# FCC Test Report

| | |
|---|---|
| Product Name | TUF GAMING H7 WIRELESS |
| Model No. | TUF Gaming H7 WL Yellow,<br>TUF Gaming H7 WL Gun metal |
| FCC ID | BJM-TUFH7WL |

| | |
|---|---|
| Applicant | Tatung Company |
| Address | 22 Chungshan N Road Sec 3 ,Taipei 10451 ,Taiwan |

| | |
|---|---|
| Date of Receipt | Mar. 11, 2019 |
| Issued Date | Apr. 25, 2019 |
| Report No. | 1930134R-RFUSP15V00 |
| Report Version | V1.0 |

Testing Laboratory
3023

# Test Report

Issued Date: Apr. 25, 2019
Report No.: 1930134R-RFUSP15V00

| | |
|---|---|
| Product Name | TUF GAMING H7 WIRELESS |
| Applicant | Tatung Company |
| Address | 22 Chungshan N Road Sec 3 ,Taipei 10451 ,Taiwan |
| Manufacturer | Tatung Company |
| Model No. | TUF Gaming H7 WL Yellow, TUF Gaming H7 WL Gun metal |
| FCC ID | BJM-TUFH7WL |
| EUT Rated Voltage | DC 5V (Power by USB) or DC 3.7V (Power by Battery) |
| EUT Test Voltage | DC 5V (Power by USB) |
| Trade Name | ASUS |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2018<br>ANSI C63.4: 2014, ANSI C63.10: 2013 |
| Test Result | Complied |

Documented By : Jinn Chen

( Senior Adm. Specialist / Jinn Chen )

Tested By : Droll Yang

( Assistant Engineer / Droll Yang )

Approved By :

( Director / Vincent Lin )

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# 1. GENERAL INFORMATION

## 1.1. EUT Description

| | |
|---|---|
| Product Name | TUF GAMING H7 WIRELESS |
| Trade Name | ASUS |
| Model No. | TUF Gaming H7 WL Yellow, TUF Gaming H7 WL Gun metal |
| FCC ID | BJM-TUFH7WL |
| Frequency Range | 2405.35~2477.35MHz |
| Channel Number | 37CH |
| Type of Modulation | Pi/4 DQPSK |
| Antenna Type | PCB Antenna |
| Channel Control | Refer to the table “Antenna List” |
| Antenna Gain | Auto |
| USB Cable | Shielded, 2.0m |

**Antenna List**

| No. | Manufacturer | Part No. | Antenna Type | Peak Gain |
|---|---|---|---|---|
| 1 | Tatung | 051-044R,048-056R(Ant 1)<br>051-044R,048-056R(Ant 2) | PCB Antenna | 5.48dBi for 2.4GHz |

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 1: | 2405.35 MHz | Channel 11: | 2425.35 MHz | Channel 21: | 2445.35 MHz | Channel 31: | 2465.35 MHz |
| Channel 2: | 2407.35 MHz | Channel 12: | 2427.35 MHz | Channel 22: | 2447.35 MHz | Channel 32: | 2467.35 MHz |
| Channel 3: | 2409.35 MHz | Channel 13: | 2429.35 MHz | Channel 23: | 2449.35 MHz | Channel 33: | 2469.35 MHz |
| Channel 4: | 2411.35 MHz | Channel 14: | 2431.35 MHz | Channel 24: | 2451.35 MHz | Channel 34: | 2471.35 MHz |
| Channel 5: | 2413.35 MHz | Channel 15: | 2433.35 MHz | Channel 25: | 2453.35 MHz | Channel 35: | 2473.35 MHz |
| Channel 6: | 2415.35 MHz | Channel 16: | 2435.35 MHz | Channel 26: | 2455.35 MHz | Channel 36: | 2475.35 MHz |
| Channel 7: | 2417.35 MHz | Channel 17: | 2437.35 MHz | Channel 27: | 2457.35 MHz | Channel 37: | 2477.35 MHz |
| Channel 8: | 2419.35 MHz | Channel 18: | 2439.35 MHz | Channel 28: | 2459.35 MHz | | |
| Channel 9: | 2421.35 MHz | Channel 19: | 2441.35 MHz | Channel 29: | 2461.35 MHz | | |
| Channel 10: | 2423.35 MHz | Channel 20: | 2443.35 MHz | Channel 30: | 2463.35 MHz | | |

Note:

1. The EUT is a TUF GAMING H7 WIRELESS with a built-in 2.4GHz wireless transceiver.
2. The EUT support diversity function. The worst case(ANT 1 and ANT 2) is shown in the report.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. 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.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
6. The different of each model is shown as below:

| Model Number | Wireless | Colour | Description |
|---|---|---|---|
| TUF Gaming H7 WL Yellow | V | Yellow | The serial product only has the different color of the enclosure, and the product functions, brand, design and the external appearance are all the same. |
| TUF Gaming H7 WL Gun metal | V | Gun Metal | |

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

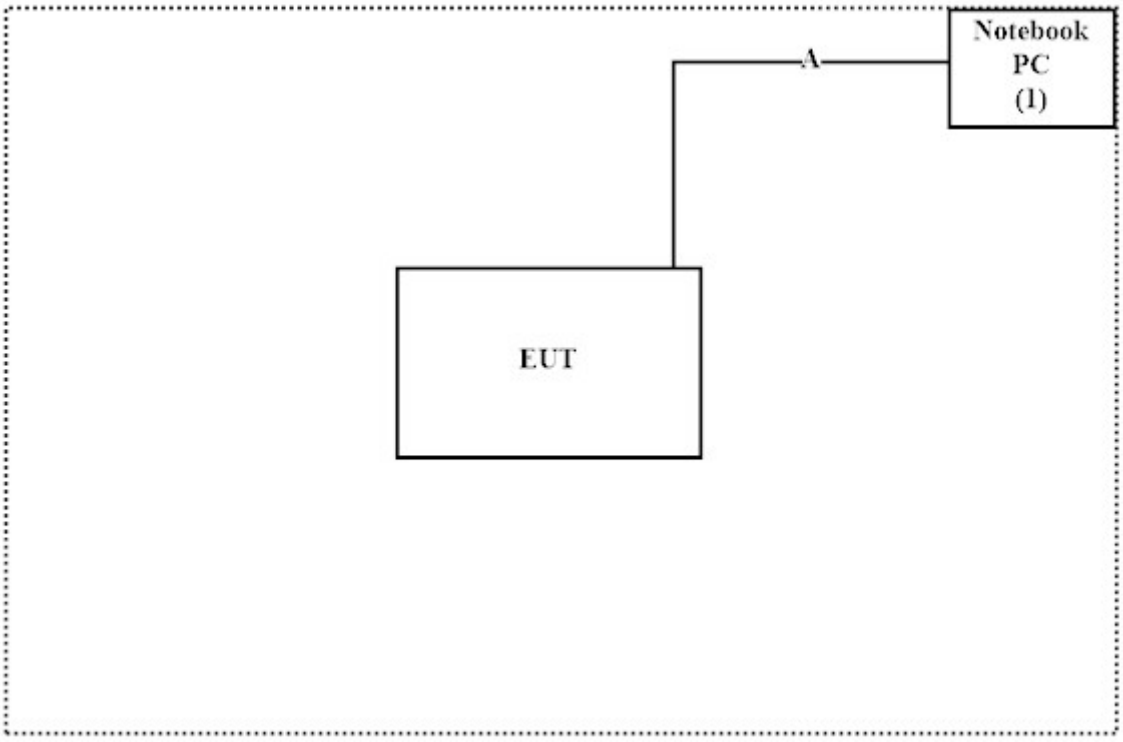
## 1.3. Tested System Datails

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 | CY9FJC2 | N/A |

| Signal Cable Type | | Signal cable Description |
|---|---|---|
| A | USB Cable | Shielded, 2.0m |

## 1.4. Configuration of Test System




## 1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4.

(2) Execute “Avnera-Continue power V2018.5.18.1” program on the Notebook.

(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

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

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 | 101602 | 2018.12.17 | 2019.12.16 |
| X | Two-Line V-Network | R&S | ENV216 | 101306 | 2019.03.11 | 2020.03.10 |
| X | Two-Line V-Network | R&S | ENV216 | 101307 | 2019.04.03 | 2020.04.02 |
| 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 System V2.1.113

**For Conducted measurements /ASR2**

| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data |
|---|---|---|---|---|---|---|
| X | Spectrum Analyzer | R&S | FSV30 | 103464 | 2019.01.25 | 2020.01.24 |
| | Power Meter | Anritsu | ML2496A | 1548003 | 2018.12.19 | 2019.12.18 |
| | Power Sensor | Anritsu | MA2411B | 1531024 | 2018.12.19 | 2019.12.18 |
| | Power Sensor | Anritsu | MA2411B | 1531025 | 2018.12.19 | 2019.12.18 |
| | Bluetooth Tester | R&S | CBT | 101238 | 2019.01.21 | 2020.01.20 |

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 V9.0.5

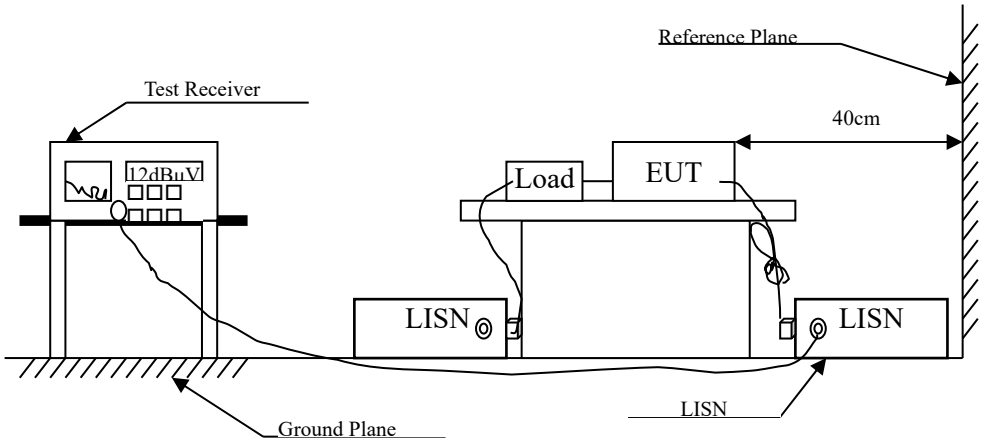
**For Radiated measurements /ACB1**

| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data |
|---|---|---|---|---|---|---|
| X | Loop Antenna | AMETEK | HLA6121 | 49611 | 2019.02.22 | 2020.02.21 |
| X | Bi-Log Antenna | SCHWARZBECK | VULB9168 | 9168-675 | 2018.06.05 | 2019.06.04 |
| X | Horn Antenna | ETS-Lindgren | 3117 | 00203800 | 2018.12.11 | 2019.12.10 |
| 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 | 2018.09.04 | 2019.09.03 |
| | Filter | MICRO TRONICS | BRM50716 | G188 | 2018.09.04 | 2019.09.03 |
| X | EMI Test Receiver | R&S | ESR7 | 101602 | 2018.12.17 | 2019.12.16 |
| X | Spectrum Analyzer | R&S | FSV40 | 101148 | 2019.02.20 | 2020.02.19 |
| 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 System V2.1.113

## 2. Conducted Emission

### 2.1. Test Setup




### 2.2. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBµV ) Limit | | |
|---|---|---|
| Frequency 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

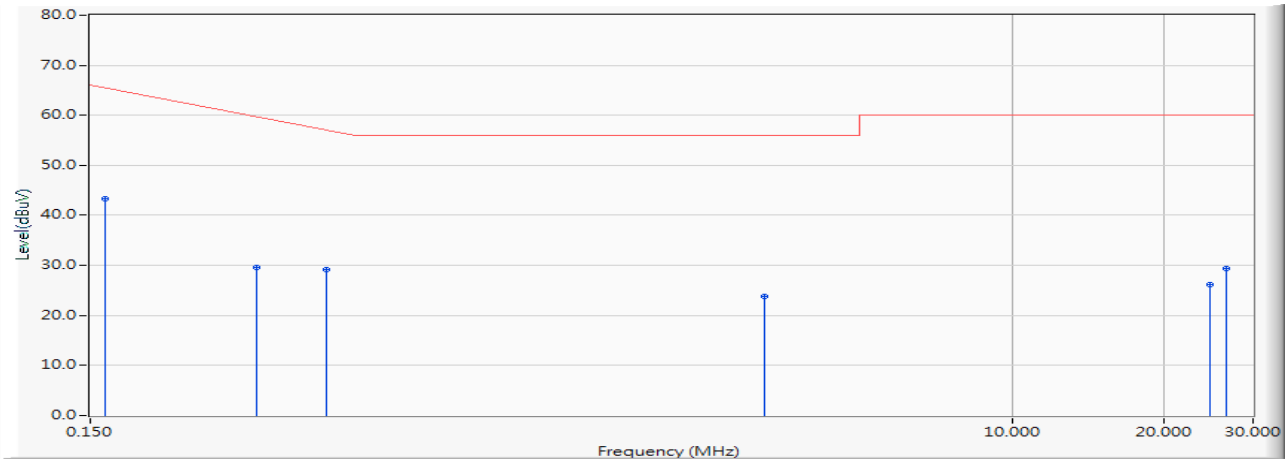
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling 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 invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

## 2.4. Uncertainty

± 2.35 dB

## 2.5. Test Result of Conducted Emission

Product : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 1
Test Date : 2019/04/12
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT1

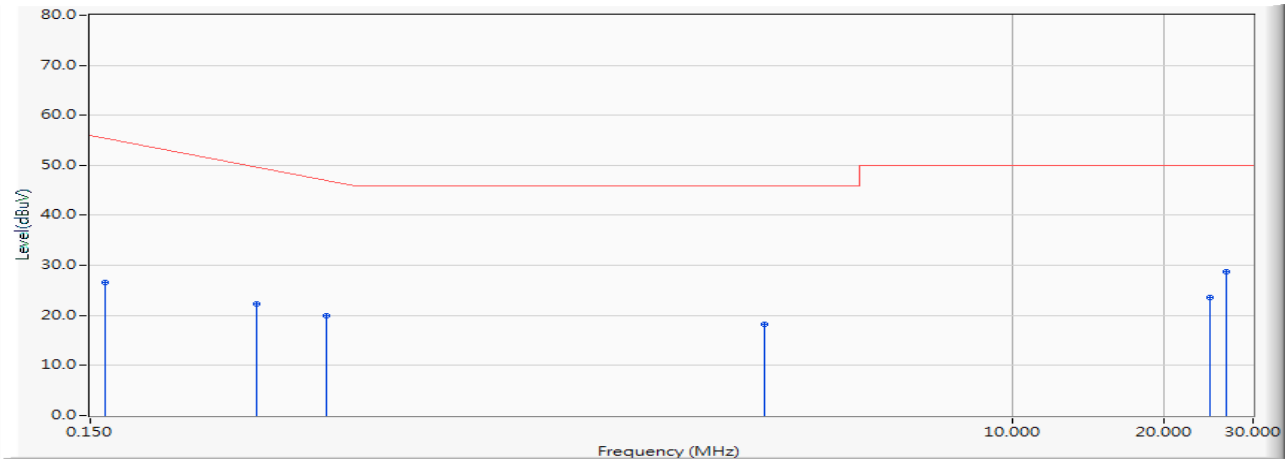



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 0.161 | 9.610 | 33.678 | 43.288 | -22.398 | 65.686 | QUASIPEAK |
| 2 | | 0.319 | 9.618 | 20.039 | 29.657 | -31.514 | 61.171 | QUASIPEAK |
| 3 | | 0.440 | 9.626 | 19.578 | 29.203 | -28.511 | 57.714 | QUASIPEAK |
| 4 | | 3.235 | 9.692 | 14.178 | 23.870 | -32.130 | 56.000 | QUASIPEAK |
| 5 | | 24.576 | 10.010 | 16.109 | 26.119 | -33.881 | 60.000 | QUASIPEAK |
| 6 | | 26.623 | 10.020 | 19.422 | 29.442 | -30.558 | 60.000 | QUASIPEAK |

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 : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 1
Test Date : 2019/04/12
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT1

