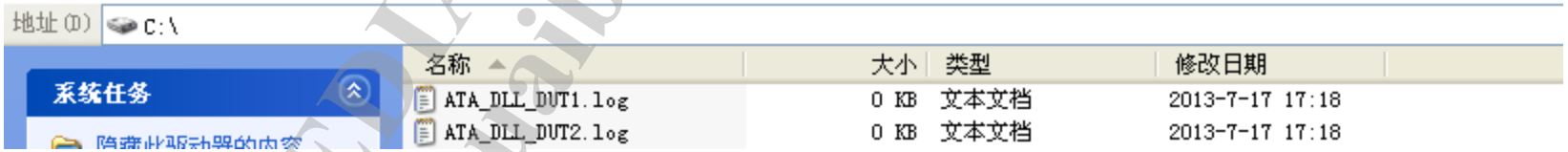


How To Use ATA Tool

- After test finished, **test log will be recorded** under the **log** directory located at the same dir as ATA tool exe.
  - Log name is set by **barcode** if barcode is tested, or by **date info**.



- **AT Command response** from target will be recorded into log files located under **C:** .
  - Log name format: ATA_DLL_COMx.log (x indicate DUT number 1,2,3,4)

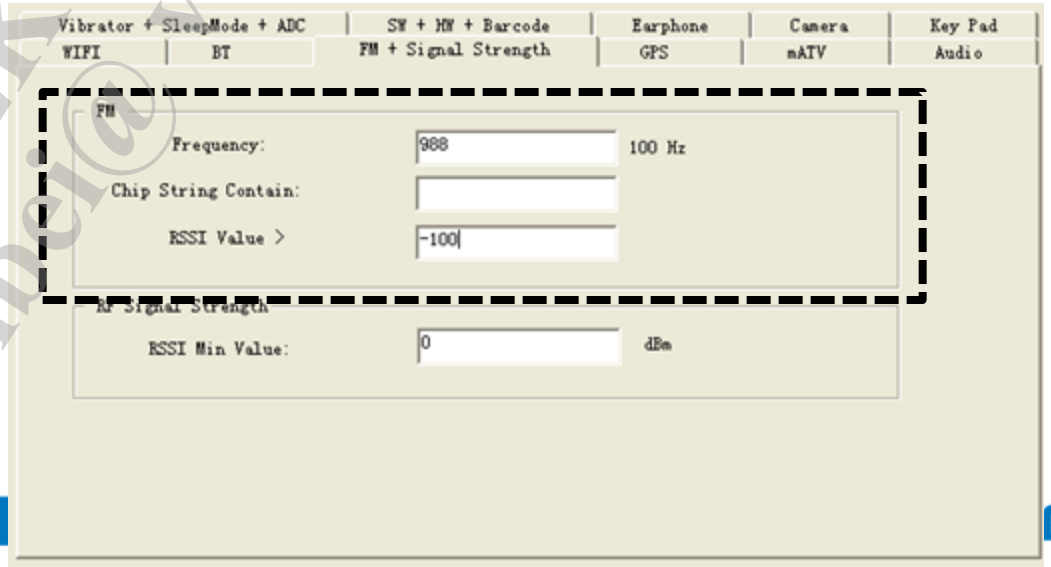


Outline

1. ATA Tool Introduction
