



RF EXPOSURE EVALUATION

FCC ID:2BHJR-X33

Product Name	:	MINISO Wireless Earbud X33
Model Name	:	X33
Bluetooth Version	:	BT5.4 BDR+EDR
Operating frequency	:	2402-2480MHz
Numbers of Channel	:	79 channels for BDR
Antenna Type	:	Ceramic Antenna
Antenna Gain	:	3 dBi
Type of Modulation	:	GFSK, $\pi/4$ -DQPSK, 8DPSK For DSS
Power supply	:	Input: DC 5V 300mA Battery: Li-ion Battery : 450912 Rated Voltage: 3.7V Rated Capacity:35mAh
Hardware Version	:	V2.3
Software Version	:	V1



Standard Requirement

According to § 15.247(i) and § 1.1307b(1), 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 levels in excess of the Commission’s guidelines. See KDB 447498 D01 General RF Exposure Guidance v06, section 4. 3. 1.

The 1-g and 10-g SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances ≤ 50mm are determined by:

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

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison.

The test exclusions are applicable only when the minimum test separation distance is ≤ 50mm and for transmission frequencies between 100MHz and 6GHz. When the minimum test separation distance is <5mm, a distance of 5mm is applied to determine SAR test exclusion.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to quality for TCB approval.

Channel (MHz)	Maximum output power (dBm)	Tune up tolerance (dBm)	Max Tune Up Power (mW)	Distance (mm)	Calculation results	Limit	Operating Mode
2402	-0.09	-0.09±1	1.233105	5	0.382223	3	3DH5

According to KDB 447498, no stand-alone required for BT antenna, and no simultaneous SAR measurement is required.

Signature

Simon Pu
Manager

Date: 2024-07-31