

FCC 47 CFR MPE REPORT

Dongguan Nanhao Technology Co.,Ltd.

ebemate monitor U2

Model Number: BM-U2

Additional Model: U2

FCC ID: 2AU3XBM-U2

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Maximum Permissible Exposure

1. Applicable Standards

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

1.1. Limits for Maximum Permissible Exposure (MPE)

(a) 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 Times 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
1500-10000			5	6

(b) 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 Times 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
1500-10000			1.0	30

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

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric Field (V/m)

P = Peak 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

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak 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

2. Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)
BLE	2402	7.85	6.0954
	2440	7.48	5.5976
	2480	7.51	5.6364
IEEE802.11b	2412	18.81	76.0326
	2437	21.54	142.5608
	2462	21.49	140.9289
IEEE802.11g	2412	21.05	127.3503
	2437	21.03	126.7652
	2462	20.91	123.3105
IEEE802.11n HT20	2412	20.99	125.6030
	2437	20.91	123.3105
	2462	20.83	121.0598
IEEE802.11n HT40	2422	20.93	123.8797
	2437	21.13	129.7179
	2452	20.89	122.7439

3. Calculated Result and Limit

Mode	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm2)	Limited of Power Density (S) (mW /cm2)	Test Result
				(dBi)	(Linear)			
2.4G Band								
BLE	7.85	7±1	8	3.6	2.2909	0.0029	1	Complies
IEEE 802.11b	21.54	21±1	22	3.6	2.2909	0.0722	1	Complies
IEEE 802.11g	21.05	21±1	22	3.6	2.2909	0.0722	1	Complies
IEEE 802.11n HT20	20.99	20±1	21	3.6	2.2909	0.0574	1	Complies
IEEE 802.11n HT40	21.13	21±1	22	3.6	2.2909	0.0722	1	Complies

End of Test Report