

RF Exposure Evaluation for SDN-B021008

Refer user manual this device is a Bluetooth Speaker and this device was designed used in mobile devices the minimum distance between human's body is **20mm**. Based on the 47CFR 2.1091, this device belongs to mobile device. The definition of the category as following:

Mobile Derives:

CFR Title 47 § 2.1091(b)

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D01 General RF Exposure Guidance v05r02 Limit

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition, listed below, is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander.

1) 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:

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

extremity SAR

Where

- f (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 ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

FCC exclusion power threshold for distance 50 mm at 2450MHz is **96mw**.

- 2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:
- a) $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f \text{ (MHz)} / 150)] \text{ mW}$, at 100 MHz to 1500 MHz
 - b) $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW}$ at > 1500 MHz and $\leq 6 \text{ GHz}$

The FCC exclusion power threshold for distance 200 mm at 2450MHz is:

$[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10] \text{ mW} = 96 \text{ mW} + [(200 - 50) \cdot 10] \text{ mW} = \mathbf{1596 \text{ mW}}$

The Refer RF test report the DUT maximum output power is 1.85mW which is below the FCC exclusion power threshold for distance 200 mm at 2450MHz.

RF Exposure Evaluation Result: **PASS**