

# FCC Test Report

|              |                                             |
|--------------|---------------------------------------------|
| Product Name | ROG Gladius II Wireless Gaming Mouse Dongle |
| Model No.    | P702DONGLE                                  |
| FCC ID       | EMJDP702DONGLE                              |

|           |                                               |
|-----------|-----------------------------------------------|
| Applicant | Primax Electronics Ltd                        |
| Address   | 669 Ruey Kuang Road Neihu 114, Taipei, Taiwan |

|                 |                     |
|-----------------|---------------------|
| Date of Receipt | Jul. 04, 2018       |
| Issued Date     | Aug. 08, 2018       |
| Report No.      | 1870056R-RFUSP15V00 |
| Report Version  | V1.0                |



The test results relate only to the samples tested.

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

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

# Test Report

Issued Date: Aug. 08, 2018

Report No.: 1870056R-RFUSP15V00



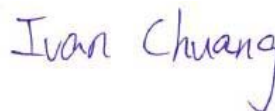
|                     |                                                                                 |
|---------------------|---------------------------------------------------------------------------------|
| Product Name        | ROG Gladius II Wireless Gaming Mouse Dongle                                     |
| Applicant           | Primax Electronics Ltd                                                          |
| Address             | 669 Ruey Kuang Road Neihu 114, Taipei, Taiwan                                   |
| Manufacturer        | Primax Electronics Ltd                                                          |
| Model No.           | P702DONGLE                                                                      |
| EUT Rated Voltage   | DC 5V (Power by USB)                                                            |
| EUT Test Voltage    | DC 5V (Power by USB)                                                            |
| Trade Name          | ASUS                                                                            |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2017<br>ANSI C63.4: 2014, ANSI C63.10: 2013 |
| Test Result         | Complied                                                                        |

Documented By :



( Senior Adm. Specialist / Joanne Lin )

Tested By :



( Engineer / Ivan Chuang )

Approved By :



( Director / Vincent Lin )

## TABLE OF CONTENTS

| Description                                                    | Page      |
|----------------------------------------------------------------|-----------|
| <b>1. GENERAL INFORMATION .....</b>                            | <b>4</b>  |
| 1.1. EUT Description.....                                      | 4         |
| 1.2. Operational Description .....                             | 6         |
| 1.3. Tested System Details.....                                | 7         |
| 1.4. Configuration of Test System .....                        | 7         |
| 1.5. EUT Exercise Software .....                               | 7         |
| 1.6. Test Facility .....                                       | 8         |
| 1.7. List of Test Equipment .....                              | 9         |
| <b>2. Conducted Emission .....</b>                             | <b>10</b> |
| 2.1. Test Setup .....                                          | 10        |
| 2.2. Limits .....                                              | 10        |
| 2.3. Test Procedure .....                                      | 11        |
| 2.4. Uncertainty .....                                         | 11        |
| 2.5. Test Result of Conducted Emission.....                    | 12        |
| <b>3. Radiated Emission .....</b>                              | <b>14</b> |
| 3.1. Test Setup .....                                          | 14        |
| 3.2. Limits .....                                              | 15        |
| 3.3. Test Procedure .....                                      | 16        |
| 3.4. Uncertainty .....                                         | 16        |
| 3.5. Test Result of Radiated Emission.....                     | 17        |
| <b>4. Band Edge .....</b>                                      | <b>30</b> |
| 4.1. Test Setup .....                                          | 30        |
| 4.2. Limits .....                                              | 30        |
| 4.3. Test Procedure .....                                      | 31        |
| 4.4. Uncertainty .....                                         | 31        |
| 4.5. Test Result of Band Edge .....                            | 32        |
| <b>5. Duty Cycle .....</b>                                     | <b>36</b> |
| 5.1. Test Setup .....                                          | 36        |
| 5.2. Uncertainty .....                                         | 36        |
| 5.3. Test Result of Duty Cycle.....                            | 37        |
| <b>6. EMI Reduction Method During Compliance Testing .....</b> | <b>38</b> |

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

### 1.1. EUT Description

|                    |                                             |
|--------------------|---------------------------------------------|
| Product Name       | ROG Gladius II Wireless Gaming Mouse Dongle |
| Trade Name         | ASUS                                        |
| Model No.          | P702DONGLE                                  |
| FCC ID             | EMJDP702DONGLE                              |
| Frequency Range    | 2402~2479MHz                                |
| Channel Number     | 78CH                                        |
| Type of Modulation | GFSK                                        |
| Antenna Type       | PIFA Antenna                                |
| Channel Control    | Auto                                        |
| Antenna Gain       | Refer to the table “Antenna List”           |

#### Antenna List

| No. | Manufacturer | Part No.    | Antenna Type | Peak Gain           |
|-----|--------------|-------------|--------------|---------------------|
| 1   | Primax       | 51000040520 | PIFA         | 1.46dBi for 2.4 GHz |

Note: The antenna of EUT is conform to FCC 15.203

**Center Frequency of Each Channel:**

| Channel     | Frequency | Channel     | Frequency | Channel     | Frequency | Channel     | Frequency |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel 02: | 2402 MHz  | Channel 22: | 2422 MHz  | Channel 42: | 2442 MHz  | Channel 62: | 2462 MHz  |
| Channel 03: | 2403 MHz  | Channel 23: | 2423 MHz  | Channel 43: | 2443 MHz  | Channel 63: | 2463 MHz  |
| Channel 04: | 2404 MHz  | Channel 24: | 2424 MHz  | Channel 44: | 2444 MHz  | Channel 64: | 2464 MHz  |
| Channel 05: | 2405 MHz  | Channel 25: | 2425 MHz  | Channel 45: | 2445 MHz  | Channel 65: | 2465 MHz  |
| Channel 06: | 2406 MHz  | Channel 26: | 2426 MHz  | Channel 46: | 2446 MHz  | Channel 66: | 2466 MHz  |
| Channel 07: | 2407 MHz  | Channel 27: | 2427 MHz  | Channel 47: | 2447 MHz  | Channel 67: | 2467 MHz  |
| Channel 08: | 2408 MHz  | Channel 28: | 2428 MHz  | Channel 48: | 2448 MHz  | Channel 68: | 2468 MHz  |
| Channel 09: | 2409 MHz  | Channel 29: | 2429 MHz  | Channel 49: | 2449 MHz  | Channel 69: | 2469 MHz  |
| Channel 10: | 2410 MHz  | Channel 30: | 2430 MHz  | Channel 50: | 2450 MHz  | Channel 70: | 2470 MHz  |
| Channel 11: | 2411 MHz  | Channel 31: | 2431 MHz  | Channel 51: | 2451 MHz  | Channel 71: | 2471 MHz  |
| Channel 12: | 2412 MHz  | Channel 32: | 2432 MHz  | Channel 52: | 2452 MHz  | Channel 72: | 2472 MHz  |
| Channel 13: | 2413 MHz  | Channel 33: | 2433 MHz  | Channel 53: | 2453 MHz  | Channel 73: | 2473 MHz  |
| Channel 14: | 2414 MHz  | Channel 34: | 2434 MHz  | Channel 54: | 2454 MHz  | Channel 74: | 2474 MHz  |
| Channel 15: | 2415 MHz  | Channel 35: | 2435 MHz  | Channel 55: | 2455 MHz  | Channel 75: | 2475 MHz  |
| Channel 16: | 2416 MHz  | Channel 36: | 2436 MHz  | Channel 56: | 2456 MHz  | Channel 76: | 2476 MHz  |
| Channel 17: | 2417 MHz  | Channel 37: | 2437 MHz  | Channel 57: | 2457 MHz  | Channel 77: | 2477 MHz  |
| Channel 18: | 2418 MHz  | Channel 38: | 2438 MHz  | Channel 58: | 2458 MHz  | Channel 78: | 2478 MHz  |
| Channel 19: | 2419 MHz  | Channel 39: | 2439 MHz  | Channel 59: | 2459 MHz  | Channel 79: | 2479 MHz  |
| Channel 20: | 2420 MHz  | Channel 40: | 2440 MHz  | Channel 60: | 2460 MHz  |             |           |
| Channel 21: | 2421 MHz  | Channel 41: | 2441 MHz  | Channel 61: | 2461 MHz  |             |           |