2. How To Use ATA Tool
3. **Detail setting for some test item**

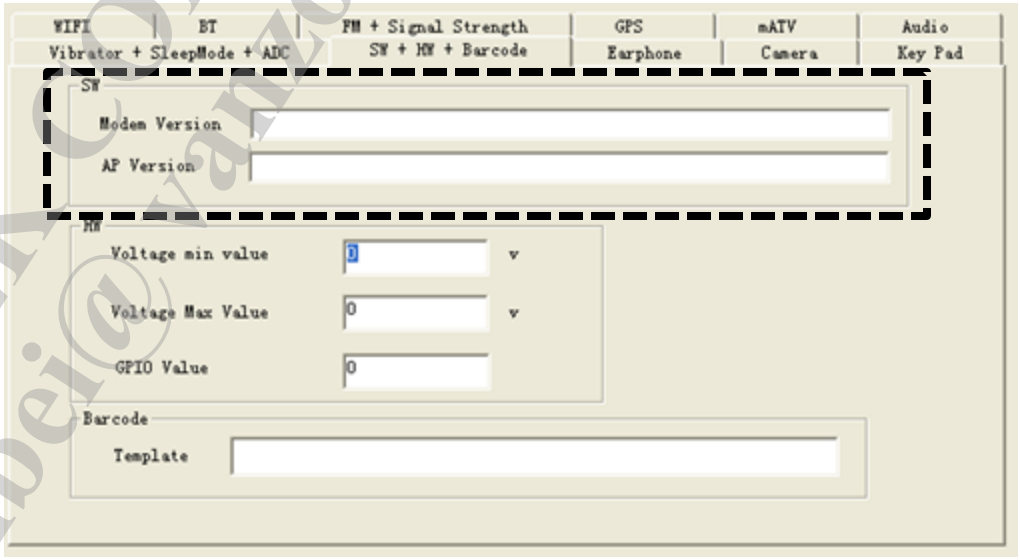
FM

- **Frequency**
  - Target will measure the frequency specified here. (unit: 100Hz)
- **Chip String Contain**
  - Reserved, not used now
- **RSSI value**
  - The RSSI value should be **greater than** the value set on UI.



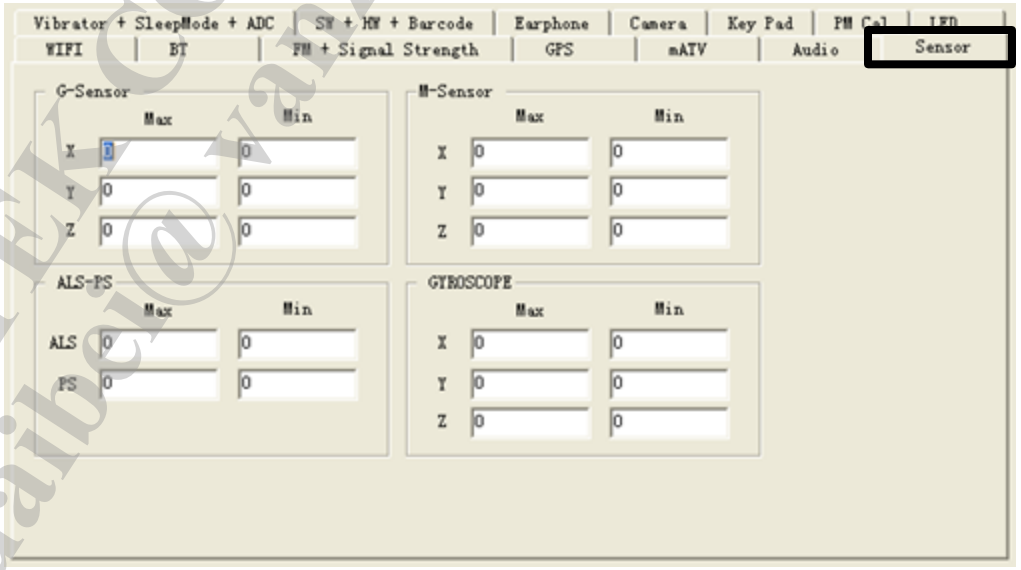
SW Version

- **SW Version**
  - The SW version read from target should **contain the sub string** set here.
    - Modem Version
    - AP Version



