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RF Exposure Evaluation Report

Report No. : CQASZ20190700588E-02
Applicant: Sodapop AS
Address of Applicant: Borggata 1, 0650 OSLO, Norway

Equipment Under Test (EUT):

Product: Bluetooth Speaker
Test Model No.: SP-BB01
Brand Name: N/A
FCC ID: 2ATVDSP-BB01
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06

Date of Receipt: 2019-07-12
Date of Test: 2019-07-12 to 2019-07-22
Date of Issue: 2019-07-22
Test Result : PASS*

Tested By:

Tom Chen

(Tom Chen)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai

(Jack Ai)



* In the configuration tested, the EUT complied with the standards specified above.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190700588E-02	Rev.01	Initial report	2019-07-22

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3 General Information

3.1 Client Information

Applicant:	Sodapop AS
Address of Applicant:	Borggata 1, 0650 OSLO, Norway
Manufacturer:	Shenzhen Junjiahao Technology Company Limited
Address of Manufacturer:	Floor 1-3, Building B, Block A, Phase 2, Tongfuyu Industrial Park, Dalang, Longhua New District, Shenzhen

3.2 General Description of EUT

Product Name:	Bluetooth Speaker
Model No.:	SP-BB01
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.1
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Software of EUT:	Blue test 3 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	lithium battery: DC3.7V, Charge by USB

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

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.

4.1.2 Limits

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:

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

$f(\text{GHz})$ 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

4.1.3 EUT RF Exposure

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	2.630	2.5±1	3.5	2.239
Middle(2441MHz)	5.320	5.5±1	6.5	4.467
Highest(2480MHz)	5.980	5.5±1	6.5	4.467
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.320	0±1	1	1.259
Middle(2441MHz)	3.690	4±1	5	3.162
Highest(2480MHz)	4.310	4±1	5	3.162
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.650	0±1	1	1.259
Middle(2441MHz)	4.020	4±1	5	3.162
Highest(2480MHz)	4.610	4±1	5	3.162

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	2.630	2.5±1	3.5	2.239	0.69	3.0
Middle (2441MHz)	5.320	5.5±1	6.5	4.467	1.40	
Highest (2480MHz)	5.980	5.5±1	6.5	4.467	1.41	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190700588E-01