Tune Up

Specific Operating Power Range:

GSM850:

Power Class 1;

Power Contorl Level 5 +32dBm +1dB/-1dB

Power Contorl Level 6 +31dBm +2.0dB/-2.0dB
Power Contorl Level 7 +29dBm +2.0dB/-2.0dB
Power Contorl Level 8 +27dBm +2.0dB/-2.0dB
Power Contorl Level 9 +25dBm +2.0dB/-2.0dB
Power Contorl Level 10 +23dBm +2.0dB/-2.0dB
Power Contorl Level 11 +21dBm +2.0dB/-2.0dB
Power Contorl Level 12 +19dBm +2.0dB/-2.0dB
Power Contorl Level 13 +17dBm +2.0dB/-2.0dB
Power Contorl Level 14 +15dBm +2.0dB/-2.0dB
Power Contorl Level 15 +13dBm +2.0dB/-2.0dB
Power Contorl Level 16 +11dBm +2.0dB/-2.0dB
Power Contorl Level 17 +9dBm +2.0dB/-2.0dB
Power Contorl Level 18 +7dBm +2.0dB/-2.0dB
Power Contorl Level 19 +5dBm +2.0dB/-2.0dB

GSM1900:

Power Class 1;

Power Control Level 0 +29dBm +1.0dB/-1.0dB
Power Control Level 1 +28dBm +3.0dB/-3.0dB
Power Control Level 2 +26dBm +3.0dB/-3.0dB
Power Control Level 3 +24dBm +3.0dB/-3.0dB
Power Control Level 4 +22dBm +3.0dB/-3.0dB
Power Control Level 5 +20dBm +3.0dB/-3.0dB
Power Control Level 6 +18dBm +3.0dB/-3.0dB
Power Control Level 7 +16dBm +3.0dB/-3.0dB
Power Control Level 8 +14dBm +3.0dB/-3.0dB
Power Control Level 9 +12dBm +4.0dB/-4.0dB
Power Control Level 10 +10dBm +4.0dB/-4.0dB
Power Control Level 11 +8dBm +4.0dB/-4.0dB
Power Control Level 12 +6dBm +4.0dB/-4.0dB
Power Control Level 13 +4dBm +4.0dB/-4.0dB
Power Control Level 14 +2dBm +5.0dB/-5.0dB
Power Control Level 15 +0dBm +5.0dB/-5.0dB

GPRS Multi-slot Class:

GPRS850-1TS 32dBm +1.0dB/-1.0dB
GPRS850-2TS 28dBm +1.0dB/-1.0dB
GPRS850-3TS 27dBm +1.0dB/-1.0dB
GPRS850-4TS 26dBm +1.0dB/-1.0dB
GPRS1900-1TS 29dBm +1.0dB/-1.0dB
GPRS1900-2TS 26dBm +1.0dB/-1.0dB
GPRS1900-3TS 24 dBm +1.0dB/-1.0dB
GPRS1900-4TS 23 dBm +1.0dB/-1.0dB
Note; Effective radiation efficiency is –3.7dB

