

RF Exposure evaluation

Product Description: Axel Bass Boost Bluetooth® Headphone

Model Number: 100165-001B

FCC ID: 2AGR4-100165

IC: 21530-100165

According to 447498 D01 General RF Exposure Guidance v05 The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by: $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 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 calculation

According to the follow transmitter output power (P_t) formula:

$$P_t = (E \times d)^2 / (30 \times g_t)$$

P_t =transmitter output power in watts

g_t =numeric gain of the transmitting antenna (unitless)

E =electric field strength in V/m

d =measurement distance in meters (m)

According to the formula described above:

$$E_{\text{max}} = \underline{95.26} \text{ dBuV/m} = \underline{0.058} \text{ V/m}, d=3\text{m}, g_t=1$$

$$P_t = (E \times d)^2 / (30 \times g_t) = (0.058 \times 3)^2 / (30 \times 1) = \underline{0.0010092} \text{ W} = \underline{1.01} \text{ mW}$$

The result is rounded to one decimal place for comparison

Worse case is as below: [2402MHz -**1.01**mW output power]

$$(\underline{1.01} \text{ mW} / 5\text{mm}) \cdot [\sqrt{2.402(\text{GHz})}] = \underline{0.31} < 3.0 \text{ for 1 - g SAR}$$

Then SAR evaluation is not required

NOTE: For the maximum power, you can refer FCC test report.

According to Clause 2.5.1 of RSS-102 Issue 5 SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

Frequency(MHz)	At separation distance of ≤ 5 mm
2450	4 mW

According to the follow transmitter output power (Pt) formula:

$$P_{MAX}=0.06\text{dBm}$$

$$\text{Antenna gain}=0\text{dBi}$$

$$P_{EIRP}=0.06+0=0.06\text{dBm}=1.01\text{mW} < 4\text{mW}$$

Then SAR evaluation is not required

NOTE: For the maximum power, you can refer IC test report.