FCC §15.247 (i) & §1.1310 & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247 (i) and subpart 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f²)	30
30-300	27.5	0.073	0.2	30
300-1500	/		f/1500	30
1500-100,000	/		1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

2.4G WiFi&BLE:

Mode	Frequency Range (MHz)	Antenna Gain		Target Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2412~2462	3.7	2.34	23.50	223.87	20	0.1042	1.0
802.11g		3.7	2.34	23.00	199.53	20	0.0929	1.0
802.11 n-HT20		3.7	2.34	23.00	199.53	20	0.0929	1.0
802.11 n-HT40	2422~2452	3.7	2.34	22.00	158.49	20	0.0738	1.0
BLE	2402~2480	3.7	2.34	8.00	6.31	20	0.0029	1.0

Note: 1. For the above tune up power were declared by the manufacturer.
          2. Wi-Fi and BLE can't transmit simultaneously.

Result: The device meet FCC MPE at 20 cm distance.