



RF EXPOSURE EVALUATION

| | | |
|----------------------------|---|--|
| Product Name | : | Wireless earphone |
| Model Name | : | SW03, SW02, SW05 (Note: The samples are the same except appearance and model number. So SW03 was selected for full tested.) |
| FCC ID | : | 2ARZZSW03 |
| Bluetooth Version | : | Bluetooth 4.2 dual mode |
| Operating frequency | : | 2402-2480MHz |
| Numbers of Channel | : | 79 channels for BR/EDR 40 channels for LE |
| Antenna Type | : | Internal PCB Antenna |
| Antenna Gain | : | 0dBi |
| Type of Modulation | : | GFSK, $\pi/4$-DQPSK, 8DPSK for BR/EDR GFSK for LE |
| Power supply | : | DC 3.7V 80mAH Battery |
| Device category | : | Portable (<20cm separation) |

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 ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 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 ≤ 50 mm and for transmission frequencies between 100MHz and 6GHz. When the minimum test separation distance is < 5 mm, 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 qualify for TCB approval.

One antenna is available for the EUT (BT product). The minimum separation distance is 5mm.

BR/EDR:

| Channel Frequency (MHz) | Measurement Peak Output Power(dBm) | | |
|-------------------------|------------------------------------|-----------|-------|
| | GFSK | Π/4-DQPSK | 8DPSK |
| 2402 | 3.39 | 2.92 | 3.16 |
| 2441 | 3.85 | 3.38 | 3.56 |
| 2480 | 3.87 | 3.38 | 3.53 |

| Channel Frequency (MHz) | Tune up tolerance(dBm) | Max tune up conducted power(dBm) | Output Peak power (mW) | Calculation Result | Limits |
|-------------------------|------------------------|----------------------------------|------------------------|--------------------|--------|
| 2402 | 3±1 | 4 | 2.51 | 0.778 | 3 |
| 2441 | 3±1 | 4 | 2.51 | 0.784 | 3 |
| 2480 | 3±1 | 4 | 2.51 | 0.791 | 3 |
| 2402 | 2±1 | 3 | 2.00 | 0.620 | 3 |
| 2441 | 3±1 | 4 | 2.51 | 0.784 | 3 |
| 2480 | 3±1 | 4 | 2.51 | 0.791 | 3 |
| 2402 | 3±1 | 4 | 2.51 | 0.778 | 3 |
| 2441 | 3±1 | 4 | 2.51 | 0.784 | 3 |
| 2480 | 3±1 | 4 | 2.51 | 0.791 | 3 |



BLE:

| Channel number | Channel Frequency(MHz) | Peak Power Output(dBm) |
|----------------|------------------------|------------------------|
| 00 | 2402 | 3.23 |
| 20 | 2442 | 3.61 |
| 39 | 2480 | 3.60 |

| Channel Frequency (MHz) | Tune up tolerance (dBm) | Max tune up conducted power(dBm) | Output Peak power (mW) | Calculation Result | Limits |
|-------------------------|-------------------------|----------------------------------|------------------------|--------------------|--------|
| 2402 | 3±1 | 4 | 2.51 | 0.778 | 3 |
| 2442 | 3±1 | 4 | 2.51 | 0.784 | 3 |
| 2480 | 3±1 | 4 | 2.51 | 0.791 | 3 |

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

Signature

A handwritten signature in black ink, appearing to read 'Chris Du', written in a cursive style.

Chris Du

EMC Manager

Date: 2019-03-05