

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

FCC ID: 2AVKP-BFA20

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

Modulation	Channel Freq. (MHz)	Conduct ed power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
802.11b	2.412	13.884	13±1	14.00	25.12	1.995	0.00997	1
	2.437	13.730	13±1	14.00	25.12	1.995	0.00997	1
	2.462	13.562	13±1	14.00	25.12	1.995	0.00997	1
802.11g	2.412	12.098	12±1	13.00	19.95	1.995	0.00792	1
	2.437	12.672	12±1	13.00	19.95	1.995	0.00792	1
	2.462	12.572	12±1	13.00	19.95	1.995	0.00792	1
802.11n20	2.412	11.654	11±1	12.00	15.85	1.995	0.00629	1
	2.437	11.415	11±1	12.00	15.85	1.995	0.00629	1
	2.462	11.288	11±1	12.00	15.85	1.995	0.00629	1

Modulation	Channel Freq. (MHz)	Conduct ed power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Antenna Gain Numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)

Conclusion:

For the max result : 0.00997 ≤ 1.0, compliance with FCC's RF Exposure.

Summary: Since the ERP (effective radiated power) operated at < 1.5 GHz is less than 1.5 watts and > 1.5 GHz is less than 3 watts, the routine environmental evaluation is not required, and the MPE result calculated for this device complies with the MPE limit as specified in 47 CFR §1.1310.