RF TEST REPORT

Product Name: Portable Boombox with FM radio, Bluetooth, CD, cassette and USB Player

Model Name: GSBB-500

FCC ID: 2AE6G-GSBB500

Issued For : Innovative Concepts and Design LLC

458 Florida Grove Road, Perth Amboy, NJ 08861, USA

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Report Number:	LGT24H166HA01
Sample Received Date:	Aug. 29, 2024
Date of Test:	Aug. 29, 2024 – Sep. 13, 2024
Date of Issue:	Sep. 13, 2024

TEST REPORT CERTIFICATION

Applicant:	Innovative Concepts and Design LLC
Address:	458 Florida Grove Road, Perth Amboy, NJ 08861, USA
Manufacturer:	Jenmart Industrial (HK) Co., Limited
Address:	Units A&B, 15/F, Neich Tower, 128 Gloucester Road, Wanchai, Hong Kong
Factory:	1: Dongguan City Wangniudun Yinghui Electronics Factory 2: Rich Glory Electronics Co., Ltd.
Address:	1: Chijiaoluduan Zhenzhong Road, Wangniudun Town, Dongguan City, China 2: No.10 Xiling Road, Fengcheng Street, Xinfeng County, Shaoguan City, GuangDong Province, China
Product Name:	Portable Boombox with FM radio, Bluetooth, CD, cassette and USB Player
Trademark:	gemini
Model Name:	GSBB-500
Sample Status:	Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR §2.1091 KDB 447498 D01 General RF Exposure Guidance v06	PASS

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Revision History

Rev.	Issue Date	Revisions
00	Sep. 13, 2024	Initial Issue

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	Portable Boombox with FM radio, Bluetooth, CD, cassette and USB Player	
Trademark:	gemini	
Model Name:	GSBB-500	
Series Model:	N/A	
Model Difference:	N/A	
Frequency Bands:	Bluetooth/BLE	2402 – 2480 MHz
Rating:	Input: AC 120V/60Hz	
Battery:	UM-2 LR14 1.5V*6	
Hardware Version:	V1.0	
Software Version:	V1.1	

1.2 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.
Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)
Limits for Occupational / controlled Exposures			
0.3-3.0	614	1.63	*(100)
3.0-30	1842/f	4.89/f	*($900/f^2$)
30-300	61.4	0.163	1.0
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
0.3-1.34	614	1.63	*(100)
1.34-30	824/f	2.19/f	*($180/f^2$)
30-300	27.5	0.073	0.2
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F= Frequency in MHz

* = Plane-wave equivalent power density.

Friss Formula

Friss Transmission Formula: $Pd = (Pout * G) / (4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = Distance between observation point and the center of radiator in cm

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.

2.3 EUT OPERATION CONDITION

EUT was enabled to transmit and receive at lowest, middle and highest channels.

2.4 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual. So, this device is classified as Mobile device.

2.5 TEST RESULT

Turn up Result

Mode	Turn up Power
BT-GFSK	0±1dBm
BT-π/4-DQPSK	0.5±1dBm
BLE-GFSK	0.5±1dBm

The MPE result of worst mode:

RF Function	Frequency (MHz)	Max Turn up Power (dBm)	Max Turn up Power (mW)	ANT Gain (dBi)	ANT Gain (gain of antenna in linear scale)	Power Density (mW/cm²)	Limit (mW/cm²)	Ratio	Result
BT	2441	1.50	1.41	-0.58	0.87	0.00025	1	0.00025	Pass
BLE	2440	1.50	1.41	-0.58	0.87	0.00025	1	0.00025	Pass

Note:

1. The Maximum Power Density is less than the limit, complies with the exemption requirements.

APPENDIX I - PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Note: Please see the attached GSBB-500_External Photos and GSBB-500_Internal Photos.

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