MediaTek Inc.

Mediatek HW Fuel Gauge User

GM2.0_Fuel Gauge Test Flow

NO.	Version	Date	Author	Comments
1	V1.0	2017/6/6	Xiaoyong.Li	1st version for customer.
2	V1.1	2017/7/17	Xiaoyong.Li	Modify “2.1 Input the command as follow”
3				
4				

Content

GM2.0_Fuel Gauge Test Flow

1. Preparatory Work

- **SW：** eng version
- **HW：** Fuel Gauge car tune value calibration
  Please refer to *GM1.0 and 2.0 Customized Setting Flow* to get how to do.

2. Get valid log

2.1 Input the command as follow

Step1.adb root

Step2.adb shell

Step3.setprop persist.mediatek.fg.log.enable 1

Step4.setenforce 0

Step5.exit

```
C:\Users\mtk07635>adb shell
adb server is out of date.  killing...
* daemon started successfully *
android:/ # setprop persist.mediatek.fg.log.enable 1
setprop persist.mediatek.fg.log.enable 1
android:/ # exit
exit
```

2.2 MTK log Setting

Step1. Open mobile log，and disable others

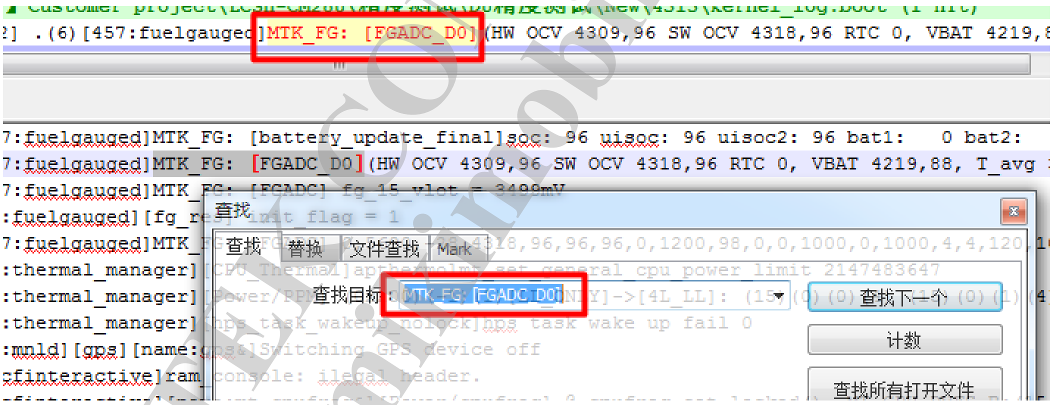
Step1. Enable Android log & kernel log in mobile log，and setting auto run in next power on

Step2. Setting the max capacity to 5000M

3. Check whether GM2.0 log is enable

Open the kernel_log.boot and search the key words: MTK_FG: [FGADC_D0]

If there's *MTK_FG: [FGADC_D0]*, the GM2.0 log is enable.



4. D0 precision test

Step1. Enable mobile log, and setting auto run in next power on

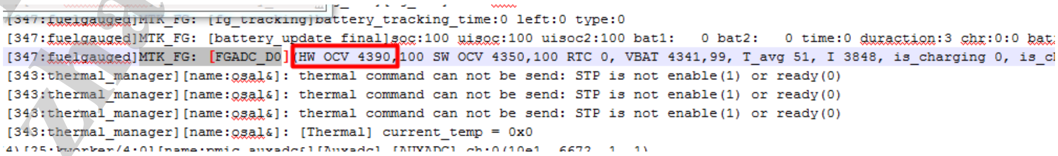
Step2. Disconnect the phone and the battery, and waiting 30minutes

Step3. Test the OCV （Open Circuit Voltage）of battery: V0

Step4. Connect the Battery and the phone and power on

Step5. Waiting 1min after power on, and stop MTK log. Then setting mobile log to auto run in next power on for next step using

Step6. Open the log and search the key words: MTK_FG: [FGADC_D0]



MTK_FG: [FGADC_D0](HW OCV 4390,100 SW OCV 4350,100 RTC 0, VBAT

Note: HW OCV （defined as V1）is the voltage sensing by the phone, and for example, the V1=4390mV.

Please test the battery voltage and get HW OCV in log successively，and judge the error in spec of 10mV.

NO.	Battery OCV/mV	HW OCV/mV	Error /mV	Pass/Fail
1	4300			
2	4200			
3	4100			
4	4000			
5	3900			
6	3850			
7	3800			
8	3750			
9	3700			
10	3650			
11	3600			
12	3500			
13	3450			

5. Discharge test

Step1. Enable mobile log，and setting auto run in next power on.

