




TEST REPORT

FCC ID.....	2AC23-DCT2J	
Test Report No.....	TCT220328E086	
Date of issue.....	Apr. 27, 2022	
Testing laboratory	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name.....	Hui Zhou Gaoshengda Technology Co., LTD	
Address.....	NO.75 Zhongkai Development Area, Huizhou, Guangdong, China	
Manufacturer's name ...	Hui Zhou Gaoshengda Technology Co., LTD	
Address.....	NO.75 Zhongkai Development Area, Huizhou, Guangdong, China	
Standard(s)	FCC CFR Title 47 Part 1.1307	
Product Name.....	WIFI+BT Module	
Trade Mark	N/A	
Model/Type reference.....	DCT2JM2001	
Rating(s).....	DC 3.3V	
Date of receipt of test item	Mar. 28, 2022	
Date (s) of performance of test.....	Mar. 28, 2022 ~ Apr. 27, 2022	
Tested by (+signature) ...	Aaron MO	
Check by (+signature)....	Beryl ZHAO	
Approved by (+signature):	Tomsin	



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1. General Product Information

1.1. EUT description

Product Name:	WIFI+BT Module
Model/Type reference:	DCT2JM2001
Sample Number:	TCT220328E061-0101
Operation Frequency	For BT/BLE: 2402MHz~2480MHz For 2.4GWIFI: 2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20)) 2422MHz~2452MHz (802.11n(HT40)) For 5GWIFI: Band 1: 5180 MHz -5240 MHz Band 2A: 5260 MHz -5320 MHz Band 2C: 5500 MHz -5700 MHz Band 3: 5745 MHz -5825 MHz
Modulation Type:	For BT: GFSK, $\pi/4$ -DQPSK, 8DPSK For BLE: GFSK For 2.4GWIFI: DSSS(802.11b), OFDM (802.11g/802.11n) For 5GWIFI: 256QAM, 64QAM, 16QAM, BPSK, QPSK
Antenna Type:	PIFA Antenna
Antenna Gain:	For BT/BLE/2.4GWIFI: 2dBi For 5GWIFI: 3dBi
Rating(s):	DC 3.3V

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

None.

2. General Information

2.1. Test environment and mode

Item	Normal condition
Temperature	+25°C
Voltage	DC 5 V(Notebook Computer Input AC 120 V/60 Hz)
Humidity	56%
Atmospheric Pressure:	1008 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel

2.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Notebook Computer	G3 3500	00342-36088-998 32-AAOEM	/	DELL

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

3. Facilities and Accreditations

3.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098
SHENZHEN TONGCE TESTING LAB
Designation Number: CN1205

The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1
SHENZHEN TONGCE TESTING LAB
CAB identifier: CN0031

The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

3.2. Location

SHENZHEN TONGCE TESTING LAB

Address: TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4. Test Results and Measurement Data

According to §1.1307(b), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Remark: 1)

SISO mode:

- For BT:** The maximum output power for antenna is 7.28dBm (5.35mW) at 2480MHz, 2dBi antenna gain(with 1.58 numeric antenna gain);
- For BLE(1M):** The maximum output power for antenna is 8.19dBm (6.59mW) at 2402MHz, 2dBi antenna gain(with 1.58 numeric antenna gain);
- For BLE(2M):** The maximum output power for antenna is 8.19dBm (6.59mW) at 2402MHz, 2dBi antenna gain(with 1.58 numeric antenna gain);
- For 2.4G WIFI:** The maximum output power is in 802.11b mode at 2437MHz, with antenna 1 is 16.09dBm (40.64mW), 2dBi antenna gain(1.58 numeric antenna gain);
- For Band 1:** The maximum output power is in 802.11a mode at 5200MHz, with antenna 0 is 14.64dBm (29.11mW), 3dBi antenna gain(2.00 numeric antenna gain)
- For Band 2A:** The maximum output power is in 802.11a mode at 5300M MHz, with antenna 1 is 14.59dBm (28.77mW) at 5260MHz, 3dBi antenna gain(2.00 numeric antenna gain)
- For Band 2C:** The maximum output power is in 802.11a mode at 5500MHz, with antenna 0 is 14.34dBm (27.16mW), 3dBi antenna gain(2.00 numeric antenna gain)
- For Band 3:** The maximum output power is in 802.11a mode at 5745MHz, with antenna 1 is 13.74dBm (23.66mW), 3dBi antenna gain(2.00 numeric antenna gain)

MIMO mode:

- For 2.4G WIFI:** The maximum output power is in 802.11n(H20) mode at 2462MHz, for total power is 17.57dBm (57.15mW), 2dBi antenna gain(with 1.58 numeric antenna gain)
- For Band 1:** The maximum output power is in 802.11ac(VHT40) mode at 5230MHz, for total power is 16.22dBm (41.88mW), 3dBi antenna gain(with 2.00 numeric antenna gain)
- For Band 2A:** The maximum output power is in 802.11 ac(VHT40) mode at 5310MHz, for total power is 16.42dBm(43.85mW), 3dBi antenna gain(with 2.00 numeric antenna gain)
- For Band 2C:** The maximum output power is in 802.11n(H40) mode at 5510MHz, for total power is 16.23dBm (41.98mW), 3dBi antenna gain(with 2.00 numeric antenna gain.)
- For Band 3:** The maximum output power is in 802.11n(H40) mode at 5795MHz, for total power is 16.21dBm (41.78mW), 3dBi antenna gain(with 2.00 numeric antenna gain.)

- 2) For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20cm, even if the calculation indicate that the MPE distance would be lesser.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

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

Substituting the MPE safe distance using $d=20\text{cm}$ into above equation.

Yields: $S=0.000199 \times P \times G$

SISO mode:

Maximum Emissions Level					
Mode	Power(mW)	numeric antenna gain	Power density (mW/cm ²)	Limit (mW/cm ²)	Result
BT	5.35	1.58	0.001682	1.0	PASS
BLE(1M)	6.59	1.58	0.002072		
BLE(2M)	6.59	1.58	0.002072		
2.4G WIFI	40.64	1.58	0.012778		
Band 1	29.11	2.00	0.011586		
Band 2A	28.77	2.00	0.011450		
Band 2C	27.16	2.00	0.010810		
Band 3	23.66	2.00	0.009417		

MIMO mode:

Maximum Emissions Level					
Mode	Power(mW)	numeric antenna gain	Power density (mW/cm ²)	Limit (mW/cm ²)	Result
2.4G WIFI	57.15	1.58	0.017969	1.0	PASS
Band 1	41.88	2.00	0.016668		
Band 2A	43.85	2.00	0.017452		
Band 2C	41.98	2.00	0.016708		
Band 3	41.78	2.00	0.016628		

Simultaneous transmitting:

Maximum Emissions Level					
Mode	BT	WIFI	Total MPE	Limit	Result
BT + WIFI	0.001682	0.012778	0.014460	1.0	PASS
BT + U-NII	0.001682	0.011586	0.013268		
BLE + WIFI	0.002072	0.012778	0.014850		
BLE +U-NII	0.002072	0.011586	0.013658		

*****END OF REPORT*****