



RF Exposure Evaluation Declaration

FCC ID: 2AC23-WC0DR2611

APPLICANT: Hui Zhou Gaoshengda Technology Co., LTD

Application Type: Certification

Product: WIFI Module

Model No.: WC0DR2611

Trademark: GSD

FCC Classification: Digital Transmission System (DTS)
Unlicensed National Information Infrastructure (UNII)

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Approved By : Marlin Chen
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The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date
1606RSU00303	Rev. 01	Initial report	06-23-2016

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	WIFI Module
Model No.	WC0DR2611
Frequency Range	<p><u>2.4GHz:</u> For 802.11b/g/n-HT20: 2412 ~ 2462 MHz For 802.11n-HT40: 2422 ~ 2452 MHz</p> <p><u>5GHz:</u> For 802.11a/n-HT20: 5180~5240MHz, 5745~5825MHz For 802.11n-HT40: 5190~5230MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5775MHz</p>
Maximum Conducted Output Power	<p><u>2.4GHz:</u> 802.11b: 21.85dBm 802.11g: 26.36dBm 802.11n-HT20: 28.07dBm 802.11n-HT40: 28.15dBm</p> <p><u>5GHz:</u> 802.11a: 19.05dBm 802.11n-HT20: 18.35dBm 802.11n-HT40: 17.29dBm 802.11ac-VHT80: 15.97dBm</p>
Type of Modulation	802.11a/n/ac: OFDM
Antenna Gain	For 2.4GHz: 2.8dBi For 5GHz: 3dBi

1.2. Antenna Description

Antenna Type	Frequency Band (MHz)	Tx Paths	Per Chain Max Antenna Gain (dBi)	
			Ant 0	Ant 1
Metal Antenna	2412 ~2462	2	2.8	2.8

Antenna Type	Frequency Band (MHz)	Tx Paths	Per Chain Max Antenna Gain (dBi)	
			Ant 1	Ant 2
Metal Antenna	5150 ~ 5250	2	3	3
	5725 ~ 5850	2	3	3

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: 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 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Test Result of RF Exposure Evaluation

Product	WIFI Module
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.8dBi for 2.4GHz, 3dBi for 5.2GHz and 3dBi for 5.80GHz in logarithm scale.

For 2.4GHz ISM Band:

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Safety Distance R (cm)	Power Density (mW/cm ²)	Power Density Limit (mW/cm ²)
802.11b/g/n-HT20/ n-HT40	2412 ~ 2462	28.15	20	0.2477	1

For 5GHz UNII Band:

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Safety Distance R (cm)	Power Density (mW/cm ²)	Power Density Limit (mW/cm ²)
802.11a/n-HT20/ n-H40/ac-VHT80	5180 ~ 5240	19.05	20	0.0319	1
	5745 ~ 5825	18.11	20	0.0257	1

CONCLUSION:

The WLAN 2.4GHz Band and WLAN 5GHz Band can't transmit simultaneously. Therefore, the Power Density (mW/cm²) = 0.2477 mW/cm² < 1 mW/cm².

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