Step2. Charge full

Step3. Power off and disconnect the battery and the phone

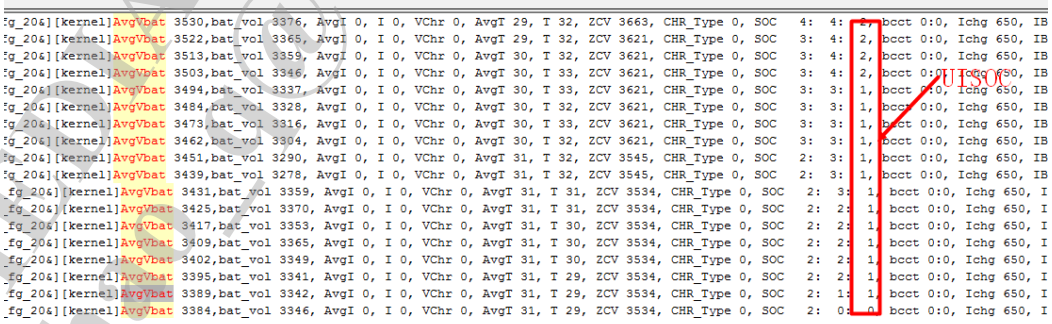
Step4. wait for 30min

Step5. Connect the Battery and the phone and Enable the LCM always on in Engineer mode

Step6. Discharge in the loading of repeat playing Video or the customer loading method until power off

Step7. Put out the MTK log

Step8. Search the keyword：*AvgVbat*，and search all information



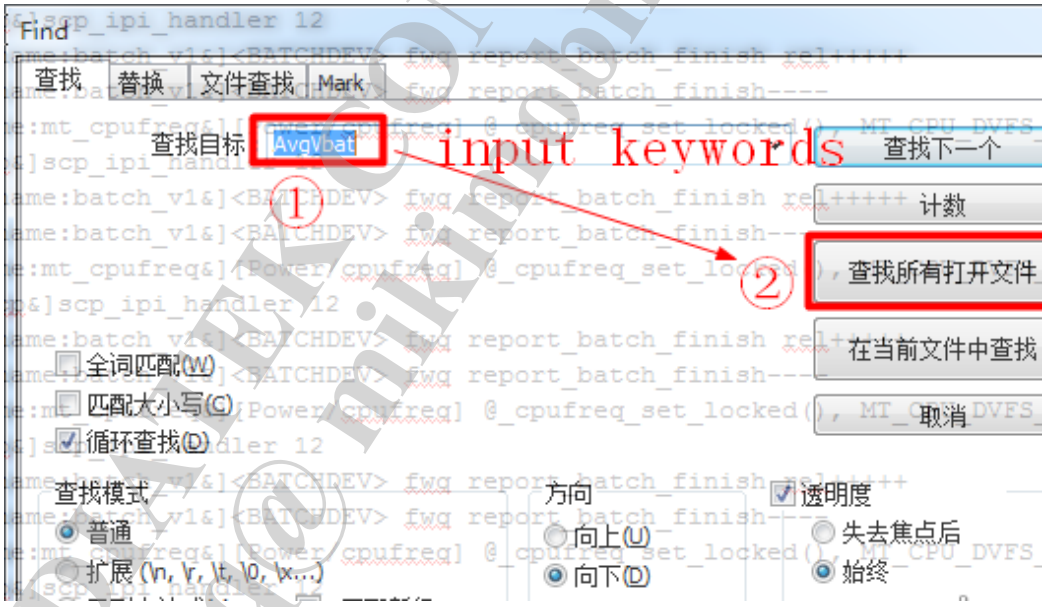
6. How to draw the UISOC &VBAT Curve

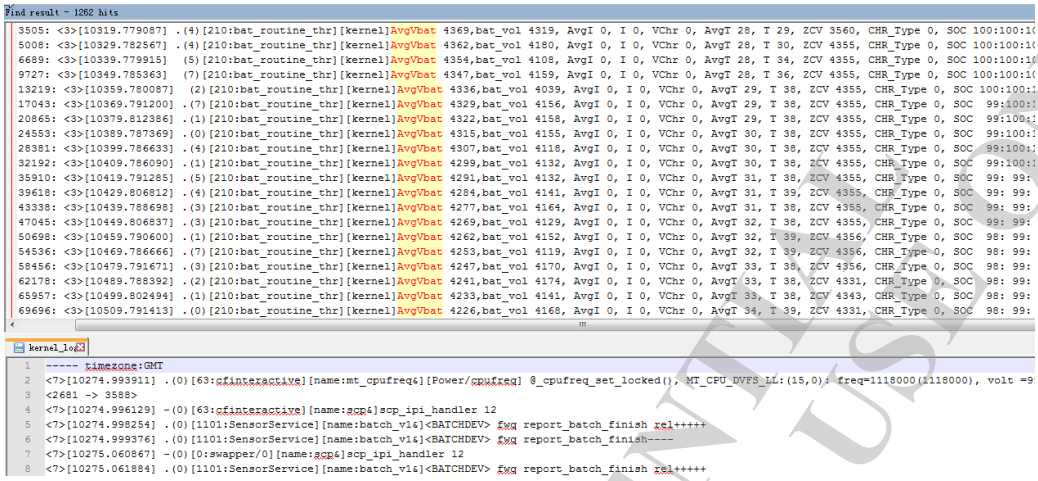
The example is base on discharge by using notepad++，and the charge is the same operation.