**Note:**

1. The EUT is a ROG Gladius II Wireless Gaming Mouse Dongle with a built-in 2.4GHz wireless transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

|           |                  |
|-----------|------------------|
| Test Mode | Mode 1: Transmit |
|-----------|------------------|

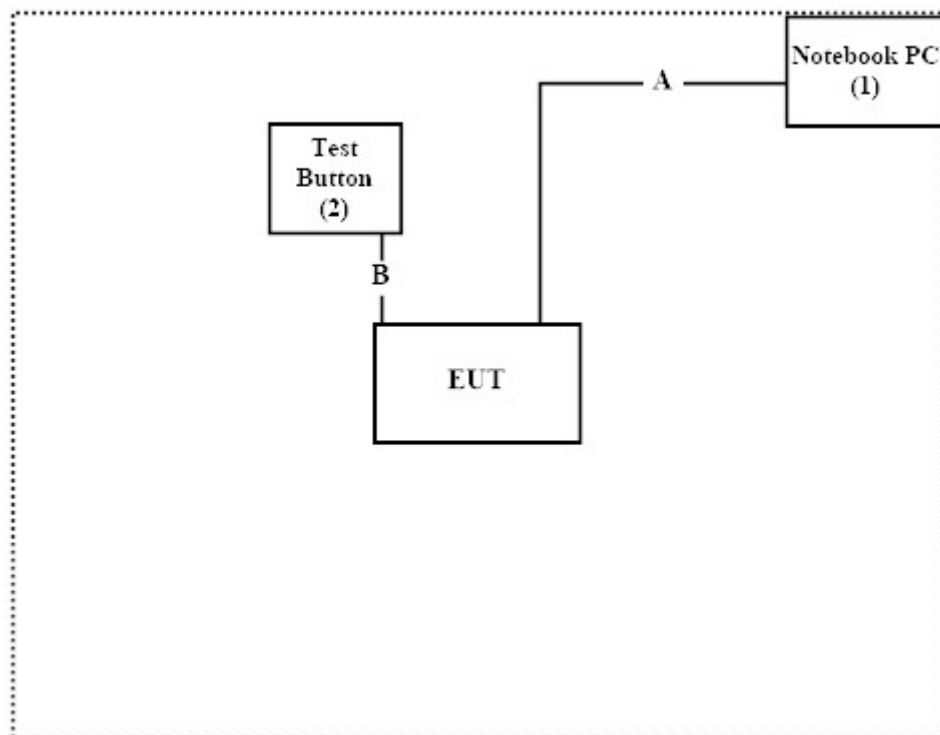
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product |             | Manufacturer | Model No. | Serial No. | Power Cord |
|---------|-------------|--------------|-----------|------------|------------|
| 1       | Notebook PC | DELL         | P62G      | 229FJC2    | N/A        |
| 2       | Test Button | N/A          | N/A       | N/A        | N/A        |

| Signal Cable Type |              | Signal cable Description |
|-------------------|--------------|--------------------------|
| A                 | USB Cable    | Non-Shielded, 0.8m       |
| B                 | Signal Cable | Non-Shielded, 0.1m       |

### 1.4. Configuration of Test System



### 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Press the test button.
- (3) Configure the test mode and the test channel
- (4) Start the continuous Transmit.
- (5) Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

| Items                      | Required (IEC 68-1) | Actual   |
|----------------------------|---------------------|----------|
| Temperature (°C)           | 15-35               | 20-35    |
| Humidity (%RH)             | 25-75               | 50-65    |
| Barometric pressure (mbar) | 860-1060            | 950-1000 |

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: [http://www.dekra.com.tw/index\\_en](http://www.dekra.com.tw/index_en)

Site Description: Accredited by TAF  
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd.  
Site Address: No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist.,  
New Taipei City 24457, Taiwan.  
TEL: 886-2-2602-7968 / FAX : 866-2-2602-3286  
E-Mail : [info.tw@dekra.com](mailto:info.tw@dekra.com)

FCC Accreditation Number: TW0023

## 1.7. List of Test Equipment

### For Conduction measurements /ASR1

|   | Equipment          | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data  |
|---|--------------------|--------------|-----------|------------|------------|------------|
| X | EMI Test Receiver  | R&S          | ESR7      | 101601     | 2018.02.08 | 2019.02.07 |
| X | Two-Line V-Network | R&S          | ENV216    | 101306     | 2018.03.09 | 2019.03.08 |
| X | Two-Line V-Network | R&S          | ENV216    | 101307     | 2018.03.20 | 2019.03.19 |
| X | Coaxial Cable      | Quietek      | RG400_BNC | RF001      | 2018.05.24 | 2019.05.23 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

### For Conducted measurements /ASR4

|   | Equipment         | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data  |
|---|-------------------|--------------|-----------|------------|------------|------------|
| X | Spectrum Analyzer | R&S          | FSV30     | 103464     | 2018.01.23 | 2019.01.22 |
|   | Power Meter       | Anritsu      | ML2496A   | 1548003    | 2017.12.11 | 2018.12.10 |
|   | Power Sensor      | Anritsu      | MA2411B   | 1531024    | 2017.12.11 | 2018.12.10 |
|   | Power Sensor      | Anritsu      | MA2411B   | 1531025    | 2017.12.11 | 2018.12.10 |
|   | Bluetooth Tester  | R&S          | CBT       | 101238     | 2018.01.18 | 2019.01.17 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V9.0.1

### For Radiated measurements /ACB1

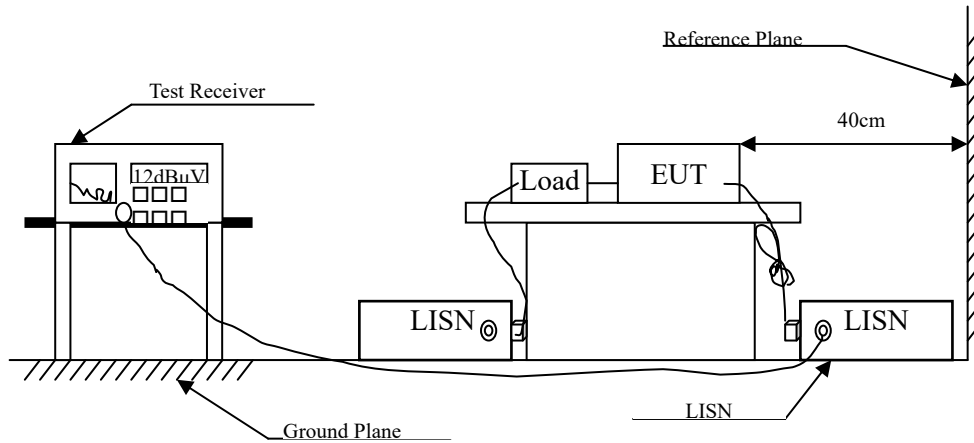
|   | Equipment         | Manufacturer  | Model No.    | Serial No. | Cali. Data | Due. Data  |
|---|-------------------|---------------|--------------|------------|------------|------------|
| X | Loop Antenna      | AMETEK        | HLA6121      | 49611      | 2018.01.26 | 2019.01.25 |
| X | Bi-Log Antenna    | SCHWARZBECK   | VULB9168     | 9168-674   | 2018.04.02 | 2019.04.01 |
| X | Horn Antenna      | ETS-Lindgren  | 3117         | 00203800   | 2017.11.10 | 2018.11.09 |
| X | Horn Antenna      | Com-Power     | AH-840       | 101087     | 2018.06.01 | 2019.05.31 |
| X | Pre-Amplifier     | EMCI          | EMC001330    | 980316     | 2018.06.01 | 2019.05.31 |
| X | Pre-Amplifier     | EMCI          | EMC051835SE  | 980311     | 2018.06.04 | 2019.06.03 |
| X | Pre-Amplifier     | EMCI          | EMC05820SE   | 980310     | 2018.06.04 | 2019.06.03 |
| X | Pre-Amplifier     | EMCI          | EMC184045SE  | 980314     | 2018.05.16 | 2019.05.15 |
| X | Filter            | MICRO TRONICS | BRM50702     | G251       | 2017.08.30 | 2018.08.29 |
|   | Filter            | MICRO TRONICS | BRM50716     | G188       | 2017.08.30 | 2018.08.29 |
| X | EMI Test Receiver | R&S           | ESR7         | 101602     | 2017.12.11 | 2018.12.10 |
| X | Spectrum Analyzer | R&S           | FSV40        | 101148     | 2018.02.08 | 2019.02.07 |
| X | Coaxial Cable     | SUHNER        | SUCOFLEX 106 | RF002      | 2018.05.25 | 2019.05.24 |
| X | Mircoflex Cable   | HUBER SUHNER  | SUCOFLEX 102 | MY3381/2   | 2018.05.16 | 2019.05.15 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

## 2. Conducted Emission

### 2.1. Test Setup



### 2.2. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dB $\mu$ V ) Limit |        |       |
|------------------------------------------------------------|--------|-------|
| Frequency<br>MHz                                           | Limits |       |
|                                                            | QP     | AV    |
| 0.15 - 0.50                                                | 66-56  | 56-46 |
| 0.50-5.0                                                   | 56     | 46    |
| 5.0 - 30                                                   | 60     | 50    |

Remarks: In the above table, the tighter limit applies at the band edges.