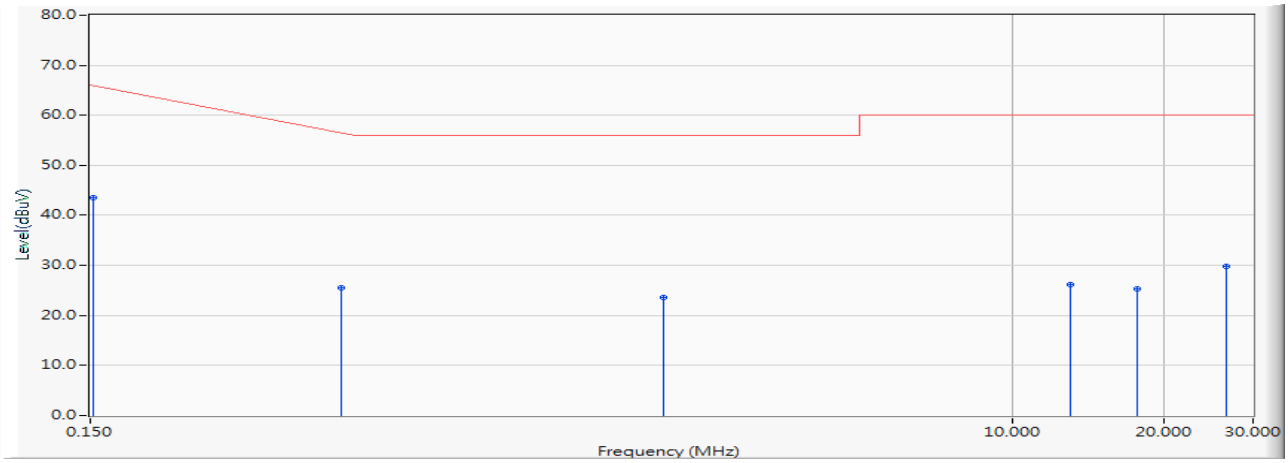



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 0.161 | 9.610 | 16.967 | 26.577 | -29.109 | 55.686 | AVERAGE |
| 2 | | 0.319 | 9.618 | 12.781 | 22.398 | -28.773 | 51.171 | AVERAGE |
| 3 | | 0.440 | 9.626 | 10.268 | 19.893 | -27.821 | 47.714 | AVERAGE |
| 4 | | 3.235 | 9.692 | 8.638 | 18.330 | -27.670 | 46.000 | AVERAGE |
| 5 | | 24.576 | 10.010 | 13.570 | 23.580 | -26.420 | 50.000 | AVERAGE |
| 6 | * | 26.623 | 10.020 | 18.667 | 28.687 | -21.313 | 50.000 | AVERAGE |

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 : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2019/04/12
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT1

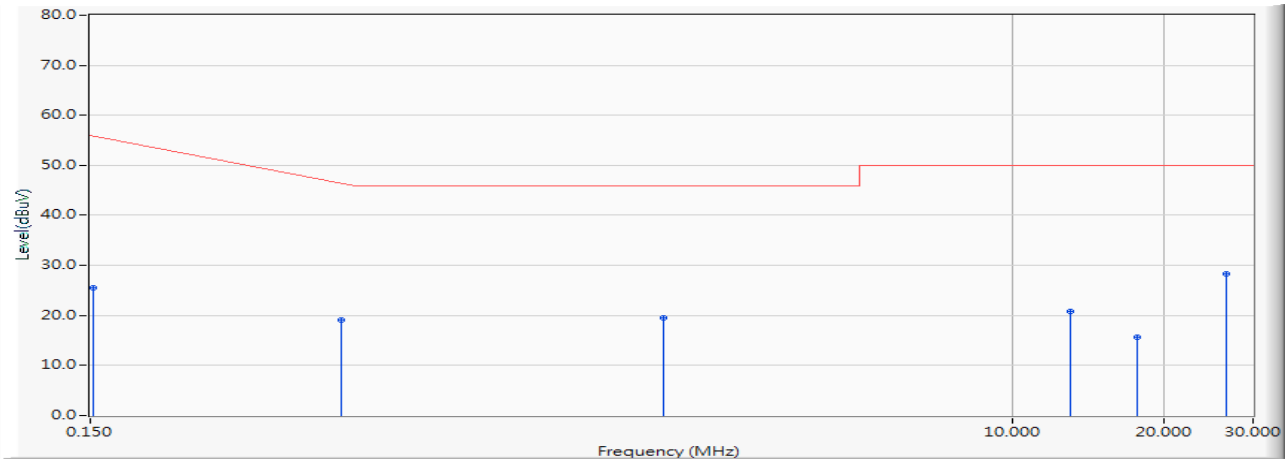



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 0.152 | 9.602 | 34.033 | 43.634 | -22.309 | 65.943 | QUASIPEAK |
| 2 | | 0.472 | 9.619 | 15.818 | 25.437 | -31.363 | 56.800 | QUASIPEAK |
| 3 | | 2.049 | 9.660 | 13.974 | 23.634 | -32.366 | 56.000 | QUASIPEAK |
| 4 | | 13.031 | 9.893 | 16.263 | 26.156 | -33.844 | 60.000 | QUASIPEAK |
| 5 | | 17.677 | 9.970 | 15.374 | 25.344 | -34.656 | 60.000 | QUASIPEAK |
| 6 | | 26.623 | 10.068 | 19.822 | 29.890 | -30.110 | 60.000 | QUASIPEAK |

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 : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2019/04/12
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT1

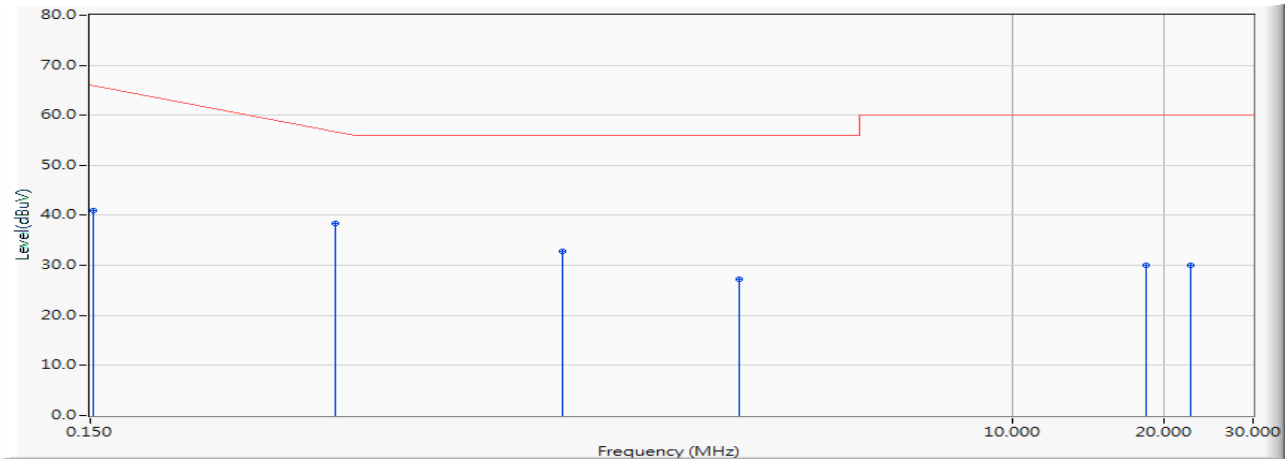



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 0.152 | 9.602 | 15.912 | 25.514 | -30.429 | 55.943 | AVERAGE |
| 2 | | 0.472 | 9.619 | 9.384 | 19.003 | -27.797 | 46.800 | AVERAGE |
| 3 | | 2.049 | 9.660 | 9.783 | 19.443 | -26.557 | 46.000 | AVERAGE |
| 4 | | 13.031 | 9.893 | 10.805 | 20.698 | -29.302 | 50.000 | AVERAGE |
| 5 | | 17.677 | 9.970 | 5.651 | 15.621 | -34.379 | 50.000 | AVERAGE |
| 6 | * | 26.623 | 10.068 | 18.278 | 28.346 | -21.654 | 50.000 | AVERAGE |

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 : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 1
Test Date : 2019/03/25
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2

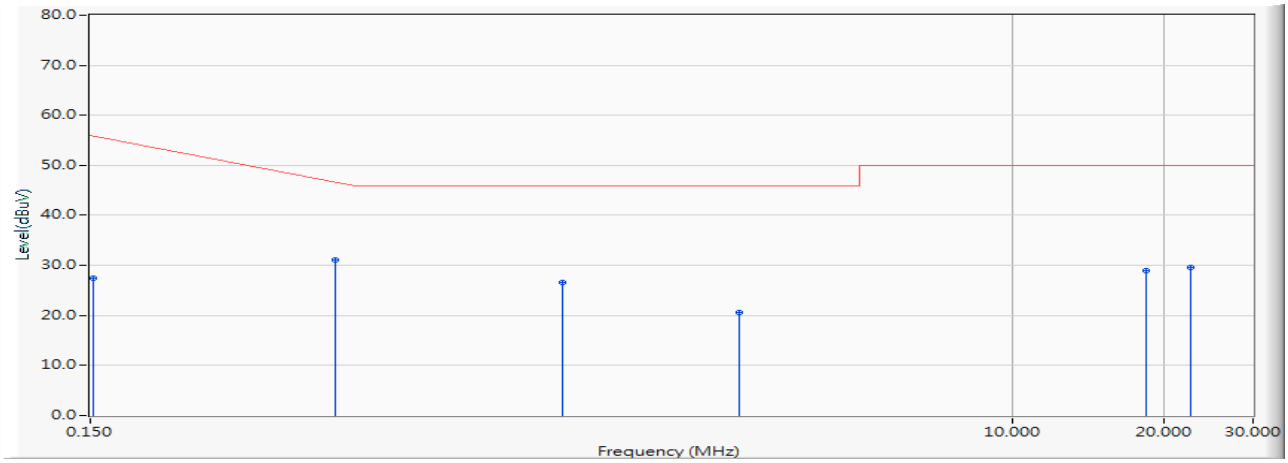



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 0.152 | 9.611 | 31.314 | 40.925 | -25.018 | 65.943 | QUASIPEAK |
| 2 | * | 0.458 | 9.627 | 28.807 | 38.434 | -18.766 | 57.200 | QUASIPEAK |
| 3 | | 1.293 | 9.650 | 23.111 | 32.761 | -23.239 | 56.000 | QUASIPEAK |
| 4 | | 2.895 | 9.679 | 17.546 | 27.225 | -28.775 | 56.000 | QUASIPEAK |
| 5 | | 18.431 | 9.965 | 20.146 | 30.111 | -29.889 | 60.000 | QUASIPEAK |
| 6 | | 22.529 | 9.990 | 20.093 | 30.083 | -29.917 | 60.000 | QUASIPEAK |

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 : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 1
Test Date : 2019/03/25
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2

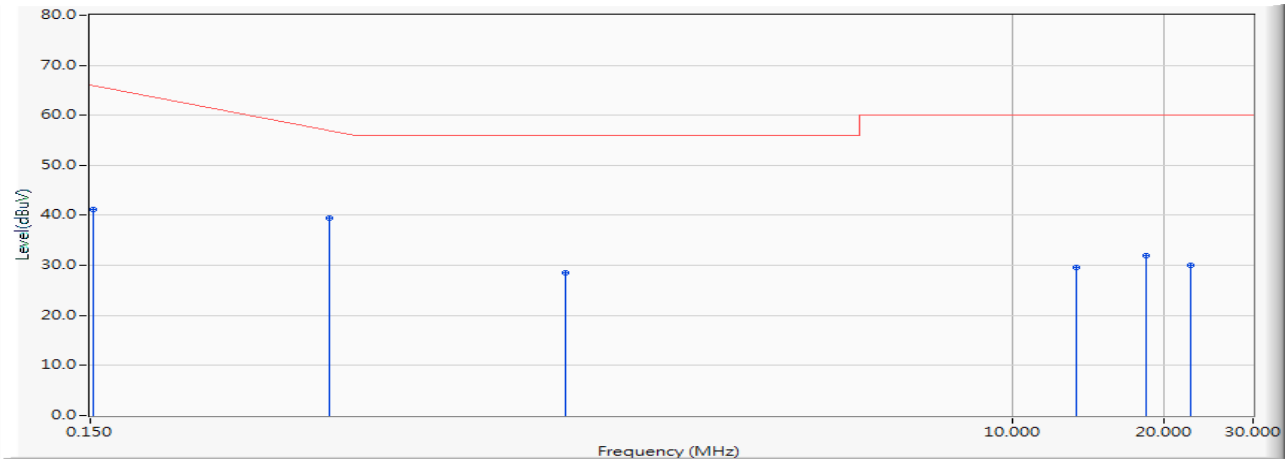



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 0.152 | 9.611 | 17.845 | 27.456 | -28.487 | 55.943 | AVERAGE |
| 2 | * | 0.458 | 9.627 | 21.430 | 31.057 | -16.143 | 47.200 | AVERAGE |
| 3 | | 1.293 | 9.650 | 16.847 | 26.497 | -19.503 | 46.000 | AVERAGE |
| 4 | | 2.895 | 9.679 | 10.818 | 20.497 | -25.503 | 46.000 | AVERAGE |
| 5 | | 18.431 | 9.965 | 18.967 | 28.932 | -21.068 | 50.000 | AVERAGE |
| 6 | | 22.529 | 9.990 | 19.625 | 29.615 | -20.385 | 50.000 | AVERAGE |

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 : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2019/03/25
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2

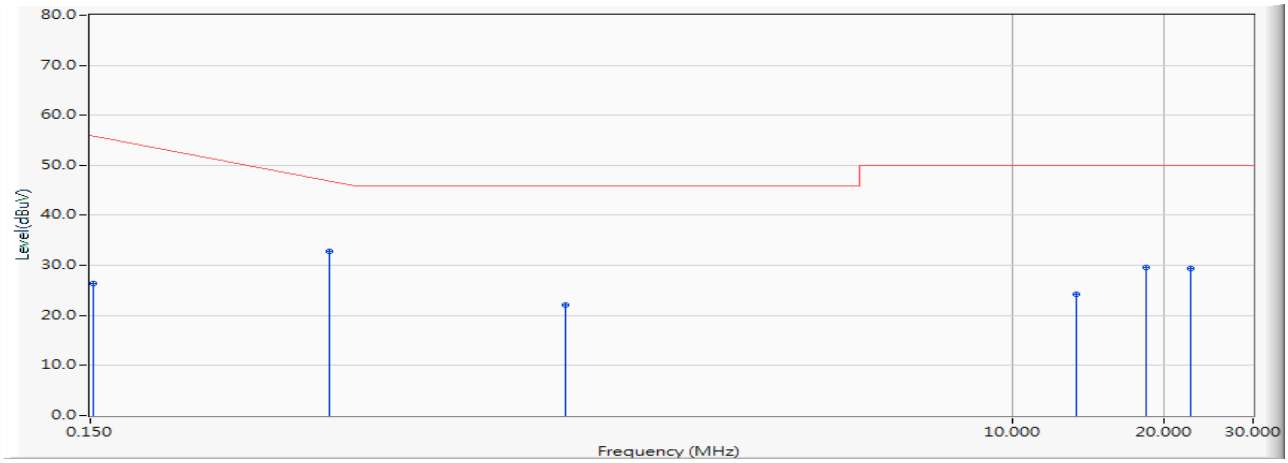



| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 0.152 | 9.602 | 31.632 | 41.233 | -24.710 | 65.943 | QUASIPEAK |
| 2 | * | 0.447 | 9.619 | 29.855 | 39.474 | -18.040 | 57.514 | QUASIPEAK |
| 3 | | 1.304 | 9.650 | 18.827 | 28.477 | -27.523 | 56.000 | QUASIPEAK |
| 4 | | 13.418 | 9.895 | 19.694 | 29.589 | -30.411 | 60.000 | QUASIPEAK |
| 5 | | 18.431 | 9.980 | 21.902 | 31.882 | -28.118 | 60.000 | QUASIPEAK |
| 6 | | 22.529 | 10.030 | 20.096 | 30.126 | -29.874 | 60.000 | QUASIPEAK |

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 : TUF GAMING H7 WIRELESS
Test Item : Conducted Emission Test
Power Line : Line 2
Test Date : 2019/03/25
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 0.152 | 9.602 | 16.778 | 26.379 | -29.564 | 55.943 | AVERAGE |
| 2 | * | 0.447 | 9.619 | 23.169 | 32.787 | -14.727 | 47.514 | AVERAGE |
| 3 | | 1.304 | 9.650 | 12.395 | 22.045 | -23.955 | 46.000 | AVERAGE |
| 4 | | 13.418 | 9.895 | 14.334 | 24.229 | -25.771 | 50.000 | AVERAGE |
| 5 | | 18.431 | 9.980 | 19.709 | 29.689 | -20.311 | 50.000 | AVERAGE |
| 6 | | 22.529 | 10.030 | 19.369 | 29.399 | -20.601 | 50.000 | AVERAGE |

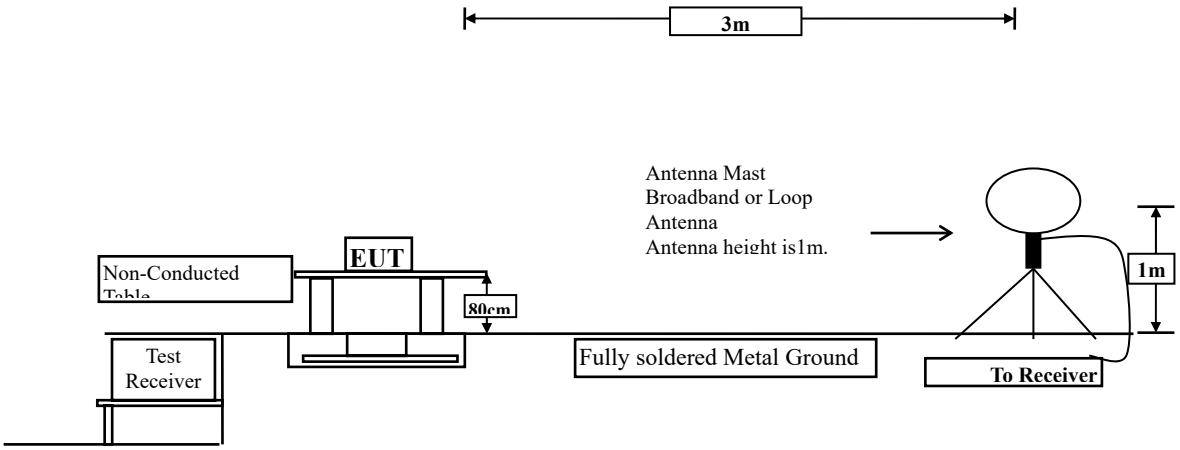
Note:

