



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

FCC ID: 2BN5S-2503E

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

	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±1	14	25.12	2.64 (2.89dBi)	0.013197	1	Pass
WIFI 5.1G	12±1	13	20.00	2.42 (3.83dBi)	0.009632	1	Pass
WIFI 5.3G	13±1	14	25.12	2.42 (3.83dBi)	0.012097	1	Pass
WIFI 5.6G	14±1	15	31.62	2.42 (3.83dBi)	0.015228	1	Pass
WIFI 5.8G	13±1	14	25.12	2.42 (3.83dBi)	0.012097	1	Pass

The report only evaluated the antenna values of the maximum antenna gain.

Simultaneous transmitting evaluation:

WIFI and Bluetooth

Mode	Power Density (S) (mW/ cm2)	Simultaneous transmitting (mW/ cm2)	Limit (mW/ cm2)
2.4G WIFI	0.013197	0.028425	1
5G WIFI	0.015228		

Simultaneous transmitting=0.013197/1+0.015228/1=0.028425



For the max result : $0.028425 \leq 1.0$, compliance with FCC's RF Exposure