### **2.3. Test Procedure**

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### **2.4. Uncertainty**

$\pm 2.35$  dB

## 2.5. Test Result of Conducted Emission

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Date : 2018/07/23  
 Test Mode : Mode 1: Transmit (2441MHz)

| Frequency<br>MHz  | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V | Margin<br>dB | Limit<br>dB $\mu$ V |
|-------------------|-------------------------|--------------------------------|------------------------------------|--------------|---------------------|
| <b>Line 1</b>     |                         |                                |                                    |              |                     |
| <b>Quasi-Peak</b> |                         |                                |                                    |              |                     |
| 0.152             | 9.611                   | 31.168                         | 40.778                             | -25.165      | 65.943              |
| 0.460             | 9.627                   | 16.027                         | 25.654                             | -31.489      | 57.143              |
| 1.300             | 9.650                   | 15.253                         | 24.903                             | -31.097      | 56.000              |
| 3.200             | 9.692                   | 13.101                         | 22.793                             | -33.207      | 56.000              |
| 5.001             | 9.740                   | 14.710                         | 24.450                             | -35.550      | 60.000              |
| 17.520            | 9.958                   | 12.420                         | 22.378                             | -37.622      | 60.000              |
| <b>Average</b>    |                         |                                |                                    |              |                     |
| 0.152             | 9.611                   | 13.608                         | 23.219                             | -32.724      | 55.943              |
| 0.460             | 9.627                   | 8.629                          | 18.256                             | -28.887      | 47.143              |
| 1.300             | 9.650                   | 9.671                          | 19.321                             | -26.679      | 46.000              |
| 3.200             | 9.692                   | 7.347                          | 17.039                             | -28.961      | 46.000              |
| 5.001             | 9.740                   | 9.382                          | 19.122                             | -30.878      | 50.000              |
| 17.520            | 9.958                   | 2.359                          | 12.317                             | -37.683      | 50.000              |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Date : 2018/07/23  
 Test Mode : Mode 1: Transmit (2441MHz)

| Frequency         | Correct | Reading    | Measurement | Margin  | Limit      |
|-------------------|---------|------------|-------------|---------|------------|
|                   | Factor  | Level      | Level       |         |            |
| MHz               | dB      | dB $\mu$ V | dB $\mu$ V  | dB      | dB $\mu$ V |
| <b>Line 2</b>     |         |            |             |         |            |
| <b>Quasi-Peak</b> |         |            |             |         |            |
| 0.152             | 9.602   | 31.316     | 40.918      | -25.025 | 65.943     |
| 0.453             | 9.619   | 19.029     | 28.648      | -28.695 | 57.343     |
| 2.200             | 9.662   | 12.128     | 21.790      | -34.210 | 56.000     |
| 5.000             | 9.740   | 15.125     | 24.865      | -31.135 | 56.000     |
| 14.230            | 9.907   | 13.816     | 23.723      | -36.277 | 60.000     |
| 17.400            | 9.970   | 13.380     | 23.350      | -36.650 | 60.000     |
| <b>Average</b>    |         |            |             |         |            |
| 0.152             | 9.602   | 12.614     | 22.216      | -33.727 | 55.943     |
| 0.453             | 9.619   | 12.055     | 21.674      | -25.669 | 47.343     |
| 2.200             | 9.662   | 7.040      | 16.702      | -29.298 | 46.000     |
| 5.000             | 9.740   | 9.916      | 19.656      | -26.344 | 46.000     |
| 14.230            | 9.907   | 7.154      | 17.061      | -32.939 | 50.000     |
| 17.400            | 9.970   | 3.163      | 13.133      | -36.867 | 50.000     |

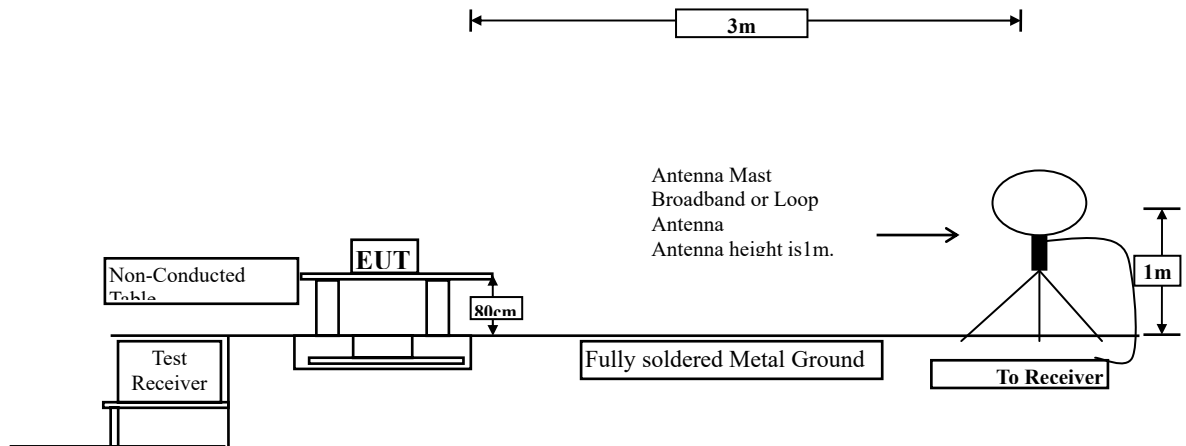
## Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

