

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

WCDMA/LTE - Target Power

(A) WCDMA/HSDPA/HSUPA

3GPP Release Version	Mode		Cellular Band (dBm)	AWS Band (dBm)	PCS Band (dBm)	3GPP MPR (dB)	
99	WCDMA	Voice	Maximum	23.3	23.2	23.2	
			Nominal	22.8	22.7	22.7	
5	HSDPA	Subtest 1	Maximum	23.3	23.2	23.2	
			Nominal	22.8	22.7	22.7	
5		Subtest 2	Maximum	23.3	23.2	23.2	
			Nominal	22.8	22.7	22.7	
5		Subtest 3	Maximum	22.8	22.7	22.7	
			Nominal	22.3	22.2	22.2	
5		Subtest 4	Maximum	22.8	22.7	22.7	
			Nominal	22.3	22.2	22.2	
6		HSUPA	Subtest 1	Maximum	23.3	23.2	23.2
				Nominal	22.8	22.7	22.7
6	Subtest 2		Maximum	21.3	21.2	21.2	
			Nominal	20.8	20.7	20.7	
6	Subtest 3		Maximum	22.3	22.2	22.2	
			Nominal	21.8	21.7	21.7	
6	Subtest 4		Maximum	21.3	21.2	21.2	
			Nominal	20.8	20.7	20.7	
6	Subtest 5		Maximum	23.3	23.2	23.2	
			Nominal	22.8	22.7	22.7	

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.

(B) LTE

Band & Mode		Modulated Average [dBm]
LTE Band 71	Maximum	23.70
	Nominal	23.20
LTE Band 12	Maximum	23.70
	Nominal	23.20
LTE Band 13	Maximum	23.70
	Nominal	23.20
LTE Band 5	Maximum	23.70
	Nominal	23.20
LTE Band 66	Maximum	23.50
	Nominal	23.00
LTE Band 4	Maximum	23.50
	Nominal	23.00
LTE Band 2	Maximum	23.70
	Nominal	23.20

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

MPR condition

RB Size	Mod	MPR	MPR(1.4 MHz Case)
1	QPSK	0	0
50%	QPSK	1	0
100%	QPSK	1	1
1	16-QAM	1	1
50%	16-QAM	2	1
100%	16-QAM	2	2

* MPR Tolerance: +0.5dB/-0.5dB

WLAN - Target Power

(C) 2.4G WLAN (Burst Average Power)

Band (GHz)	Mode	Ch	Modulated Average[dBm]					
			Ant.1		Ant.2		MIMO(CDD/SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
2.4	802.11b	1	12.0	11.5	14.0	13.5	-	-
		6	13.0	12.5	13.0	12.5	-	-
		11	12.0	11.5	13.5	13.0	-	-
	802.11g	1-11	10.0	9.5	12.0	11.5	14.1	13.6
	802.11n	1-11	9.0	8.5	10.0	9.5	12.5	12.0

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

(D) 5G WLAN (Burst Average Power)

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

Mode	Freq. (MHz)	Channel	Modulated Average[dBm]							
			Ant.1		Ant.2		MIMO(CDD)		MIMO(SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
802.11a (6M)	5180	36	12.0	11.5	10.0	9.5	14.1	13.6	-	-
	5200	40	12.0	11.5	9.0	8.5	13.8	13.3	-	-
	5220	44	12.0	11.5	9.0	8.5	13.8	13.3	-	-
	5240	48	12.0	11.5	9.0	8.5	13.8	13.3	-	-
	5260	52	12.0	11.5	8.0	7.5	13.5	13.0	-	-
	5280	56	12.0	11.5	8.0	7.5	13.5	13.0	-	-
	5300	60	12.0	11.5	7.0	6.5	13.2	12.7	-	-
	5320	64	12.0	11.5	7.0	6.5	13.2	12.7	-	-
	5500	100	12.6	12.1	8.5	8.0	14.0	13.5	-	-
	5580	116	12.6	12.1	7.0	6.5	13.7	13.2	-	-
	5660	132	12.6	12.1	6.5	6.0	13.6	13.1	-	-
	5720	144	12.6	12.1	6.0	5.5	13.5	13.0	-	-
	5745	149	12.6	12.1	5.0	4.5	13.3	12.8	-	-
	5785	157	12.6	12.1	5.0	4.5	13.3	12.8	-	-
	5825	165	12.6	12.1	6.5	6.0	13.6	13.1	-	-

