

## Tune Up Procedure of EG2030C-M1

During manufacturing each device is individually calibrated. Measurement is performed in a fully calibrated setup using an CMU 200 base station simulator (system tester), MT8820C and Spectrum analyzer 9k-30GHz FSP. 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		WIFI 2.4 GHz Tune-up Limit (dBm)		
		Low	Middle	High
802.11b	TX0	13.0 ±1 dBm	13.0±1 dBm	12.5±1 dBm
	TX1	13.5±1 dBm	13.0±1 dBm	13.5±1 dBm
802.11g	TX0	13.5±1 dBm	13.0±1 dBm	12.5±1 dBm
	TX1	13.5±1 dBm	13.5±1 dBm	13.5±1 dBm
802.11n(H20)(MIMO)	TX0/ TX1	16.5 ±1 dBm	16.5±1 dBm	16.0±1 dBm
802.11n(H40)(MIMO)	TX0/ TX1	16.0 ±1 dBm	16.0 ±1 dBm	16.0 ±1 dBm

## Maximum Target Power for Production Unit

### LTE Band 41

Band	Modulation	BW (MHz)	RB Size	Tune-up Limit (dBm)		
				39675	40620	41565
				2498.5MHz	2593.0MHz	2687.5MHz
LTE Band 41	QPSK	5.0	1	20.5±1 dBm	22.0±1 dBm	22.5±1 dBm
			12	20.5±1 dBm	22.0±1 dBm	22.5±1 dBm
			25	20.5±1 dBm	22.0±1 dBm	22.0±1 dBm
	16QAM		1	21.0±1 dBm	22.5±1 dBm	22.5±1 dBm
			12	20.5±1 dBm	22.0±1 dBm	22.5±1 dBm
			25	20.5±1 dBm	22.0±1 dBm	22.5±1 dBm
Band	Modulation	BW (MHz)	RB Size	Tune-up Limit (dBm)		
				39700	40620	41540
				2501.0MHz	2593.0MHz	2685.0MHz
LTE Band 41	QPSK	10.0	1	20.5±1 dBm	22.5±1 dBm	22.5±1 dBm
			25	20.5±1 dBm	22.0±1 dBm	22.0±1 dBm
			50	20.5±1 dBm	22.0±1 dBm	22.0±1 dBm
	16QAM		1	21.5±1 dBm	22.5±1 dBm	22.5±1 dBm
			25	20.5±1 dBm	22.0±1 dBm	22.0±1 dBm
			50	20.5±1 dBm	22.0±1 dBm	22.0±1 dBm
Band	Modulation	BW (MHz)	RB Size	Tune-up Limit (dBm)		
				39725	40620	41515
				2503.5MHz	2593.0MHz	2682.5MHz
LTE Band 41	QPSK	15.0	1	20.5±1 dBm	22.0±1 dBm	21.5±1 dBm
			36	20.5±1 dBm	22.0±1 dBm	22.0±1 dBm
			75	20.0±1 dBm	21.5±1 dBm	21.5±1 dBm
	16QAM		1	21.0±1 dBm	22.5±1 dBm	22.5±1 dBm
			36	20.5±1 dBm	22.0±1 dBm	22.0±1 dBm
			75	20.0±1 dBm	21.5±1 dBm	22.0±1 dBm
Band	Modulation	BW (MHz)	RB Size	Tune-up Limit (dBm)		
				39750	40620	41490
				2506.0MHz	2593.0MHz	2680.0MHz
LTE Band 41	QPSK	20.0	1	21.5±1 dBm	22.5±1 dBm	23.0±1 dBm
			50	21.0±1 dBm	22.5±1 dBm	22.5±1 dBm
			100	21.0±1 dBm	22.5±1 dBm	22.5±1 dBm
	16QAM		1	21.5±1 dBm	23.0±1 dBm	23.0±1 dBm
			50	21.0±1 dBm	22.5±1 dBm	22.5±1 dBm
			100	21.0±1 dBm	22.5±1 dBm	22.5±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).