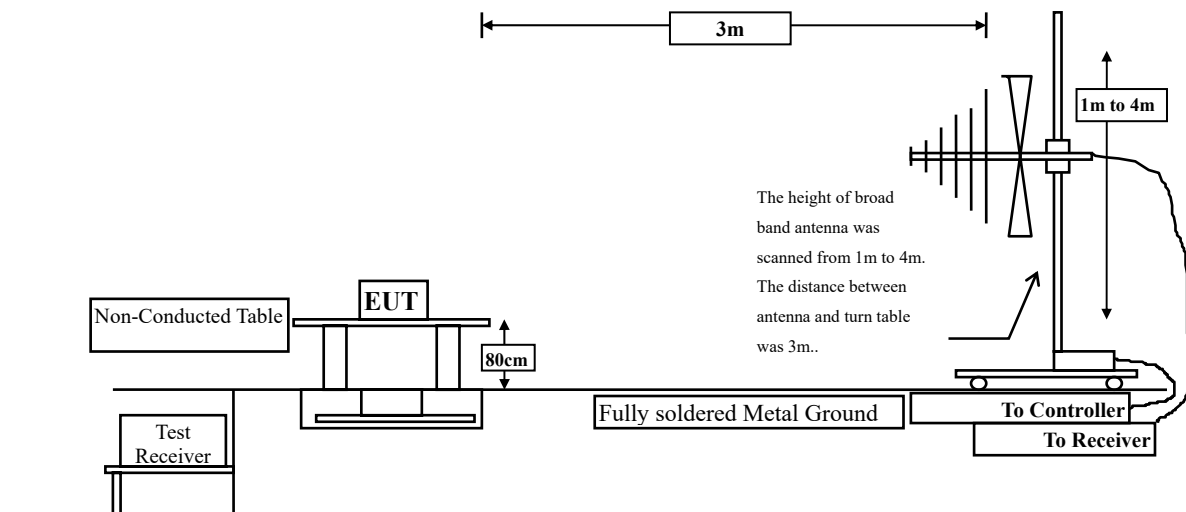
### 3. Radiated Emission

#### 3.1. Test Setup

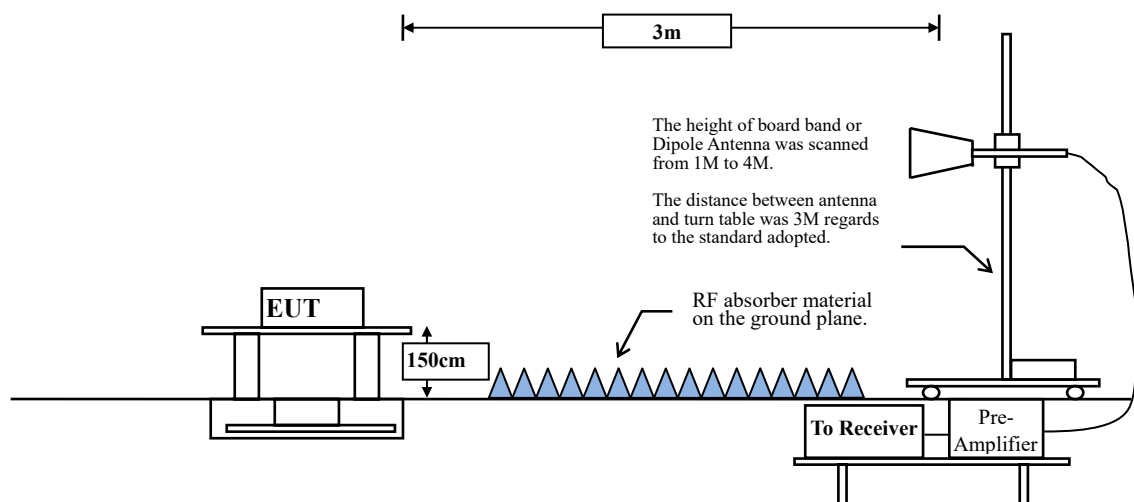
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



### 3.2. Limits

#### ➤ Fundamental and Harmonics Emission Limits

| FCC Part 15 Subpart C Paragraph 15.249 Limits |                               |                  |                             |                  |
|-----------------------------------------------|-------------------------------|------------------|-----------------------------|------------------|
| Frequency<br>MHz                              | Field Strength of Fundamental |                  | Field Strength of Harmonics |                  |
|                                               | (mV/m @3m)                    | (dBμV /m<br>@3m) | (uV/m @3m)                  | (dBμV /m<br>@3m) |
| 902-928                                       | 50                            | 94               | 500                         | 54               |
| 2400-2483.5                                   | 50                            | 94               | 500                         | 54               |
| 5725-5875                                     | 50                            | 94               | 500                         | 54               |

Remarks : 1. RF Voltage (dBμV /m) = 20 log RF Voltage (uV/m)  
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

#### ➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 Subpart C Paragraph 15.209(a) Limits |                                      |                                 |
|--------------------------------------------------|--------------------------------------|---------------------------------|
| Frequency<br>MHz                                 | Field strength<br>(microvolts/meter) | Measurement distance<br>(meter) |
| 0.009-0.490                                      | 2400/F(kHz)                          | 300                             |
| 0.490-1.705                                      | 24000/F(kHz)                         | 30                              |
| 1.705-30                                         | 30                                   | 30                              |
| 30-88                                            | 100                                  | 3                               |
| 88-216                                           | 150                                  | 3                               |
| 216-960                                          | 200                                  | 3                               |
| Above 960                                        | 500                                  | 3                               |

Remarks: E field strength (dBμV /m) = 20 log E field strength (uV/m)

### 3.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.249 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level.

This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

### 3.4. Uncertainty

Horizontal :

30-300MHz:  $\pm 4.08\text{dB}$  ; 300M-1GHz:  $\pm 3.86\text{dB}$  ; 1-18GHz:  $\pm 3.77\text{dB}$  ; 18-40GHz:  $\pm 3.98\text{dB}$  °

Vertical :

30-300MHz:  $\pm 4.81\text{dB}$  ; 300M-1GHz:  $\pm 3.87\text{dB}$  ; 1-18GHz:  $\pm 3.83\text{dB}$  ; 18-40GHz:  $\pm 3.98\text{dB}$  °

### 3.5. Test Result of Radiated Emission

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Fundamental Radiated Emission  
 Test Date : 2018/07/13  
 Test Mode : Mode 1: Transmit (X-Axis)

| Frequency<br>MHz      | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V /m | Margin<br>dB | Limit<br>dB $\mu$ V /m |
|-----------------------|-------------------------|--------------------------------|---------------------------------------|--------------|------------------------|
| <b>Horizontal</b>     |                         |                                |                                       |              |                        |
| <b>Peak Detector:</b> |                         |                                |                                       |              |                        |
| 2402.000              | -8.907                  | 106.940                        | 98.034                                | -15.966      | 114.000                |
| 2441.000              | -8.761                  | 107.270                        | 98.510                                | -15.490      | 114.000                |
| 2479.000              | -8.620                  | 106.660                        | 98.040                                | -15.960      | 114.000                |
| <b>Vertical</b>       |                         |                                |                                       |              |                        |
| <b>Peak Detector:</b> |                         |                                |                                       |              |                        |
| 2402.000              | -8.907                  | 107.930                        | 99.024                                | -14.976      | 114.000                |
| 2441.000              | -8.761                  | 107.720                        | 98.960                                | -15.040      | 114.000                |
| 2479.000              | -8.620                  | 107.620                        | 99.000                                | -15.000      | 114.000                |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

| Frequency<br>MHz         | Peak<br>Measurement<br>dBμV /m | Duty Cycle<br>Correct Factor<br>dB | Measurement<br>Level<br>dBμV /m | Margin<br>dB | Limit<br>dBμV /m |
|--------------------------|--------------------------------|------------------------------------|---------------------------------|--------------|------------------|
| <b>Horizontal</b>        |                                |                                    |                                 |              |                  |
| <b>Average Detector:</b> |                                |                                    |                                 |              |                  |
| 2402.000                 | 98.034                         | -24.437                            | 73.597                          | -20.403      | 94.000           |
| 2441.000                 | 98.510                         | -24.437                            | 74.073                          | -19.927      | 94.000           |
| 2479.000                 | 98.040                         | -24.437                            | 73.603                          | -20.397      | 94.000           |
| <b>Vertical</b>          |                                |                                    |                                 |              |                  |
| <b>Average Detector:</b> |                                |                                    |                                 |              |                  |
| 2402.000                 | 99.024                         | -24.437                            | 74.587                          | -19.413      | 94.000           |
| 2441.000                 | 98.960                         | -24.437                            | 74.523                          | -19.477      | 94.000           |
| 2479.000                 | 99.000                         | -24.437                            | 74.563                          | -19.437      | 94.000           |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Fundamental Radiated Emission  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (Y-Axis)

| Frequency<br>MHz      | Correct<br>Factor<br>dB | Reading<br>Level<br>dBμV | Measurement<br>Level<br>dBμV /m | Margin<br>dB | Limit<br>dBμV /m |
|-----------------------|-------------------------|--------------------------|---------------------------------|--------------|------------------|
| <b>Horizontal</b>     |                         |                          |                                 |              |                  |
| <b>Peak Detector:</b> |                         |                          |                                 |              |                  |
| 2402.000              | -8.907                  | 107.930                  | 99.024                          | -14.976      | 114.000          |
| 2441.000              | -8.761                  | 107.660                  | 98.900                          | -15.100      | 114.000          |
| 2479.000              | -8.620                  | 106.620                  | 98.000                          | -16.000      | 114.000          |
| <b>Vertical</b>       |                         |                          |                                 |              |                  |
| <b>Peak Detector:</b> |                         |                          |                                 |              |                  |
| 2402.000              | -8.907                  | 107.830                  | 98.924                          | -15.076      | 114.000          |
| 2441.000              | -8.761                  | 107.410                  | 98.650                          | -15.350      | 114.000          |
| 2479.000              | -8.620                  | 106.620                  | 98.000                          | -16.000      | 114.000          |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

