

# Grand2 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/CMW500) measures the Mobile 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	32.0dBm $\pm$ 1dB
	GSM1900	29.0dBm $\pm$ 1dB
GPRS	GPRS850(1 slots)	32.0dBm $\pm$ 1dB
	GPRS850(2 slots)	32.0dBm $\pm$ 1dB
	GPRS850(3 slots)	30.5dBm $\pm$ 1dB
	GPRS850(4 slots)	29.0dBm $\pm$ 1dB
	GPRS1900(1 slots)	29.0dBm $\pm$ 1dB
	GPRS1900(2 slots)	28.5dBm $\pm$ 1dB
	GPRS1900(3 slots)	27.0dBm $\pm$ 1dB
	GPRS1900(4 slots)	25.5dBm $\pm$ 1dB
EDGE	EGPRS850(1 slots)	27.0dBm $\pm$ 1dB
	EGPRS850(2 slots)	26.0dBm $\pm$ 1dB
	EGPRS850(3 slots)	25.0dBm $\pm$ 1dB
	EGPRS850(4 slots)	23.5dBm $\pm$ 1dB
	EGPRS1900(1 slots)	25.0dBm $\pm$ 1dB
	EGPRS1900(2 slots)	24.0dBm $\pm$ 1dB
	EGPRS1900(3 slots)	23.0dBm $\pm$ 1dB
	EGPRS1900(4 slots)	22.0dBm $\pm$ 1dB
WCDMA Band V	RMC	22.0dBm $\pm$ 1dB
	HSDPA Subtest	21.0dBm $\pm$ 1dB
	HSUPA Subtest	21.0dBm $\pm$ 1dB
WCDMA Band II	RMC	22.0dBm $\pm$ 1dB
	HSDPA Subtest	21.0dBm $\pm$ 1dB
	HSUPA Subtest	21.0dBm $\pm$ 1dB

WIFI	2.4GHz	8.5dBm ± 1dB
BT	2.4GHz	0.5dBm ± 1dB
BLE	2.4GHz	-6.0dBm ± 1dB

#### LTE Band 2

Band 2	RB size	QPSK	RB size	16QAM
1.4MHz	1	22.0dBm ± 1dB	1	22.0dBm ± 1dB
	3	22.0dBm ± 1dB	3	21.0dBm ± 1dB
	6	22.0dBm ± 1dB	6	21.0dBm ± 1dB
3MHz	1	22.0dBm ± 1dB	1	22.0dBm ± 1dB
	6	22.0dBm ± 1dB	6	22.0dBm ± 1dB
	15	22.0dBm ± 1dB	15	22.0dBm ± 1dB
5MHz	1	22.0dBm ± 1dB	1	21.0dBm ± 1dB
	12	22.0dBm ± 1dB	12	21.0dBm ± 1dB
	25	22.0dBm ± 1dB	25	21.0dBm ± 1dB
10MHz	1	22.0dBm ± 1dB	1	21.0dBm ± 1dB
	25	22.0dBm ± 1dB	25	21.0dBm ± 1dB
	50	22.0dBm ± 1dB	50	21.0dBm ± 1dB
15MHz	1	22.0dBm ± 1dB	1	22.0dBm ± 1dB
	36	22.0dBm ± 1dB	36	21.0dBm ± 1dB
	75	22.0dBm ± 1dB	75	21.0dBm ± 1dB
20MHz	1	22.0dBm ± 1dB	1	22.0dBm ± 1dB
	50	21.0dBm ± 1dB	50	21.0dBm ± 1dB
	100	21.0dBm ± 1dB	100	21.0dBm ± 1dB

#### LTE Band 4

Band 4	RB size	QPSK	RB size	16QAM
1.4MHz	1	23.0dBm ± 1dB	1	23.0dBm ± 1dB
	3	23.0dBm ± 1dB	3	23.0dBm ± 1dB
	6	23.0dBm ± 1dB	6	23.0dBm ± 1dB
3MHz	1	23.0dBm ± 1dB	1	23.0dBm ± 1dB
	6	23.0dBm ± 1dB	6	23.0dBm ± 1dB
	15	23.0dBm ± 1dB	15	23.0dBm ± 1dB
5MHz	1	23.0dBm ± 1dB	1	23.0dBm ± 1dB
	12	23.0dBm ± 1dB	12	23.0dBm ± 1dB
	25	23.0dBm ± 1dB	25	23.0dBm ± 1dB
10MHz	1	23.0dBm ± 1dB	1	23.0dBm ± 1dB

	25	23.0dBm $\pm$ 1dB	25	23.0dBm $\pm$ 1dB
	50	23.0dBm $\pm$ 1dB	50	23.0dBm $\pm$ 1dB
<b>15MHz</b>	1	23.0dBm $\pm$ 1dB	1	23.0dBm $\pm$ 1dB
	36	23.0dBm $\pm$ 1dB	36	23.0dBm $\pm$ 1dB
	75	23.0dBm $\pm$ 1dB	75	23.0dBm $\pm$ 1dB
<b>20MHz</b>	1	23.0dBm $\pm$ 1dB	1	23.0dBm $\pm$ 1dB
	50	23.0dBm $\pm$ 1dB	50	23.0dBm $\pm$ 1dB
	100	23.0dBm $\pm$ 1dB	100	23.0dBm $\pm$ 1dB

#### LTE Band 7

<b>Band 7</b>	<b>RB size</b>	<b>QPSK</b>	<b>RB size</b>	<b>16QAM</b>
<b>5MHz</b>	1	21.0dBm $\pm$ 1dB	1	21.0dBm $\pm$ 1dB
	12	21.0dBm $\pm$ 1dB	12	20.0dBm $\pm$ 1dB
	25	21.0dBm $\pm$ 1dB	25	20.0dBm $\pm$ 1dB
<b>10MHz</b>	1	22.0dBm $\pm$ 1dB	1	22.0dBm $\pm$ 1dB
	25	22.0dBm $\pm$ 1dB	25	22.0dBm $\pm$ 1dB
	50	22.0dBm $\pm$ 1dB	50	22.0dBm $\pm$ 1dB
<b>15MHz</b>	1	22.0dBm $\pm$ 1dB	1	22.0dBm $\pm$ 1dB
	36	22.0dBm $\pm$ 1dB	36	22.0dBm $\pm$ 1dB
	75	22.0dBm $\pm$ 1dB	75	22.0dBm $\pm$ 1dB
<b>20MHz</b>	1	22.0dBm $\pm$ 1dB	1	22.0dBm $\pm$ 1dB
	50	22.0dBm $\pm$ 1dB	50	22.0dBm $\pm$ 1dB
	100	22.0dBm $\pm$ 1dB	100	22.0dBm $\pm$ 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/CMW500 base station simulator. Furthermore, the highest power level is verified afterwards in a call measurement on three channels (low, middle and high).