Step1. Open the kernel log with notepad++

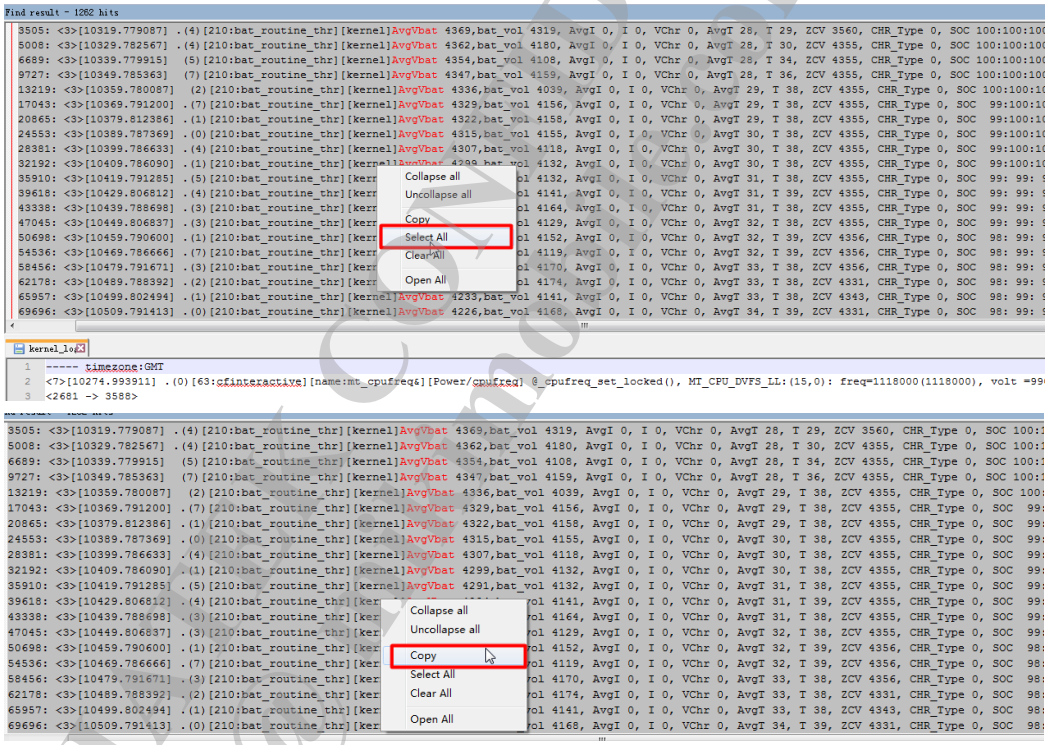
Step2. Search（Ctrl+F）

Step3. Input keywords and search in all files