| Frequency<br>MHz         | Peak<br>Measurement<br>dB $\mu$ V /m | Duty Cycle<br>Correct Factor<br>dB | Measurement<br>Level<br>dB $\mu$ V /m | Margin<br>dB | Limit<br>dB $\mu$ V /m |
|--------------------------|--------------------------------------|------------------------------------|---------------------------------------|--------------|------------------------|
| <b>Horizontal</b>        |                                      |                                    |                                       |              |                        |
| <b>Average Detector:</b> |                                      |                                    |                                       |              |                        |
| 2402.000                 | 99.024                               | -24.437                            | 74.587                                | -19.413      | 94.000                 |
| 2441.000                 | 98.900                               | -24.437                            | 74.463                                | -19.537      | 94.000                 |
| 2479.000                 | 98.000                               | -24.437                            | 73.563                                | -20.437      | 94.000                 |
| <b>Vertical</b>          |                                      |                                    |                                       |              |                        |
| <b>Average Detector:</b> |                                      |                                    |                                       |              |                        |
| 2402.000                 | 98.924                               | -24.437                            | 74.487                                | -19.513      | 94.000                 |
| 2441.000                 | 98.650                               | -24.437                            | 74.213                                | -19.787      | 94.000                 |
| 2479.000                 | 98.000                               | -24.437                            | 73.563                                | -20.437      | 94.000                 |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Fundamental Radiated Emission  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (Z-Axis)

| Frequency<br>MHz      | Correct<br>Factor<br>dB | Reading<br>Level<br>dB $\mu$ V | Measurement<br>Level<br>dB $\mu$ V /m | Margin<br>dB | Limit<br>dB $\mu$ V /m |
|-----------------------|-------------------------|--------------------------------|---------------------------------------|--------------|------------------------|
| <b>Horizontal</b>     |                         |                                |                                       |              |                        |
| <b>Peak Detector:</b> |                         |                                |                                       |              |                        |
| 2402.000              | -8.907                  | 103.660                        | 94.754                                | -19.246      | 114.000                |
| 2441.000              | -8.761                  | 104.780                        | 96.020                                | -17.980      | 114.000                |
| 2479.000              | -8.620                  | 104.510                        | 95.890                                | -18.110      | 114.000                |
| <b>Vertical</b>       |                         |                                |                                       |              |                        |
| <b>Peak Detector:</b> |                         |                                |                                       |              |                        |
| 2402.000              | -8.907                  | 104.720                        | 95.814                                | -18.186      | 114.000                |
| 2441.000              | -8.761                  | 108.060                        | 99.300                                | -14.700      | 114.000                |
| 2479.000              | -8.620                  | 105.900                        | 97.280                                | -16.720      | 114.000                |

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.

| Frequency<br>MHz         | Peak<br>Measurement<br>dB $\mu$ V /m | Duty Cycle<br>Correct Factor<br>dB | Measurement<br>Level<br>dB $\mu$ V /m | Margin<br>dB | Limit<br>dB $\mu$ V /m |
|--------------------------|--------------------------------------|------------------------------------|---------------------------------------|--------------|------------------------|
| <b>Horizontal</b>        |                                      |                                    |                                       |              |                        |
| <b>Average Detector:</b> |                                      |                                    |                                       |              |                        |
| 2402.000                 | 94.754                               | -24.437                            | 70.317                                | -23.683      | 94.000                 |
| 2441.000                 | 96.020                               | -24.437                            | 71.583                                | -22.417      | 94.000                 |
| 2479.000                 | 95.890                               | -24.437                            | 71.453                                | -22.547      | 94.000                 |
| <b>Vertical</b>          |                                      |                                    |                                       |              |                        |
| <b>Average Detector:</b> |                                      |                                    |                                       |              |                        |
| 2402.000                 | 95.814                               | -24.437                            | 71.377                                | -22.623      | 94.000                 |
| 2441.000                 | 99.300                               | -24.437                            | 74.863                                | -19.137      | 94.000                 |
| 2479.000                 | 97.280                               | -24.437                            | 72.843                                | -21.157      | 94.000                 |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Harmonic Radiated Emission Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2402MHz)

| Frequency             | Correct | Reading    | Measurement   | Margin  | Limit         |
|-----------------------|---------|------------|---------------|---------|---------------|
|                       | Factor  | Level      | Level         |         |               |
| MHz                   | dB      | dB $\mu$ V | dB $\mu$ V /m | dB      | dB $\mu$ V /m |
| <b>Horizontal</b>     |         |            |               |         |               |
| <b>Peak Detector:</b> |         |            |               |         |               |
| 4804.000              | -6.081  | 55.370     | 49.289        | -24.711 | 74.000        |
| 7206.000              | -3.033  | 48.150     | 45.117        | -28.883 | 74.000        |
| 9608.000              | -0.774  | 46.190     | 45.417        | -28.583 | 74.000        |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Frequency                | Peak          | Duty Cycle     | Measurement   | Margin | Limit         |
|--------------------------|---------------|----------------|---------------|--------|---------------|
|                          | Measurement   | Correct Factor | Level         |        |               |
| MHz                      | dB $\mu$ V /m | dB             | dB $\mu$ V /m | dB     | dB $\mu$ V /m |
| <b>Horizontal</b>        |               |                |               |        |               |
| <b>Average Detector:</b> |               |                |               |        |               |
| --                       |               |                |               |        | 54.000        |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Harmonic Radiated Emission Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2402MHz)

| Frequency             | Correct | Reading    | Measurement   | Margin  | Limit         |
|-----------------------|---------|------------|---------------|---------|---------------|
|                       | Factor  | Level      | Level         |         |               |
| MHz                   | dB      | dB $\mu$ V | dB $\mu$ V /m | dB      | dB $\mu$ V /m |
| <b>Vertical</b>       |         |            |               |         |               |
| <b>Peak Detector:</b> |         |            |               |         |               |
| 4804.000              | -6.081  | 57.110     | 51.029        | -22.971 | 74.000        |
| 7206.000              | -3.033  | 48.740     | 45.707        | -28.293 | 74.000        |
| 9608.000              | -0.774  | 46.220     | 45.447        | -28.553 | 74.000        |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Frequency                | Peak          | Duty Cycle     | Measurement   | Margin | Limit         |
|--------------------------|---------------|----------------|---------------|--------|---------------|
|                          | Measurement   | Correct Factor | Level         |        |               |
| MHz                      | dB $\mu$ V /m | dB             | dB $\mu$ V /m | dB     | dB $\mu$ V /m |
| <b>Vertical</b>          |               |                |               |        |               |
| <b>Average Detector:</b> |               |                |               |        |               |
| --                       |               |                |               |        | 54.000        |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Harmonic Radiated Emission Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2441MHz)

| Frequency             | Correct | Reading    | Measurement   | Margin  | Limit         |
|-----------------------|---------|------------|---------------|---------|---------------|
|                       | Factor  | Level      | Level         |         |               |
| MHz                   | Db      | dB $\mu$ V | dB $\mu$ V /m | Db      | dB $\mu$ V /m |
| <b>Horizontal</b>     |         |            |               |         |               |
| <b>Peak Detector:</b> |         |            |               |         |               |
| 4882.000              | -6.042  | 53.530     | 47.488        | -26.512 | 74.000        |
| 7323.000              | -2.954  | 47.720     | 44.766        | -29.234 | 74.000        |
| 9764.000              | -0.487  | 47.070     | 46.583        | -27.417 | 74.000        |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Frequency                | Peak          | Duty Cycle     | Measurement   | Margin | Limit         |
|--------------------------|---------------|----------------|---------------|--------|---------------|
|                          | Measurement   | Correct Factor | Level         |        |               |
| MHz                      | dB $\mu$ V /m | dB             | dB $\mu$ V /m | dB     | dB $\mu$ V /m |
| <b>Horizontal</b>        |               |                |               |        |               |
| <b>Average Detector:</b> |               |                |               |        |               |
| --                       |               |                |               |        | 54.000        |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Harmonic Radiated Emission Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2441MHz)

