

FCC ID: 2BTEP-6HVA10

Maximum Permissible Exposure (MPE)

According to FCC 2.1091, FCC 1.1310 and KDB 447498 D04 Interim General RF Exposure Guidance v01: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 * P * G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 * P * G}{377 * D^2}$$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

Measurement Result

EDR:

Antenna gain: 2.66dBi;

R=20cm

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	3.93	3±1	4	2.512	2.66	1.85	0.0009	1
2441		5.63	5±1	6	3.981	2.66	1.85	0.0015	1
2480		5.24	5±1	6	3.981	2.66	1.85	0.0015	1
2402	π/4-DQPSK	4.32	4±1	5	3.162	2.66	1.85	0.0012	1
2441		6.6	6±1	7	5.012	2.66	1.85	0.0018	1
2480		5.85	5±1	6	3.981	2.66	1.85	0.0015	1
2402	8-DPSK	4.63	4±1	5	3.162	2.66	1.85	0.0012	1
2441		6.67	6±1	7	5.012	2.66	1.85	0.0018	1
2480		5.89	5±1	6	3.981	2.66	1.85	0.0015	1

BLE:

Antenna gain: 2.66dBi;

R=20cm

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE 1M	3.48	2±1	3	1.995	2.66	1.85	0.0007	1
2440		3.23	3±1	4	2.512	2.66	1.85	0.0009	1
2480		2.77	4±1	5	3.162	2.66	1.85	0.0012	1

NFC:

Operation Frequency: ASK: 13.56MHz

Antenna Type: Induction coil

Antenna Gain: -7 dBi

R=20cm

Transmit power:

Frequency (MHz)	Max Peak level (dBuV/m)	EIRP power (dBm)
13.56	78.2	-17.00

EIRP=E-104.8+20log(D)

conducted power = EIRP-antenna gain

Frequency (MHz)	EIRP power (dBm)	EIRP power (mW)	Power density (mW/cm ²)	Limit (mW/cm ²)
13.56	-17.00	0.02	0.00001	0.98

WIFI 5.8G
Antenna gain ANT1: 4.37dBi
R=20cm

modulation	Antenna	Channel Freq. (MHz)	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density
			(dBm)		tune-up power		Gain			
					(dBm)	(mW)	(dBi)	Numeric	(mW/cm2)	(mW/cm2)
802.11a	Ant 1	5745	9.99	9±1	10.00	10.000	4.37	2.74	0.0054	1
	Ant 1	5785	9.75	9±1	10.00	10.000	4.37	2.74	0.0054	1
	Ant 1	5825	9.37	9±1	10.00	10.000	4.37	2.74	0.0054	1
802.11n20	Ant 1	5745	9.5	9±1	10.00	10.000	4.37	2.74	0.0054	1
	Ant 1	5785	9.6	9±1	10.00	10.000	4.37	2.74	0.0054	1
	Ant 1	5825	9.12	9±1	10.00	10.000	4.37	2.74	0.0054	1
802.11n40	Ant 1	5755	10.16	10±1	11.00	12.589	4.37	2.74	0.0069	1
	Ant 1	5795	9.75	9±1	10.00	10.000	4.37	2.74	0.0054	1

SIMULTANEOUS TRANSMISSIONS

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE. To comply with the MPE, the fraction of the MPE in terms of E^2 , H^2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity. In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

Note: The BT/WIFI share the same ANT cannot transmit at same time.

worse case: $0.0069/1 + 0.00001/0.98 = 0.00691 < 1$

Conclusion: pass

Signature: 

Date: 2026-07-08

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