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

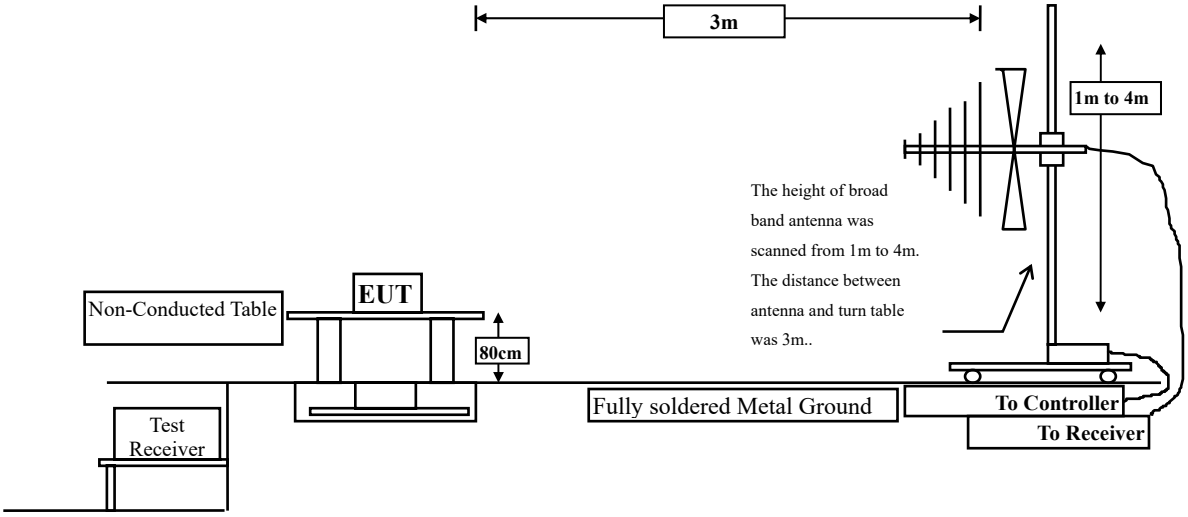
# 3. Radiated Emission

## 3.1. Test Setup

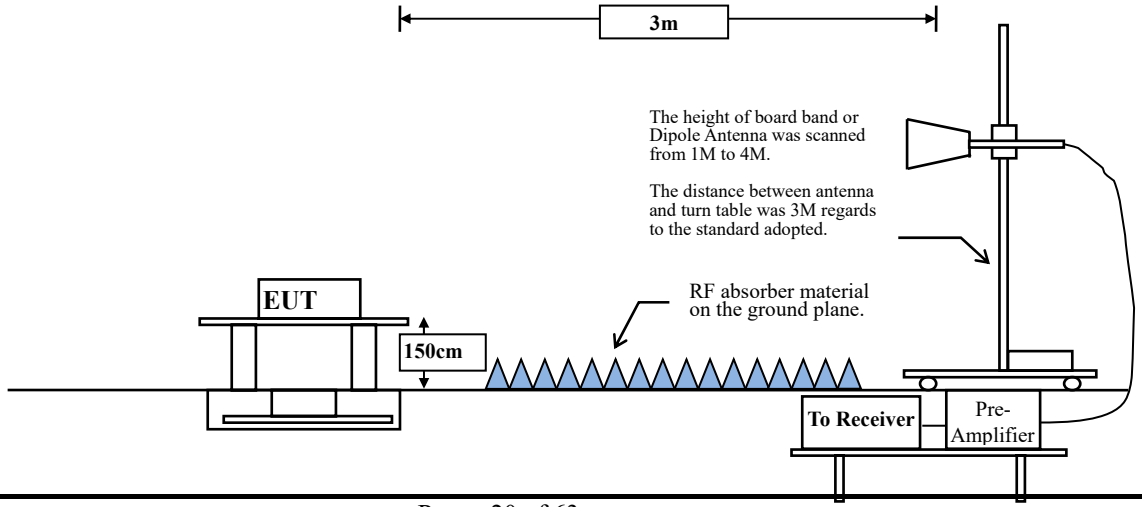
Radiated Emission Under 30MHz




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 MHz | Field Strength of Fundamental | | Field Strength of Harmonics | |
| | (mV/m @3m) | (dBμV /m @3m) | (uV/m @3m) | (dBμV /m @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 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)

## 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 form 9kHz - 10th Harmonic of fundamental was investigated.

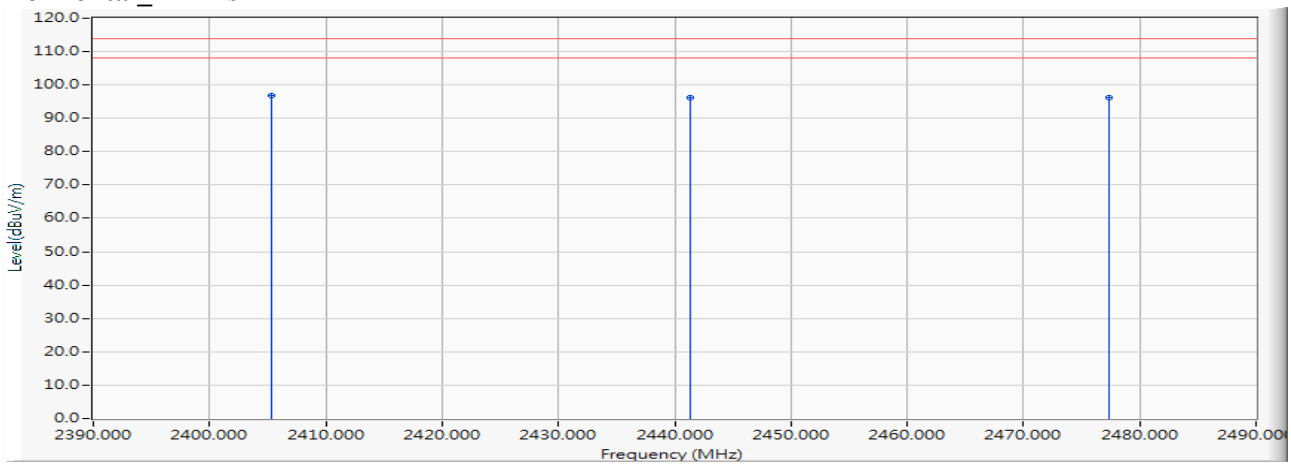
## 3.4. Uncertainty

Horizontal：
30-300MHz: ±4.08dB；300M-1GHz: ±3.86dB；1-18GHz: ±3.77dB；18-40GHz: ±3.98dB。
Vertical：
30-300MHz: ±4.81dB；300M-1GHz: ±3.87dB；1-18GHz: ±3.83dB；18-40GHz: ±3.98dB。

## 3.5. Test Result of Radiated Emission

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (X-Axis) _ANT1

**Horizontal_X-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 105.580 | 96.686 | -17.314 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 104.850 | 96.091 | -17.909 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 104.670 | 96.044 | -17.956 | 114.000 | PEAK |

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.

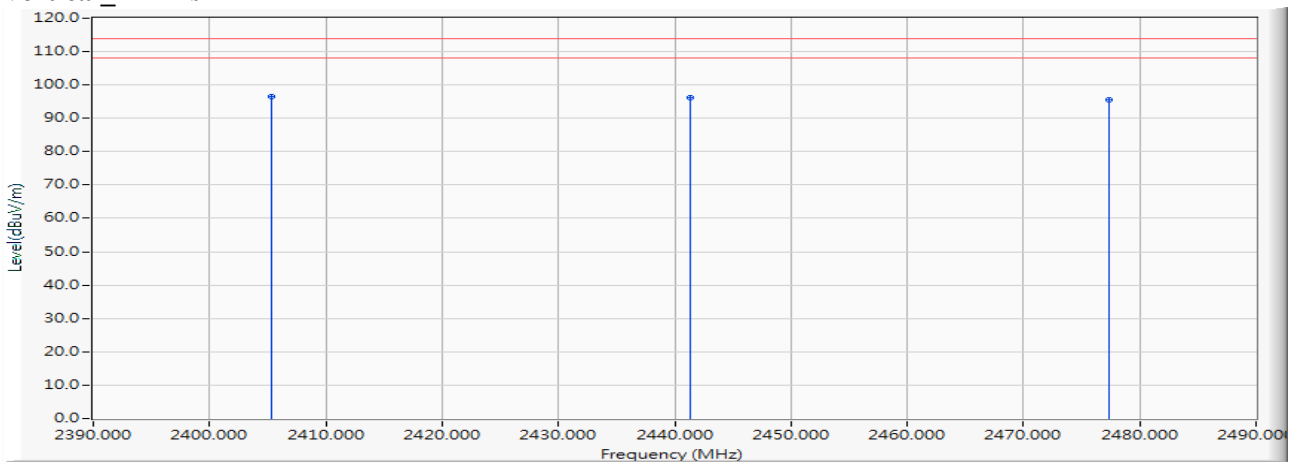
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Horizontal_X-Axis | | | | | | |
| 01 (Average) | 2405.350 | 96.686 | -35.124 | 61.562 | -32.438 | 94.000 |
| 19 (Average) | 2441.350 | 96.091 | -35.124 | 60.967 | -33.033 | 94.000 |
| 37 (Average) | 2477.350 | 96.044 | -35.124 | 60.920 | -33.080 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (X-Axis) _ANT1

**Vertical_X-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 105.430 | 96.536 | -17.464 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 104.850 | 96.091 | -17.909 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 104.140 | 95.514 | -18.486 | 114.000 | PEAK |

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.

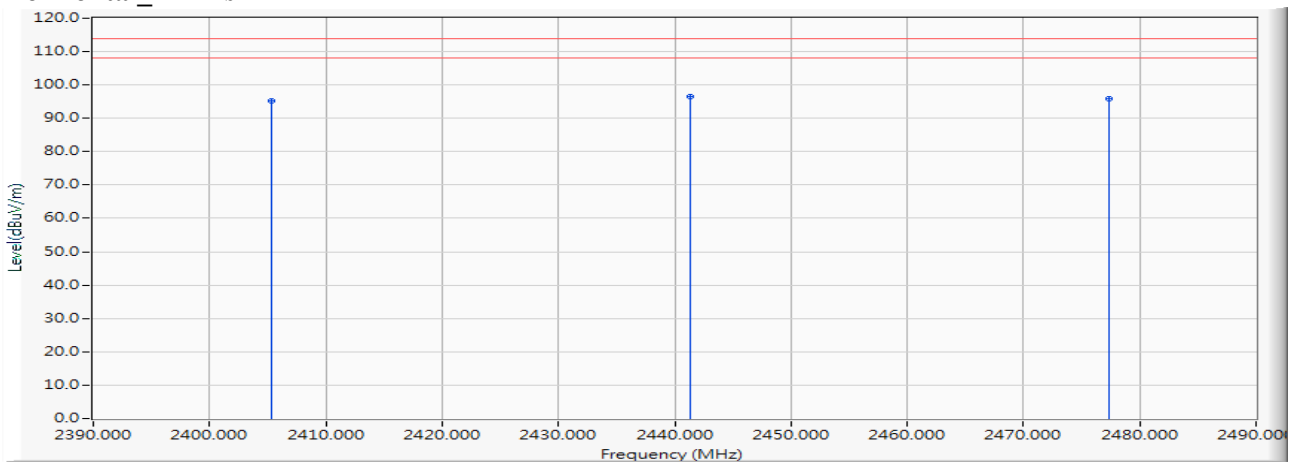
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Vertical_X-Axis | | | | | | |
| 01 (Average) | 2405.350 | 96.536 | -35.124 | 61.412 | -32.588 | 94.000 |
| 19 (Average) | 2441.350 | 96.091 | -35.124 | 60.967 | -33.033 | 94.000 |
| 37 (Average) | 2477.350 | 95.514 | -35.124 | 60.390 | -33.610 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (Y-Axis) _ANT1

**Horizontal_Y-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2405.350 | -8.894 | 104.230 | 95.336 | -18.664 | 114.000 | PEAK |
| 2 | * | 2441.350 | -8.760 | 105.340 | 96.581 | -17.419 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 104.380 | 95.754 | -18.246 | 114.000 | PEAK |

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.

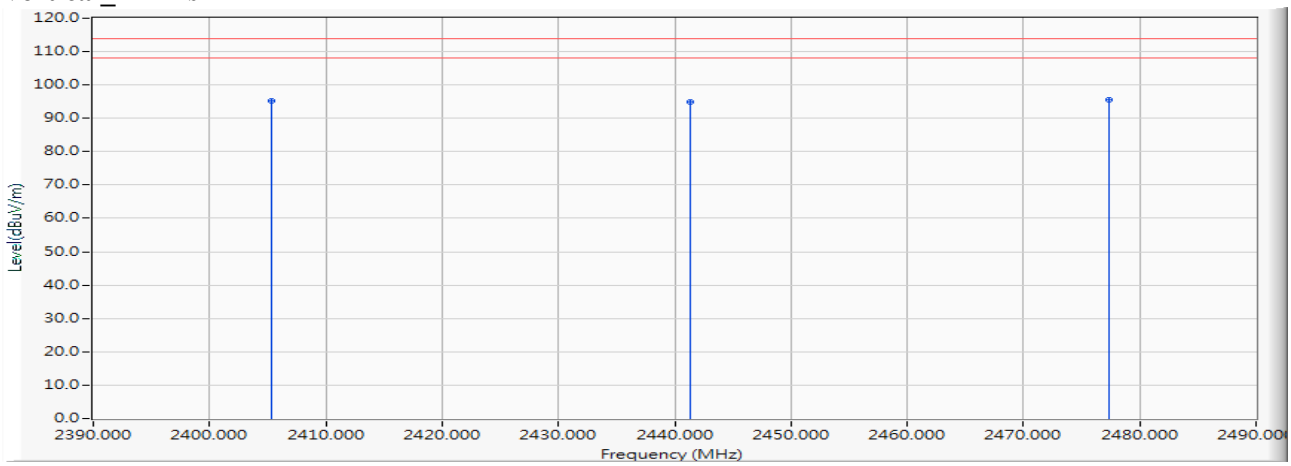
| Channel No. | Frequency (MHz) | Peak Measurement (dBμV/m) | Duty Cycle Factor (dB) | Average Measurement (dBμV/m) | Margin (dB) | Average Limit (dBμV/m) |
|---|---|---|---|---|---|---|
| Horizontal_Y-Axis | | | | | | |
| 01 (Average) | 2405.350 | 95.336 | -35.124 | 60.212 | -33.788 | 94.000 |
| 19 (Average) | 2441.350 | 96.581 | -35.124 | 61.457 | -32.543 | 94.000 |
| 37 (Average) | 2477.350 | 95.754 | -35.124 | 60.630 | -33.370 | 94.000 |

Note:

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

| | | |
|---|---|---|
| Product | : | TUF GAMING H7 WIRELESS |
| Test Item | : | Fundamental Radiated Emission |
| Test Date | : | 2019/03/28 |
| Test Mode | : | Mode 1: Transmit (Y-Axis) _ANT1 |

**Vertical_Y-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2405.350 | -8.894 | 104.270 | 95.376 | -18.624 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 103.750 | 94.991 | -19.009 | 114.000 | PEAK |
| 3 | * | 2477.350 | -8.626 | 104.060 | 95.434 | -18.566 | 114.000 | PEAK |

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.

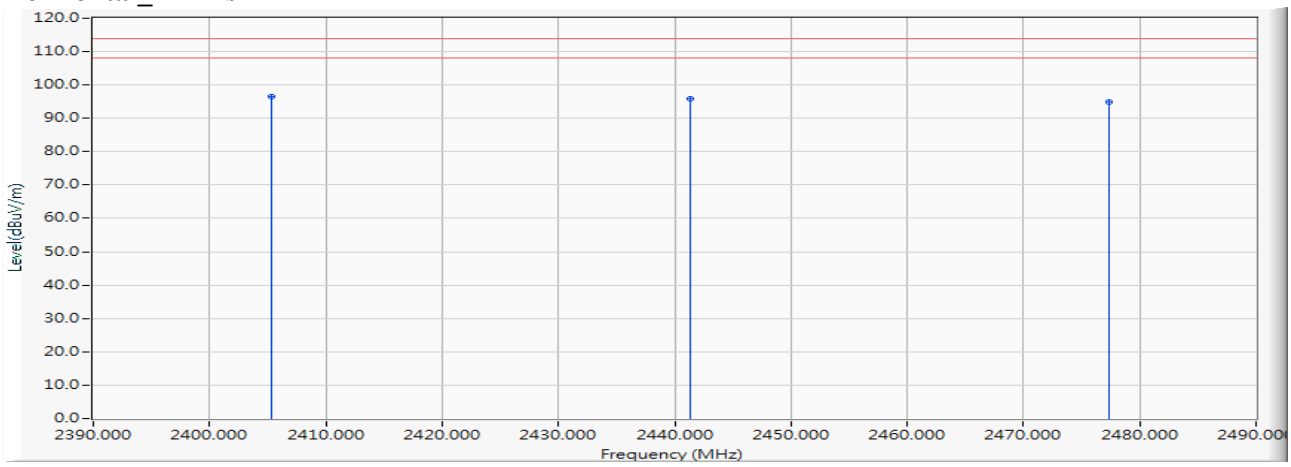
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Vertical_Y-Axis | | | | | | |
| 01 (Average) | 2405.350 | 95.376 | -35.124 | 60.252 | -33.748 | 94.000 |
| 19 (Average) | 2441.350 | 94.991 | -35.124 | 59.867 | -34.133 | 94.000 |
| 37 (Average) | 2477.350 | 95.434 | -35.124 | 60.310 | -33.690 | 94.000 |

Note:

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

| | | |
|---|---|---|
| Product | : | TUF GAMING H7 WIRELESS |
| Test Item | : | Fundamental Radiated Emission |
| Test Date | : | 2019/03/28 |
| Test Mode | : | Mode 1: Transmit (Z-Axis) _ANT1 |

**Horizontal_Z-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 105.490 | 96.596 | -17.404 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 104.670 | 95.911 | -18.089 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 103.530 | 94.904 | -19.096 | 114.000 | PEAK |

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.

