RF Exposure Evaluation Report

Product	:	WIFI+BT Module
Trade mark	:	GSD
Model/Type reference	:	WCT0SR2311
Serial Number	:	N/A
Report Number	:	EED32L00189804
FCC ID	:	2AC23-WCT0S
Date of Issue	:	Feb. 27, 2020
Test Standards	:	IEEE C95.1 2005 KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091
Test result	:	PASS

Prepared for:

Hui Zhou Gaoshengda Technology Co.,LTD
NO.75 Zhongkai Development Area,Huizhou,Guangdong, 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.	Compiled by:	Smile Zhong
	Mark Chen		Smile Zhong
Reviewed by:	Ware Xin	Approved by:	Sam Chuang
	Ware Xin		Sam Chuang
Date:	Feb. 27, 2020		Check No.: 3096370616

CENTRE TESTING INTERNATIONAL GROUP CO.,LTD. Report Seal

2 Version

Version No.	Date	Description
00	Feb. 27, 2020	Original

3 Contents

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):	WCT0SR2311
Trade Mark:	GSD
EUT Supports Radios application	BT 4.1 Dual mode 2.4G WiFi: 802.11b/g/n(20MHz)/n(40MHz) 5G WiFi: 802.11a/n(HT20)/n(HT40)/ac(HT20)/ac(HT40)/ac(HT80)

4.3 Product Specification subjective to this standard

Frequency Range:	BT 4.1 Dual mode: 2402MHz~2480MHz 2.4G WIFI: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz 5G WiFi: U-NII-1: 5.15-5.25GHz; U-NII-2a: 5.25-5.355GHz; U-NII-2c: 5.47-5.6GHz; U-NII-3: 5.725-5.85GHz
Modulation Type:	GFSK, 8DPSK, π/4DQPSK OFDM, DSSS
Test Software of EUT:	Bluetooth RF Test Tool V5.1.1.1 Realtek 11ac 8822B USBWLAN MP
Antenna Type:	PIFA antenna
Antenna Gain:	2.4GHz 2.94dBi / 5GHz 2.67dBi / BT 2 dBi
Antenna Specification	Bluetooth : Antenna Gain : 2.00 dBi (Numeric gain: 1.58) 2.4GHz Antenna Gain : 2.94 dBi (Numeric gain: 1.97) 5GHz Antenna Gain : 2.67 dBi (Numeric gain: 1.85)

Maximum tune up power	Bluetooth:	9.50 dBm	(8.913 mW)
	IEEE 802.11b Mode:	20.00 dBm	(100.000 mW)
	IEEE 802.11g Mode:	23.50 dBm	(223.872 mW)
	IEEE 802.11n HT 20 Mode:	23.00 dBm	(199.526 mW)
	IEEE 802.11n HT 40 Mode:	22.00 dBm	(158.489 mW)
	IEEE 802.11a Mode:	15.00 dBm	(31.623 mW)
	IEEE 802.11n HT 20 Mode:	17.00 dBm	(50.119 mW)
	IEEE 802.11n HT 40 Mode:	17.00 dBm	(50.119 mW)
	IEEE 802.11ac VHT 80 Mode:	16.00 dBm	(39.811 mW)
Power Supply:	DC 5V		
Sample Received Date:	Jul. 17, 2019		
Sample tested Date:	Jul. 17, 2019 to Sep. 09, 2019		

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 (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***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 / cm²	Limit (mW/cm2)
1	2402	8.913	1.58	20	0.0028	1

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm²	Limit (mW/cm2)
1	2412	100.000	1.97	20	0.0392	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm²	Limit (mW/cm2)
6	2437	223.872	1.97	20	0.0878	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm²	Limit (mW/cm2)
1	2412	199.526	1.97	20	0.0782	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm²	Limit (mW/cm2)
3	2422	158.489	1.97	20	0.0621	1

IEEE 802.11a mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
149	5745	31.623	1.85	20	0.0116	1

IEEE 802.11 HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
36	5180	50.119	1.85	20	0.0185	1

IEEE 802.11 HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
110	5550	50.119	1.85	20	0.0185	1

IEEE 802.11ac VHT80 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
106	5530	39.811	1.85	20	0.0147	1

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32L00189801 for EUT external and internal photos.

*** End of Report ***