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Report No.: 1606RSU00303  
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## RF Exposure Evaluation Declaration

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**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)

Reviewed By :

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( Robin Wu )

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><b><u>2.4GHz:</u></b></p> <p>For 802.11b/g/n-HT20:<br/>2412 ~ 2462 MHz</p> <p>For 802.11n-HT40:<br/>2422 ~ 2452 MHz</p> <p><b><u>5GHz:</u></b></p> <p>For 802.11a/n-HT20:<br/>5180~5240MHz, 5745~5825MHz</p> <p>For 802.11n-HT40:<br/>5190~5230MHz, 5755~5795MHz</p> <p>For 802.11ac-VHT80:<br/>5210MHz, 5775MHz</p> |
| Maximum Conducted Output Power | <p><b><u>2.4GHz:</u></b></p> <p>802.11b: 21.85dBm<br/>802.11g: 26.36dBm<br/>802.11n-HT20: 28.07dBm<br/>802.11n-HT40: 28.15dBm</p> <p><b><u>5GHz:</u></b></p> <p>802.11a: 19.05dBm<br/>802.11n-HT20: 18.35dBm<br/>802.11n-HT40: 17.29dBm<br/>802.11ac-VHT80: 15.97dBm</p>                                                |
| Type of Modulation             | 802.11a/n/ac: OFDM                                                                                                                                                                                                                                                                                                      |
| Antenna Gain                   | <p>For 2.4GHz: 2.8dBi</p> <p>For 5GHz: 3dBi</p>                                                                                                                                                                                                                                                                         |

## 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 <sup>2</sup> ) | 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:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

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

$P_d$  is the limit of MPE, 1mW/cm<sup>2</sup>. 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 <sup>2</sup> ) | Power Density Limit (mW/cm <sup>2</sup> ) |
|-----------------------------|----------------------|------------------------------------|------------------------|-------------------------------------|-------------------------------------------|
| 802.11b/g/n-HT20/<br>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 <sup>2</sup> ) | Power Density Limit (mW/cm <sup>2</sup> ) |
|-----------------------------------|----------------------|------------------------------------|------------------------|-------------------------------------|-------------------------------------------|
| 802.11a/n-HT20/<br>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/cm<sup>2</sup>) = 0.2477 mW/cm<sup>2</sup> < 1 mW/cm<sup>2</sup>.

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