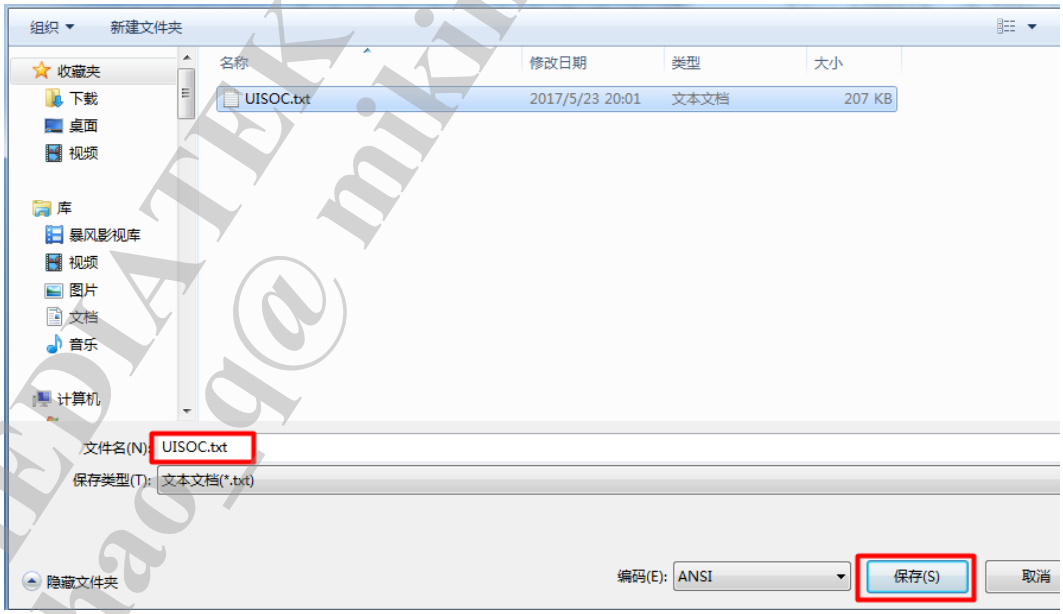




Step4. Select all and save it in text file

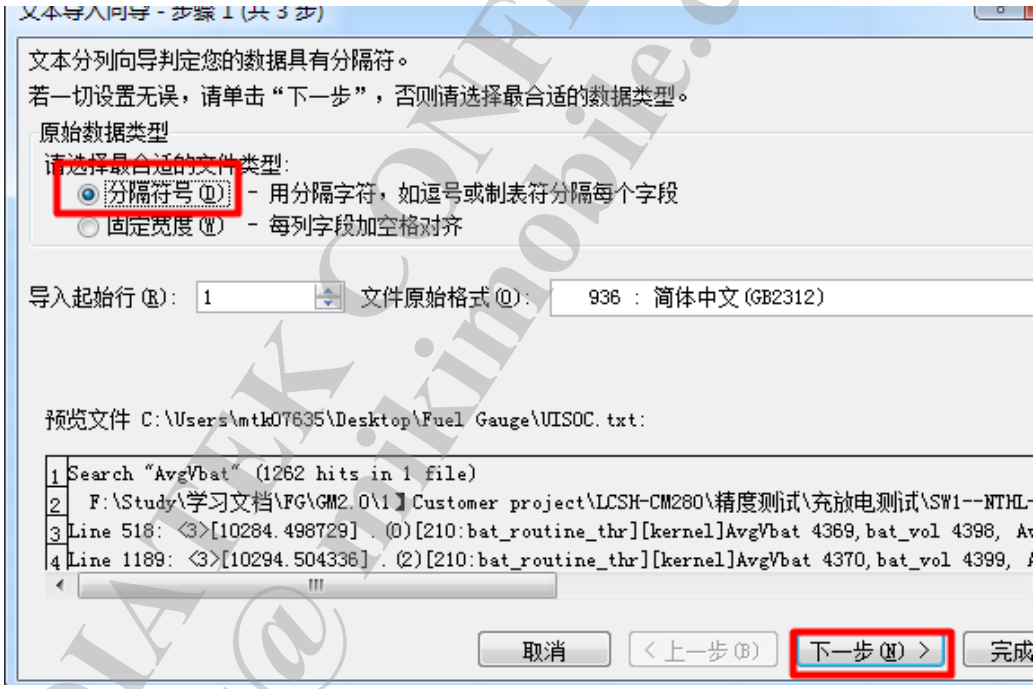