| Frequency             | Correct | Reading    | Measurement   | Margin  | Limit         |
|-----------------------|---------|------------|---------------|---------|---------------|
|                       | Factor  | Level      | Level         |         |               |
| MHz                   | Db      | dB $\mu$ V | dB $\mu$ V /m | Db      | dB $\mu$ V /m |
| <b>Vertical</b>       |         |            |               |         |               |
| <b>Peak Detector:</b> |         |            |               |         |               |
| 4882.000              | -6.042  | 54.880     | 48.838        | -25.162 | 74.000        |
| 7323.000              | -2.954  | 48.070     | 45.116        | -28.884 | 74.000        |
| 9764.000              | -0.487  | 46.580     | 46.093        | -27.907 | 74.000        |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Frequency                | Peak          | Duty Cycle     | Measurement   | Margin | Limit         |
|--------------------------|---------------|----------------|---------------|--------|---------------|
|                          | Measurement   | Correct Factor | Level         |        |               |
| MHz                      | dB $\mu$ V /m | dB             | dB $\mu$ V /m | dB     | dB $\mu$ V /m |
| <b>Vertical</b>          |               |                |               |        |               |
| <b>Average Detector:</b> |               |                |               |        |               |
| --                       |               |                |               |        | 54.000        |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Harmonic Radiated Emission Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2479MHz)

| Frequency             | Correct | Reading    | Measurement   | Margin  | Limit         |
|-----------------------|---------|------------|---------------|---------|---------------|
|                       | Factor  | Level      | Level         |         |               |
| MHz                   | dB      | dB $\mu$ V | dB $\mu$ V /m | dB      | dB $\mu$ V /m |
| <b>Horizontal</b>     |         |            |               |         |               |
| <b>Peak Detector:</b> |         |            |               |         |               |
| 4958.000              | -6.041  | 53.060     | 47.019        | -26.981 | 74.000        |
| 7437.000              | -2.813  | 47.030     | 44.217        | -29.783 | 74.000        |
| 9916.000              | -0.278  | 45.470     | 45.192        | -28.808 | 74.000        |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Frequency                | Peak          | Duty Cycle     | Measurement   | Margin | Limit         |
|--------------------------|---------------|----------------|---------------|--------|---------------|
|                          | Measurement   | Correct Factor | Level         |        |               |
| MHz                      | dB $\mu$ V /m | dB             | dB $\mu$ V /m | dB     | dB $\mu$ V /m |
| <b>Horizontal</b>        |               |                |               |        |               |
| <b>Average Detector:</b> |               |                |               |        |               |
| --                       |               |                |               |        | 54.000        |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Harmonic Radiated Emission Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2479MHz)

| Frequency             | Correct | Reading    | Measurement   | Margin  | Limit         |
|-----------------------|---------|------------|---------------|---------|---------------|
|                       | Factor  | Level      | Level         |         |               |
| MHz                   | dB      | dB $\mu$ V | dB $\mu$ V /m | dB      | dB $\mu$ V /m |
| <b>Vertical</b>       |         |            |               |         |               |
| <b>Peak Detector:</b> |         |            |               |         |               |
| 4958.000              | -6.041  | 51.830     | 45.789        | -28.211 | 74.000        |
| 7437.000              | -2.813  | 47.720     | 44.907        | -29.093 | 74.000        |
| 9916.000              | -0.278  | 45.350     | 45.072        | -28.928 | 74.000        |

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Frequency                | Peak          | Duty Cycle     | Measurement   | Margin | Limit         |
|--------------------------|---------------|----------------|---------------|--------|---------------|
|                          | Measurement   | Correct Factor | Level         |        |               |
| MHz                      | dB $\mu$ V /m | dB             | dB $\mu$ V /m | dB     | dB $\mu$ V /m |
| <b>Vertical</b>          |               |                |               |        |               |
| <b>Average Detector:</b> |               |                |               |        |               |
| --                       |               |                |               |        | 54.000        |

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : General Radiated Emission Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2441MHz)

| Frequency         | Correct | Reading | Measurement | Margin  | Limit   |
|-------------------|---------|---------|-------------|---------|---------|
| MHz               | Factor  | Level   | Level       |         |         |
|                   | dB      | dBμV    | dBμV /m     | dB      | dBμV /m |
| <b>Horizontal</b> |         |         |             |         |         |
| 119.971           | -13.432 | 42.368  | 28.936      | -14.564 | 43.500  |
| 375.826           | -8.591  | 34.645  | 26.054      | -19.946 | 46.000  |
| 498.130           | -5.984  | 32.884  | 26.901      | -19.099 | 46.000  |
| 690.725           | -3.122  | 31.041  | 27.919      | -18.081 | 46.000  |
| 807.406           | -1.541  | 31.424  | 29.883      | -16.117 | 46.000  |
| 991.565           | 0.897   | 30.938  | 31.835      | -22.165 | 54.000  |
| <b>Vertical</b>   |         |         |             |         |         |
| 55.304            | -11.572 | 41.705  | 30.133      | -9.867  | 40.000  |
| 119.971           | -13.432 | 42.643  | 29.211      | -14.289 | 43.500  |
| 429.246           | -7.309  | 30.917  | 23.608      | -22.392 | 46.000  |
| 614.812           | -3.915  | 31.090  | 27.176      | -18.824 | 46.000  |
| 789.130           | -1.740  | 31.639  | 29.898      | -16.102 | 46.000  |
| 977.507           | 0.714   | 31.061  | 31.775      | -22.225 | 54.000  |

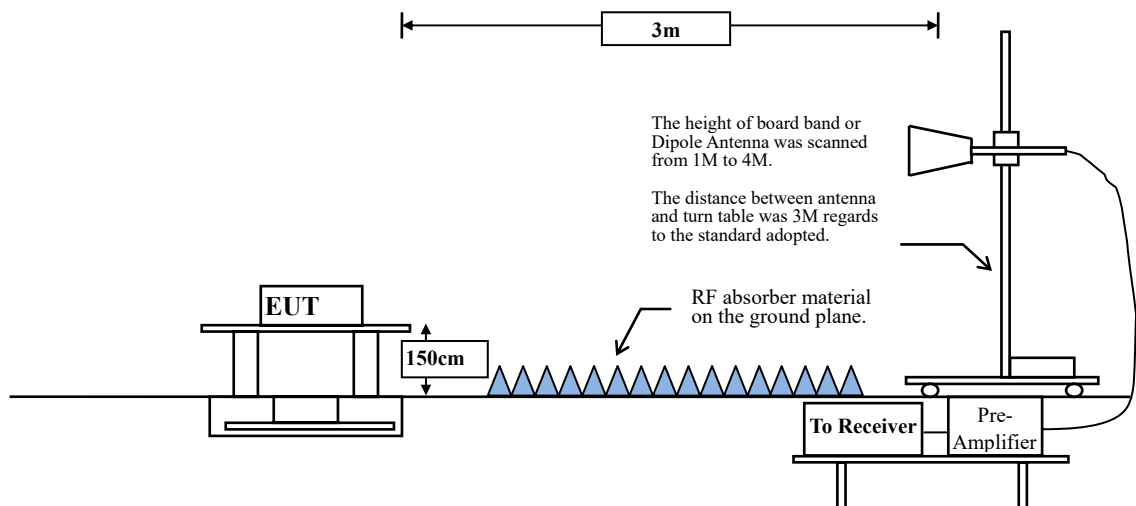
**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.
7. No emission found between lowest internal used/generated frequency to 30MHz.

