

RF Exposure Evaluation Report

Product : 2.0CH SOUNDBAR SYSTEM
Trade mark : BOMAKER
Model/Type reference : Tapio I , Tapio II
Serial Number : N/A
Report Number : EED32L00319903
FCC ID : 2AS9DTAPIO1
Date of Issue : Jan. 02, 2020
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01v06
Test result : PASS

Prepared for:

GuangDong Substanbo Technology Co., Ltd.
8F, Building D, Bantian International Center,
Longgang District, Shenzhen, China.

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Tested By:

mark. chen.

Mark Chen

Compiled by:

Smile Zhong

Smile Zhong

Reviewed by:

Ware Xin

Ware Xin

Approved by:

Kevin Yang

Kevin Yang

Date:

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2 Version

Version No.	Date	Description
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4 General Information

4.1 Client Information

Applicant:	GuangDong Substanbo Technology Co., Ltd.
Address of Applicant:	8F, Building D, Bantian International Center, Longgang District, Shenzhen, China.
Manufacturer:	HanHong Digital Technology Co., Ltd
Address of Manufacturer:	401, Building E, Yuxing Technology Park, Nanchang 3rd Industry Zone, Nanchang Community, Xixiang Street, Baoan District, Shenzhen City, China
Factory:	HanHong Digital Technology Co., Ltd
Address of Factory:	401, Building E, Yuxing Technology Park, Nanchang 3rd Industry Zone, Nanchang Community, Xixiang Street, Baoan District, Shenzhen City, China

4.2 General Description of EUT

Product Name:	2.0CH SOUNDBAR SYSTEM
Model No.(EUT):	Tapio I , Tapio II
Test Model No.:	Tapio I
Trade mark:	BOMAKER
EUT Supports Radios application:	BT 5.0 Dual mode, 2402MHz to 2480MHz

4.3 Product Specification subjective to this standard

Frequency Range:	2402MHz to 2480MHz		
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK		
Test Power Grade:	BLE: 9, BT: GFSK: 9, $\pi/4$ DQPSK: 9, 8DPSK:9		
Test Software of EUT:	MV_AP82xx_BP10xx_PC_Tools_V2.1.exe		
Antenna Type:	PCB Antenna		
Antenna Specification	Bluetooth :	Antenna Gain :	3.38 dBi (Numeric gain: 2.18)
Maximum tune up power	Bluetooth:	2.50 dBm	(1.778 mW)
Power Supply:	Adapter	MODEL:TP04-190150E INPUT:100-240V~50/60Hz 1A Max OUTPUT:DC19V 1.5 A	
Sample Received Date:	Oct. 31, 2019		
Sample tested Date:	Oct. 31, 2019 to Dec. 06, 2019		
The tested sample(s) and the sample information are provided by the client. Model No.: Tapio I , Tapio II Only the model Tapio I was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference model name.			

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4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5.2 Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

Bluetooth:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
0	2402	2.137	2.18	20	0.0009	1

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EEED32L00319901 for EUT external and internal photos.

*** End of Report ***

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 CTI, this report can't be reproduced except in full.