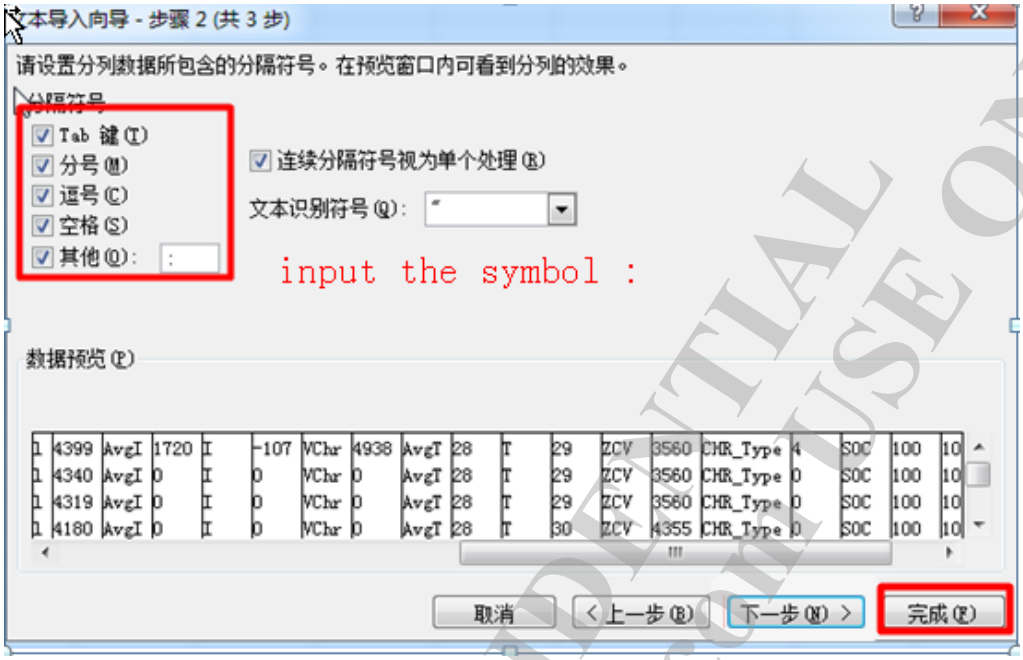
Step5. Save as UISOC.txt



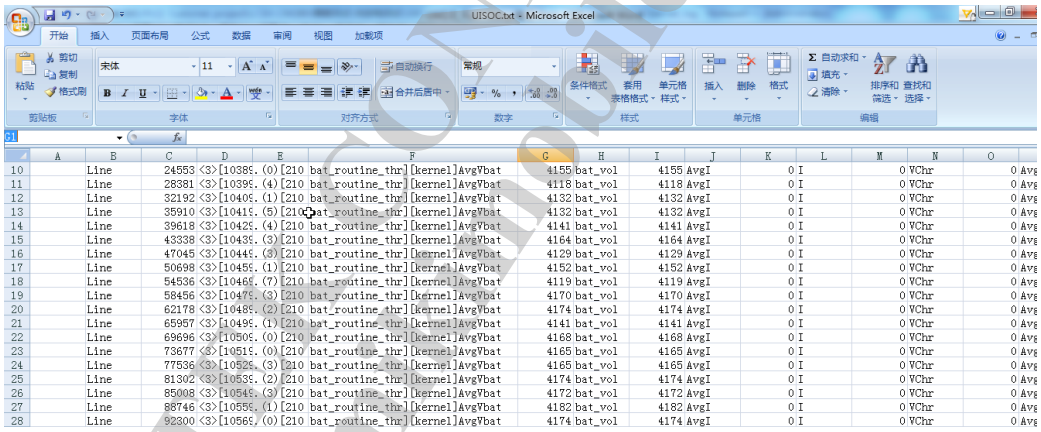
Step6. Open a new excel and open the UISOC.txt

