FCC MPE Report

CERT #6827.01

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

FCC ID: 2A4IP-JMCG01

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^2)	Averaging Time $\|E\|^2$,$\|H\|^2$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^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ 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

FCC MPE Report

RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
$0.003\text{-}10^{21}$	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142f^{0.3417}$	$0.008335f^{0.3417}$	$0.02619f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158f^{0.5}$	$4.21 \times 10^{-4}f^{0.5}$	$6.67 \times 10^{-5}f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

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, R=0.2m

FCC MPE Report

TEST RESULTS

DTS:2.4G WiFi

Operating Mode	Channel Frequency (MHz)	Maximum output power (dBm)	Tune up tolerance (dBm)	Max. Tune-up power (mW)	Antenna Gain (dBi)	Power density at 20cm (mW/ cm2)	Power density Limits (mW/cm2)
802.11b	2412	7.23	7 ±1	6.310	3.42	0.00429	1
	2437	7.07	7 ±1	6.310	3.42	0.00429	1
	2462	6.92	6 ±1	5.012	3.42	0.00341	1
802.11g	2412	12.62	12 ±1	19.953	3.42	0.01358	1
	2437	12.31	12 ±1	19.953	3.42	0.01358	1
	2462	11.72	11 ±1	15.849	3.42	0.01078	1
802.11n (HT20)	2412	11.67	11 ±1	15.849	3.42	0.01078	1
	2437	11.32	11 ±1	15.849	3.42	0.01078	1
	2462	10.79	10 ±1	12.589	3.42	0.00857	1
802.11n (HT40)	2422	8.52	8 ±1	7.943	3.42	0.00540	1
	2437	8.66	8 ±1	7.943	3.42	0.00540	1
	2452	8.66	8 ±1	7.943	3.42	0.00540	1

Conclusion:

For the max result: 0.01358 mW/cm2 ≤ 1.0 mW/cm , No SAR is required.