

**TUNE-UP PROCEDURE**

There are no user accessible adjustments or tuning in this device.  
All necessary adjustments and tuning are performed during manufacture of the product. Any adjustments or tuning after service or repair are done as part of that process as special equipment is required to perform such adjustments.

**Target Power & Tolerance****GSM/WCDMA/LTE - Target Power****(A) GSM/GPRS/EDGE 850/1900**

Band & Mode		Voice [dBm]	Burst Average GMSK [dBm]				Burst Average 8-PSK [dBm]			
		1 TX Slot	1 TX Slot	2 TX Slot	3 TX Slot	4 TX Slot	1 TX Slot	2 TX Slot	3 TX Slot	4 TX Slot
GSM/GPRS/EDGE 850	Maximum	33.0	33.0	31.7	29.7	29.0	27.5	26.5	25.0	24.0
	Nominal	32.5	32.5	31.2	29.2	28.5	27.0	26.0	24.5	23.5
GSM/GPRS/EDGE 1900	Maximum	31.7	31.7	29.5	28.0	27.0	24.5	23.0	21.7	20.5
	Nominal	31.2	31.2	29.0	27.5	26.5	24.0	22.5	21.2	20.0

Nominal Power Tolerance: (+0.5 dB~ -1.5 dB)

**(B) WCDMA/HSDPA/HSUPA**

Band & Mode		Modulated Average [dBm]
		3GPP WCDMA (Rel.99)
WCDMA 850	Maximum	24.0
	Nominal	23.5
WCDMA 1900	Maximum	24.0
	Nominal	23.5

Nominal Power Tolerance: (+0.5 dB~ -1.5 dB)

Note : This device supports HSDPA and HSUPA but the manufacturer declares on the tune-up procedure that the HSDPA and HSUPA transmitter's power will not exceed the R99 maximum transmit power in devices based on Qualcomm's HSPA chipset solution.

### (C) LTE

Band & Mode		Modulated Average [dBm]
LTE Band 5(Cell)	Maximum	24.0
	Nominal	23.5
LTE Band 4(AWS)	Maximum	24.5
	Nominal	24.0
LTE Band 2(PCS)	Maximum	24.5
	Nominal	24.0

Nominal Power Tolerance: (+0.5 dB~ -1.5 dB)

### MPR condition

RB Size	Mod	MPR
1	QPSK	0
50%	QPSK	1
100%	QPSK	1
1	16-QAM	1
50%	16-QAM	2
100%	16-QAM	2

\* MPR Tolerance: +0.5dB/-0.5dB

### WLAN - Target Power

#### (D) 2.4G WLAN (Burst Average Power)

Band & Mode		Modulated Average[dBm]
IEEE 802.11b (2.4 GHz)	Maximum	17.0
	Nominal	16.5
IEEE 802.11g (2.4 GHz)	Maximum	15.0
	Nominal	14.5
IEEE 802.11n HT20 (2.4 GHz)	Maximum	12.0
	Nominal	11.5
IEEE 802.11n HT40 (2.4 GHz)	Maximum	12.0
	Nominal	11.5

Nominal Power Tolerance: (+0.5 dB~ -1.5 dB)

(E) 5G WLAN (Burst Average Power)

Band & Mode		Modulated Average[dBm]
IEEE 802.11a (5 GHz)	Maximum	12.2
	Nominal	11.7
IEEE 802.11nHT20 (5 GHz)	Maximum	12.0
	Nominal	11.5
IEEE 802.11nHT40 (5 GHz)	Maximum	12.0
	Nominal	11.5
IEEE 802.11ac VHT20 (5 GHz)	Maximum	10.0
	Nominal	9.5
IEEE 802.11ac VHT40 (5 GHz)	Maximum	10.0
	Nominal	9.5
IEEE 802.11ac VHT80 (5 GHz)	Maximum	10.0
	Nominal	9.5

Nominal Power Tolerance: (+0.5 dB~ -1.5 dB)

Bluetooth - Target Power

(F) BT(Frame Average Power)

Band & Mode		Modulated Average[dBm]		
		Ch Low	Ch Mid	Ch High
Bluetooth 1 Mbps	Maximum	8.5	9.6	8.0
	Nominal	8.0	9.1	7.5
Bluetooth 2 Mbps	Maximum	6.5	8.0	6.5
	Nominal	6.0	7.5	6.0
Bluetooth 3 Mbps	Maximum	6.5	8.0	6.5
	Nominal	6.0	7.5	6.0

Nominal Power Tolerance: (+0.5 dB~ -1.5 dB)

Band & Mode		Modulated Average[dBm]		
		Ch Low	Ch Mid	Ch High
Bluetooth LE	Maximum	-1.0	0.0	-2.0
	Nominal	-1.5	-0.5	-2.5

Nominal Power Tolerance: (+0.5 dB~ -1.5 dB)