

RF Exposure Requirements

1.1 General Information

Client Information

Applicant: AcoustMax International Corporation
Address of applicant: Room 501, Lingyun Building, HongLang North 2 Road,
Baoan District, ShenZhen, China

Manufacturer: AcoustMax International Corporation
Address of manufacturer: Room 501, Lingyun Building, HongLang North 2 Road,
Baoan District, ShenZhen, China

General Description of EUT:

Product Name: MONSTER BAMBOX
Trade Name: MONSTER
Model No.: MNBAM
Adding Model(s): MNBAM PRO, MNBAM PLUS, MNBAM-RD, MNBAM-PR,
MNBAM-YL, MNBAM-BL, MNBAM-S, MNBAM-C,
MNBAM-LED,
MNBAMBOX, MNBAMBOX 2, MNBAMBOX PRO,
MNBAMBOX PLUS
Input: AC 100-240V 50/60Hz 200W
Rated Voltage: Input: USB-C:
5VDC 3A, 9VDC 3A, 12VDC 2.5A, 15VDC 2A, 20VDC 1.5A
Battery: DC 9.6V
Battery Capacity: 10000mAh
Adapter Model: /
FCC ID: 2BAA5-MNBAM
Equipment Type: Mobile device

Technical Characteristics of EUT:

Bluetooth (LE mode)

Bluetooth Version: V5.4 (LE mode)
Frequency Range: 2402-2480MHz
RF Output Power: 1Mbps:-2.198dBm (Conducted)
2Mbps:-1.653dBm (Conducted)
Data Rate: 1Mbps, 2Mbps
Modulation: GFSK
Quantity of Channels: 40
Channel Separation: 2MHz
Type of Antenna: PCB Antenna
Antenna Gain: -0.58dBi

Bluetooth (BR/EDR mode)

Bluetooth Version:	V5.4 (BR/EDR mode)
Frequency Range:	2402-2480MHz
RF Output Power:	2.501dBm (Conducted)
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Quantity of Channels:	79
Channel Separation:	1MHz
Type of Antenna:	Chip Antenna
Antenna Gain:	1.86dBi

1.2 RF Exposure Exemption

According to the KDB 447498 D01 v06 section 4.3.1, for 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation¹⁷
- The result is rounded to one decimal place for comparison

1.3 Calculated Result

Bluetooth-LE

Tx frequency range: 2402-2480MHz
Min. test separation distance: 5mm
Maximum Conducted Output Power: -1.653dBm
Tune-Up output power: -1.0dBm
RF channel transmit frequency: 2480MHz
Result: 0.25
Limit: 3.0

Bluetooth-BR/EDR

Tx frequency range: 2402-2480MHz
Min. test separation distance: 5mm
Maximum Conducted Output Power: 2.501dBm
Tune-Up output power: 3dBm
RF channel transmit frequency: 2441MHz
Result: 0.62
Limit: 3.0

Mode for Simultaneous Multi-band Transmission

The worst case is Bluetooth-LE + Bluetooth-BR/EDR

Evaluation Result: $0.25/3.0 + 0.62/3.0 = 0.29$

Limit: 1

Result: Pass

So the transmitter complies with the RF exposure requirements and the SAR is not required.