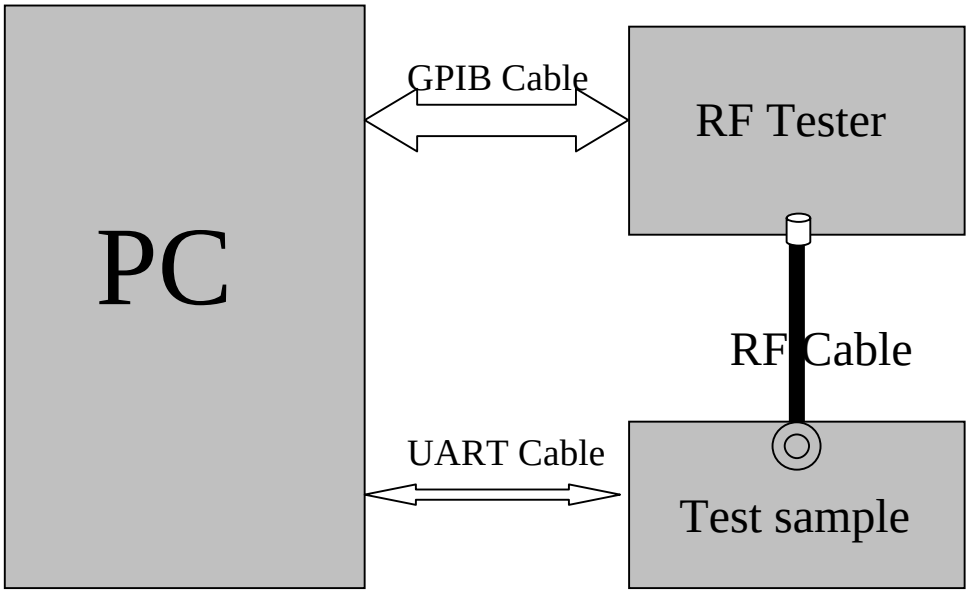

Figure 1

1 Adjustment of RF Output Power:

(1) The equipment setup as shown in Figure 1.

(2) Operation of PC adjusts equipment.

(3) Use RF Engineering Tools at PC side.

Select GSM850:

1) Set GSM850 Band.

2) Set ARFCN: 190

3) TX ON.

4) Adjust the power to 32dBm (+1.0dB/-1.0dB, Power control level: PCL=5) and 22.0dBm(+1.0dB/-1.0dB) by PA DAC value.

5) Repeat 4) for 15 times,and adjust the power level to 30.5, 28.8, 27, 25, 23, 21, 19, 17, 15, 13, 11, 9, 7, 5.

6) Make 16 Ramp-Up/Ramp-Down data from the adjustment value of (5) and (6).

7) Data of 5) and 6) is writen to flash memory.

Select PCS1900:

1) Set PCS1900.

2) Set ARFCN: 512(PCS1900).

3) TX ON.

4) Adjust the power to 29.0 dBm (+1.0dB/-1.0dB, Power control level: PCL=0) and 22.0dBm(+1.0dB/-1.0dB) by PA DAC value.

5) Repeat 4) for 15 times,and adjust the power level to 27.5, 26, 24, 22, 20, 18, 16, 14, 12, 10, 8, 6, 4, 2, 0.

6) Make 16 Ramp-Up/Ramp-Down data from the adjustment value of (5) and (6).

7) Data of 5) and 6) is writen to flash memory.

2 Adjustment of oscillation frequency of VCXO:

(1) The equipment setup as shown in Figure 1.

(2) Use Crystal AFC Control Tools to Set CapID and AFC DAC value.

(3) Set Band=GSM850,Set ARFCN=190,Set PCL=12.

1) Set AFC DAC=4096,fixed.(Check that Vafc=1.4V).

2) Set CapID=0, and verify that frequency error >>10KHz.

3) Set CapID=63, and verify that frequency error <<-10KHz.

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.

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.

6) Download the CapID value and AFC DAC value to flash memory.

3 Adjustment of RX Sensitivity:

(1) Select GSM850:

1) Set BCCH level:-85dBm;ARFCN:128.

2) Test sample make a call to connect RF Tester..

3) Set TCH level:-106dBm.

4) Measure BERⅡ error at TCH ARFCN:128, 190, 251.

5) Tuen up the RX matching cricuit to make sure BERⅡ<2% at each ARFCN.

(2) Select PCS1900:

1) Set BCCH level:-85dBm;ARFCN:512.

2) Test sample make a call to connect RF Tester..

3) Set TCH level:-106dBm.

4) Measure BERⅡ error at TCH ARFCN:512, 661, 810.

5) Tuen up the RX matching cricuit to make sure BERⅡ<2% at each ARFCN.

2. BT GENERAL INFORMATION

2.1 Product Information

Product	Mobile Phone
Trade Name	Haier
Model Number	HG-m200+
Series Number:	N/A
Description of Differences:	N/A
Power Supply	DC: 3.7V by Li-ion Battery; DC: 5V by AC Adapter(100V-240V 50/60Hz);
Frequency Range	2402MHz -2480MHz
Modulation Type	FHSS
Transmit Data Rate	GFSK(1Mbps), II/4-DQPSK(2Mbps), 8-DPSK(3Mbps)
Antenna Type:	Internal Fixed
Channel Spacing:	1MHz
Channel Number	79(CH Low: 2402MHz, CH Mid: 2441MHz, CH High: 2480MHz)
Temperature Range	-20°C ~ 50°C

NOTE:

1. *Please refer to Appendix I for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.*