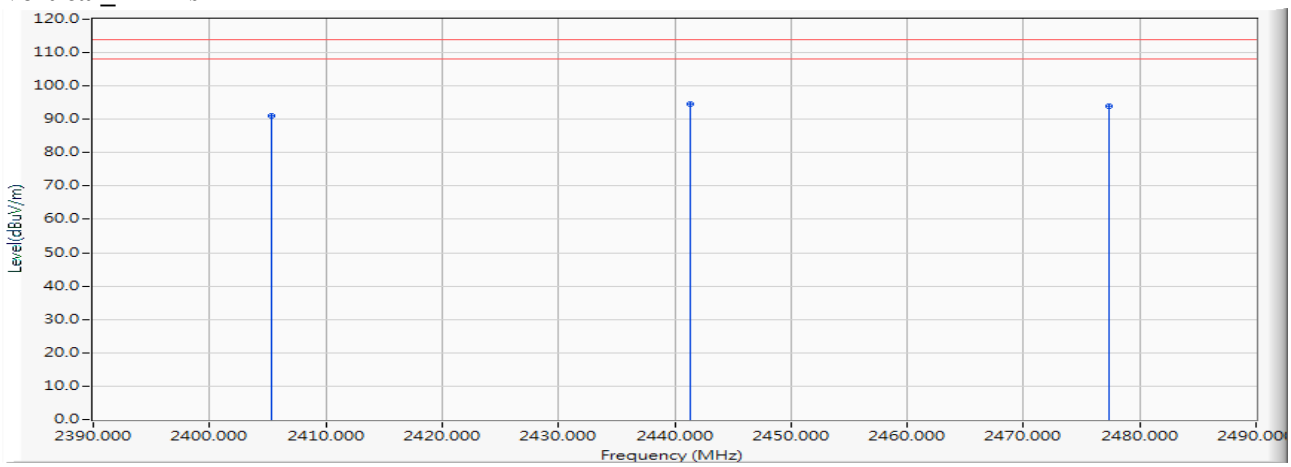
| Channel No. | Frequency (MHz) | Peak Measurement (dBμV/m) | Duty Cycle Factor (dB) | Average Measurement (dBμV/m) | Margin (dB) | Average Limit (dBμV/m) |
|---|---|---|---|---|---|---|
| Horizontal_Z-Axis | | | | | | |
| 01 (Average) | 2405.350 | 96.596 | -35.124 | 61.472 | -32.528 | 94.000 |
| 19 (Average) | 2441.350 | 95.911 | -35.124 | 60.787 | -33.213 | 94.000 |
| 37 (Average) | 2477.350 | 94.904 | -35.124 | 59.780 | -34.220 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (Z-Axis) _ANT1

**Vertical_Z-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2405.350 | -8.894 | 99.820 | 90.926 | -23.074 | 114.000 | PEAK |
| 2 | * | 2441.350 | -8.760 | 103.400 | 94.641 | -19.359 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 102.660 | 94.034 | -19.966 | 114.000 | PEAK |

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.

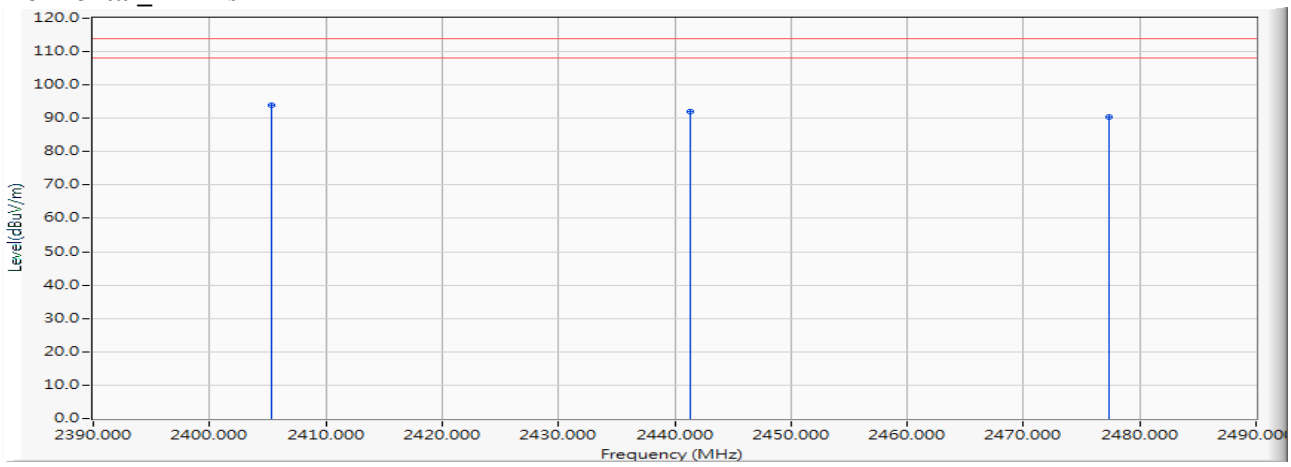
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Vertical_Z-Axis | | | | | | |
| 01 (Average) | 2405.350 | 90.926 | -35.124 | 55.802 | -38.198 | 94.000 |
| 19 (Average) | 2441.350 | 94.641 | -35.124 | 59.517 | -34.483 | 94.000 |
| 37 (Average) | 2477.350 | 94.034 | -35.124 | 58.910 | -35.090 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (X-Axis) _ANT2

**Horizontal_X-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 102.690 | 93.796 | -20.204 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 100.730 | 91.971 | -22.029 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 99.110 | 90.484 | -23.516 | 114.000 | PEAK |

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.

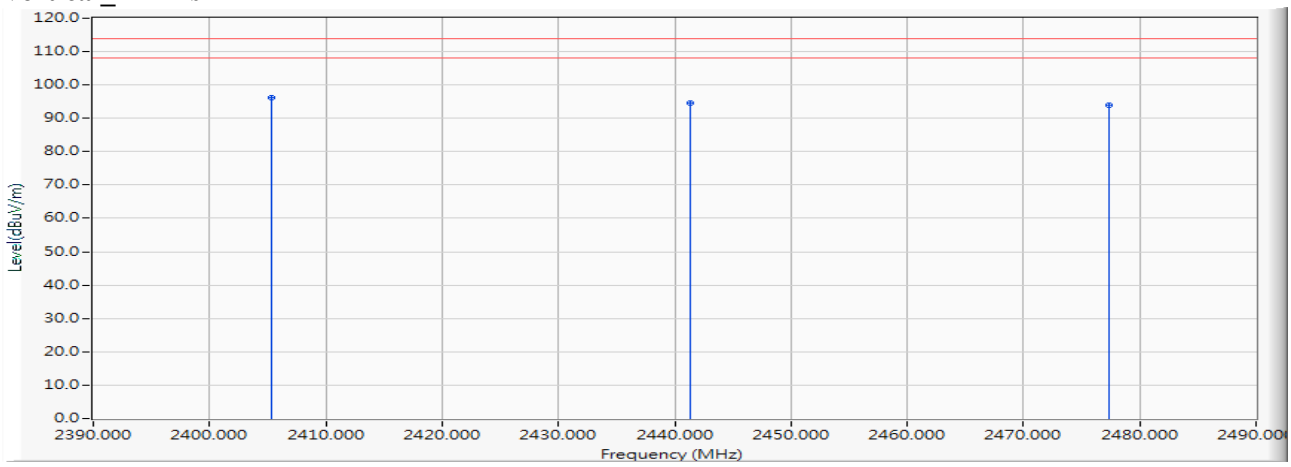
| Channel No. | Frequency (MHz) | Peak Measurement (dBμV/m) | Duty Cycle Factor (dB) | Average Measurement (dBμV/m) | Margin (dB) | Average Limit (dBμV/m) |
|---|---|---|---|---|---|---|
| Horizontal_X-Axis | | | | | | |
| 01 (Average) | 2405.350 | 93.796 | -35.124 | 58.672 | -35.328 | 94.000 |
| 19 (Average) | 2441.350 | 91.971 | -35.124 | 56.847 | -37.153 | 94.000 |
| 37 (Average) | 2477.350 | 90.484 | -35.124 | 55.360 | -38.640 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (X-Axis) _ANT2

**Vertical_X-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 105.220 | 96.326 | -17.674 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 103.290 | 94.531 | -19.469 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 102.600 | 93.974 | -20.026 | 114.000 | PEAK |

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.

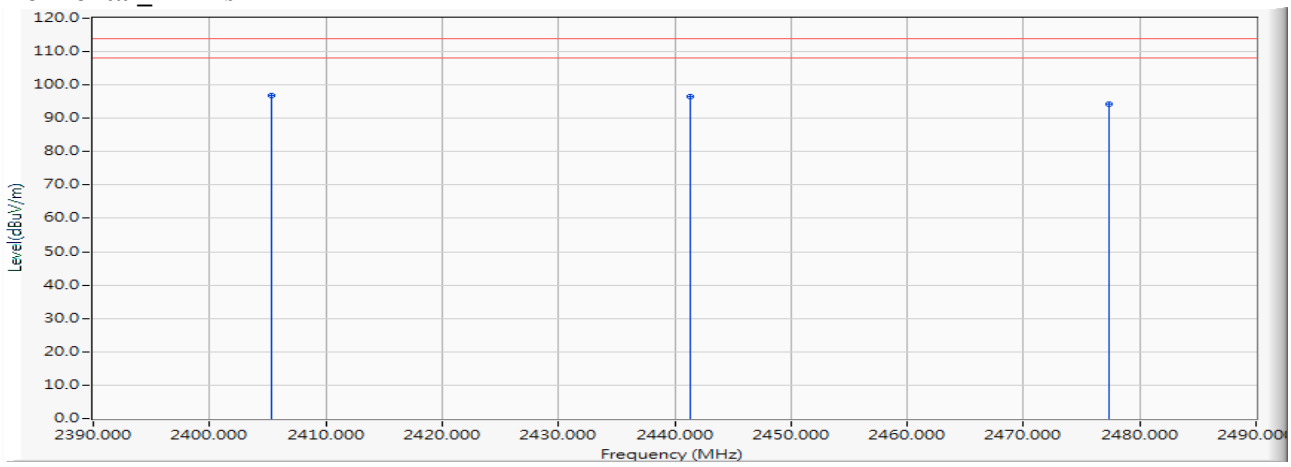
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Vertical_X-Axis | | | | | | |
| 01 (Average) | 2405.350 | 96.326 | -35.124 | 61.202 | -32.798 | 94.000 |
| 19 (Average) | 2441.350 | 94.531 | -35.124 | 59.407 | -34.593 | 94.000 |
| 37 (Average) | 2477.350 | 93.974 | -35.124 | 58.850 | -35.150 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (Y-Axis) _ANT2

**Horizontal_Y-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 105.690 | 96.796 | -17.204 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 105.430 | 96.671 | -17.329 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 102.860 | 94.234 | -19.766 | 114.000 | PEAK |

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.

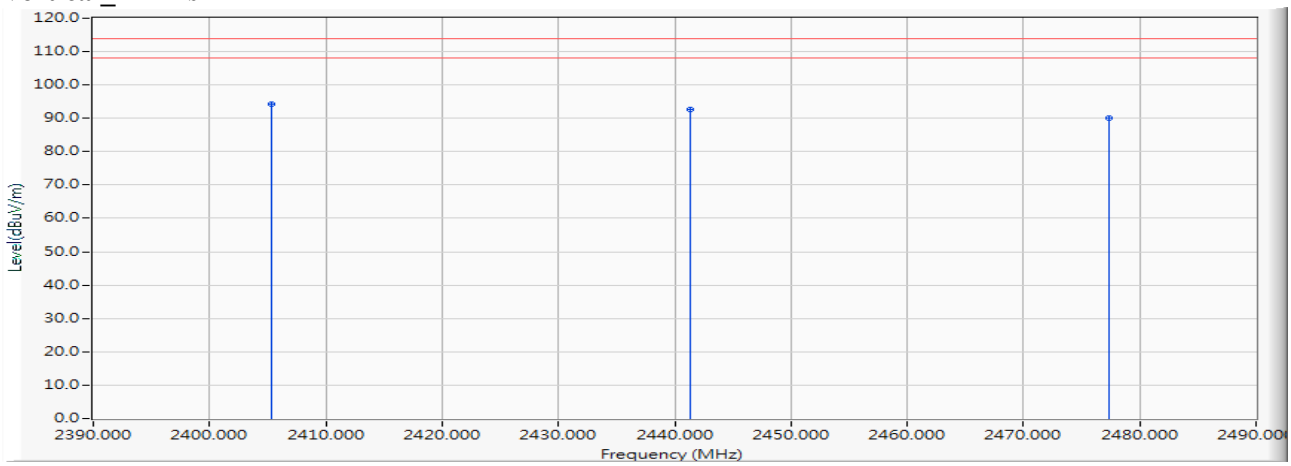
| Channel No. | Frequency (MHz) | Peak Measurement (dBμV/m) | Duty Cycle Factor (dB) | Average Measurement (dBμV/m) | Margin (dB) | Average Limit (dBμV/m) |
|---|---|---|---|---|---|---|
| Horizontal_Y-Axis | | | | | | |
| 01 (Average) | 2405.350 | 96.796 | -35.124 | 61.672 | -32.328 | 94.000 |
| 19 (Average) | 2441.350 | 96.671 | -35.124 | 61.547 | -32.453 | 94.000 |
| 37 (Average) | 2477.350 | 94.234 | -35.124 | 59.110 | -34.890 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (Y-Axis) _ANT2

**Vertical_Y-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 103.160 | 94.266 | -19.734 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 101.540 | 92.781 | -21.219 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 98.820 | 90.194 | -23.806 | 114.000 | PEAK |

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.

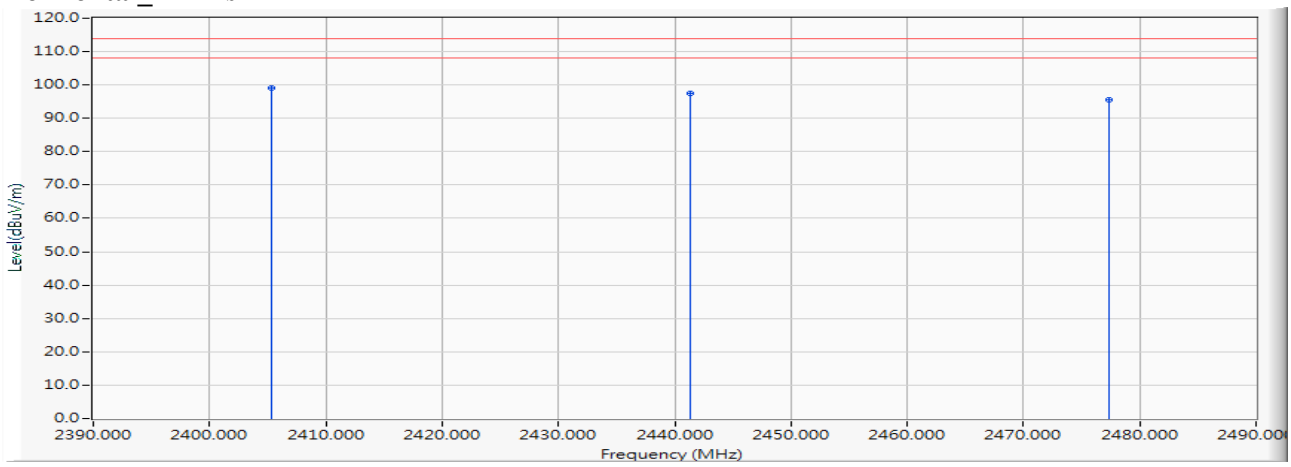
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Vertical_Y-Axis | | | | | | |
| 01 (Average) | 2405.350 | 94.266 | -35.124 | 59.142 | -34.858 | 94.000 |
| 19 (Average) | 2441.350 | 92.781 | -35.124 | 57.657 | -36.343 | 94.000 |
| 37 (Average) | 2477.350 | 90.194 | -35.124 | 55.070 | -38.930 | 94.000 |

Note:

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

| | | |
|---|---|---|
| Product | : | TUF GAMING H7 WIRELESS |
| Test Item | : | Fundamental Radiated Emission |
| Test Date | : | 2019/03/28 |
| Test Mode | : | Mode 1: Transmit (Z-Axis) _ANT2 |

**Horizontal_Z-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 107.990 | 99.096 | -14.904 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 106.230 | 97.471 | -16.529 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 104.180 | 95.554 | -18.446 | 114.000 | PEAK |

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.

