# RF Exposure Report

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| **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 |

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| **Applicant:** | Hitron Technologies Inc. |
| **Address:** | No. 1-8,Li-Hsin 1st Rd.,Hsinchu Science Park, HSINCHU,30078,Taiwan |

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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 |

## Table of Contents

## Release Control Record

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

## 1 Certificate of Conformity

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|---|---|
| **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)<br>KDB 447498 D01 General RF Exposure Guidance v06<br>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 :** , **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 ($mW/cm^2$) | 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 | ($180/f^2$)* | 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 $mW/cm^2$

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 | Connecter 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 ($mW/cm^2$) | Limit ($mW/cm^2$) |
|---|---|---|---|---|---|---|
| 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] = 8.19dBi

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

**Conclusion:**

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……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.**

**--- END ---**