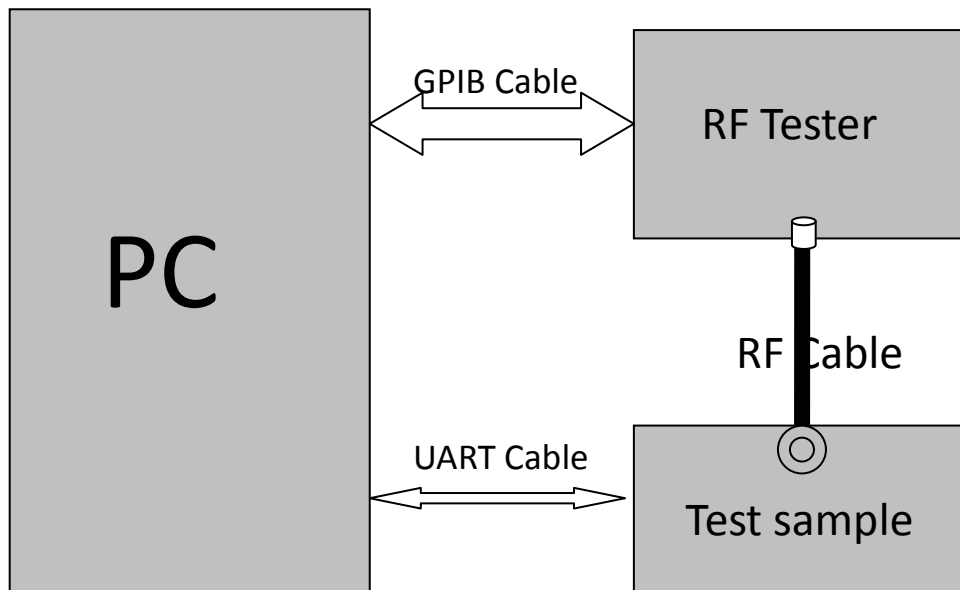


# TUNE UP PROCEDURE

## The General Information of the Device

FCC ID	2AE56A6
Model Name	A6
Brand Name	KENXINDA
Hard ware Version	M820_V7.1SX
Soft ware Version	ALPS.KK1.MP1.V2.22
Power Supply	DC3.8V by Battery
Battery parameter:	DC3.8V/2000 mAh
Frequency Band	<input checked="" type="checkbox"/> GSM 850 <input checked="" type="checkbox"/> PCS1900 (U.S. Bands) <input checked="" type="checkbox"/> GSM 900 <input checked="" type="checkbox"/> DCS 1800 (Non-U.S. Bands) <input checked="" type="checkbox"/> UMTS FDD Band II <input checked="" type="checkbox"/> UMTS FDD Band V(U.S. Bands) <input type="checkbox"/> UMTS FDD Band I (Non-U.S. Bands)
GSM Talking Avg. Output Power	GSM 850 :30.5dBm+1 dB, PCS1900 : 28.5dBm+1 dB
GPRS with 1 TX slot Avg. Output Power	GSM 850 :30dBm+1 dB, PCS1900 : 27dBm+1 dB
GPRS with 2 TX slot Avg. Output Power	GSM 850 :28dBm+1 dB, PCS1900 : 25dBm+1 dB
GPRS with 3 TX slot Avg. Output Power	GSM 850 :26dBm+1 dB, PCS1900 : 23dBm+1 dB
GPRS with 4 TX slot Avg. Output Power	GSM 850 :25dBm+1 dB, PCS1900 : 22dBm+1 dB
WCDMA RMC	UMTS BAND II:21dBm+1dB; UMTS BAND V:21dBm+1dB
WCDMA AMR	UMTS BAND II:21dBm+1dB; UMTS BAND V:21dBm+1dB
HSDPA Subtest 1	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSDPA Subtest 2	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSDPA Subtest 3	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSDPA Subtest 4	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSUPA Subtest 1	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSUPA Subtest 2	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSUPA Subtest 3	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSUPA Subtest 4	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
HSUPA Subtest 5	UMTS BAND II:20dBm+1dB; UMTS BAND V:20dBm+1dB
Max.AVG. Output Power(GFSK)	-1dBm $\pm$ 1dB
Max. AVG. Output Power( $\pi$ /4-DQPSK)	-1dBm $\pm$ 1dB
Max. AVG. Output Power(8-DPSK)	-1dBm $\pm$ 1dB
Max. Peak Output Power(BT 4.0)	-5dBm $\pm$ 1dB
Max. AVG. Output Power(802.11b)	11dBm $\pm$ 1dB
Max. AVG. Output Power(802.11g)	9dBm $\pm$ 1dB
Max. AVG. Output Power(802.11n)	8dBm $\pm$ 1dB
Max. AVG. Output Power(802.11n 40)	7dBm $\pm$ 1dB