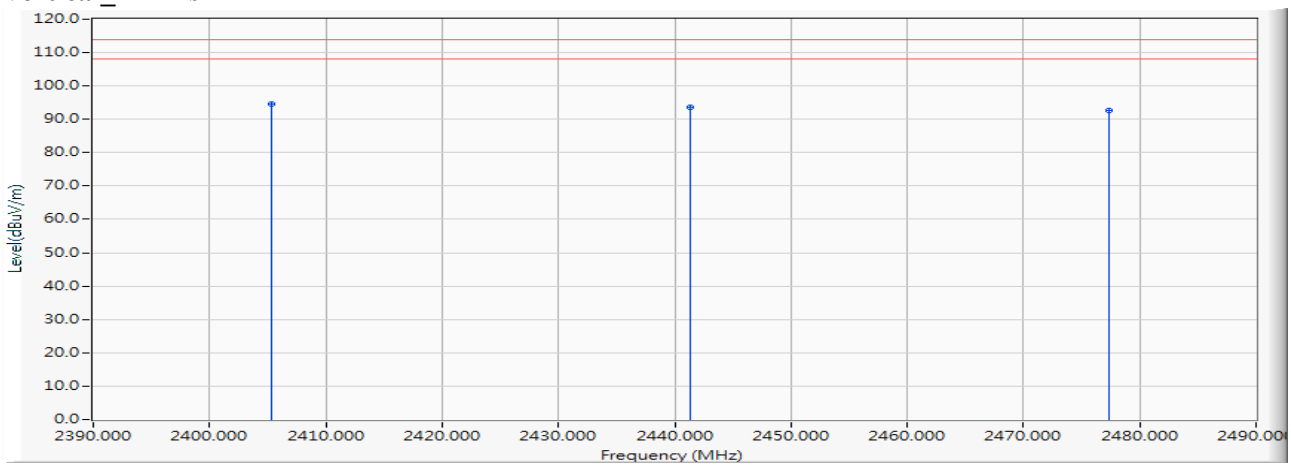
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Horizontal_Z-Axis | | | | | | |
| 01 (Average) | 2405.350 | 99.096 | -35.124 | 63.972 | -30.028 | 94.000 |
| 19 (Average) | 2441.350 | 97.471 | -35.124 | 62.347 | -31.653 | 94.000 |
| 37 (Average) | 2477.350 | 95.554 | -35.124 | 60.430 | -33.570 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Fundamental Radiated Emission
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (Z-Axis) _ANT2

**Vertical_Z-Axis**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2405.350 | -8.894 | 103.420 | 94.526 | -19.474 | 114.000 | PEAK |
| 2 | | 2441.350 | -8.760 | 102.440 | 93.681 | -20.319 | 114.000 | PEAK |
| 3 | | 2477.350 | -8.626 | 101.190 | 92.564 | -21.436 | 114.000 | PEAK |

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.

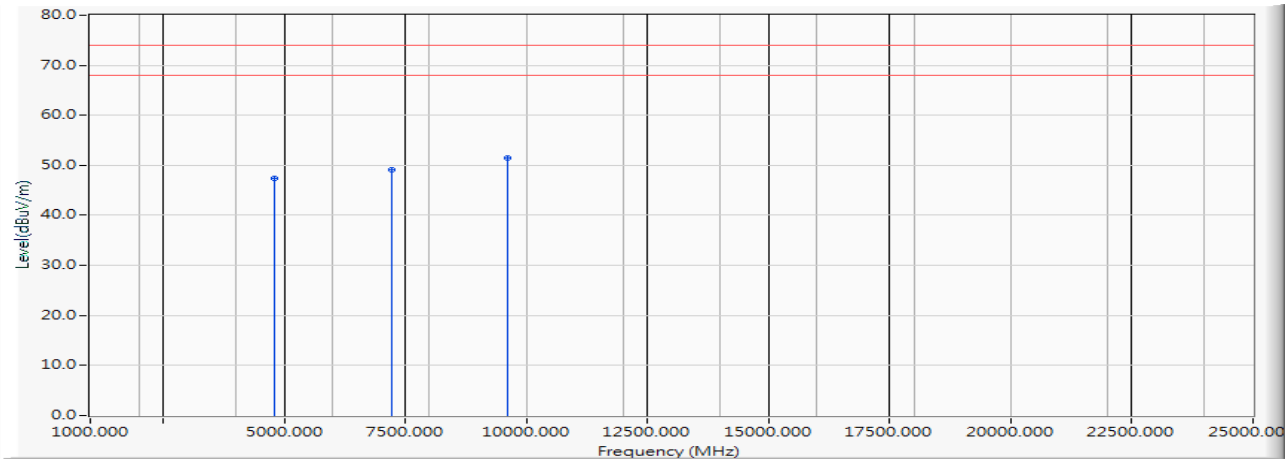
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) |
|---|---|---|---|---|---|---|
| Vertical_Z-Axis | | | | | | |
| 01 (Average) | 2405.350 | 94.526 | -35.124 | 59.402 | -34.598 | 94.000 |
| 19 (Average) | 2441.350 | 93.681 | -35.124 | 58.557 | -35.443 | 94.000 |
| 37 (Average) | 2477.350 | 92.564 | -35.124 | 57.440 | -36.560 | 94.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT1

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4810.700 | -6.083 | 53.460 | 47.376 | -26.624 | 74.000 | PEAK |
| 2 | | 7216.050 | -3.024 | 52.230 | 49.206 | -24.794 | 74.000 | PEAK |
| 3 | * | 9621.400 | -0.670 | 52.190 | 51.519 | -22.481 | 74.000 | PEAK |

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.

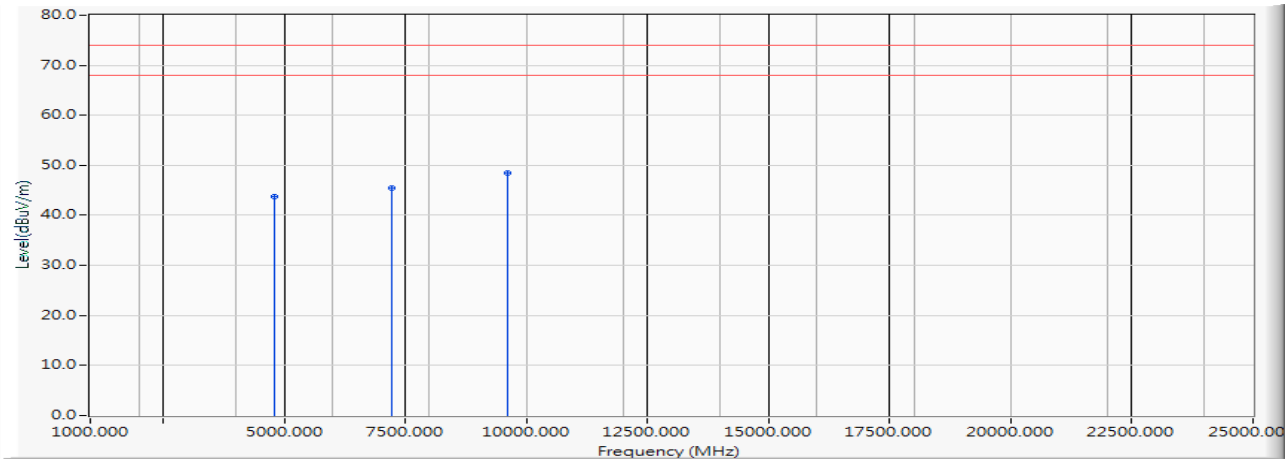
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT1

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4810.700 | -6.083 | 49.910 | 43.826 | -30.174 | 74.000 | PEAK |
| 2 | | 7216.050 | -3.024 | 48.550 | 45.526 | -28.474 | 74.000 | PEAK |
| 3 | * | 9621.400 | -0.670 | 49.050 | 48.379 | -25.621 | 74.000 | PEAK |

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.

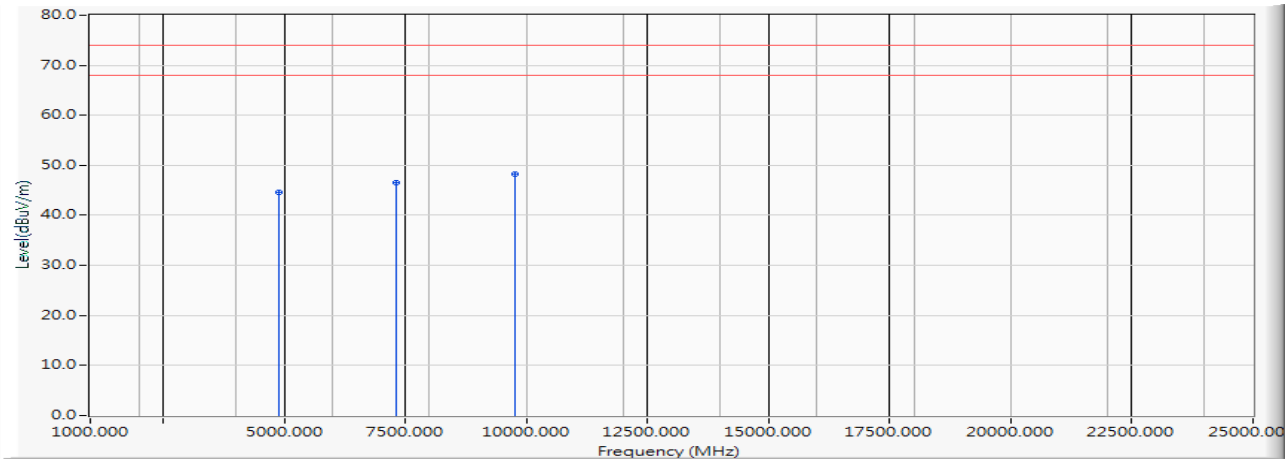
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

| | | |
|---|---|---|
| Product | : | TUF GAMING H7 WIRELESS |
| Test Item | : | Harmonic Radiated Emission Data |
| Test Date | : | 2019/03/28 |
| Test Mode | : | Mode 1: Transmit (2441.35MHz) _ANT1 |

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4882.700 | -6.043 | 50.680 | 44.637 | -29.363 | 74.000 | PEAK |
| 2 | | 7324.050 | -2.952 | 49.500 | 46.548 | -27.452 | 74.000 | PEAK |
| 3 | * | 9765.400 | -0.486 | 48.780 | 48.295 | -25.705 | 74.000 | PEAK |

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.

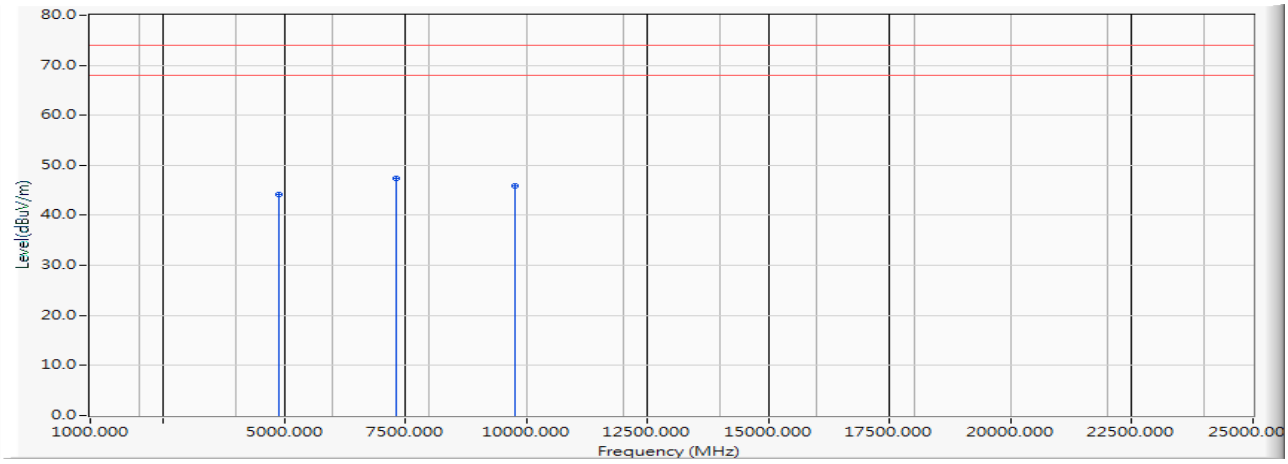
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT1

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4882.700 | -6.043 | 50.260 | 44.217 | -29.783 | 74.000 | PEAK |
| 2 | * | 7324.050 | -2.952 | 50.360 | 47.408 | -26.592 | 74.000 | PEAK |
| 3 | | 9765.400 | -0.486 | 46.400 | 45.915 | -28.085 | 74.000 | PEAK |

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.

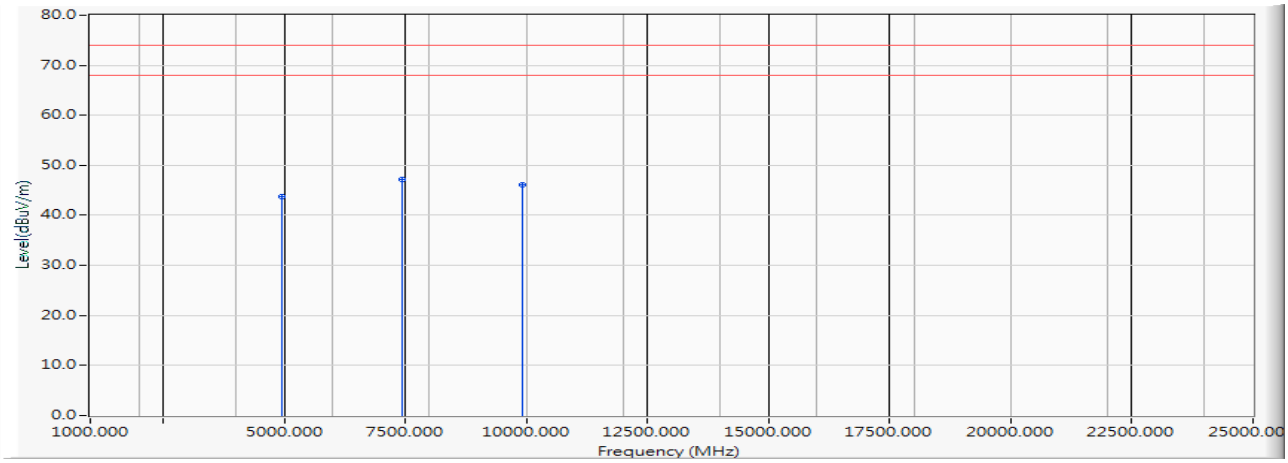
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT1

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4954.700 | -6.042 | 49.790 | 43.748 | -30.252 | 74.000 | PEAK |
| 2 | * | 7432.050 | -2.825 | 49.970 | 47.145 | -26.855 | 74.000 | PEAK |
| 3 | | 9909.400 | -0.276 | 46.300 | 46.024 | -27.976 | 74.000 | PEAK |

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.

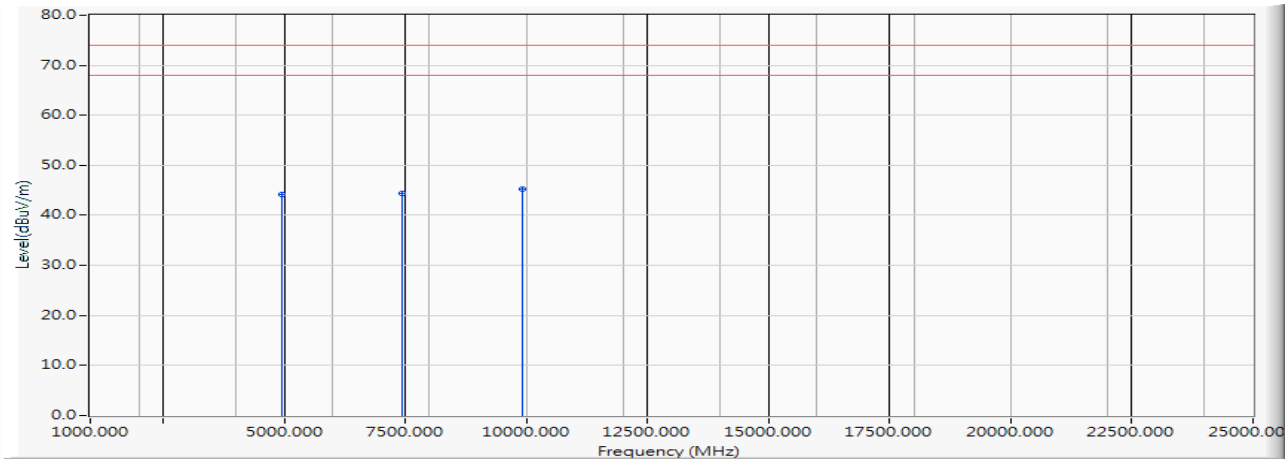
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT1

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4954.700 | -6.042 | 50.160 | 44.118 | -29.882 | 74.000 | PEAK |
| 2 | | 7432.050 | -2.825 | 47.240 | 44.415 | -29.585 | 74.000 | PEAK |
| 3 | * | 9909.400 | -0.276 | 45.560 | 45.284 | -28.716 | 74.000 | PEAK |

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.

