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RF Exposure Evaluation Declaration

FCC ID: 2ACIT-SB1213

APPLICANT: AllA Limited

Application Type: Certification

Product: Bluetooth Silicon Speaker

Model No.: SB1213 Ssssspeaker Bluetooth

FCC Classification: FCC Part 15 Spread Spectrum Transmitter(DSS)

Test Date: June 03 ~ 06, 2014

Reviewed By : Rebin Wu

(Robin Wu

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(Marlin Chen)

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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Revision History

Report No.	Version	Description	Issue Date
1406RSU00602	Rev. 01	Initial report	06-07-2014

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1. RF Exposure Evaluation

1.1. Limits

SAR Test Exclusion Thresholds for 100 MHz - 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in Note 1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm	
150	39	77	116	155	194	SAR Test	
300	27	55	82	110	137	Exclusion	
450	22	45	67	89	112	Threshold	
835	16	33	49	66	82	(mW)	
900	16	32	47	63	79		
1500	12	24	37	49	61		
1900	11	22	33	44	54		
2450	10	19	29	38	48		
3600	8	16	24	32	40		
5200	7	13	20	26	33		
5400	6	13	19	26	32		
5800	6	12	19	25	31		
N 41 1—							
MHz	30	35	40	45	50	mm	
150	30 232	35 271	40 310	45 349	50 387	mm SAR Test	
150	232	271	310	349	387	SAR Test Exclusion Threshold	
150 300	232 164	271 192	310 219	349 246	387 274	SAR Test Exclusion	
150 300 450	232 164 134	271 192 157	310 219 179	349 246 201	387 274 224	SAR Test Exclusion Threshold	
150 300 450 835	232 164 134 98	271 192 157 115	310 219 179 131	349 246 201 148	387 274 224 164	SAR Test Exclusion Threshold	
150 300 450 835 900	232 164 134 98 95	271 192 157 115 111	310 219 179 131 126	349 246 201 148 142	387 274 224 164 158	SAR Test Exclusion Threshold	
150 300 450 835 900 1500	232 164 134 98 95 73	271 192 157 115 111 86	310 219 179 131 126 98	349 246 201 148 142 110	387 274 224 164 158 122	SAR Test Exclusion Threshold	
150 300 450 835 900 1500	232 164 134 98 95 73 65	271 192 157 115 111 86 76	310 219 179 131 126 98	349 246 201 148 142 110 98	387 274 224 164 158 122 109	SAR Test Exclusion Threshold	
150 300 450 835 900 1500 1900 2450	232 164 134 98 95 73 65 57	271 192 157 115 111 86 76 67	310 219 179 131 126 98 87 77	349 246 201 148 142 110 98 86	387 274 224 164 158 122 109 96	SAR Test Exclusion Threshold	
150 300 450 835 900 1500 1900 2450 3600	232 164 134 98 95 73 65 57 47	271 192 157 115 111 86 76 67 55	310 219 179 131 126 98 87 77 63	349 246 201 148 142 110 98 86 71	387 274 224 164 158 122 109 96 79	SAR Test Exclusion Threshold	
150 300 450 835 900 1500 1900 2450 3600 5200	232 164 134 98 95 73 65 57 47	271 192 157 115 111 86 76 67 55 46	310 219 179 131 126 98 87 77 63 53	349 246 201 148 142 110 98 86 71 59	387 274 224 164 158 122 109 96 79 66	SAR Test Exclusion Threshold	

Note 1:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation

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distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] * $[\sqrt{f(GHz)}] \le 3.0$ for 1-g SAR and ≤ 7.5 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
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

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 according to 5) in section 4.1 is applied to determine SAR test exclusion.

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1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	Bluetooth Silicon Speaker
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0dBi for 2.4GHz in logarithm scale.

Output Power into Antenna:

Test Mode	Frequency Band (MHz)	Maximum output power to antenna (mW)	SAR Test Exclusion Threshold (mW)
Bluetooth	2402~2480	2.558	10

Per FCC KDB 447498 D01v05r02, the SAR exclusion threshold for distances<50mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)}*\sqrt{Frequency(GHz)} \leq 3.0$$

Based on the maximum conducted power of Bluetooth and the antenna to use separation distance, Bluetooth SAR was not required;

$$[(2.558 \text{mW/5})^* \sqrt{2.402}] = 0.793 < 3.0.$$

Note: When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.