

FCC ID _Tune Up Procedure

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.

Rated RF power output:

Mode	GSM850	GSM1900
GSM/PCS	31.5±1dBm	29.8±1dBm
GPRS (4 Slot)	28±1dBm	27±1dBm

Mode	WCDMA Band II	WCDMA Band IV	WCDMA Band V
RMR	23.5±1dBm	23.5±1dBm	23±1dBm

Mode	NFC
NFC	-38±1dBm

Mode	BT
GFSK	3.7±1dBm
$\pi/4$ -DQPSK	3±1dBm
8DPSK	3.5±1dBm

Mode	BLE
GFSK(1Mbps)	3.7±1dBm
GFSK(2Mbps)	3.5±1dBm

RB Size	Band 2	Band 4	Band 5	Band 7	Band 12	Band 13	Band 17
1	24.3±1dBm	24.2±1dBm	21.8±1dBm	23.6±1dBm	23±1dBm	23±1dBm	23±1dBm
25	/	/	20.5±1dBm	/	22±1dBm	22±1dBm	22±1dBm
50	23.2±1dBm	23.2±1dBm	/	21.5±1dBm	/	/	/

RB Size		Band 25	Band 26	Band 38	Band 40	Band 41	Band 66
1	Low	23.9±1dBm	23±1dBm	22.8±1dBm	17.5±1dBm	23.5±1dBm	23.5±1dBm
1	Mid	23.9±1dBm	23±1dBm	23.2±1dBm	17.5±1dBm	23.5±1dBm	23.5±1dBm
1	High	23.9±1dBm	23±1dBm	23.5±1dBm	17.5±1dBm	23.5±1dBm	23.5±1dBm
36		/	22±1dBm	/	/	/	/
50		22.6±1dBm	/	22.3±1dBm	16.5±1dBm	23.2±1dBm	22.3±1dBm

RB Size	N2	N5	N7	N38	N41	N77	N78
1	23±1dBm	22.5±1dBm	22.9±1dBm	22.6±1dBm	22.5±1dBm	21.9±1dBm	22±1dBm
50	23.1±1dBm	22.5±1dBm	23±1dBm	23.1±1dBm	/	/	/
100	23.1±1dBm	22±1dBm	23±1dBm	22±1dBm	/	/	/
135	/	/	/	/	23.3±1dBm	22.8±1dBm	22.8±1dBm
270	/	/	/	/	22.5±1dBm	22.8±1dBm	22.8±1dBm

BW[MHz]	Mode	DC_5A+N41
100	DFT_BPSK	23±1dBm
100	DFT_QPSK	23±1dBm

Mode	2.4G WLAN		
	ANT 1	ANT 2	MIMO
802.11b	14.3±1dBm	16.5±1dBm	N/A
802.11g	13.5±1dBm	15±1dBm	N/A
802.11n(HT20)	13±1dBm	15.3±1dBm	13±1dBm
802.11n(HT40)	13.3±1dBm	15±1dBm	13±1dBm
802.11ax-HE20	14±1dBm	16.3±1dBm	13.5±1dBm
802.11ac-VHT40	14.5±1dBm	16±1dBm	14.1±1dBm

Mode	5.2G WLAN		
	ANT 1	ANT 2	MIMO
802.11a	12±1dBm	14.1±1dBm	N/A
802.11n-HT20	11±1dBm	13±1dBm	12.5±1dBm
802.11n-HT40	11±1dBm	13±1dBm	12±1dBm
802.11ac-VHT20	11±1dBm	13±1dBm	12.3±1dBm
802.11ac-VHT40	11±1dBm	13±1dBm	13.5±1dBm
802.11ac-VHT80	11±1dBm	12.5±1dBm	11.5±1dBm
802.11ax-VHT20	11±1dBm	13±1dBm	12.2±1dBm
802.11ax-VHT40	11±1dBm	13.3±1dBm	12±1dBm
802.11ax-VHT80	11±1dBm	12.2±1dBm	11.5±1dBm

Mode	5.3G WLAN		
	ANT 1	ANT 2	MIMO
802.11a	11.5±1dBm	14.8±1dBm	N/A
802.11n-HT20	11±1dBm	14±1dBm	12.9±1dBm
802.11n-HT40	11.2±1dBm	13.7±1dBm	12±1dBm
802.11ac-VHT20	11.2±1dBm	14±1dBm	13±1dBm
802.11ac-VHT40	11.2±1dBm	14±1dBm	12±1dBm
802.11ac-VHT80	11±1dBm	13.5±1dBm	12.3±1dBm
802.11ax-VHT20	10.7±1dBm	14±1dBm	12.9±1dBm
802.11ax-VHT40	11.3±1dBm	14±1dBm	12.8±1dBm
802.11ax-VHT80	11±1dBm	13±1dBm	12.5±1dBm

Mode	5.6G WLAN		
	ANT 1	ANT 2	MIMO
802.11a	10.8±1dBm	15.2±1dBm	N/A
802.11n-HT20	10.4±1dBm	14.3±1dBm	12.3±1dBm
802.11n-HT40	10.4±1dBm	14±1dBm	12.6±1dBm
802.11ac-VHT20	10.3±1dBm	14±1dBm	12.3±1dBm
802.11ac-VHT40	10±1dBm	14.5±1dBm	12.5±1dBm
802.11ac-VHT80	10±1dBm	14±1dBm	12.3±1dBm
802.11ax-VHT20	10±1dBm	14.3±1dBm	12.3±1dBm
802.11ax-VHT40	10.5±1dBm	14±1dBm	12.5±1dBm
802.11ax-VHT80	10.3±1dBm	13.3±1dBm	12.5±1dBm

Mode	5.8G WLAN		
	ANT 1	ANT 2	MIMO
802.11a	11±1dBm	14.8±1dBm	N/A
802.11n-HT20	10±1dBm	13.5±1dBm	12±1dBm
802.11n-HT40	10±1dBm	13.5±1dBm	12±1dBm
802.11ac-VHT20	10±1dBm	13.5±1dBm	12±1dBm
802.11ac-VHT40	10±1dBm	13.5±1dBm	12±1dBm
802.11ac-VHT80	9.5±1dBm	13.2±1dBm	12±1dBm
802.11ax-VHT20	9.5±1dBm	13.7±1dBm	12.2±1dBm
802.11ax-VHT40	10±1dBm	13±1dBm	12±1dBm
802.11ax-VHT80	10±1dBm	13±1dBm	12±1dBm

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