Step7. Click next

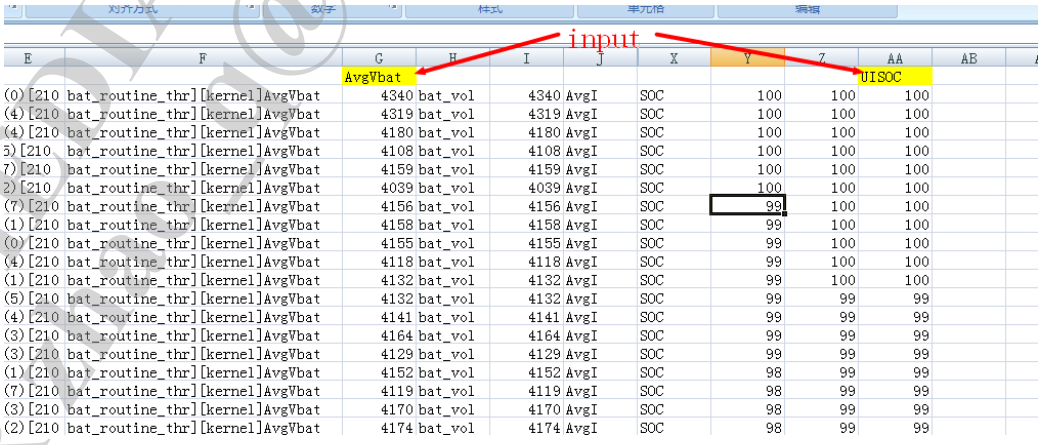




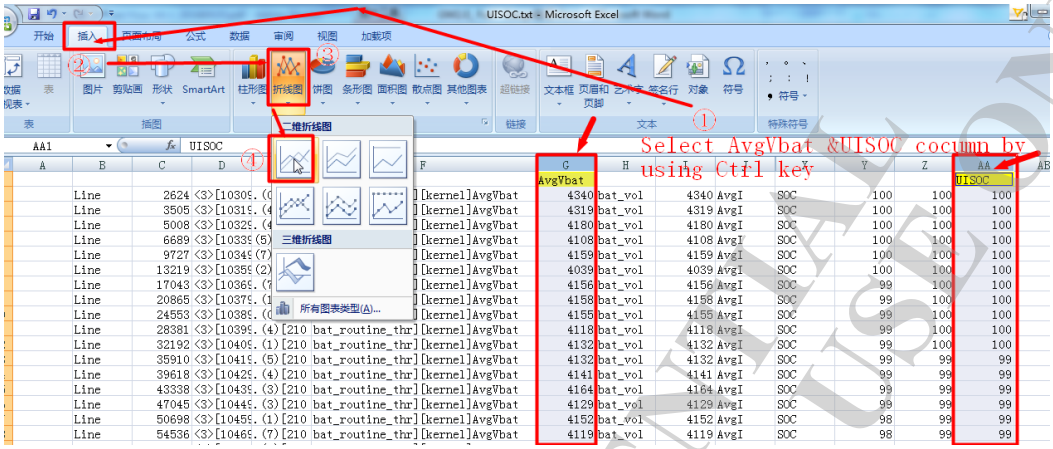
Step8. Now the data in different column

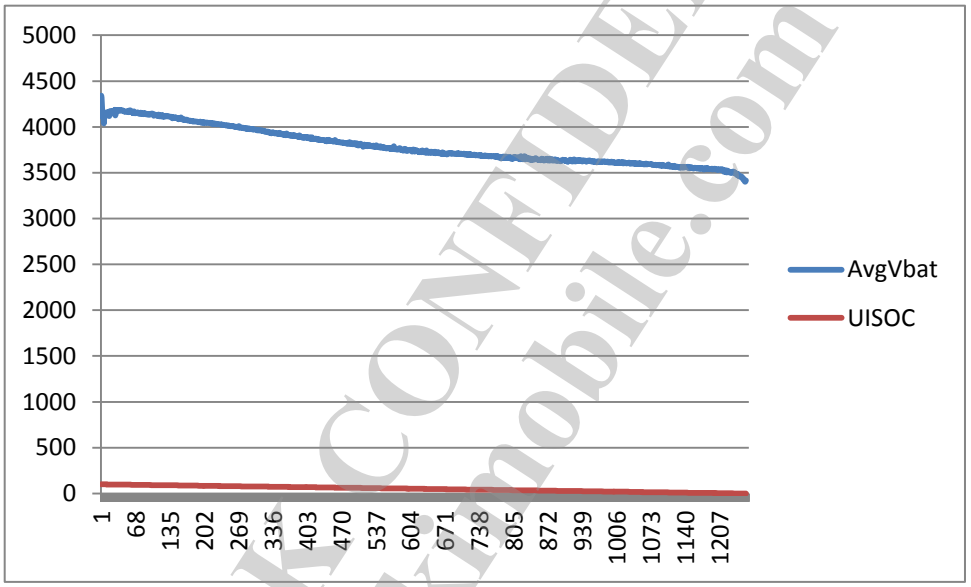


