Tune Up Procedure

During manufacturing each device is individually calibrated. Measurement is performed in a fully calibrated setup using an Agilent 8960 base station simulator (system tester). Measurement procedure is outlined below:

Measurement Procedure:

1. Set the device to operational voltage and on a predefined channel in a special test mode.

2. The actual output power is measured at several power levels.

3. The gain factors of each individual device are adjusted until the target value is met. The appropriate gain control settings for each output power level are stored in each device individually (for each power level). The user has no possibility to change these settings later on.

4. The maximum gains of each individual device are adjusted and measured until the target value is met. The production target power with tolerance compiles with the maximum power in test report.

Maximum Target Power for Production Unit

Mode	GSM 850	GSM 1900
GSM/PCS	32.0±1 dBm	29.0±1 dBm
GPRS 8 (1 Uplink)	32.0±1 dBm	27.0±1 dBm
GPRS 10 (2 Uplink)	30.0±1 dBm	27.0±1 dBm
GPRS 11 (3 Uplink)	28.5±1 dBm	25.0±1 dBm
GPRS 12 (4 Uplink)	28.0±1 dBm	23.5±1 dBm
EGPRS 8 (1 Uplink)	32.0±1 dBm	29.0±1 dBm
EGPRS 10 (2 Uplink)	30.0±1 dBm	27.0±1 dBm
EGPRS 11 (3 Uplink)	28.5±1 dBm	25.0±1 dBm
EGPRS 12 (4 Uplink)	28.0±1 dBm	24.0±1 dBm
Mode	**WCDMA/Band V**	**WCDMA/Band II**
RMC 12.2 kbps	23.5±1 dBm	20.5±1 dBm
HSDPA Sub-test 1	22.0±1 dBm	20.5±1 dBm
HSDPA Sub-test 2	22.0±1 dBm	20.5±1 dBm
HSDPA Sub-test 3	22.0±1 dBm	20.5±1 dBm
HSDPA Sub-test 4	22.0±1 dBm	20.5±1 dBm
HSUPA Sub-test 1	20.0±1 dBm	19.0±1 dBm
HSUPA Sub-test 2	20.0±1 dBm	19.0±1 dBm
HSUPA Sub-test 3	21.0±1 dBm	20.0±1 dBm
HSUPA Sub-test 4	20.0±1 dBm	19.0±1 dBm
HSUPA Sub-test 5	22.0±1 dBm	20.5±1 dBm

Maximum Target Power for Production Unit

Mode	Bluetooth
GFSK	4.0±1 dBm
pi/4DQPSK	3.0±1 dBm
8DPSK	4.0±1 dBm
BLE	-3.5±1 dBm

Maximum Target Power for Production Unit

Mode	WIFI
802.11b	11.5±1 dBm
802.11g	10.0±1 dBm
802.11n(H20)	9.0±1 dBm
802.11n(H40)	8.0±1 dBm

Power unit: dBm

Then these appropriate gain settings are stored in each device individually.
The user has no possibility to change these settings later on, and during manufacturing each device will be individual calibrated in this range. The measurement is done in a fully calibrated setup, which is based on the base station simulator. Furthermore, the highest power level is verified afterwards in a call measurement on three channels (low, middle and high).