

# **Tune-up Procedure of L 1 0 0**

During manufacturing each phone will be individually calibrated. The measurement is done in a fully calibrated setup, which is based on Agilent 8960 or RS CMU200 (TX power, AFC, DRP, LNA Gain.....). Furthermore, the highest power level is verified afterwards in a call measurement on three channels (low, mid and high).

Procedure:

1. Set the handset to operational voltage and on one certain channel in a
2. special service mode by means of company proprietary software.
2. The actual power is measured at several power levels.
3. The gain factors of each individual phone are adjusted via the Board-test SW using automatic adjustment arithmetic until the target value is met. The appropriate gain control settings are stored in RF table (a special section in Nor Flash marked with Read only and untouchable for end user) each phone individually (for each power level). The user has no possibility to change these settings later on.

## 1. Range of operating power level

The operating power level is divided into 15 steps in Cellular mode

1.1 Cellular-CDMA mode :  $-60.4\text{dBm} \pm 0.3\text{dB} \sim 24\text{dBm} \pm 0.3\text{dB}$

Level 0	$24\text{dBm} \pm 0.3\text{dB}$	Level 9	$-15.6\text{dBm} \pm 0.3\text{dB}$
Level 1	$22.8\text{dBm} \pm 0.3\text{dB}$	Level 10	$-22\text{dBm} \pm 0.3\text{dB}$
Level 2	$21.2\text{dBm} \pm 0.3\text{dB}$	Level 11	$-28.4\text{dBm} \pm 0.3\text{dB}$
Level 3	$18\text{dBm} \pm 0.3\text{dB}$	Level 12	$-34.8\text{dBm} \pm 0.3\text{dB}$
Level 4	$13.2\text{dBm} \pm 0.3\text{dB}$	Level 13	$-41.2\text{dBm} \pm 0.3\text{dB}$
Level 5	$6.8\text{dBm} \pm 0.3\text{dB}$	Level 14	$-47.6\text{dBm} \pm 0.3\text{dB}$
Level 6	$0.4\text{dBm} \pm 0.3\text{dB}$	Level 15	$-54\text{dBm} \pm 0.3\text{dB}$
Level 7	$-6\text{dBm} \pm 0.3\text{dB}$	Level 16	$-60.4\text{dBm} \pm 0.3\text{dB}$
Level 8	$-12.4\text{dBm} \pm 0.3\text{dB}$		

## 2. Means for Control of Operating Power Level

The RF transmitter interfaces internally with the baseband circuits for its analog baseband input as well as status and control signaling.

Power reduction features controlled by baseband circuits (such as selective circuit power-down, gain control, and transmit puncturing) extend handset talk-time. The driver amplifier output is routed externally to the final stage of the transmit chain - filter, PA(power amplifier), coupler, duplexer, and antenna.

Sophisticated Tx LO circuits implement the frequency plan and are completely integrated except for the loop filter (one resistor and two capacitors)

All transmit LO signals are generated by the on-chip VCO under control of its PLL.