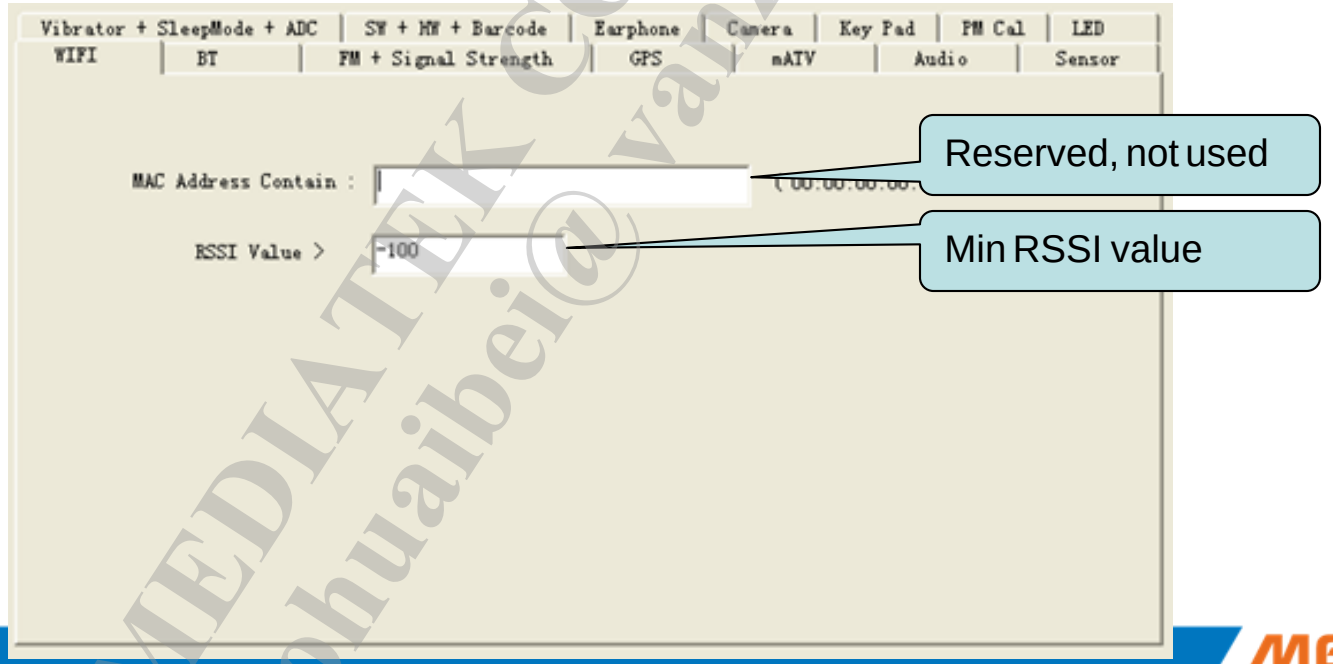
Sensor

- **Test Method**
  - Tool read the current state status of sensor from target.
  - Compare read status with the limit value set here.
    - Max & Min value
- **Supported Sensor**
  - G-Sensor
  - M-Sensor
  - ALS-PS
  - Gyroscope



WIFI

- **Test Method**
  - Control target search dedicated AP specified in SW Load.
    - AP name is specified in factory.ini with **default name mtkguest**.
      - Customer need to modify AP name to mtkguest, or modify SW load setting.
      - WIFIWIFI.SSID=mtkguest
  - Get the RSSI value, then compare with the setting here.
    - Searched RSSI value should be greater than here.

