

Tune-Up Procedure and Power Tune-Up – Power Limiting

- ① It must provide an operational voltage (3.6~4.2V 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 WCDMA phone specific RF characteristics.
- ③ The maximum gain of each individual phone is adjusted until the target value met.

For GSM850

For each power control level, the output power shall be tune up to the tolerances shown in the under table.

Power Level Target Unit Tolerance

Power level	Power Peak value	limit
	dBm	normal
5	31	+/-0.5 dB
6	30.5	+/-3 dB
7	29	+/-3 dB
8	27	+/-3 dB
9	25	+/-3 dB
10	23	+/-3 dB
11	21	+/-3 dB
12	19	+/-3 dB
13	17	+/-3 dB
14	15	+/-3 dB
15	13	+/-3 dB
16	11	+/-5 dB
17	9	+/-5 dB
18	7	+/-5 dB
19	5	+/-5 dB

For PCS1900

For each power control level, the output power shall be tune up to the tolerances shown in the under table.

Power Level Target Unit Tolerance

Power level	Power Peak value	limit
	dBm	normal
0	30	+/-0.7 dB
1	28	+/-3 dB
2	26	+/-3 dB
3	24	+/-3 dB
4	22	+/-3 dB
5	20	+/-3 dB
6	18	+/-3 dB
7	16	+/-3 dB
8	14	+/-3 dB
9	12	+/-4 dB
10	10	+/-4 dB
11	8	+/-4 dB
12	6	+/-4 dB
13	4	+/-4 dB
14	2	+/-5 dB
15	0	+/-5 dB

For WCDMA Band V Power range = $22+0.8/-1$

For WCDMA Band II Power range = $22+0.4/-1$

GSM 850 RX sensitivity < -108dBm

PCS1900 RX sensitivity < -107dBm

WCDMA Band I & Band II & Band V RX sensitivity < -107dBm

Then these 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 Agilent 8960 base station simulator. Furthermore, the highest power level is verified afterwards in a call measurement on three channels (low, middle and high).

Tune Up Procedure

1. RX Gain Calibration
 - a. Put DUT in test mode
 - b. Put DUT in BCH mode
 - c. Put DUT in selected channel band
 - d. Total gain chain calibration at center ARFCN
 - e. Frequency Ripple calibration
 - f. Complete RX_AGC Gain table
2. TX Power Calibration
 - a. Put DUT in test mode
 - b. Put DUT in BCH mode
 - c. Put DUT in selected channel band
 - d. Calibrate Rampscale value at center ARFCN
 - e. Frequency Ripple calibration
 - f. Complete TX_APC table
3. AFC calibration
 - a. Put DUT in test mode
 - b. Put DUT in selected channel band
 - c. Calibrate AFC at center ARFCN
 - d. Complete AFC result table

Maximum Output Power among production units

Max Target Power for Production Unit (dBm)			
Mode/Band	Channel		
	Low	Middle	High
GSM 850	31.50	31.50	31.50
GPRS 1 slot	31.50	31.50	31.50
GPRS 2 slot	30.80	30.80	30.80
GPRS 3 slot	29.50	29.50	29.50
GPRS 4 slot	28.00	28.00	28.00
EGPRS 1 slot	27.00	27.00	27.00
EGPRS 2 slot	26.50	26.50	26.50
EGPRS 3 slot	25.50	25.50	25.50
EGPRS 4 slot	24.60	24.60	24.60
PCS 1900	30.70	30.70	30.70
GPRS 1 slot	30.90	30.90	30.90
GPRS 2 slot	29.30	29.30	29.30
GPRS 3 slot	27.70	27.70	27.00
GPRS 4 slot	26.10	26.10	26.10
EGPRS 1 slot	26.80	26.80	26.80
EGPRS 2 slot	26.00	26.00	26.00
EGPRS 3 slot	25.20	25.20	25.20
EGPRS 4 slot	23.40	23.40	23.40
WCDMA850	22.80	22.80	22.80
WCDMA1900	22.40	22.40	22.00
WiFi	9.10	9.10	9.10
Bluetooth	5.50	5.50	5.50