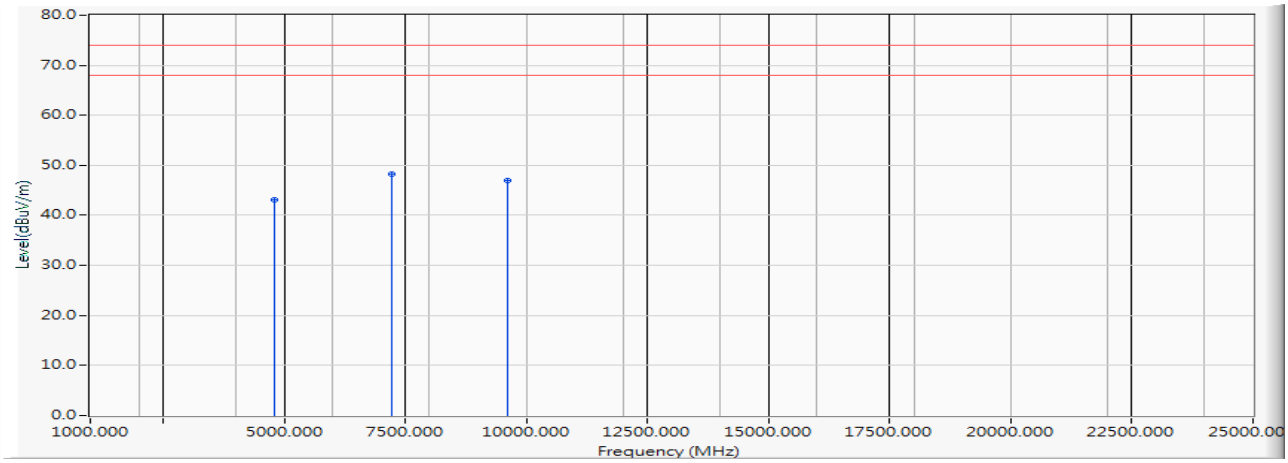
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT2

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4810.700 | -6.083 | 49.120 | 43.036 | -30.964 | 74.000 | PEAK |
| 2 | * | 7216.050 | -3.024 | 51.380 | 48.356 | -25.644 | 74.000 | PEAK |
| 3 | | 9621.400 | -0.670 | 47.550 | 46.879 | -27.121 | 74.000 | PEAK |

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.

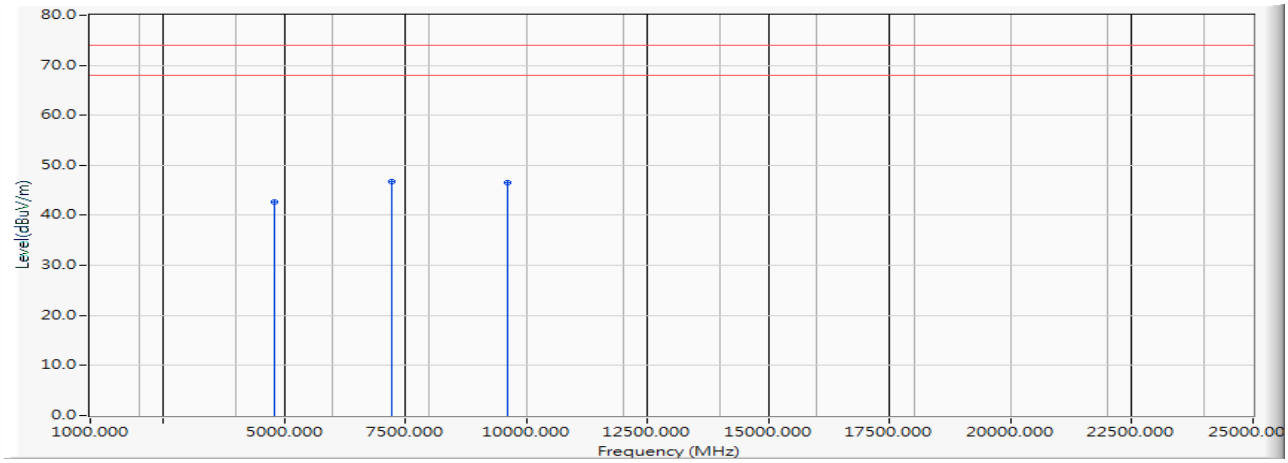
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT2

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4810.700 | -6.083 | 48.830 | 42.746 | -31.254 | 74.000 | PEAK |
| 2 | * | 7216.050 | -3.024 | 49.790 | 46.766 | -27.234 | 74.000 | PEAK |
| 3 | | 9621.400 | -0.670 | 47.280 | 46.609 | -27.391 | 74.000 | PEAK |

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.

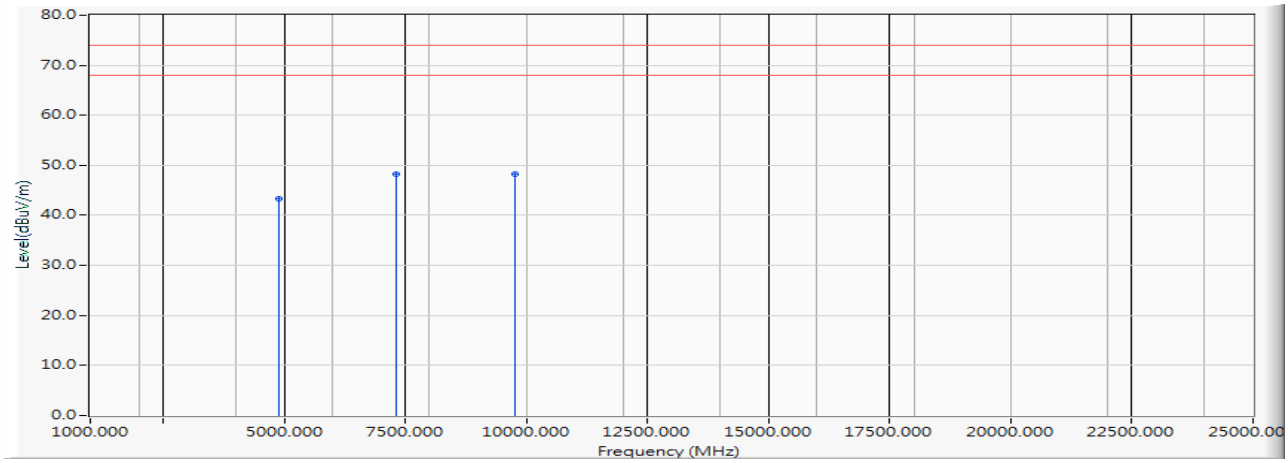
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4882.700 | -6.043 | 49.330 | 43.287 | -30.713 | 74.000 | PEAK |
| 2 | * | 7324.050 | -2.952 | 51.310 | 48.358 | -25.642 | 74.000 | PEAK |
| 3 | | 9765.400 | -0.486 | 48.730 | 48.245 | -25.755 | 74.000 | PEAK |

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.

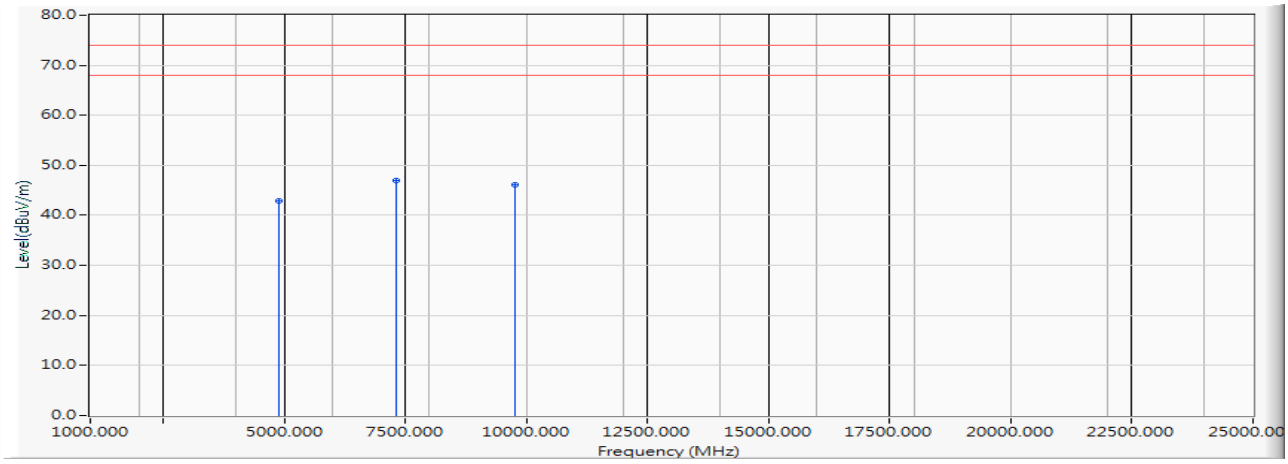
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4882.700 | -6.043 | 48.960 | 42.917 | -31.083 | 74.000 | PEAK |
| 2 | * | 7324.050 | -2.952 | 50.010 | 47.058 | -26.942 | 74.000 | PEAK |
| 3 | | 9765.400 | -0.486 | 46.640 | 46.155 | -27.845 | 74.000 | PEAK |

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.

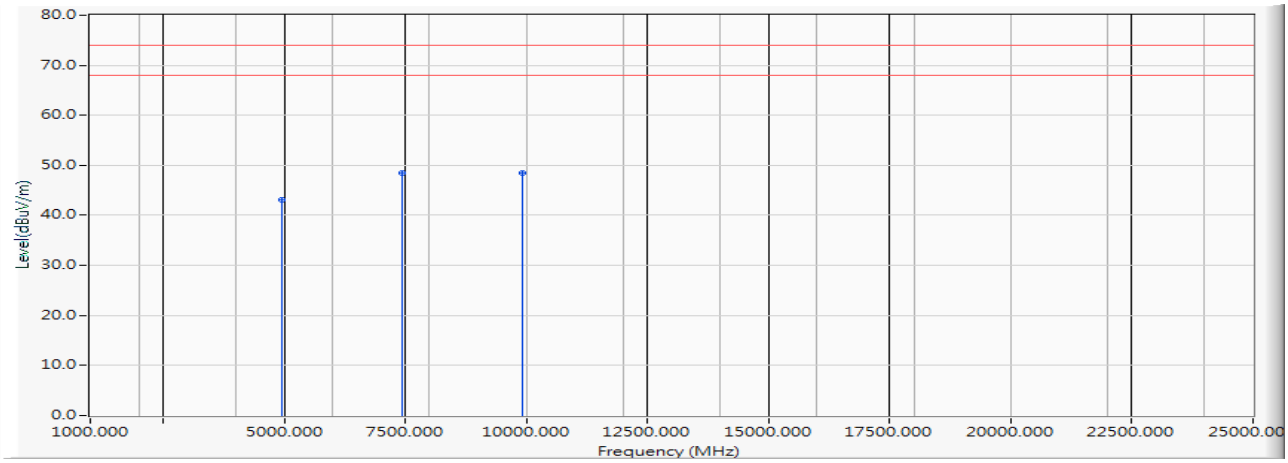
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT2

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4954.700 | -6.042 | 49.240 | 43.198 | -30.802 | 74.000 | PEAK |
| 2 | * | 7432.050 | -2.825 | 51.400 | 48.575 | -25.425 | 74.000 | PEAK |
| 3 | | 9909.400 | -0.276 | 48.800 | 48.524 | -25.476 | 74.000 | PEAK |

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.

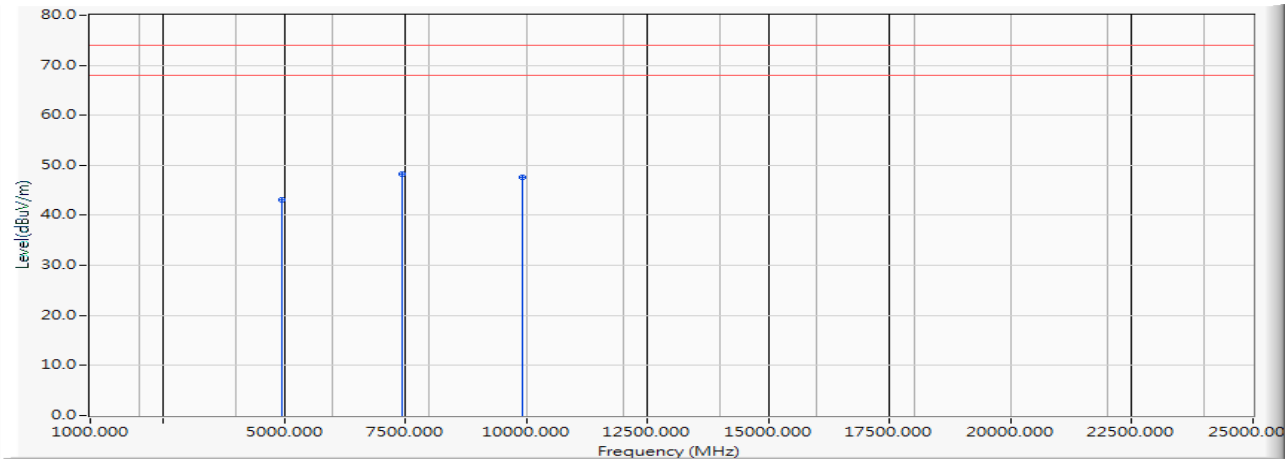
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Harmonic Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT2

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4954.700 | -6.042 | 49.160 | 43.118 | -30.882 | 74.000 | PEAK |
| 2 | * | 7432.050 | -2.825 | 51.140 | 48.315 | -25.685 | 74.000 | PEAK |
| 3 | | 9909.400 | -0.276 | 47.870 | 47.594 | -26.406 | 74.000 | PEAK |

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.

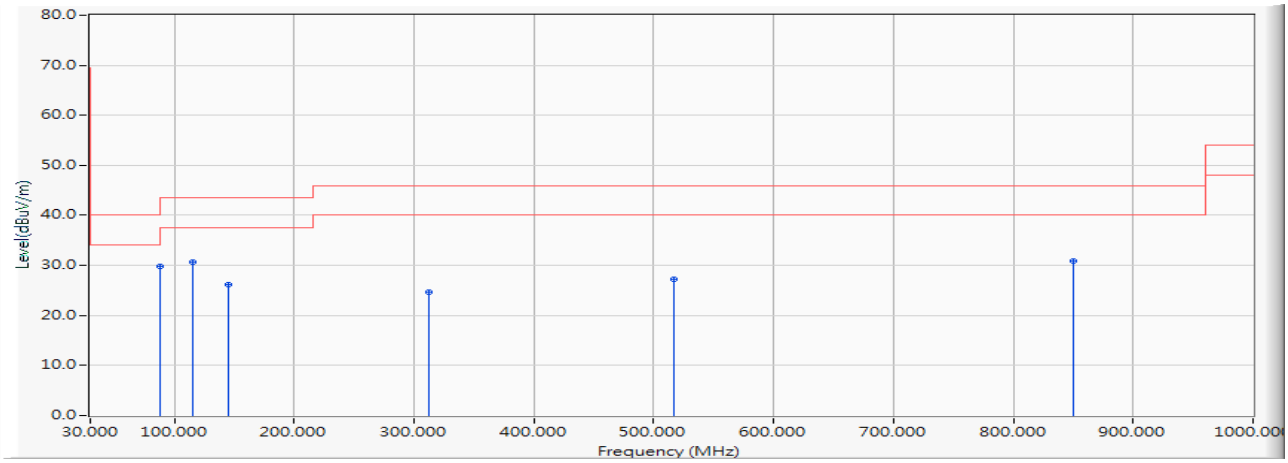
| Frequency MHz | Peak Measurement dBµV/m | Duty Cycle Factor dB | Average Measurement dBµV/m | Margin dB | Peak Limit dBµV/m | Average Limit dBµV/m |
|---|---|---|---|---|---|---|
| **Average Detector:** | | | | | | |
| -- | -- | -- | -- | -- | 74.000 | 54.000 |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : General Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT1

**Horizontal**



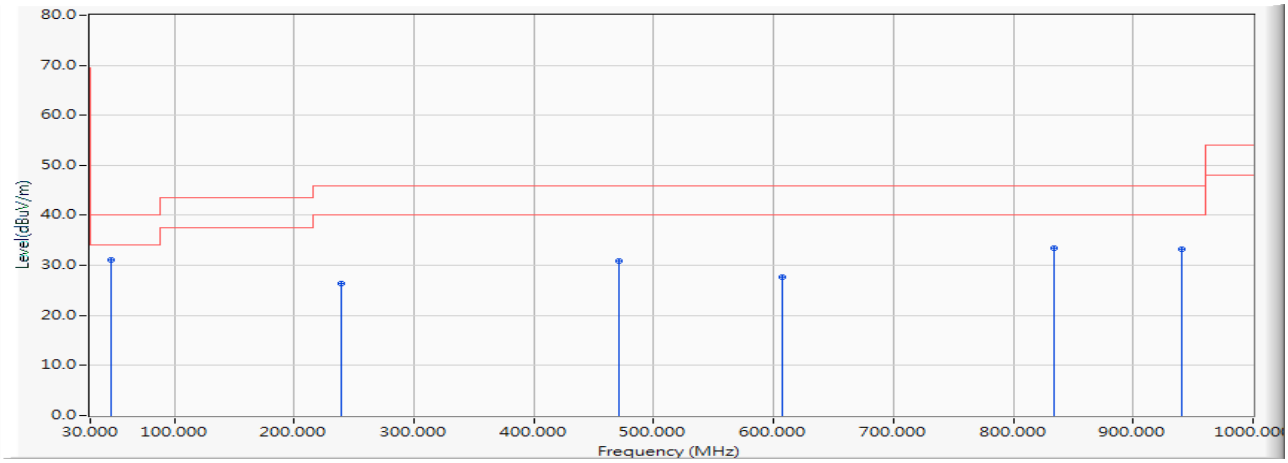

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 87.638 | -17.137 | 46.889 | 29.753 | -10.247 | 40.000 | QUASIPEAK |
| 2 | | 115.754 | -13.838 | 44.481 | 30.642 | -12.858 | 43.500 | QUASIPEAK |
| 3 | | 145.275 | -11.246 | 37.400 | 26.155 | -17.345 | 43.500 | QUASIPEAK |
| 4 | | 312.565 | -10.044 | 34.619 | 24.576 | -21.424 | 46.000 | QUASIPEAK |
| 5 | | 516.406 | -5.700 | 32.900 | 27.199 | -18.801 | 46.000 | QUASIPEAK |
| 6 | | 849.580 | -0.884 | 31.662 | 30.779 | -15.221 | 46.000 | QUASIPEAK |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : General Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT1