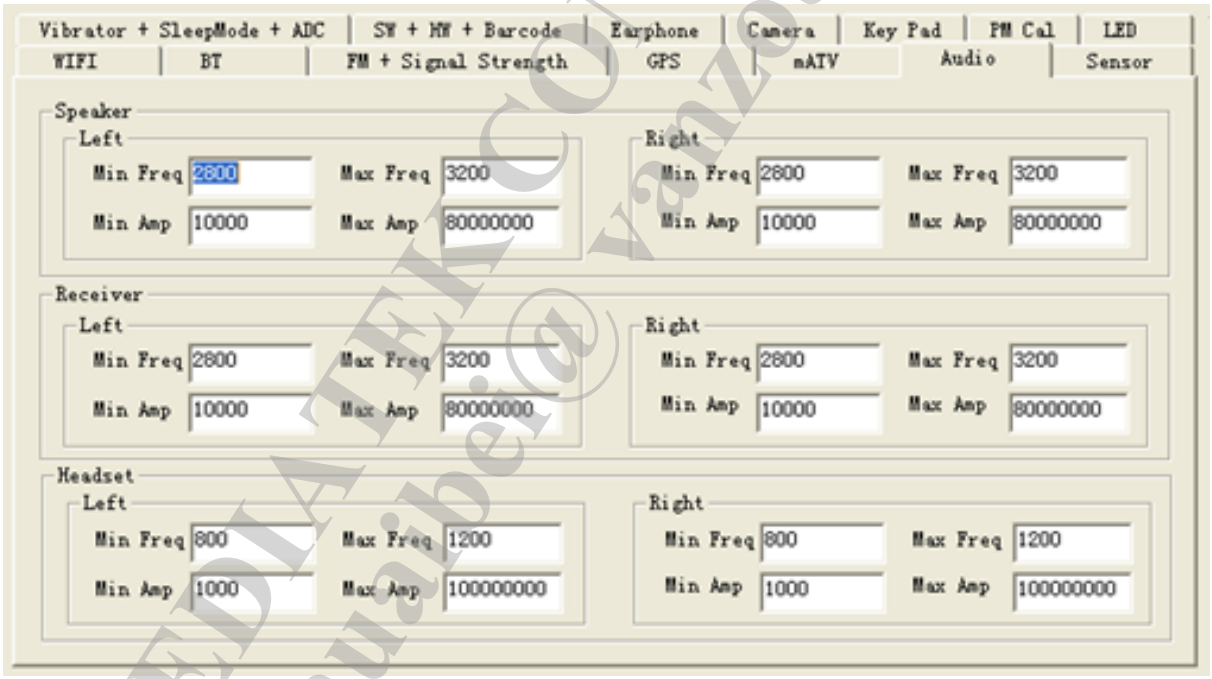


Audio

- Test Method
  - Speaker
    - Speaker and Mic are connected.
    - Tool control speaker play tone, Mic record and analyze frequency and amplitude.
    - Customer can set Min & Max value for frequency & amplitude in Audio tag.
  - Receiver
    - Same as Speaker.
    - Receiver & Mic are connected.
  - Headset
    - Same as speaker.
    - Headset receiver and headset mic are connected.

Audio

- **UI Setting**
  - Customer can set Left & Right max and min value for test result.
    - Freq unit: HZ

