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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:

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Feb. 27, 2020

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Report Seal

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2 Version

Version No.	Date	Descri	otion
00	Feb. 27, 2020	Origin	nal
		14 March 1	











































































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

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 2452MH	z			
		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						
Antenna Type:	PIFA antenna						
Antenna Gain:	2.4GHz 2.94d	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)		











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	•				
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)		
) (S)	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)		
(25)	IEEE 802.11ac VHT 80 Mode:	16.00 dBm	(39.811 mW)		
		/			
Power Supply:	DC 5V				
Sample Received Date:	Jul. 17, 2019	-0-			
Sample tested Date:	Jul. 17, 2019 to Sep. 09, 2019	(270)	()		
	•				

















































































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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:

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

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

 $S = Power density in mW / cm^2$





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

 $S = Power density in mW / cm^2$

Bluetooth:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	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 / cm ²	Limit (mW/cm2)
Ī	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 / cm ²	Limit (mW/cm2)
d	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 / cm ²	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 / cm ²	Limit (mW/cm2)
3	2422	158.489	1.97	20	0.0621	1











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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:

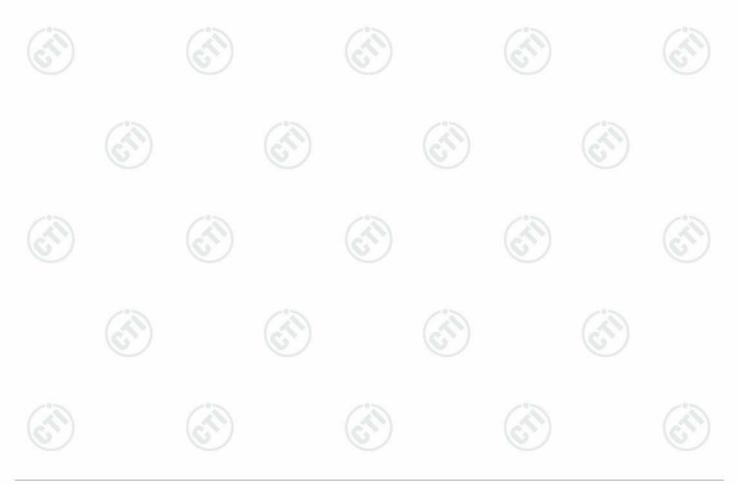
Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
36	5180	50.119	1.85	20	0.0185	1

IEEE 802.11 HT40 mode:

Ī	Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
Ī	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



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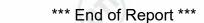




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PHOTOGRAPHS OF EUT Constructional Details

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



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