FCC IC RF EXPOSURE REPORT

For

WIFI+BT module

MODEL NUMBER: WCT0LR2201J

FCC ID: 2AC23-WCT0LR2201J
IC: 12290A-WCT0LR220AJ

REPORT NUMBER: 4788196596.1-5

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Prepared for

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Prepared by

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Hui Zhou Gaoshengda Technology Co.,LTD
Address:	HuaXing RD,NO 2,ZhongKai High Technology Development Area,Huizhou,Guangdong, China

Manufacturer Information

Company Name:	Hui Zhou Gaoshengda Technology Co.,LTD
Address:	HuaXing RD,NO 2,ZhongKai High Technology Development Area,Huizhou,Guangdong, China

EUT Description

Product Name	WIFI+BT module
Brand Name	GSD
Model Name	WCT0LR2201J
Sample ID	1220986
Sample Status	Good
Sample Received date	October 20, 2017
Date Tested	October 23~November 23, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC 47CFR§2.1091	Complies
KDB-447498 D01 V06	

Tested By:

Kebo Zhang
Engineer

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo

Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 447498 D01 General RF Exposure Guidance v06.

3. FACILITIES AND ACCREDITATION

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China
Accreditation Certificate	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. The Certificate Registration Number is 4102.01. UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The Designation Number is CN1187. UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. EMC Laboratory has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320.

Note: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites.

4. REQUIREMENT

LIMIT

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f2)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/150	30
1500-100,000	--	--	1.0	30
Note 1: f = frequency in MHz, * means Plane-wave equivalent power density				
Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.				
Note 3: The limit value 1.0mW/cm^2 is available for this EUT.				

MPE CALCULATION METHOD

$S = PG/(4\pi R^2)$

where: S = power density (in appropriate units, e.g. mW/ cm2)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

CALCULATED RESULTS

Radio Frequency Radiation Exposure Evaluation

Bluetooth (Worst case)							
Operating Mode	Output Power	Tune up tolerance	Max. Tune up Power	Antenna Gain		Power density	Limit
	(mW)	(dBm)	(dBm)	(dBi)	(num)	(mW/ cm^2)	
BT4.1+EDR	2.512	3±1	4	3.24	2.109	0.0011	1
BT4.2 LE	3.981	5±1	6	3.24	2.109	0.0017	1

WIFI2.4G (Worst case)							
Operating Mode	Output Power	Tune up tolerance	Max. Tune up Power	Antenna Gain		Power density	Limit
	(mW)	(dBm)	(dBm)	(dBi)	(num)	(mW/ cm^2)	
802.11b	50.119	16±1	17	3.24	2.109	0.0167	1
802.11g	31.623	14±1	15	3.24	2.109	0.0133	1
802.11n20 - ANT 1	25.119	13±1	14	3.24	2.109	0.0105	1
802.11n20 – ANT 2	25.119	13±1	14	3.24	2.109	0.0105	1
802.11n20 – ANT1 + 2 (MIMO)	39.811	15±1	16	3.24	2.109	0.0167	1
802.11n40 - ANT 1	25.119	13±1	14	3.24	2.109	0.0105	1
802.11n40 – ANT 2	25.119	13±1	14	3.24	2.109	0.0105	1
802.11n40 – ANT1 + 2 (MIMO)	39.811	15±1	16	3.24	2.109	0.0167	1

WIFI5G (Worst case)							
Operating Mode	Output Power	Tune up tolerance	Max. Tune up Power	Antenna Gain		Power density	Limit
	(mW)	(dBm)	(dBm)	(dBi)	(num)	(mW/ cm^2)	
802.11a	31.623	14±1	15	4.97	3.141	0.0198	1
802.11n20 - ANT 1	25.119	13±1	14	4.97	3.141	0.0157	1
802.11n20 - ANT 2	25.119	13±1	14	4.97	3.141	0.0157	1
802.11n20 (ANT 1 + 2) MIMO	39.811	15.1±1	16.1	4.97	3.141	0.0255	1
802.11n40 - ANT 1	25.119	13±1	14	4.97	3.141	0.0157	1
802.11n40 - ANT 2	25.119	13±1	14	4.97	3.141	0.0157	1
802.11n40 (ANT 1 + 2) MIMO	39.811	15.1±1	16.1	4.97	3.141	0.0255	1
802.11ac20 - ANT 1	12.590	10±1	11	4.97	3.141	0.0079	1
802.11ac20 - ANT 2	12.590	10±1	11	4.97	3.141	0.0079	1
802.11ac20 (ANT 1+2) MIMO	25.119	13±1	14	4.97	3.141	0.0157	1
802.11ac40 - ANT 1	12.590	10±1	11	4.97	3.141	0.0079	1
802.11ac40 - ANT 2	12.590	10±1	11	4.97	3.141	0.0079	1
802.11ac40 (ANT1 + 2) MIMO	25.119	13±1	14	4.97	3.141	0.0157	1

802.11ac80 - ANT 1	12.590	10±1	11	4.97	3.141	0.0079	1
802.11ac80 - ANT 2	12.590	10±1	11	4.97	3.141	0.0079	1
802.11ac80 (ANT 1 + 2) MIMO	25.119	13±1	14	4.97	3.141	0.0157	1

Note: the calculated distance is 20cm.

END OF REPORT