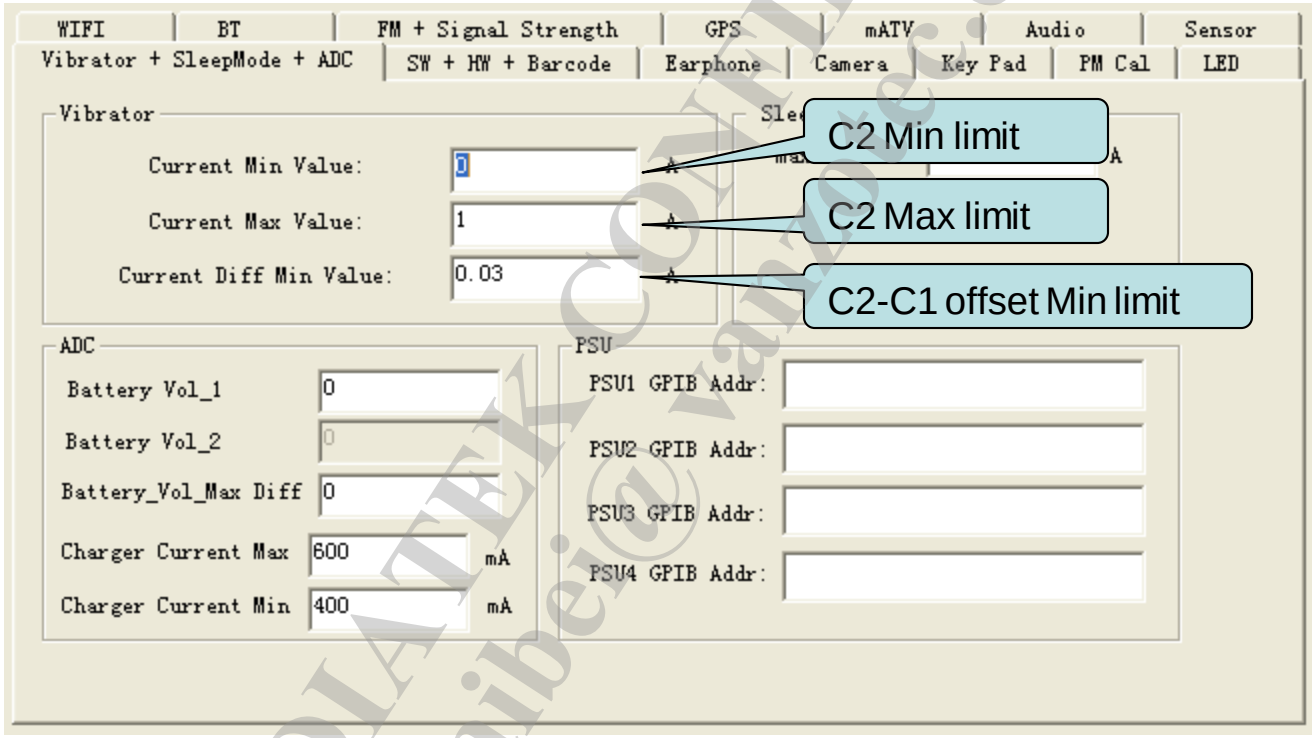


Vibrator

- **Test Method**
  - Tool control power measure board to measure current C1.
    - Vibrator is off now.
  - Tool control target to power on vibrator.
  - Tool control power measure board to measure current C2.
    - Vibrator is on now.
  - Than tool will know pass or fail by:
    - C2-C1 should be greater than specified offset value C.
    - C2 should be in specified limit .(Cmin ~ Cmax)
- **UI Setting**
  - Customer can set specified offset value C.
  - Customer can set Cmin & Cmax.