**Vertical**



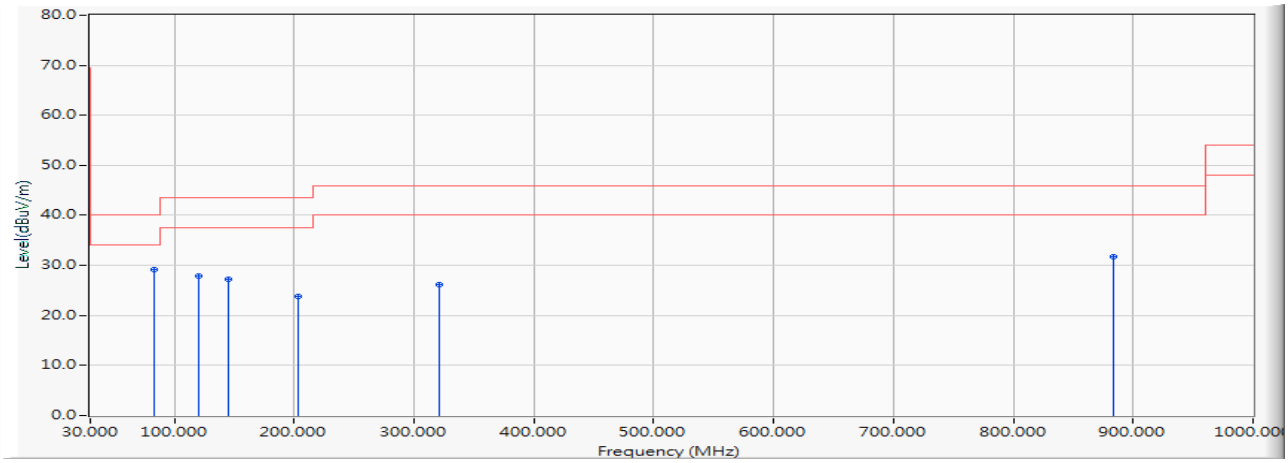

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 46.870 | -10.852 | 41.939 | 31.086 | -8.914 | 40.000 | QUASIPEAK |
| 2 | | 239.464 | -12.250 | 38.634 | 26.383 | -19.617 | 46.000 | QUASIPEAK |
| 3 | | 471.420 | -6.433 | 37.364 | 30.930 | -15.070 | 46.000 | QUASIPEAK |
| 4 | | 607.783 | -3.956 | 31.723 | 27.766 | -18.234 | 46.000 | QUASIPEAK |
| 5 | | 834.116 | -1.124 | 34.688 | 33.564 | -12.436 | 46.000 | QUASIPEAK |
| 6 | | 940.957 | 0.249 | 32.972 | 33.221 | -12.779 | 46.000 | QUASIPEAK |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : General Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2

**Horizontal**



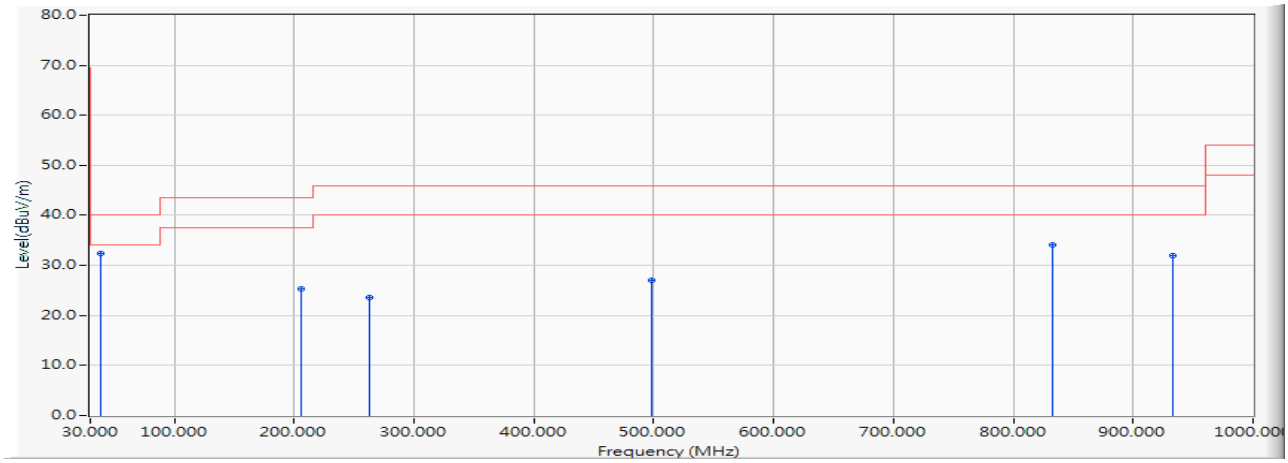

| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 83.420 | -16.312 | 45.431 | 29.119 | -10.881 | 40.000 | QUASIPEAK |
| 2 | | 119.971 | -13.432 | 41.212 | 27.780 | -15.720 | 43.500 | QUASIPEAK |
| 3 | | 145.275 | -11.246 | 38.537 | 27.292 | -16.208 | 43.500 | QUASIPEAK |
| 4 | | 202.913 | -13.664 | 37.485 | 23.822 | -19.678 | 43.500 | QUASIPEAK |
| 5 | | 321.000 | -9.847 | 35.906 | 26.059 | -19.941 | 46.000 | QUASIPEAK |
| 6 | | 883.319 | -0.426 | 32.182 | 31.756 | -14.244 | 46.000 | QUASIPEAK |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : General Radiated Emission Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2441.35MHz) _ANT2

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 38.435 | -11.346 | 43.711 | 32.364 | -7.636 | 40.000 | QUASIPEAK |
| 2 | | 205.725 | -13.599 | 38.897 | 25.299 | -18.201 | 43.500 | QUASIPEAK |
| 3 | | 263.362 | -11.738 | 35.432 | 23.693 | -22.307 | 46.000 | QUASIPEAK |
| 4 | | 498.130 | -5.984 | 32.945 | 26.962 | -19.038 | 46.000 | QUASIPEAK |
| 5 | | 832.710 | -1.146 | 35.314 | 34.167 | -11.833 | 46.000 | QUASIPEAK |
| 6 | | 932.522 | 0.158 | 31.703 | 31.862 | -14.138 | 46.000 | QUASIPEAK |

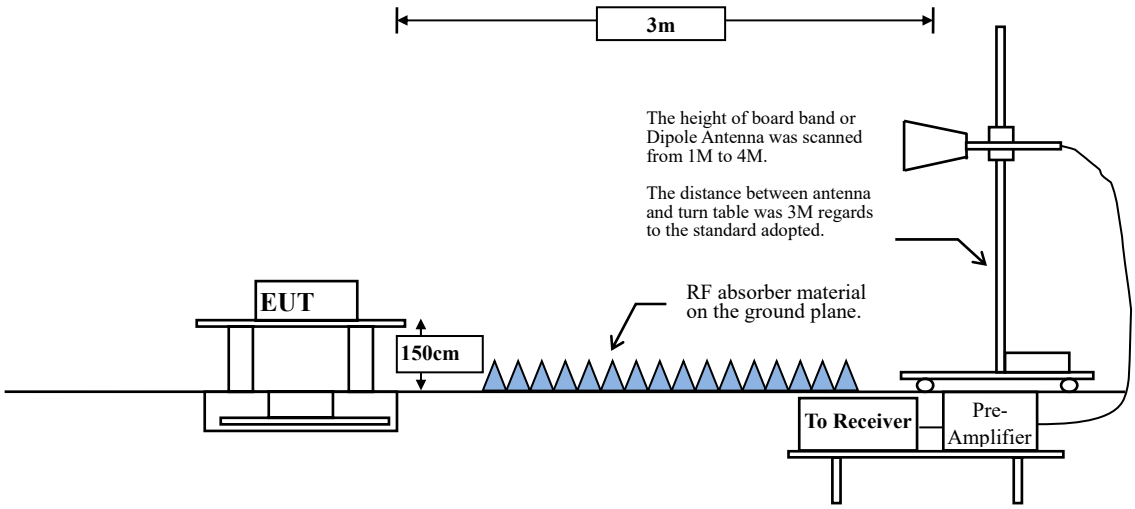
Note:

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

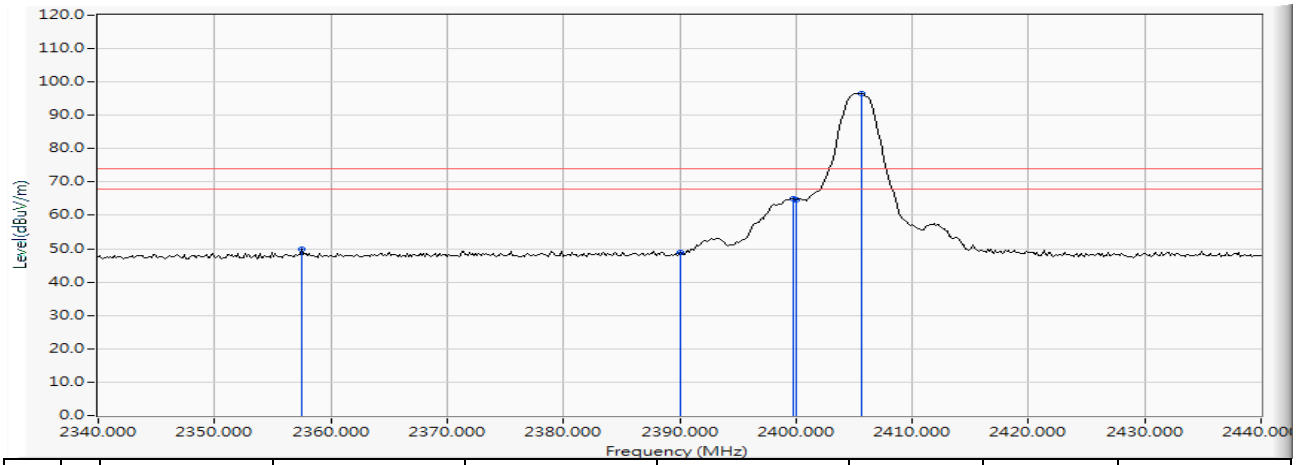
## 4.4. Uncertainty

Horizontal polarization：1-18GHz: ±3.77dB
Vertical polarization：1-18GHz : ±3.83dB

## 4.5. Test Result of Band Edge

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT1

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2357.536 | 10.129 | 39.680 | 49.809 | -24.191 | 74.000 | PEAK |
| 2 | | 2390.000 | 10.262 | 38.676 | 48.938 | -25.062 | 74.000 | PEAK |
| 3 | | 2399.710 | 10.302 | 54.751 | 65.053 | -8.947 | 74.000 | PEAK |
| 4 | | 2400.000 | 10.304 | 54.424 | 64.727 | -9.273 | 74.000 | PEAK |
| 5 | * | 2405.652 | 10.326 | 86.202 | 96.528 | -- | -- | 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.

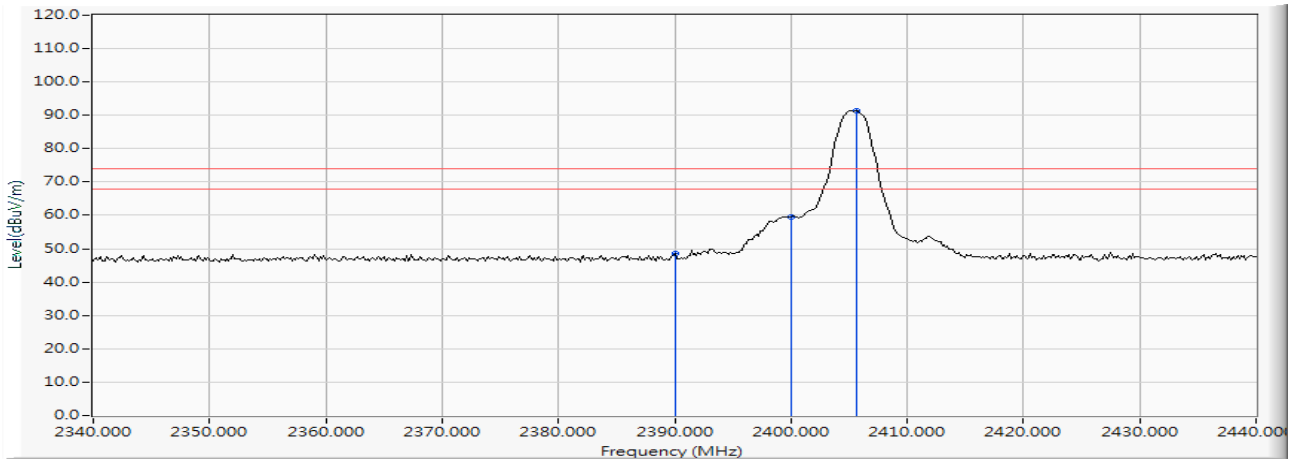
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 01 (Average) | 2357.536 | 49.809 | -35.124 | 14.685 | -39.315 | 54.000 | Pass |
| 01 (Average) | 2390.000 | 48.938 | -35.124 | 13.814 | -40.186 | 54.000 | Pass |
| 01 (Average) | 2399.710 | 65.053 | -35.124 | 29.929 | -24.071 | 54.000 | Pass |
| 01 (Average) | 2400.000 | 64.727 | -35.124 | 29.603 | -24.397 | 54.000 | Pass |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT1

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 10.262 | 38.177 | 48.439 | -25.561 | 74.000 | PEAK |
| 2 | | 2400.000 | 10.304 | 49.093 | 59.396 | -14.604 | 74.000 | PEAK |
| 3 | * | 2405.652 | 10.326 | 80.969 | 91.295 | -- | -- | 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.

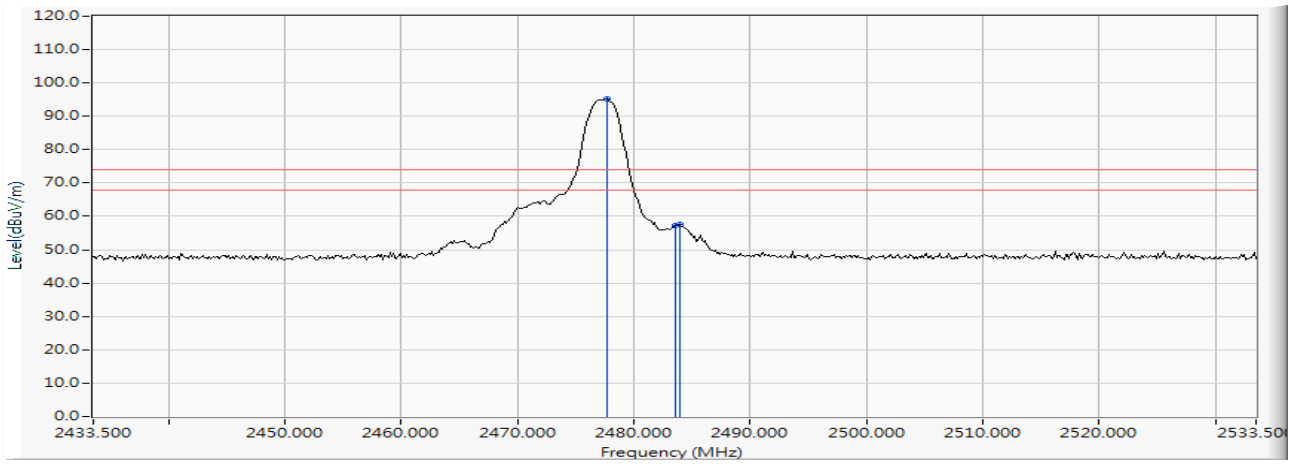
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 01 (Average) | 2390.000 | 48.439 | -35.124 | 13.315 | -40.685 | 54.000 | Pass |
| 01 (Average) | 2400.000 | 59.396 | -35.124 | 24.272 | -29.728 | 54.000 | Pass |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT1

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2477.703 | 10.619 | 84.461 | 95.080 | -- | -- | PEAK |
| 2 | | 2483.500 | 10.640 | 46.581 | 57.222 | -16.778 | 74.000 | PEAK |
| 3 | | 2483.935 | 10.644 | 46.933 | 57.576 | -16.424 | 74.000 | 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.