Step9. Define the name AvgVbat and UISOC

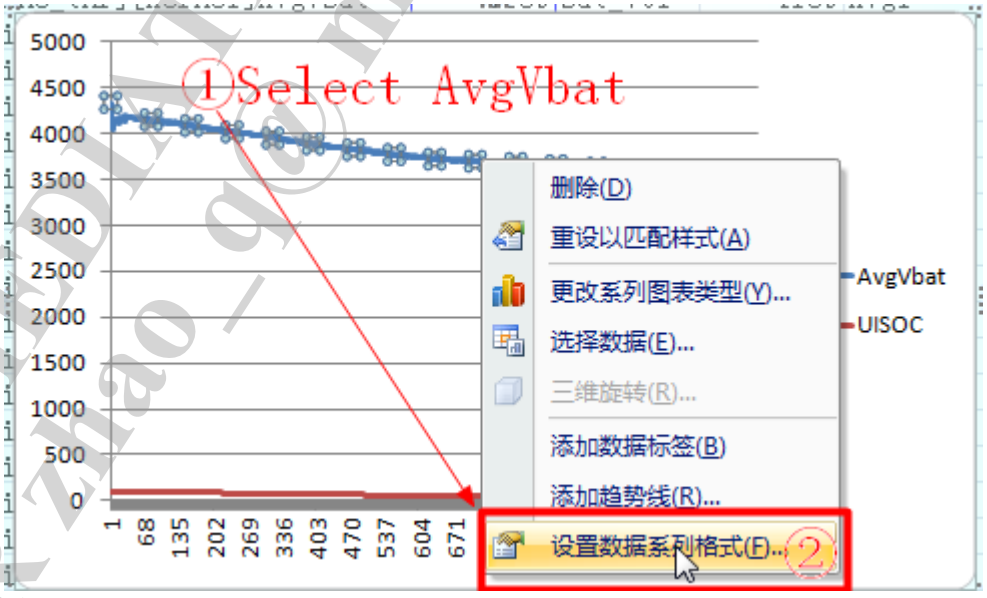


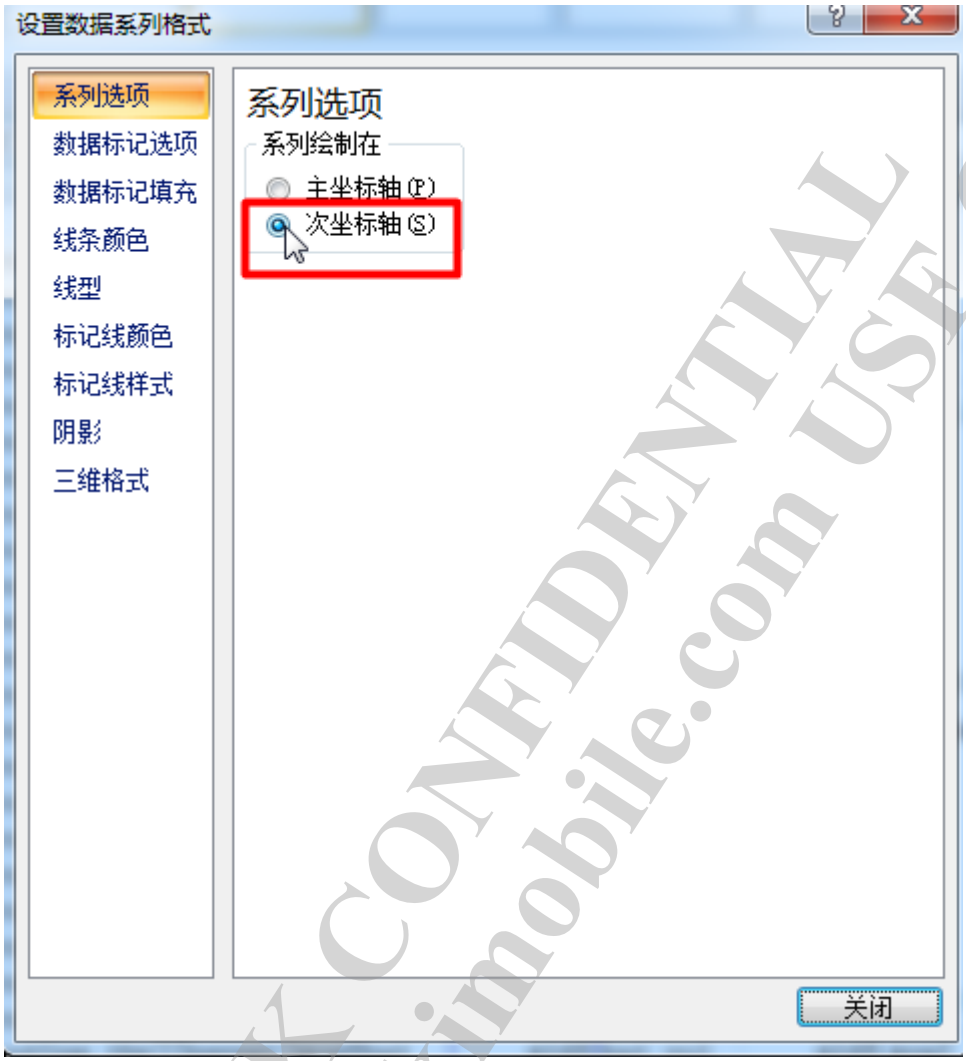
Step10. Select AvgVbat and UISOC column and input line chart as follow

