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Report Template Version: V04
Report Template Revision Date: 2018-07-06

RF Exposure Evaluation Report

Report No.:	CQASZ20220600945E-02
Applicant:	GuangDong Substanbo Technology Co., Ltd.
Address of Applicant:	2008, Building 4, Tianan Cloud Park Phase II, Bantian Street, Longgang District, Shenzhen, China
Equipment Under Test (EUT):	
EUT Name:	2.1CH SOUNDBAR SYSTEM
Model No.:	Tapio V
Brand Name:	Ultimea
FCC ID:	2AS9D-TAPIOV
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-06-15
Date of Test:	2020-06-15 to 2020-06-29
Date of Issue:	2022-6-22
Test Result:	**PASS***

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

Tested By: Timo Lei

(Timo Lei)

Reviewed By: K. Liao

(K Liao)

Approved By: Jack Ai

(Jack Ai)

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

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220600945E-02	Rev.01	Initial report	2022-6-22

Note:

This test report (Ref. No.: CQASZ20220600945E-02)

All test data comes from source test reports (Ref. No.: CQASZ20200600545E-02).

Only on the basis of the original report Change Brand Name, Address of Applicant, Address of Manufacturer, Address of Factory. The tested samples have not been changed.

2 Contents

3 General Information

3.1 Client Information

Applicant:	GuangDong Substanbo Technology Co., Ltd.
Address of Applicant:	2008, Building 4, Tianan Cloud Park Phase II, Bantian Street, Longgang District, Shenzhen, China
Manufacturer:	GuangDong Substanbo Technology Co., Ltd.
Address of Manufacturer:	2008, Building 4, Tianan Cloud Park Phase II, Bantian Street, Longgang District, Shenzhen, China
Factory:	SHENZHEN MENGXIANG TECHNOLOGY CO.,LTD.
Address of Factory:	3rd Floor, Building 16, Tongfutun Industrial Zone, Dalang Street, Longhua New District, Shenzhen

3.2 General Description of EUT

Product Name:	2.1CH SOUNDBAR SYSTEM
Model No.:	Tapio V
Trade Mark:	Ultimea
Hardware Version:	1.0
Software Version:	V5.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	☐ Mobile ☐ Portable ☒ Fix Location
Test Software of EUT:	BT_Tool (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	1.7dBi
Power Supply:	Adapter: MODEL NO.: CW1802330RE INPUT: 100-240V~50/60Hz 1.2A MAX OUTPUT: 18V 2330mA

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)	-3.030	-4.0±1	-3.0	0.501
Middle(2441MHz)	-4.230	-5.0±1	-4.0	0.398
Highest(2480MHz)	-4.990	-5.5±1	-4.5	0.355
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.780	-1.5±1	-0.5	0.891
Middle(2441MHz)	-2.050	-3.0±1	-2.0	0.631
Highest(2480MHz)	-2.880	-3.5±1	-2.5	0.562
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.260	-1.0±1	0	1.000
Middle(2441MHz)	-1.580	-2.5±1	-1.5	0.708
Highest(2480MHz)	-2.420	-3.0±1	-2.0	0.631

Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-0.260	-1.0±1	0	1.000	0.310	3.0
Middle (2441MHz)	-1.580	-2.5±1	-1.5	0.708	0.221	
Highest (2480MHz)	-2.420	-3.0±1	-2.0	0.631	0.199	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20220600945E-01.

*** END OF REPORT ***