## 4. Band Edge

### 4.1. Test Setup

#### RF Radiated Measurement:



### 4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 Subpart C Paragraph 15.209(a) Limits |                                   |                              |
|--------------------------------------------------|-----------------------------------|------------------------------|
| Frequency MHz                                    | Field strength (microvolts/meter) | Measurement distance (meter) |
| 0.009-0.490                                      | 2400/F(kHz)                       | 300                          |
| 0.490-1.705                                      | 24000/F(kHz)                      | 30                           |
| 1.705-30                                         | 30                                | 30                           |
| 30-88                                            | 100                               | 3                            |
| 88-216                                           | 150                               | 3                            |
| 216-960                                          | 200                               | 3                            |
| Above 960                                        | 500                               | 3                            |

Remarks: E field strength (dBμV /m) = 20 log E field strength (uV/m)

#### **4.3. Test Procedure**

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

#### **4.4. Uncertainty**

Horizontal polarization : 1-18GHz:  $\pm 3.77$ dB

Vertical polarization : 1-18GHz :  $\pm 3.83$ dB

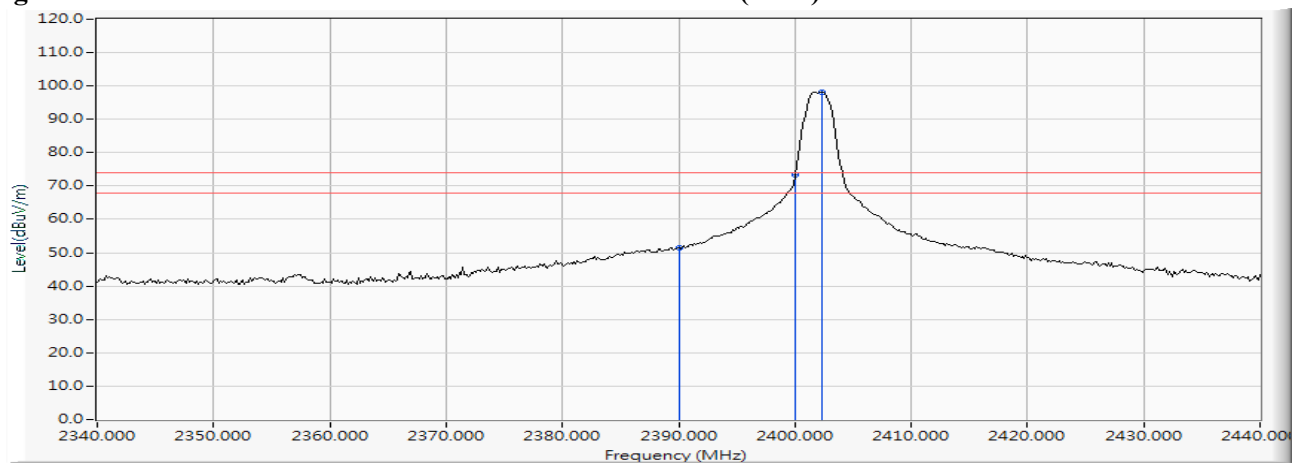
#### 4.5. Test Result of Band Edge

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Band Edge Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2402MHz)

##### RF Radiated Measurement (Horizontal):

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBμV) | Emission Level (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|-------------|-----------------|---------------------|----------------------|-------------------------|---------------------|------------------------|--------|
| 02 (Peak)   | 2390.000        | 10.841              | 40.572               | 51.413                  | 74.00               | 54.00                  | Pass   |
| 02 (Peak)   | 2400.000        | 10.884              | 62.467               | 73.351                  | 74.00               | 54.00                  | Pass   |
| 02 (Peak)   | 2402.319        | 10.893              | 87.177               | 98.070                  | --                  | --                     | --     |

Figure Channel 02: Horizontal (Peak)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

| Channel No.  | Frequency (MHz) | Peak Measurement (dBμV/m) | Duty Cycle Factor (dB) | Average Measurement (dBμV/m) | Peak Limit (dBμV/m) | Average Limit (dBμV/m) | Result |
|--------------|-----------------|---------------------------|------------------------|------------------------------|---------------------|------------------------|--------|
| 02 (Average) | 2390.000        | 51.413                    | -24.437                | 26.976                       | 74.00               | 54.00                  | Pass   |
| 02 (Average) | 2400.000        | 73.351                    | -24.437                | 48.914                       | 74.00               | 54.00                  | Pass   |

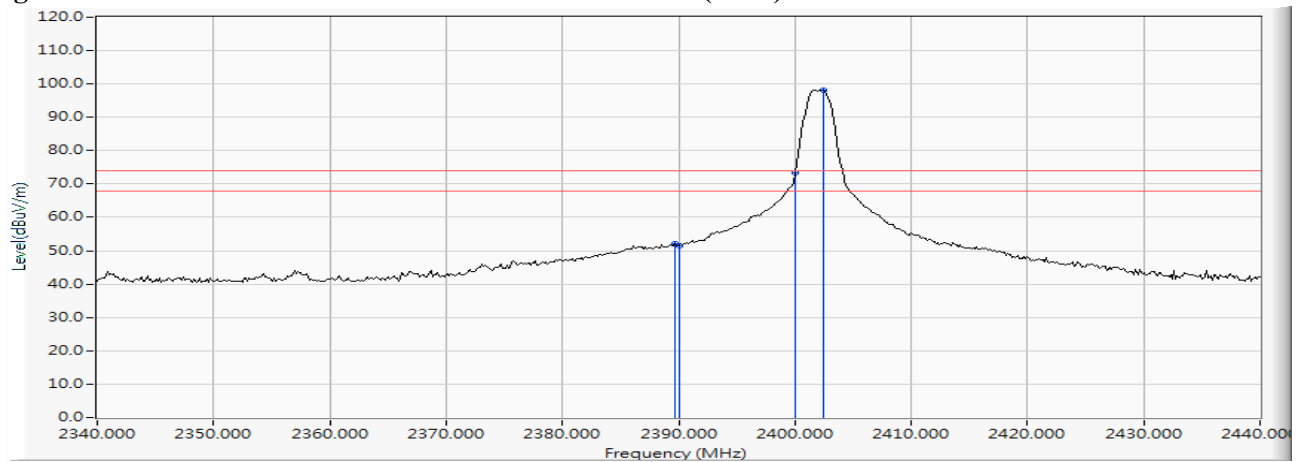
Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Band Edge Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2402MHz)

**RF Radiated Measurement (Vertical):**

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|-------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 02 (Peak)   | 2389.710        | 10.840              | 41.161                     | 52.001                        | 74.00                     | 54.00                        | Pass   |
| 02 (Peak)   | 2390.000        | 10.841              | 40.702                     | 51.543                        | 74.00                     | 54.00                        | Pass   |
| 02 (Peak)   | 2400.000        | 10.884              | 62.440                     | 73.324                        | 74.00                     | 54.00                        | Pass   |
| 02 (Peak)   | 2402.464        | 10.894              | 87.177                     | 98.071                        | --                        | --                           | --     |

**Figure Channel 02:****Vertical (Peak)**

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

| Channel No.  | Frequency (MHz) | Peak Measurement (dB $\mu$ V/m) | Duty Cycle Factor (dB) | Average Measurement (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------------------|------------------------|------------------------------------|---------------------------|------------------------------|--------|
| 02 (Average) | 2389.710        | 52.001                          | -24.437                | 27.564                             | 74.00                     | 54.00                        | Pass   |
| 02 (Average) | 2390.000        | 51.543                          | -24.437                | 27.106                             | 74.00                     | 54.00                        | Pass   |
| 02 (Average) | 2400.000        | 73.324                          | -24.437                | 48.887                             | 74.00                     | 54.00                        | Pass   |

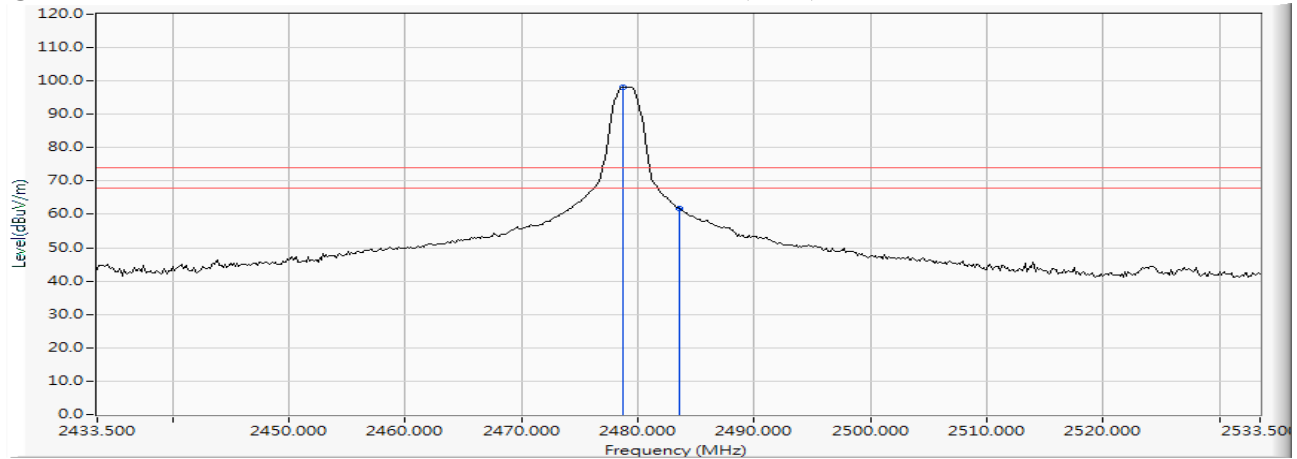
Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Band Edge Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2479MHz)