## The Configuration Block Diagram for Tune UP



## The Detailed Procedure Of Tune Up

### 1 Adjustment of RF Output Power:

- 1.1 The equipment setup as shown in Figure 1
- 1.2 Operation of PC adjusts equipment
- 1.3 Use RF Engineering Tools at PC side
  - 1.3.1 Select GSM850 Band:
    - 1.3.1.1 Set GSM850 Band
    - 1.3.1.2 Set ARFCN: 190
    - 1.3.1.3 TX ON
    - 1.3.1.4 Adjust the power to 33dBm (Power control level: PCL=5) by PA DAC value
    - 1.3.1.5 Repeat 4) for 15 times, and adjust the power level to 32, 31, 29, 27, 25, 23, 21, 19, 17, 15, 13, 11, 9, 7, 5
    - 1.3.1.6 Make 16 Ramp-Up/Ramp-Down data from the adjustment value of (5) and (6).
    - 1.3.1.7 Data of 5) and 6) is written to flash memory.
  - 1.3.2 Select PCS1900 Band:
    - 1.3.2.1 Set PCS Band
    - 1.3.2.2 Set ARFCN: 661
    - 1.3.2.3 TX ON
    - 1.3.2.4 Adjust the power to 30dBm (Power control level: PCL=0) by PA DAC value
    - 1.3.2.5 Repeat 4) for 15 times, and adjust the power level to 29, 28, 26, 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0
    - 1.3.2.6 Make 16 Ramp-Up/Ramp-Down data from the adjustment value of (5) and (6)
    - 1.3.2.7 Data of 5) and 6) is written to flash memory.

## **2 Adjustment of oscillation frequency of VCXO:**

- 2.1 The equipment setup as shown in Figure 1
- 2.2 Use Crystal AFC Control Tools to Set CapID and AFC DAC value
- 2.3 Set Band=GSM850,Set ARFCN=190,Set PCL=12
  - 2.3.1 Set AFC DAC=4096, fixed. (Check that V<sub>afc</sub>=1.4V)
  - 2.3.2 Set CapID=0, and verify that frequency error >>10KHz
  - 2.3.3 Set CapID=63, and verify that frequency error <<-10KHz
  - 2.3.4 If the above 3 items are verified, then change CapID value to make frequency error be closed to 0 Hz as possible, record this CapID value
  - 2.3.5 Set CapID value got from step 4), then change AFC DAC value to make frequency error be closed to 0 Hz as possible, record this AFC DAC value.
  - 2.3.6 Download the CapID value and AFC DAC value to flash memory.

## **3 Adjustment of RX Sensitivity:**

- 3.1 Select GSM850 Band:
  - 3.1.1 Set BCCH level:-85dBm; ARFCN:128
  - 3.1.2 Test sample make a call to connect RF Tester
  - 3.1.3 Set TCH level:-106dBm
  - 3.1.4 Measure BER II error at TCH ARFCN:128, 190, 251
  - 3.1.5 Tune up the RX matching circuit to make sure BER II <2% at each ARFCN.
- 3.2 Select PCS Band:
  - 3.2.1 Set BCCH level:-85dBm; ARFCN:512
  - 3.2.2 Test sample make a call to connect RF Tester
  - 3.2.3 Set TCH level:-106dBm
  - 3.2.4 Measure BER II error at TCH ARFCN:512, 661, 810
  - 3.2.5 Tune up the RX matching Circuit to make sure BER II <2% at each ARFCN.