Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640
Fax: +86-755-26648637
Website: www.cqa-cert.com

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RF Exposure Evaluation Report

Report No. :	CQASZ20191101217E-02
Applicant:	Sudio AB
Address of Applicant:	Grev Turegatan 35, 11438, Stockholm, Sweden
Equipment Under Test (EUT):	
EUT Name:	Wireless Speaker
Model No.:	Femtio
Brand Name:	Sudio
FCC ID:	2AF9P-FEMTIO
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2019-11-28
Date of Test:	2019-11-28 to 2019-12-09
Date of Issue:	2019-12-09
Test Result :	**PASS***

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

Tested By: Tom Chen.

(Tom Chen)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD
CQA 华夏准测
APPROVED

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20191101217E-02	Rev.01	Initial report	2019-12-09

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3 General Information

3.1 Client Information

Applicant:	Sudio AB
Address of Applicant:	Grev Turegatan 35, 11438, Stockholm, Sweden
Manufacturer:	Shenzhen Xin Feng Long Industrial Co.,Ltd
Address of Manufacturer:	Plant D2, D Area, Xifang Industrial Zone, Datian Yangsongyu Road, Hongxing Community, Songgang Street, Bao' an District, Shenzhen City

3.2 General Description of EUT

Product Name:	Wireless Speaker
Model No.:	Femtio
Trade Mark:	Sudio
Hardware Version:	V1.2
Software Version:	V3.9
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	Bluetooth MP tool (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	-6.67dBi
Power Supply:	lithium battery:DC7.4V, Charge by DC5.0V

Note: Only one model number: Femtio, but it comes in three colors (Black, White and Antracite), only black EUT were tested.

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:

[(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, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
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)	3.570	3.0±1	4.0	2.512
Middle(2441MHz)	4.460	3.5±1	4.5	2.818
Highest(2480MHz)	3.450	2.5±1	3.5	2.239
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.630	4.0±1	5.0	3.162
Middle(2441MHz)	5.480	4.5±1	5.5	3.548
Highest(2480MHz)	4.650	4.0±1	5.0	3.162
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.770	4.0±1	5.0	3.162
Middle(2441MHz)	5.620	5.0±1	6.0	3.981
Highest(2480MHz)	4.780	4.0±1	5.0	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)	4.770	4.0±1	5.0	3.162	0.980	3.0
Middle (2441MHz)	5.620	5.0±1	6.0	3.981	1.244	
Highest (2480MHz)	4.780	4.0±1	5.0	3.162	0.996	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20191101217E-01