Tune up procedure

- 1. It must provide an operational voltage (3.55V---4.2V DC) to turn on the phone and on one certain channel in service mode by means of company proprietary software.
- 2. Base station simulator (Rohde& Schwarz CMU200 or Agilent 8960) measures the 2G phone specific RF characteristics.
- I. Connect the CMU200 to the computer Connect the CMU200 and the computer with GPIB cable.
- II. Connect the Mobile Phone to the CMU200

Connect the bi-directional RF connector RF 2 of the CMU to the antenna connector of the mobile phone.

III. Connect the Mobile Phone to the Computer

- ① Connect the 10-pin-connector end of the USB data cable to the mobile phont.Connect the other end of the data cable to the computer
- ② Open the Maui Meta software by double clicking the software icon. The following window will be displayed:

N N	_ 🗆 X						
Action Options Help Factory Mode USB COM Please reset target	ETA log Flow control © Software C Hardware	Disconnect Reconnect					
BB chip Ext.clock	WIFI BB WIFI RF BT BB FM						
META DLL log is at C:\META_DLL.log							

③ Press OK key, and power on the power supply. Then enter Factory Mode. The following window will be displayed:

META Factory							
<u>Eile E</u> dit <u>H</u> elp							
NVRAM database file	E:\Project\w200\software\W200_00A0_V1_0_1\W200.MT29C1G12MAVNAJC_6IT_W200\BPLGUInfoCustomAppS						
Configuration file	E:\Project\w200\W200射频配置文件\W200_90018002100_9_10.cfg						
Log file	E:\Project\w200\cal log\3.log						
Result file							
Calibration data initial file	E:\Project\w200\\/200射频配置文件\w200_100901.ini						
Calibration data result path							
Logging file label			0				
Barcode	0	5 55					
C Start (F6)	Stop (F7)	😭 Reconnect (F8)					
Calibration Item AFC RX path loss TX PCL TX IQ WCDMA Temperature - WCDMA AFC WCDMA AFC WCDMA TPC BT Crystal CAP ID ADC	PA Type	TX PCL Option Image: GMSK AFC Calibration Image: TVCX0 Crystal WCDMA TPC Image: Sub-Band Cal V66/96/98/4180/1 mg Equipment Option Image: FHC Image: WCDMA NSFT Image: TX on/off Test	BT Tester Use BT Tester CBT Calibration success Barcode increasement Save barcode to NVRAM Save barcode to file Turn off power supply Terminate META Exit META Factory Barcode Increasement Exit META Factory Barcode Increasement Save barcode to NVRAM	WiFi tester CLitePoint IQView CAgilent N4010A Calibration fail Barcode increasement CU Save barcode to NVRAM Save barcode to RVRAM Save barcode to file Turn off power supply Terminate META Enter META Factory Read barcode from None Barcode increasement CU Auto start calibration			

④ Select the items of 2G and 3G should be calibrated. Click the "Start" button, you will see the following screen:

META Factory							
<u>File E</u> dit <u>H</u> elp							
NVRAM database file	E:\Project\w200\software\W200_0040_V1_0_1\W200.MT29C1G12MAVNAJC_6IT_W200\BPLGUInfoCustomAppS						
Configuration file	E:\Project\w200\W200射频配置文件\W200_90018002100_9_10.cfg						
Log file	E:\Project\w200\cal log\3.log						
Result file							
Calibration data initial file	E:\Project\w200\W200射频配置文件\w200_100901.ini						
Calibration data result path							
Logging file label							
Barcode	0		ID:0				
🕃 Start (F6)	🚫 Stop (F7)	Preconnect (F8)					
Calibration in progress!							
Calibration Item		TX PCL Option	BT Tester	 WiFi tester € LitePoint IQView 			
AFC	• 3 PCL		CBT -	C Agilent N4010A			
RX path loss	C 6 DAC		Calibration success	Calibration fail			
TX PCL	C Full PCL		Barcode increasement	Barcode increasement			
TX IQ		AFC Calibration	1 💌	0 💌			
		TCVCX0 C Crystal	Save barcode to NVRAM	Save barcode to NVRAM			
VCDMA Temperature A	ADC		Save barcode to file Turn off power supply	Save barcode to file Turn off power supply Terminate META			
WCDMA AFC		Sub-Band Cal					
WCDMA RX path loss			Terminate META				
WCDMA TPC BT Crystal CAP ID ADC	PA Type		Exit META Factory	Enter META Factory			
	RFMD 3140/46	/66/96/98/4180/1 💌	Barcode Increasement	Read barcode from			
	RF Cablination	Equipment Option					
	C Agilent 8960	Reset	Save barcode to NVRAM				
	CMU 200	FHC WCDMA FHC	Terminate META	Auto start calibration			
	- NSFT-						
		WCDMA NSFT	Power supply				
	🗂 BER	E BER	Agilent 661x				
		TX on/off Test					

⑤ Once the button is clicked, the CMU will be checking various parameters automatically(e.g. RSSI, Output Power, AFC,etc.) and set different parameters for the mobile phone accordingly(e.g. Gain, Output power, etc.)

For GSM 850/900 band : PCL = 5, PWR = 32 ± 1 dBm

For DCS 1800/pcs1900 band : PCL = 0, PWR = 30 ± 1 dBm

For WCDMA850/900/1900/2100 band :

 $MAX_PWR = 24 (+1/-3) dBm$

If "Calibration Success !" data appears, the mobile phone had been successfully calibrated and everything is properly tuned. This calibration process typically takes less than 10 minutes if all the above steps are followed and the conditions are met.

3. The maximum gain of each individual phone are adjusted until the target value met.

Then this appropriate gain settings are stored in each phone individually.

The user has no possibility to change these settings later on, and during manufacturing each phone will be individual calibrated. The measurement is done in fully calibrated setup, which is based on a Rohde& Schwarz CMU200 or Agilent 8960 base station simulator. Furthermore, the highest power level is verified afterwards in a call measurement on three channels (low, middle and high).