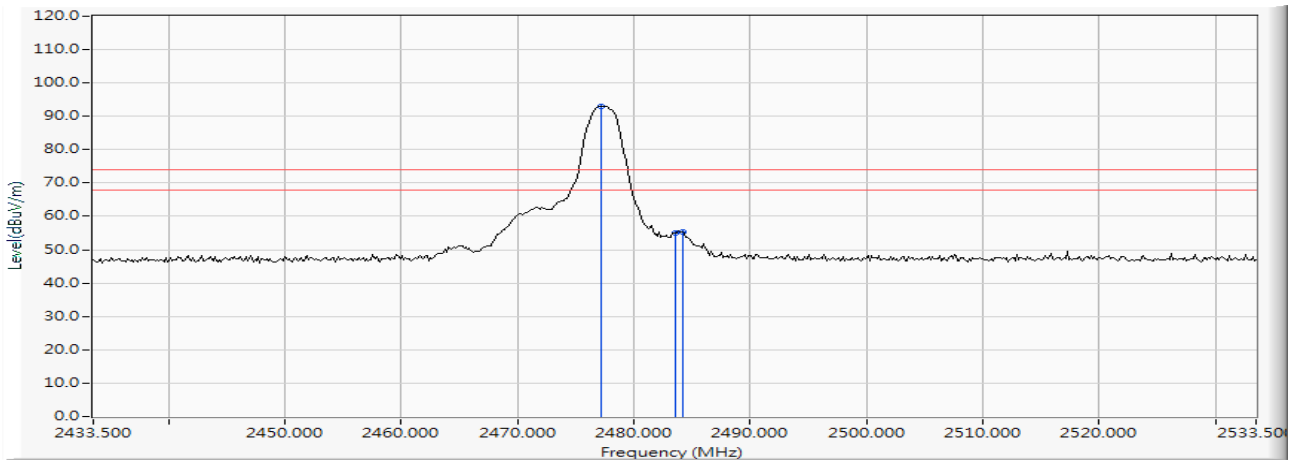
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 37 (Average) | 2483.500 | 57.222 | -35.124 | 22.098 | -31.902 | 54.000 | Pass |
| 37 (Average) | 2483.935 | 57.576 | -35.124 | 22.452 | -31.548 | 54.000 | Pass |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT1

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2477.123 | 10.616 | 82.434 | 93.050 | -- | -- | PEAK |
| 2 | | 2483.500 | 10.640 | 44.494 | 55.135 | -18.865 | 74.000 | PEAK |
| 3 | | 2484.225 | 10.645 | 44.646 | 55.290 | -18.710 | 74.000 | 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.

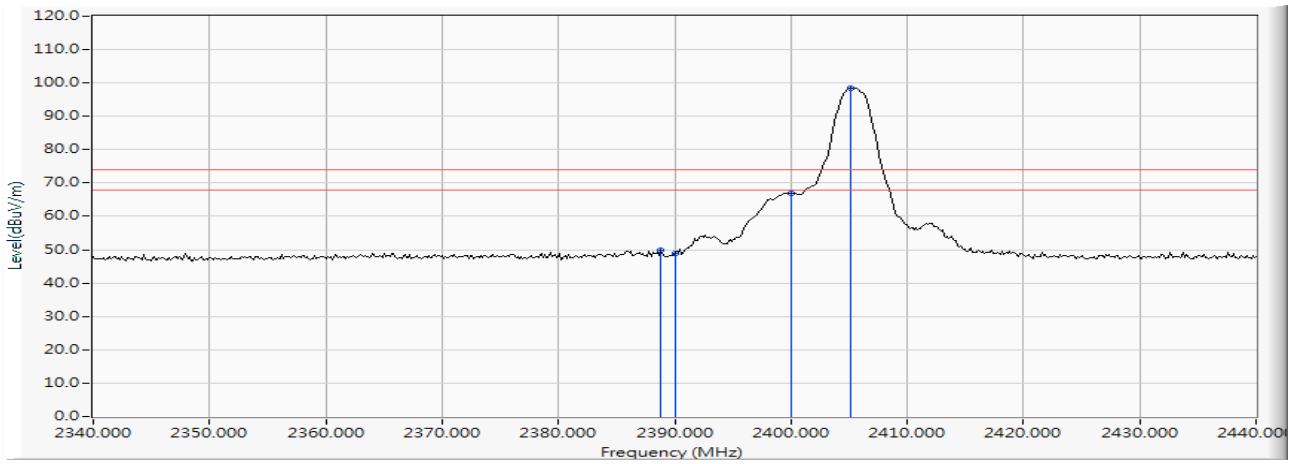
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 37 (Average) | 2483.500 | 55.135 | -35.124 | 20.011 | -33.989 | 54.000 | Pass |
| 37 (Average) | 2484.225 | 55.290 | -35.124 | 20.166 | -33.834 | 54.000 | Pass |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT2

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2388.841 | 10.257 | 39.460 | 49.717 | -24.283 | 74.000 | PEAK |
| 2 | | 2390.000 | 10.262 | 38.479 | 48.741 | -25.259 | 74.000 | PEAK |
| 3 | | 2400.000 | 10.304 | 56.461 | 66.764 | -7.236 | 74.000 | PEAK |
| 4 | * | 2405.072 | 10.324 | 88.011 | 98.335 | -- | -- | 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.

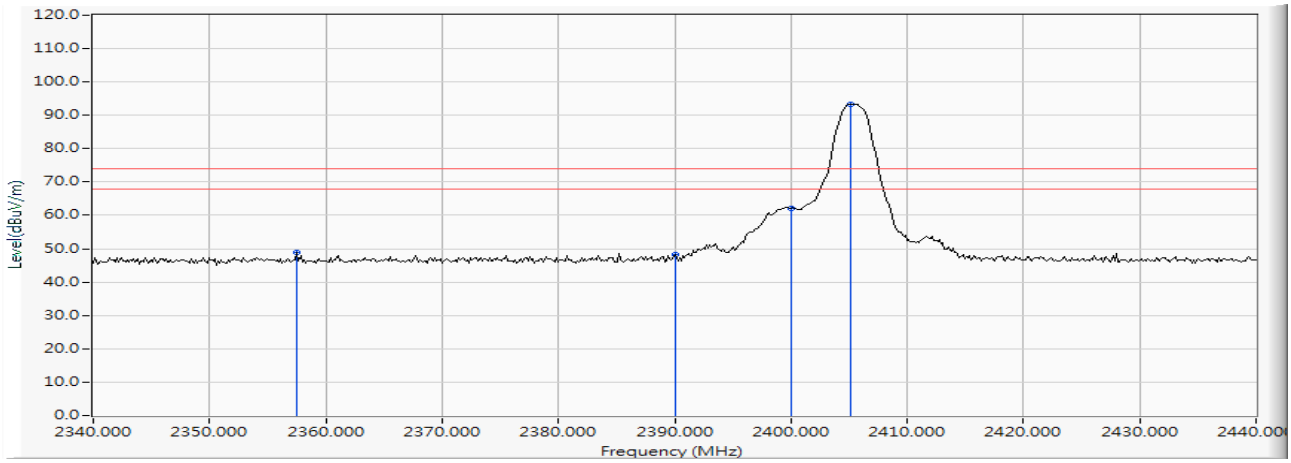
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 01 (Average) | 2388.841 | 49.717 | -35.124 | 14.593 | -39.407 | 54.000 | Pass |
| 01 (Average) | 2390.000 | 48.741 | -35.124 | 13.617 | -40.383 | 54.000 | Pass |
| 01 (Average) | 2400.000 | 66.764 | -35.124 | 31.640 | -22.360 | 54.000 | Pass |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2405.35MHz) _ANT2

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2357.536 | 10.129 | 38.917 | 49.046 | -24.954 | 74.000 | PEAK |
| 2 | | 2390.000 | 10.262 | 37.880 | 48.142 | -25.858 | 74.000 | PEAK |
| 3 | | 2400.000 | 10.304 | 51.673 | 61.976 | -12.024 | 74.000 | PEAK |
| 4 | * | 2405.072 | 10.324 | 83.039 | 93.363 | -- | -- | 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.

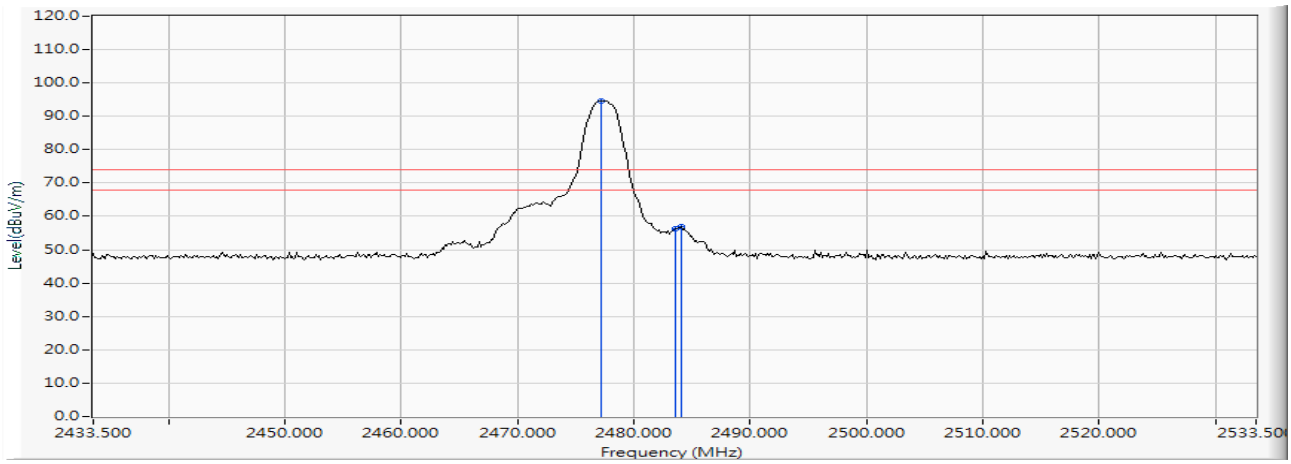
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 01 (Average) | 2357.536 | 49.046 | -35.124 | 13.922 | -40.078 | 54.000 | Pass |
| 01 (Average) | 2390.000 | 48.142 | -35.124 | 13.018 | -40.982 | 54.000 | Pass |
| 01 (Average) | 2400.000 | 61.976 | -35.124 | 26.852 | -27.148 | 54.000 | Pass |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT2

**Horizontal**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2477.123 | 10.616 | 83.964 | 94.580 | -- | -- | PEAK |
| 2 | | 2483.500 | 10.640 | 45.651 | 56.292 | -17.708 | 74.000 | PEAK |
| 3 | | 2484.080 | 10.644 | 46.316 | 56.959 | -17.041 | 74.000 | 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.

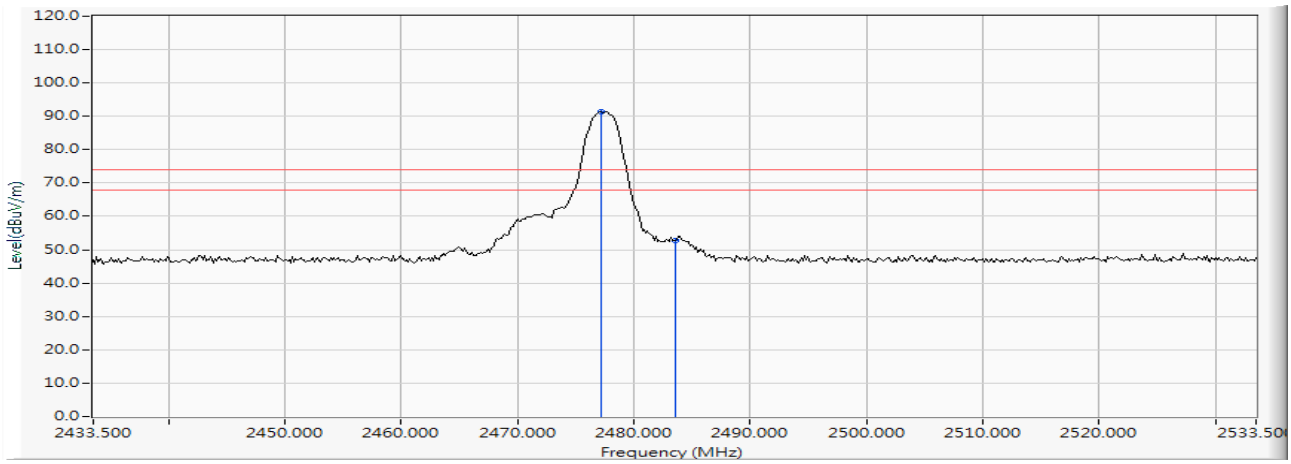
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 37 (Average) | 2483.500 | 56.292 | -35.124 | 21.168 | -32.832 | 54.000 | Pass |
| 37 (Average) | 2484.080 | 56.959 | -35.124 | 21.835 | -32.165 | 54.000 | Pass |

Note:

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

Product : TUF GAMING H7 WIRELESS
Test Item : Band Edge Data
Test Date : 2019/03/28
Test Mode : Mode 1: Transmit (2477.35MHz) _ANT2

**Vertical**




| | | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2477.123 | 10.616 | 80.646 | 91.262 | -- | -- | PEAK |
| 2 | | 2483.500 | 10.640 | 42.161 | 52.802 | -21.198 | 74.000 | 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.

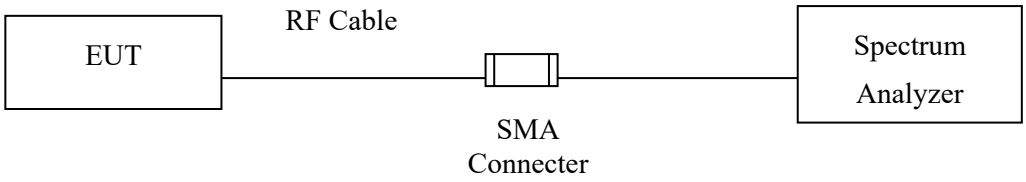
| Channel No. | Frequency (MHz) | Peak Measurement (dBµV/m) | Duty Cycle Factor (dB) | Average Measurement (dBµV/m) | Margin (dB) | Average Limit (dBµV/m) | Result |
|---|---|---|---|---|---|---|---|
| 37 (Average) | 2483.500 | 52.802 | -35.124 | 17.678 | -36.322 | 54.000 | Pass |

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

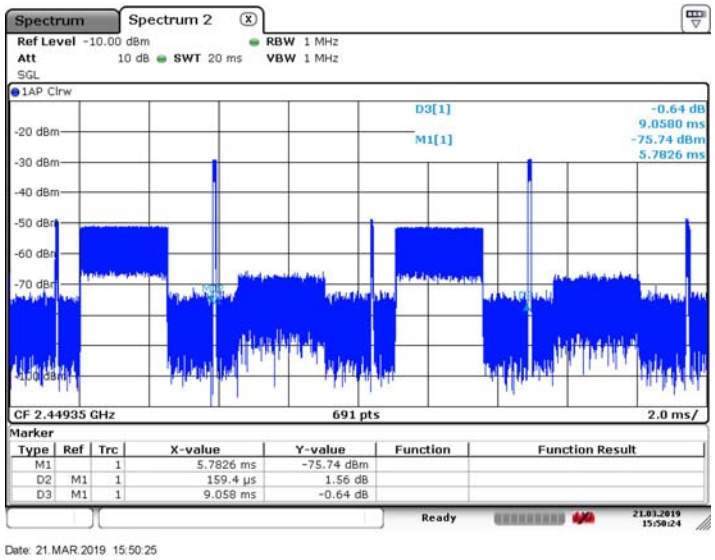



## 5.2. Uncertainty

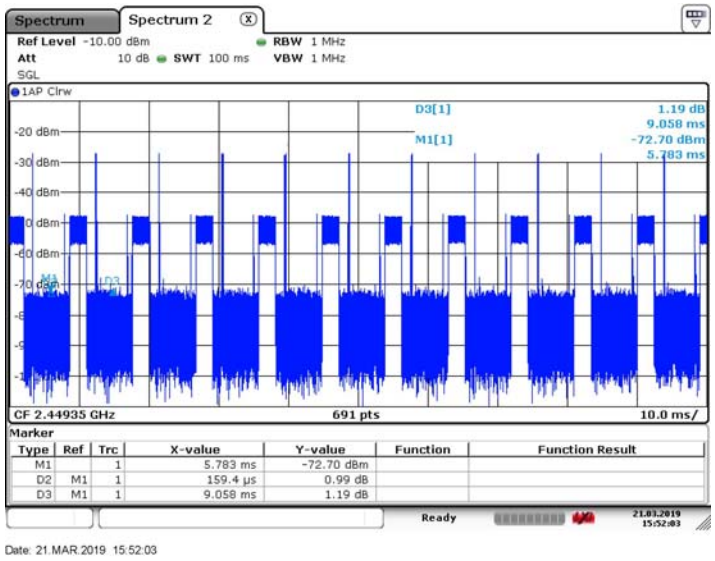
± 2.31ms

## 5.3. Test Result of Duty Cycle

Product : TUF GAMING H7 WIRELESS
Test Item : Duty Cycle Data
Test Mode : Normal mode




Date: 21.MAR.2019 15:50:25




Date: 21.MAR.2019 15:52:03

Time on of 100ms= 159.4us*11= 1.753ms

Duty Cycle=1.753ms / 100ms= 0.01753

Duty Cycle correction factor= 20 LOG 0.01753= -35.124 dB

| | | |
|---|---|---|
| **Duty Cycle correction factor** | **-35.124** | **dB** |

## 6. EMI Reduction Method During Compliance Testing

No modification was made during testing.