RF Exposure Requirements

According to Part 2.1093 and KDB 447498 D01 Section 4.3.1

4.3.1. Standalone SAR test exclusion considerations

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 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.15 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 (see section 4.1). To qualify for SAR test exclusion, the *test separation distances* applied must be fully explained and justified by the operating configurations

and exposure conditions of the transmitter and applicable host platform requirements, typically in the SAR measurement or SAR analysis report, according to the required *published RF exposure KDB procedures*. When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for the SAR test exclusion. When required, the conditions of other *published RF exposure KDB procedures* must also be applied in conjunction with the SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops & tablets etc.

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:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·

[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where

f(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

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.

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, and as illustrated in Appendix B:18

a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz

b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and≤ 6 GHz

3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion, and as illustrated in Appendix C:19
a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by [1 + log(100/f(MHz))] for *test separation distances* > 50 mm and < 200 mm
b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by ½ for *test separation distances* ≤ 50 mm
c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

Product Description: Bluetooth Speaker
Model No.: M5B
FCC ID: SKJ-M5001

According to the KDB-447498, the following RF exposure evaluation shall to demonstrate RF exposure compliance.

Tx frequency range: 2402~2480MHz
Device category: Portable device (Distance: 5mm)
Maximum Conducted Output Power: -0.36 dBm (at the 2441MHz channel of GFSK mode)
Maximum Antenna Gain: 0 dBi
Maximum EIRP Output Power: 0.92 mW (at the 2441MHz channel of GFSK mode)
Limit: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)] ≤ 3.0
(0.92mW max power / 5mm separation) x (2.441)½
So = 0.287 < 3.0

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