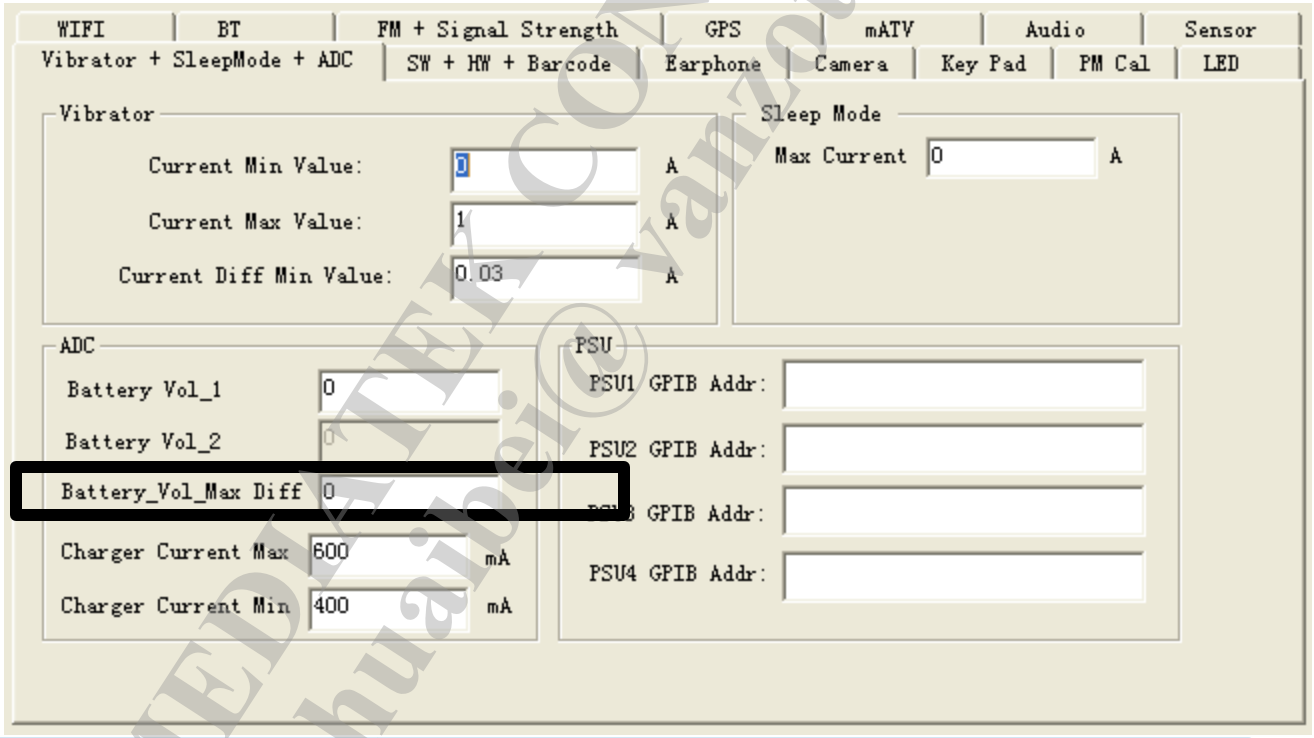
Vibrator

- **UI Setting**



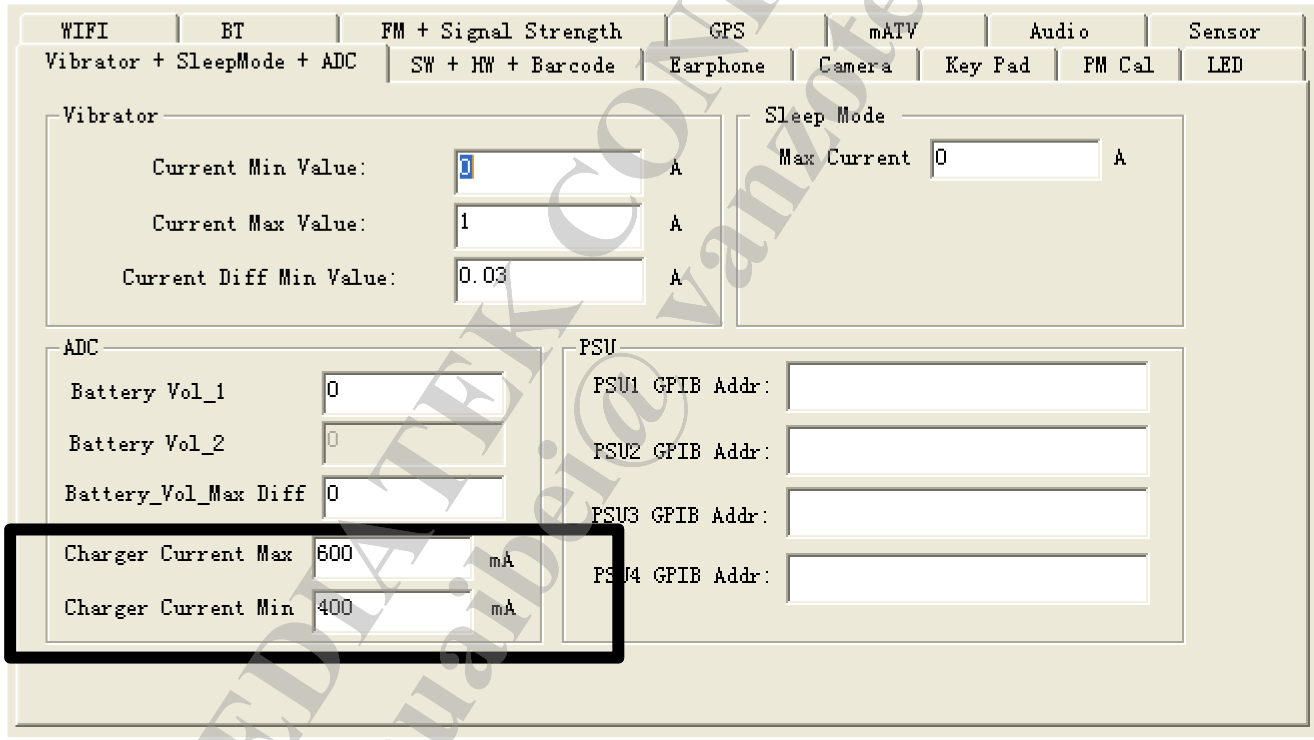
ADC

- Test Method
  - Tool read battery voltage, than compare real value measured by power measure board.
  - Customer can set the max difference between the two value.



