



FCC §15.247 (i), §2.1091 – RF Exposure

FCC ID: HHOJHR-AC865

Applied procedures / limit

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission’s guidelines.

Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Note: f is frequency in MHz

\* = Power density limit is applicable at frequencies greater than 100 MHz

Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz

\* = Plane-wave equivalent power density



## MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

## TEST RESULTS

### 2.4G:

Test Channe	Frequency	Peak output power. Antenna A(B) port		Total Power	LIMIT
		A	B		
	(MHz)	(dBm)		dBm	dBm
<b>TX 802.11b Mode</b>					
CH01	2412	12.66	12.24	15.47	25.48
CH06	2437	12.57	12.49	15.54	25.48
CH11	2462	12.71	12.38	15.56	25.48
<b>TX 802.11g Mode</b>					
CH01	2412	11.76	11.42	14.60	25.48
CH06	2437	12.27	11.53	14.93	25.48
CH11	2462	12.36	11.49	14.96	25.48
<b>TX 802.11n/20M Mode</b>					
CH01	2412	12.29	11.36	14.86	25.48
CH06	2437	12.03	11.57	14.82	25.48
CH11	2462	12.14	11.29	14.75	25.48
<b>TX 802.11n/40M Mode</b>					
CH03	2422	11.76	10.62	14.24	25.48
CH06	2437	11.59	10.73	14.19	25.48
CH09	2452	11.48	10.39	13.98	25.48

Mode	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm <sup>2</sup> )	Limit of Power Density (S) (mW/ cm <sup>2</sup> )	Result
802.11b	12.66	18.45	4.5(6.5dBi)	0.0239	1	Pass
802.11g	12.36	17.22	4.5(6.5dBi)	0.0223	1	Pass
802.11n-HT20	12.29	16.94	4.5(6.5dBi)	0.0219	1	Pass
802.11n-HT40	11.76	15.00	4.5(6.5dBi)	0.0194	1	Pass

Frequency MHz	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm <sup>2</sup> )	Limit of Power Density (S) (mW/ cm <sup>2</sup> )	Result
2412-2462	15.56	35.97	4.5(6.5dBi)	0.0465	1	Pass

### 5.8G:

Test Channel	Frequency	Peak output power. Antenna A(B) port		Total Power	LIMIT
		A	B		
	(MHz)	(dBm)		dBm	dBm
<b>TX 802.11a Mode</b>					
CH149	5745	13.53	12.98	16.27	26.48
CH157	5785	13.44	13.23	16.35	26.48
CH165	5825	13.58	13.12	16.37	26.48
<b>TX 802.11g Mode</b>					
CH149	5745	12.63	12.16	15.41	26.48
CH157	5785	13.14	12.27	15.74	26.48
CH165	5825	13.23	12.23	15.77	26.48
<b>TX 802.11n40M Mode</b>					
CH151	5755	13.16	12.17	15.70	26.48
CH159	5795	12.93	12.31	15.64	26.48

Mode	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm <sup>2</sup> )	Limit of Power Density (S) (mW/ cm <sup>2</sup> )	Result
802.11a	13.58	22.80	3.5(5.4dBi)	0.0245	1	Pass
802.11n (20)	13.23	21.04	3.5(5.4dBi)	0.0226	1	Pass
802.11n(40)	13.16	20.70	3.5(5.4dBi)	0.0222	1	Pass

Frequency MHz	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm <sup>2</sup> )	Limit of Power Density (S) (mW/ cm <sup>2</sup> )	Result
5745-5825	16.37	43.35	3.5(5.4dBi)	0.0466	1	Pass
5755-5795	15.70	37.15	3.5(5.4dBi)	0.0399	1	Pass

Note: This device 5GHz and 2.4GHz can not transmit simultaneously, don't have to assess exposure when transmit simultaneously.