

## RF Exposure Report

**Report No.:** SA191125C08

**FCC ID:** I4L-LAVIEHAAX200

**Test Model:** PC-HA97GRAW

**Received Date:** Nov. 25, 2019

**Date of Evaluation:** Jan. 15, 2020

**Issued Date:** Jan. 17, 2020

**Applicant:** Micro-Star International Co., Ltd.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City  
33383, TAIWAN

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

| Issue No.   | Description      | Date Issued   |
|-------------|------------------|---------------|
| SA191125C08 | Original Release | Jan. 17, 2020 |

## 1 Certificate of Conformity

**Product:** AIO PC

**Brand:** NEC

**Test Model:** PC-HA97GRAW

**Sample Status:** Mass product

**Applicant:** Micro-Star International Co., Ltd.

**Date of Evaluation:** Jan. 15, 2020

**Standards:** FCC Part 2 (Section 2.1091)

**References Test Guidance :** KDB 447498 D01 General RF Exposure Guidance v06  
IEEE C95.3 -2002

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :**



**Date:**

Jan. 17, 2020

Gina Liu / Specialist

**Approved by :**



**Date:**

Jan. 17, 2020

Dylan Chiou / Senior Project Engineer

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz)                                 | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Average Time (minutes) |
|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| Limits For General Population / Uncontrolled Exposure |                               |                               |                                     |                        |
| 0.3-1.34                                              | 614                           | 1.63                          | (100)*                              | 30                     |
| 1.34-30                                               | 824/f                         | 2.19/f                        | (180/f <sup>2</sup> )*              | 30                     |
| 30-300                                                | 27.5                          | 0.073                         | 0.2                                 | 30                     |
| 300-1500                                              | ...                           | ...                           | f/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

f = Frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

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

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

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Calculation Result of Maximum Conducted Power

| Band | Frequency Band (MHz) | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|------|----------------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN | 2412-2472            | 26.78           | 3.64               | 20            | 0.219                               | 1.00                        |
|      | 5180-5240            | 22.63           | 2.71               | 20            | 0.068                               | 1.00                        |
|      | 5250-5320            | 22.46           | 2.22               | 20            | 0.058                               | 1.00                        |
|      | 5500-5720            | 23.19           | 2.89               | 20            | 0.081                               | 1.00                        |
|      | 5745-5825            | 23.03           | 2.81               | 20            | 0.076                               | 1.00                        |
| BT   | 2402-2480            | 10.37           | -0.36              | 20            | 0.002                               | 1.00                        |

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

- 2.4GHz: Directional gain =  $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 3.64\text{dBi}$   
5.0GHz:

**For U-NII-1 Band:**

Directional gain =  $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 2.71\text{dBi}$

**For U-NII-2A:**

Directional gain =  $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 2.22\text{dBi}$

**For U-NII-2C Band:**

Directional gain =  $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 2.89\text{dBi}$

**For U-NII-3 Band:**

Directional gain =  $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 2.81\text{dBi}$

### Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + BT =  $0.219/1 + 0.002/1 = 0.221$

WLAN 5GHz + BT =  $0.081/1 + 0.002/1 = 0.083$

**Therefore the maximum calculations of above situations are less than the "1" limit.**

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