RF Exposure Evaluation Report

Product	:	Coolbox
Trade mark	:	Coolbox
Model/Type reference	:	CB100 Blue, CB200 White, CB300 Green
Serial Number	:	N/A
Report Number	:	EED32K00221602
FCC ID	:	2AQ7ECB100-GWB01
Date of Issue	:	Sep. 10, 2018
Test Standards	:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB 447498D01v06
Test result	:	PASS

Prepared for:

Texas Coolbox Hardgoods, LLC
12310 Old Oaks Drive, Houston, Texas,
United States 77024

Prepared by:

Centre Testing International Group Co., Ltd.
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Tested By:	Tom chen (Test Project)	Compiled by:	Kevin Ian (Project Engineer)
Reviewed by:	Kevin yang (Reviewer)	Approved by:	Sheek Luo (Lab supervisor)
Date:	Sep. 10, 2018		Check No.: 3096323601

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2 Version

Version No.	Date	Description
00	Sep. 10, 2018	Original

3 Contents

4 General Information

4.1 Client Information

Applicant:	Texas Coolbox Hardgoods, LLC
Address of Applicant:	12310 Old Oaks Drive, Houston, Texas, United States 77024
Manufacturer:	ZHONGSHAN XINZHIYUAN ELECTRIC&ELECTRONICS CO., LTD
Address of Manufacturer:	5/F Building A & B, No.389 Dongfu Road, Heping Industral Zone Dongfeng Town, ZhongshsnCity, 528425
Factory:	ZHONGSHAN XINZHIYUAN ELECTRIC&ELECTRONICS CO., LTD
Address of Factory:	5/F Building A & B, No.389 Dongfu Road, Heping Industral Zone Dongfeng Town, ZhongshsnCity, 528425

4.2 General Description of EUT

Product Name:	Coolbox
Model No.:	CB100 Blue, CB200 White, CB300 Green
Test Model No.:	CB100 Blue
Trade mark:	Coolbox
EUT Supports Radios application	BT 4.0 Signal mode, 2402-2480MHz

4.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz	
Modulation Type:	GFSK, π/4DQPSK, 8DPSK	
Number of Channel:	79	
Bluetooth Version:	4.0	
Test Power Grade:	Power (Ext,Int) 50(manufacturer declare)	
Test Software of EUT:	CSR BlueSuite 2.6.4 (manufacturer declare)	
Antenna Type:	PCB Antenna	
Antenna Gain:	0dBi	
Power Supply:	AC adapter	MODEL No.:K48V135300U INPUT:100-240V~50/60Hz 1.2A OUTPUT:13.5V⎓3.0A
	Battery	2500mAh 11.1V
Conducted Peak Output Power:	7.862dBm	
	The Conducted Peak Output Power data refer to the report EED32K00221601	
Sample Received Date:	Aug. 15, 2018	
Sample tested Date:	Aug. 15, 2018 to Sep. 10, 2018	
The tested sample(s) and the sample information are provided by the client. Model No.: CB100 Blue, CB200 White, CB300 Green Only the model CB100 Blue was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being the outer decoration.		

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

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30
30–300	27.5	0.073	0.2	30
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the centre of radiation of the antenna

EIRP = P*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation

Antenna Gain: 0dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power(dBm)	Gain (dBi)	EIRP* (dBm)	EIRP (mW)	R (cm)	S (mW/cm^2)	Limit (mW/cm^2)	Result
Highest	2480	7.862	0	7.862	6.11	20	0.001	1.0	Pass

Note: Refer to report No. EED32K00221601 for EUT test Max Conducted Peak Output Power value.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32K00221601 for EUT external and internal photos.

*** End of Report ***