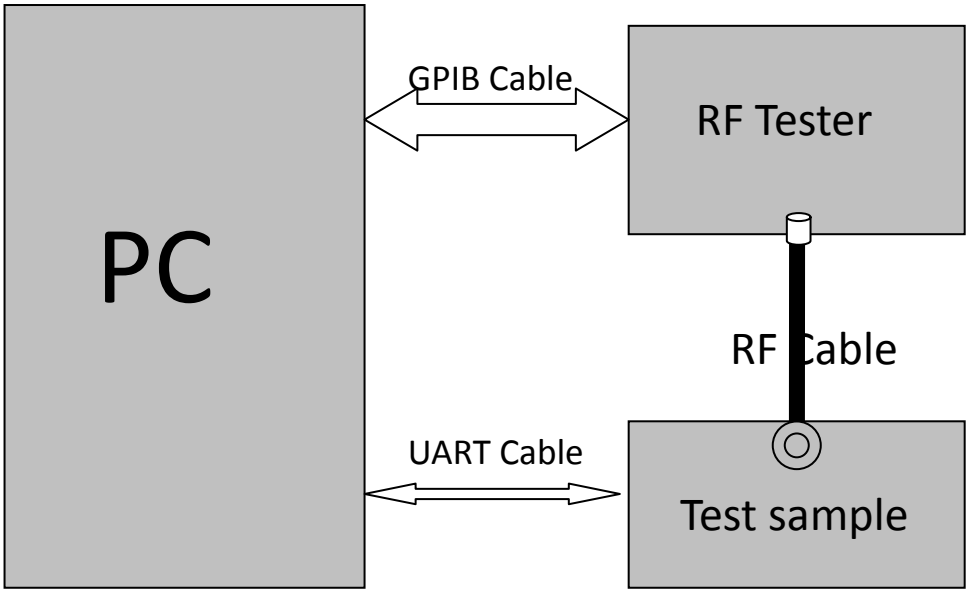
TUNE UP PROCEDURE

The General Information of the Device

FCC ID	O55PROFILE
Model Name	Profile
Brand Name	iSWAG
Hardware Version	A15_21663_MB_V1.3
Software Version	N/A
Voltage	DC3.7V
Current	1500mAH
Frequency Band	☒GSM 850☒PCS1900 (U.S. Bands) ☒GSM 900 ☒DCS 1800 (Non-U.S. Bands) ☒UMTS FDD Band II ☒UMTS FDD Band V (U.S. Bands)
GSM Talking Output Power	GSM 850 :33dBm-1 dB, PCS1900 : 30dBm-1 dB
GPRS with 1 TX slot Output Power	GSM 850 :33dBm-1 dB, PCS1900 : 30dBm-1 dB
GPRS with 2 TX slot Output Power	GSM 850 :30dBm-1 dB, PCS1900 : 27dBm-1 dB
GPRS with 3 TX slot Output Power	GSM 850 : 28.23dBm-1 dB, PCS1900 : 25.23dBm-1 dB
GPRS with 4 TX slot Output Power	GSM 850 : 27dBm-1 dB, PCS1900 : 24dBm-1 dB
WCDMA RMC	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
WCDMA AMR	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSDPA Subtest 1	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSDPA Subtest 2	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSDPA Subtest 3	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSDPA Subtest 4	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSUPA Subtest 1	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSUPA Subtest 2	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSUPA Subtest 3	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSUPA Subtest 4	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
HSUPA Subtest 5	UMTS BAND II:24dBm-2dB; UMTS BAND V:24dBm-2dB
Max.Avg. Output Power(GFSK)	0.89dBm±0.32dB
Max.Avg. Output Power(π /4-DQPSK)	-0.21dBm±0.33dB
Max.Avg. Output Power(8-DPSK)	-0.34dBm±0.26dB
Max.Avg. Output Power(BT4.0)	-5.12dBm±0.12dB
Max.Avg.Output Power(802.11b)	11.94dBm±0.28dB
Max.Avg.Output Power(802.11g)	8.16dBm±1.52dB
Max.Avg.Output Power(802.11n)	8.34dBm±1.18dB
Max.Avg.Output Power(802.11n 40)	4.58dBm±0.46dB

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: 251
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 SelectPCS1900 Band:
1.3.2.1 Set PCS Band
1.3.2.2 Set ARFCN: 512
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 Vafc=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.