**RF Radiated Measurement (Horizontal):**

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|-------------|-----------------|---------------------|----------------------------|-------------------------------|---------------------------|------------------------------|--------|
| 79 (Peak)   | 2478.717        | 11.210              | 86.950                     | 98.161                        | --                        | --                           | --     |
| 79 (Peak)   | 2483.500        | 11.229              | 50.432                     | 61.662                        | 74.00                     | 54.00                        | Pass   |

**Figure Channel 79:****Horizontal (Peak)**

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

| Channel No.  | Frequency (MHz) | Peak Measurement (dB $\mu$ V/m) | Duty Cycle Factor (dB) | Average Measurement (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------------------|------------------------|------------------------------------|---------------------------|------------------------------|--------|
| 79 (Average) | 2483.500        | 61.662                          | -24.437                | 37.225                             | 74.00                     | 54.00                        | Pass   |

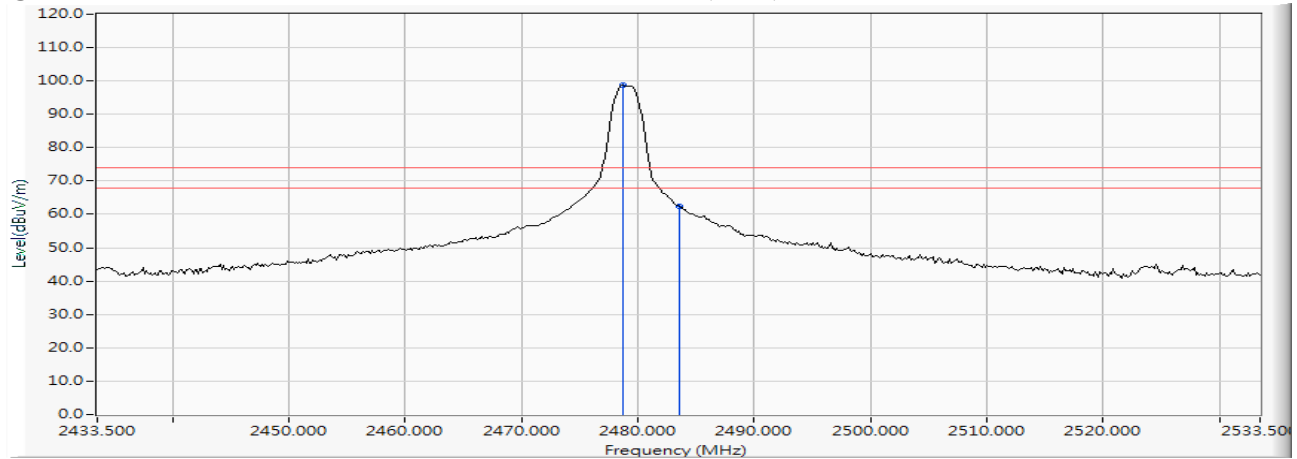
Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Band Edge Data  
 Test Date : 2018/07/14  
 Test Mode : Mode 1: Transmit (2479MHz)

**RF Radiated Measurement (Vertical):**

| Channel No. | Frequency (MHz) | Correct Factor (dB) | Reading Level (dB $\mu$ V) | Emission Level (dB $\mu$ V /m) | Peak Limit (dB $\mu$ V /m) | Average Limit (dB $\mu$ V /m) | Result |
|-------------|-----------------|---------------------|----------------------------|--------------------------------|----------------------------|-------------------------------|--------|
| 79 (Peak)   | 2478.717        | 11.210              | 87.427                     | 98.638                         | --                         | --                            | --     |
| 79 (Peak)   | 2483.500        | 11.229              | 51.177                     | 62.407                         | 74.00                      | 54.00                         | Pass   |

**Figure Channel 79:****Vertical (Peak)**

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection.

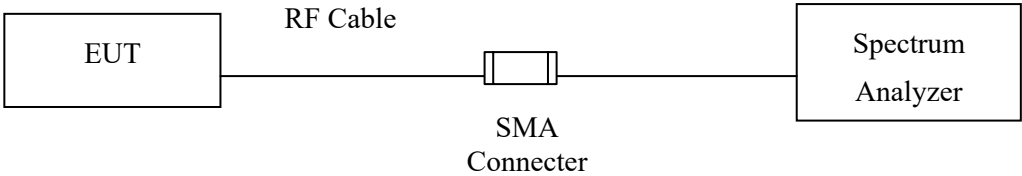
| Channel No.  | Frequency (MHz) | Peak Measurement (dB $\mu$ V/m) | Duty Cycle Factor (dB) | Average Measurement (dB $\mu$ V/m) | Peak Limit (dB $\mu$ V/m) | Average Limit (dB $\mu$ V/m) | Result |
|--------------|-----------------|---------------------------------|------------------------|------------------------------------|---------------------------|------------------------------|--------|
| 79 (Average) | 2483.500        | 62.407                          | -24.437                | 37.970                             | 74.00                     | 54.00                        | Pass   |

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

**5. Duty Cycle**

**5.1. Test Setup**

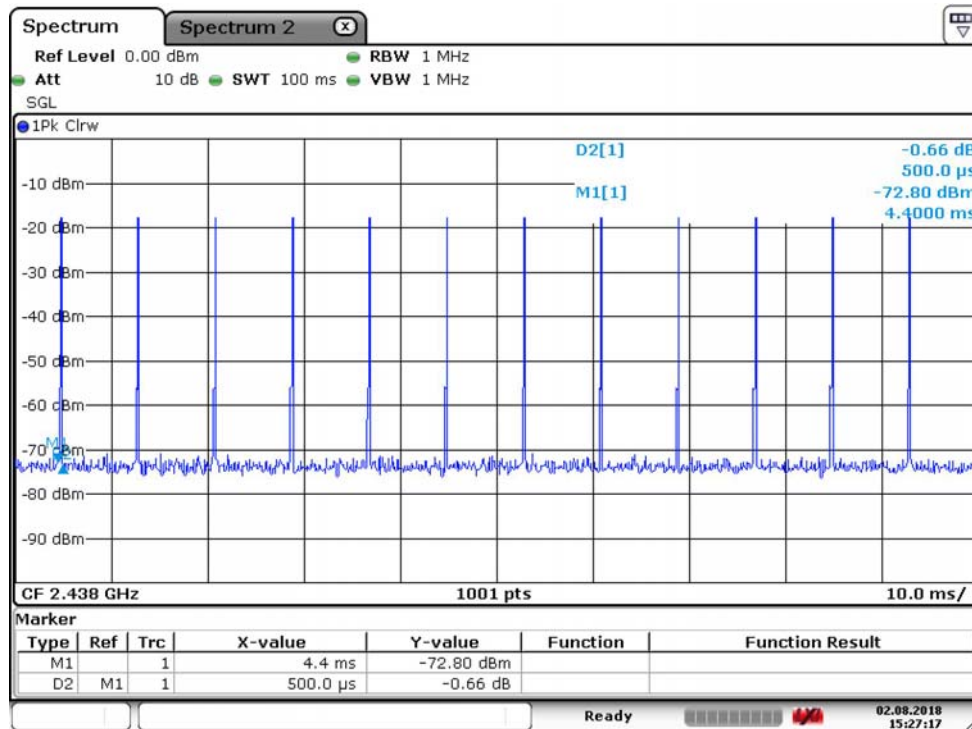


**5.2. Uncertainty**

$\pm 2.31\text{ms}$

### 5.3. Test Result of Duty Cycle

Product : ROG Gladius II Wireless Gaming Mouse Dongle  
 Test Item : Duty Cycle Data  
 Test Mode : Normal mode



Time on of 100ms= 500us\*12= 6ms

Duty Cycle=6ms / 100ms= 0.06

Duty Cycle correction factor= 20 LOG 0.06= -24.437 dB

|                              |         |    |
|------------------------------|---------|----|
| Duty Cycle correction factor | -24.437 | dB |
|------------------------------|---------|----|

## **6. EMI Reduction Method During Compliance Testing**

No modification was made during testing.