

## RF Exposure Report

**Report No.:** SA181001E06

**FCC ID:** 2AHKM-XM2

**Test Model:** XM2

**Received Date:** Oct. 01, 2018

**Test Date:** Nov. 06, 2018

**Issued Date:** Nov. 16, 2018

**Applicant:** Hitron Technologies Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**Test Location :** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

| Issue No.   | Description       | Date Issued   |
|-------------|-------------------|---------------|
| SA181001E06 | Original release. | Nov. 16, 2018 |

## 1 Certificate of Conformity

**Product:** WIRELESS DOCSIS 3.1 METER

**Brand:** Hitron

**Test Model:** XM2

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Hitron Technologies Inc.

**Test Date:** Nov. 06, 2018

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

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 EMC characteristics under the conditions specified in this report.

**Prepared by :** Mary Ko , **Date:** Nov. 16, 2018  
Mary Ko / Specialist

**Approved by :** May Chen , **Date:** Nov. 16, 2018  
May Chen / Manager

## 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

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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 25cm away from the body of the user.

So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

| Antenna No. | Chain No. | Brand | Model        | Antenna Net Gain(dBi) | Frequency range | Antenna Type | Connector Type | Cable Length (mm) |
|-------------|-----------|-------|--------------|-----------------------|-----------------|--------------|----------------|-------------------|
| 1           | Chain 1   | Anjie | AJDF2J-B0001 | 3.82                  | 2.4~2.4835GHz   | PCB          | i-pex(MHF)     | 250               |
|             |           |       |              | 5.1                   | 5.15~5.85GHz    | PCB          | i-pex(MHF)     |                   |
| 2           | Chain 0   | Anjie | AJDF2J-C0001 | 6.36                  | 2.4~2.4835GHz   | PCB          | i-pex(MHF)     | 90                |
|             |           |       |              | 6.94                  | 5.15~5.85GHz    | PCB          | i-pex(MHF)     |                   |

## 2.5 Calculation Result of Maximum Conducted Power

| Operation Mode | Evaluation Frequency (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------|----------------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN 2.4GHz    | 2437                       | 675.461        | 8.19               | 25            | 0.56690                             | 1                           |
| WLAN 5GHz      | 5200                       | 277.341        | 9.08               | 25            | 0.28571                             | 1                           |

Note:

2.4GHz: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 8.19\text{dBi}$

5GHz: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 9.08\text{dBi}$

### 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

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.56690 / 1 + 0.28571 / 1 = 0.85261$

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

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