



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

FCC ID: 2BN5S-2503W

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

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

TEST RESULTS

Main Power: 92.64dB μ V/m=92.64-95.2=-2.56dBm

30MHz-1G:-2.56+4.7=2.14dBm

	Tune up Produce power	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm2)	Limit (mW/ cm2)	Result
915	2 $\pm$ 1	3	2.0	1.24 (0.93dBi)	0.000494	0.61	Pass

WIFI

	Tune up Produce power	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm2)	Limit (mW/ cm2)	Result
WIFI 2.4G	13 $\pm$ 1	14	25.12	4.59 (6.62dBi)	0.022945	1	Pass
WIFI 5.1G	13 $\pm$ 1	14	25.12	5.0 (6.98dBi)	0.024994	1	Pass
WIFI 5.3G	13 $\pm$ 1	14	25.12	5.0 (6.98dBi)	0.024994	1	Pass
WIFI 5.6G	13 $\pm$ 1	14	25.12	5.0 (6.98dBi)	0.024994	1	Pass
WIFI 5.8G	13 $\pm$ 1	14	25.12	5.0	0.024994	1	Pass

				(6.98dBi)			
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Simultaneous transmitting evaluation:

WIFI and Bluetooth

Mode	Power Density (S) (mW/ cm ²)	Simultaneous transmitting (mW/ cm ²)	Limit (mW/ cm ²)
2.4G WIFI	0.022945	0.047939	
5G WIFI	0.024994		
915	0.000494		

Simultaneous transmitting= $0.022945/1+0.024994/1+0.000494/0.61=0.048748836$

For the max result : $0.048748836 \leq 1.0$, compliance with FCC's RF Exposure