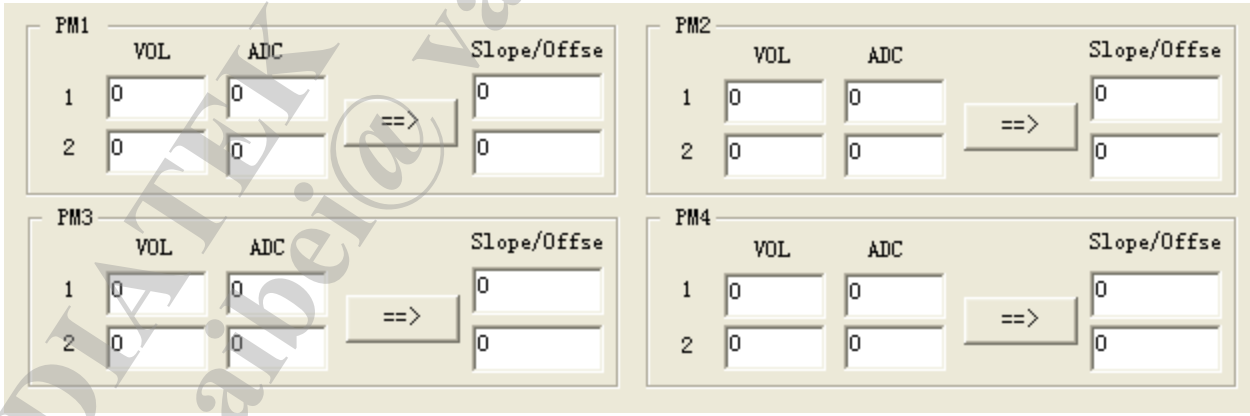
Charger

- Test Method
  - Tool read charger current from target.
  - Customer can set min & max limit value.



PM Cal (1/3)

- **Background**
  - For vibrator and ADC test, a power measure chip is used for measuring voltage and current value. (Total 4 chips for max 4 DUT)
  - This item is for calibrating power measure chip to make measured voltage value more accurate.

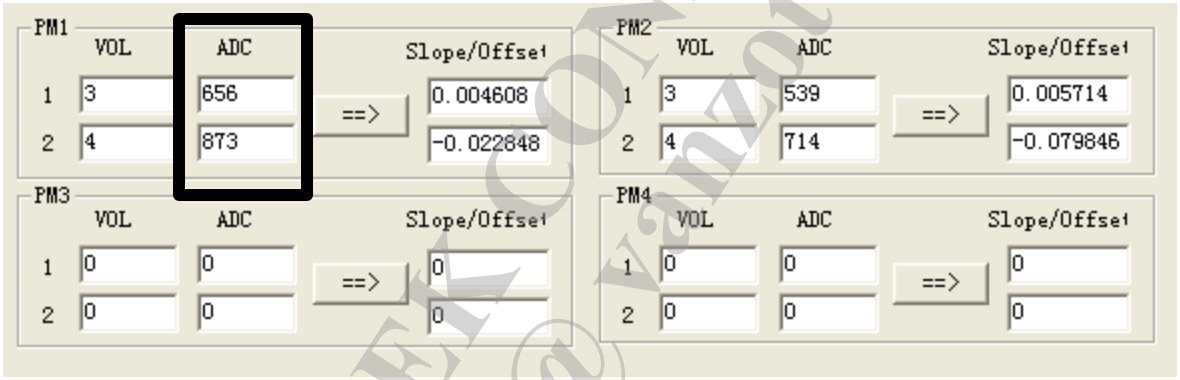


PM Cal (2/3)

- **Calibration Steps (take PM1 as example)**
  - Tune power supply to voltage1 (such as 3V)
  - Send command to power measure chip to get ADC value.
    - Command = “voltage?\r\n”
  - Power chip will return ADC value, then fill to ADC1
  - Tune power supply to voltage2 (such as 4V)
  - Send command to power measure chip to get ADC value.
    - Command = “voltage?\r\n”
  - Power chip will return ADC value, then fill to ADC2
  - Click ==> button to get calibrated value (slope and offset).

PM Cal (3/3)

- Note:
  - If power measured chip is already calibrated, you can input the calibrated result directly.



Other settings

- **Other settings are reserved now.**
  - Other settings are not used now.
  - May be used in the future.

MEDIATEK

Thanks!