



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

FCC ID: 2AWQZMOERTEK

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)
GFSK	2402	0.87	1±1	2.00	1.58	1.00	0.00032	1
	2441	2.44	2±1	3.00	2.00	1.00	0.00040	1
	2480	3.32	3±1	4.00	2.51	1.00	0.00050	1
Pi/4DQPSK	2402	0.78	1±1	2.00	1.58	1.00	0.00032	1
	2441	3.52	2±1	3.00	2.00	1.00	0.00040	1
	2480	4.41	4±1	5.00	3.16	1.00	0.00063	1
8DPSK	2402	1.19	1±1	2.00	1.58	1.00	0.00032	1
	2441	3.95	3±1	4.00	2.51	1.00	0.00050	1
	2480	4.80	4±1	5.00	3.16	1.00	0.00063	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)
GFSK	2402							
	2441							
	2480							

Conclusion:

For the max result : $0.00063 \leq 1.0$, 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.