Mode	Freq. (MHz)	Channel	Modulated Average[dBm]							
			Ant.1		Ant.2		MIMO(CDD)		MIMO(SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
802.11n (HT-20) (MCS0)	5180	36	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5200	40	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5220	44	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5240	48	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5260	52	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5280	56	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5300	60	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5320	64	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5500	100	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5580	116	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5660	132	12.0	11.5	6.5	6.0	13.1	12.6	13.1	12.6
	5720	144	12.0	11.5	5.5	5.0	12.9	12.4	12.9	12.4
	5745	149	12.0	11.5	4.0	3.5	12.6	12.1	12.6	12.1
	5785	157	12.0	11.5	4.0	3.5	12.6	12.1	12.6	12.1
	5825	165	12.0	11.5	6.0	5.5	13.0	12.5	13.0	12.5

Mode	Freq. (MHz)	Channel	Modulated Average[dBm]							
			Ant.1		Ant.2		MIMO(CDD)		MIMO(SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
802.11ac (VHT-20) (MCS0)	5180	36	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5200	40	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5220	44	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5240	48	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5260	52	12.0	11.5	7.5	7.0	13.3	12.8	13.3	12.8
	5280	56	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5300	60	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5320	64	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5500	100	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5580	116	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5660	132	12.0	11.5	6.5	6.0	13.1	12.6	13.1	12.6
	5720	144	12.0	11.5	5.5	5.0	12.9	12.4	12.9	12.4
	5745	149	12.0	11.5	4.0	3.5	12.6	12.1	12.6	12.1
	5785	157	12.0	11.5	4.0	3.5	12.6	12.1	12.6	12.1
	5825	165	12.0	11.5	6.0	5.5	13.0	12.5	13.0	12.5

Mode	Freq. (MHz)	Channel	Modulated Average[dBm]							
			Ant.1		Ant.2		MIMO(CDD)		MIMO(SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
802.11n (HT-40) (MCS0)	5190	38	12.0	11.5	8.5	8.0	13.6	13.1	13.6	13.1
	5230	46	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5270	54	12.0	11.5	7.5	7.0	13.3	12.8	13.3	12.8
	5310	62	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5510	102	12.5	12.0	8.0	7.5	13.8	13.3	13.8	13.3
	5550	110	12.5	12.0	7.0	6.5	13.6	13.1	13.6	13.1
	5670	134	12.5	12.0	6.0	5.5	13.4	12.9	13.4	12.9
	5710	142	12.5	12.0	5.5	5.0	13.3	12.8	13.3	12.8
	5755	151	12.5	12.0	5.0	4.5	13.2	12.7	13.2	12.7
	5795	159	12.5	12.0	6.0	5.5	13.4	12.9	13.4	12.9

Mode	Freq. (MHz)	Channel	Modulated Average[dBm]							
			Ant.1		Ant.2		MIMO(CDD)		MIMO(SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
802.11ac (VHT-40) (MCS0)	5190	38	12.0	11.5	8.5	8.0	13.6	13.1	13.6	13.1
	5230	46	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5270	54	12.0	11.5	7.5	7.0	13.3	12.8	13.3	12.8
	5310	62	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5510	102	12.5	12.0	8.0	7.5	13.8	13.3	13.8	13.3
	5550	110	12.5	12.0	7.0	6.5	13.6	13.1	13.6	13.1
	5670	134	12.5	12.0	6.0	5.5	13.4	12.9	13.4	12.9
	5710	142	12.5	12.0	5.5	5.0	13.3	12.8	13.3	12.8
	5755	151	12.5	12.0	5.0	4.5	13.2	12.7	13.2	12.7
	5795	159	12.5	12.0	6.0	5.5	13.4	12.9	13.4	12.9

Mode	Freq. (MHz)	Channel	Modulated Average[dBm]							
			Ant.1		Ant.2		MIMO(CDD)		MIMO(SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
802.11ac (VHT-80) (MCS0)	5210	42	12.0	11.5	8.0	7.5	13.5	13.0	13.5	13.0
	5290	58	12.0	11.5	7.0	6.5	13.2	12.7	13.2	12.7
	5530	106	12.5	12.0	7.0	6.5	13.6	13.1	13.6	13.1
	5690	138	12.5	12.0	6.0	5.5	13.4	12.9	13.4	12.9
	5775	155	12.5	12.0	5.5	5.0	13.3	12.8	13.3	12.8

Bluetooth - Target Power

(E) BT(Burst Average Power)

Burst Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	7.0
	Nominal	6.5
Bluetooth 2 Mbps	Maximum	4.0
	Nominal	3.5
Bluetooth 3 Mbps	Maximum	4.0
	Nominal	3.5
Bluetooth LE	Maximum	7.7
	Nominal	7.2

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

Frame Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	5.85
	Nominal	5.35
Bluetooth 2 Mbps	Maximum	2.85
	Nominal	2.35
Bluetooth 3 Mbps	Maximum	2.85
	Nominal	2.35
Bluetooth (LE / 1Mbps)	Maximum	7.02
	Nominal	6.52
Bluetooth (LE / 2Mbps)	Maximum	5.31
	Nominal	4.81

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