FCC MPE Report

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

FCC ID: 2A4IP-JMTRH01

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/ cm²)	Averaging Time E ², H ²or 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

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/ cm²)	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

^{* =} Power density limit is applicable at frequencies greater than 100 MHz

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/m²)	Reference Period (minutes) Instantaneous*	
$0.003 - 10^{21}$	83	90			
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	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6	
6000-15000	61.4	0.163	10	6	
15000-150000	61.4	0.163	10	616000/ f ^{1.2}	
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	6.67 x 10 ⁻⁵ f	616000/ f 1.2	

Note: f is frequency in MHz.

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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

^{*}Based on nerve stimulation (NS).

^{**} Based on specific absorption rate (SAR).

^{* =} Plane-wave equivalent power density

FCC MPE Report

TEST RESULTS

Mode	tune up power tolerance (dBm)	max. output power(mW)	Directional Gain (numeric)	Power Density at R=20cm (mW/cm2)	Limit (mW/cm²)	Result
802.11b	12±1	15.849	2	0.04984	1.0	PASS
802.11g	13±1	15.953	2	0.05017	1.0	PASS
802.11n20	11±1	12.590	2	0.03959	1.0	PASS