

# Tune up procedure

Tune up procedure shall be over the power range or at specific operating power levels.

1. It must provide an operational voltage (3.4 ~ 4.2V DC) to turn on the device and on one certain channel in service mode by means of company proprietary software.
2. Base station simulator (CMU 200) measures the Smart phone device specific RF characteristics.
3. The maximum gains of each individual device are adjusted until the target value met.

| Tune-up Power |                    |                    |
|---------------|--------------------|--------------------|
| Mode          | Frequency Bands    | Tune-up Power      |
| GSM           | GSM850             | 31.5dBm $\pm$ 1dB  |
|               | GSM1900            | 29.0dBm $\pm$ 1dB  |
| GPRS          | GPRS850(1 slots)   | 31.5dBm $\pm$ 1dB  |
|               | GPRS850(2 slots)   | 30.5dBm $\pm$ 1dB  |
|               | GPRS850(3 slots)   | 28.5dBm $\pm$ 1dB  |
|               | GPRS850(4 slots)   | 26.5dBm $\pm$ 1dB  |
|               | GPRS1900(1 slots)  | 29.0dBm $\pm$ 1dB  |
|               | GPRS1900(2 slots)  | 27.5dBm $\pm$ 1dB  |
|               | GPRS1900(3 slots)  | 25.5dBm $\pm$ 1dB  |
|               | GPRS1900(4 slots)  | 23.5dBm $\pm$ 1dB  |
| EDGE          | EDGE850(1 slots)   | 25.5dBm $\pm$ 1dB  |
|               | EDGE850 (2 slots)  | 24.5dBm $\pm$ 1dB  |
|               | EDGE850 (3 slots)  | 22.5dBm $\pm$ 1dB  |
|               | EDGE850 (4 slots)  | 21.0dBm $\pm$ 1dB  |
|               | EDGE1900(1 slots)  | 25.0dBm $\pm$ 1dB  |
|               | EDGE1900 (2 slots) | 24.0dBm $\pm$ 1dB  |
|               | EDGE1900 (3 slots) | 22.0dBm $\pm$ 1dB  |
|               | EDGE1900 (4 slots) | 20.5dBm $\pm$ 1dB  |
| WCDMA Band V  | RMC                | 21.5dBm $\pm$ 1dB  |
|               | HSDPA              | 21.5dBm $\pm$ 1dB  |
|               | HSUPA              | 20.5dBm $\pm$ 1dB  |
| WCDMA Band II | RMC                | 21.0dBm $\pm$ 1dB  |
|               | HSDPA              | 20.5dBm $\pm$ 1dB  |
|               | HSUPA              | 20.5dBm $\pm$ 1dB  |
| WIFI          | 2.4GHz             | 13.5dBm $\pm$ 1dB  |
| NFC           | 13.56MHz           | -69.0dBm $\pm$ 1dB |

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. The measurement is done in fully calibrated setup, which is based on a **CMU 200** base station simulator. Furthermore, the highest power level is verified afterwards in a call measurement on three channels (low, middle and high).