

RF Exposure Evaluation Report

Product : WIFI+BT Module
Trade mark : GSD
Model/Type reference : WCT1BR2201D, WCT1BR2701T
Serial Number : N/A
Report Number : EED32K00249905
FCC ID : 2AC23-WCT1B
Date of Issue : Nov. 16, 2018
47 CFR Part 1.1307
Test Standards : 47 CFR Part 1.1310
KDB447498D01v06
Test result : PASS

Prepared for:

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2 Version

Version No.	Date	Description
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4 General Information

4.1 Client Information

Applicant:	Hui Zhou Gaoshengda Technology Co., LTD
Address of Applicant:	No. 75 Zhongkai Development Area Huizhou, Guangdong, China
Manufacturer:	Hui Zhou Gaoshengda Technology Co., LTD
Address of Manufacturer:	No. 75 Zhongkai Development Area Huizhou, Guangdong, China
Factory:	Hui Zhou Gaoshengda Technology Co., LTD
Address of Factory:	No. 75 Zhongkai Development Area Huizhou, Guangdong, China

4.2 General Description of EUT

Product Name:	WIFI+BT Module
Model No.(EUT):	WCT1BR2201D, WCT1BR2701T
Test Model No.:	WCT1BR2701T
Trade Mark:	GSD
EUT Supports Radios application	BT 4.2 Dual mode, 2402-2480MHz 2.4G WiFi, 802.11b/g/n(20MHz)/n(40MHz), 2412-2462MHz 5G WiFi, 802.11a/n(HT20)/n(HT40)/ac(HT20)/ac(HT40)/ac(HT80) 5G WiFi, 5150-5250MHz; 5725-5850MHz

4.3 Product Specification subjective to this standard

Frequency Range:	BT 4.2 Dual mode, 2402-2480MHz 2.4G WiFi, 802.11b/g/n(20MHz)/n(40MHz), 2412-2462MHz 5G WiFi, 802.11a/n(HT20)/n(HT40)/ac(HT20)/ac(HT40)/ac(HT80) 5G WiFi, 5150-5250MHz; 5725-5850MHz
Antenna Type:	PIFA Antenna
Antenna gain:	BT: 2.72dBi, 2.4G WiFi: 2.72dBi, 5G WiFi: 4.57dBi
Sample Type:	mobile production
Firmware version of the sample:	V1.0(manufacturer declare)
Hardware version of the sample:	V1.0(manufacturer declare)
Power Supply:	DC 3.3V
Conducted Peak Output Power:	17.08dBm The Conducted Peak Output Power data refer to the report EED32K00249901, EED32K00249902, EED32K00249903, EED32K00249904
Sample Received Date:	Sep. 12, 2018
Sample tested Date:	Sep. 12, 2018 to Nov. 14, 2018
The tested sample(s) and the sample information are provided by the client. Model No.: WCT1BR2201D, WCT1BR2701T Only the model WCT1BR2701T was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being of the antenna connection.	

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 limits, 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: 2.72dBi

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	2462	17.08	2.72	19.80	95.50	20	0.019	1.0	Pass

Note: Refer to report No. EED32K00249901, EED32K00249902, EED32K00249903, EED32K00249904 for EUT test Max Conducted Peak Output Power value.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32K00249901 for EUT external and internal photos.

*** End of Report ***

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