

FCC §15.247 (i), §2.1091 – RF Exposure**FCC ID: 2BFIZ-X5AD****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=20cm

Test Result of RF Exposure Evaluation

Module1:

Mode	Modes& Channel Freq. (MHz)	Tune up Produce power	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/cm ²)	Limit (mW/cm ²)	Result
EDR	8DPSK &2480	6±1	7	5.0119	1.5959 (2.03dBi)	0.00159	1	Pass
BLE	GFSK 2M&2480	4±1	5	3.1623	1.5959 (2.03dBi)	0.00101	1	Pass
2.4G WIFI ANT1	802.11b&2462	17±1	18	63.0957	1.5631 (1.94dBi)	0.01963	1	Pass
2.4G WIFI ANT2	802.11b&2437	16±1	17	50.1187	3.0409 (4.83dBi)	0.03033	1	Pass
5.2G WIFI ANT1	802.11a20&5200	18±1	19	79.4328	2.5003 (3.98dBi)	0.03953	1	Pass
5.2G WIFI ANT2	802.11a20&5240	18±1	19	79.4328	2.3823 (3.77dBi)	0.03977	1	Pass
5.8 WIFI ANT1	802.11a20&5745	18±1	19	79.4328	3.8107 (5.81dBi)	0.06025	1	Pass
5.8 WIFI ANT2	802.11a20&5785	18±1	19	79.4328	1.8323 (2.63dBi)	0.02897	1	Pass

Module2

Mode	Modes& Channel Freq. (MHz)	Tune up Produce power	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/cm ²)	Limit (mW/cm ²)	Result
EDR	GFSK &2402	4±1	5	3.1623	1.8030 (2.56dBi)	0.00114	1	Pass
BLE	GFSK 2M&2402	5±1	6	3.9811	1.8030 (2.56dBi)	0.00143	1	Pass

BT+WIFI supported simultaneous transmission:

Module1 BT + Module1 2.4GWIFI + Module2 BT:

Σ MPE Ratio =0.00159+0.03033+0.00143=0.03335 $\leq$ 1, So passed.

Module1 BT + Module1 5GWIFI + Module2 BT:

Σ MPE Ratio =0.00159+0.06025+0.00143=0.06327 $\leq$ 1, So passed.

Note: 2.4GWIFI and 5GWIFI do not support simultaneous transmission.