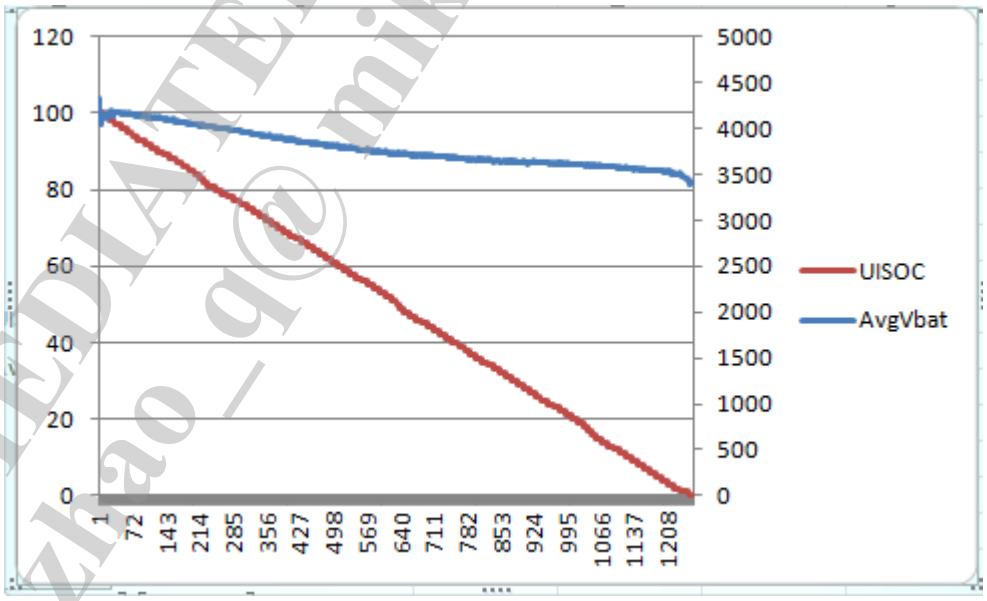




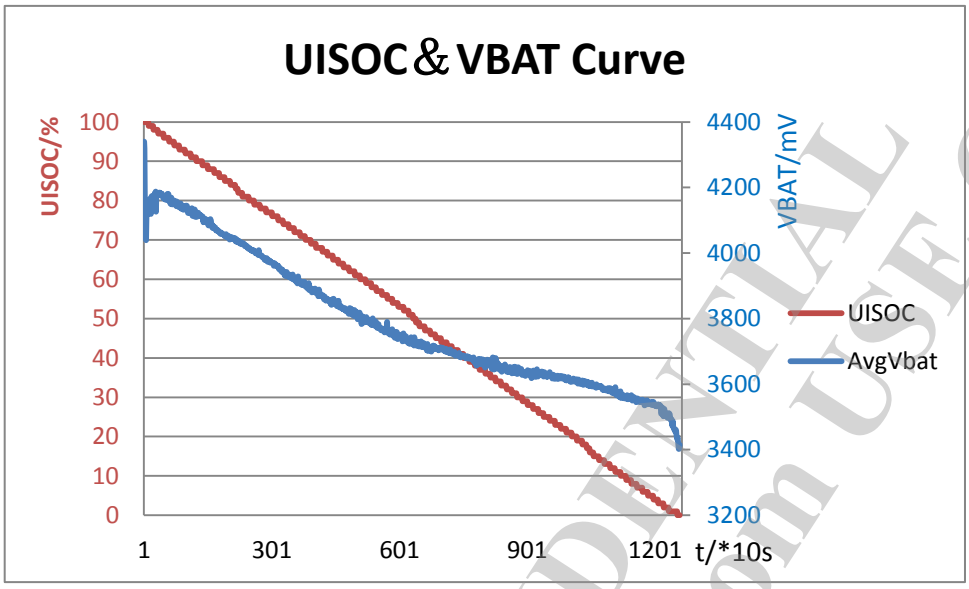
Step11. Select the AvgVbat to secondary axis







Step12. Get the UISOC&VABT Curve by using some excel setting， as follow



7. Charge test

Step1. Enable mobile log， and setting auto run in next power on.

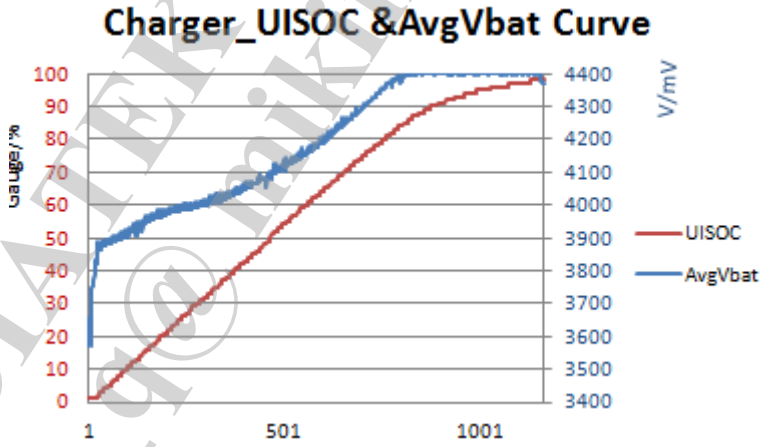
Step2. Battery discharge bellow 3400mV

Step3. Wait for 30min

Step4. Insert Adaptor and Power on

Step5. Get the log after Charger Full

Step6. Then get the Curve as discharge test，same operation as discharge，and the keyword is also *AvgVbat* .



8. Whether Fuel Gauge pass is base on UISOC & AvgVbat

1） UISOC is smoothness， monotonic and no saltus

2） The last UISOC is 1% for discharge

3） The last AvgVbat is less than 3400mV for discharge

4） The maximum UISOC is 100% for charge