

## RF Exposure Report

**Report No.:** SA170613E01

**FCC ID:** 2AHKM-HTEMN3

**Test Model:** HT-EMN3

**Received Date:** June 13, 2017

**Test Date:** July 13 to 21, 2017

**Issued Date:** Aug. 11, 2017

**Applicant:** Hitron Technologies Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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### Release Control Record

| Issue No.   | Description       | Date Issued   |
|-------------|-------------------|---------------|
| SA170613E01 | Original release. | Aug. 11, 2017 |

## 1 Certificate of Conformity

**Product:** 4x4 5G Wireless MoCA 2.0 Network Extender

**Brand:** hitron

**Test Model:** HT-EMN3

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Hitron Technologies Inc.

**Test Date:** July 13 to 21, 2017

**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 :** Wendy Wu , **Date:** Aug. 11, 2017  
Wendy Wu / Specialist

**Approved by :** May Chen , **Date:** Aug. 11, 2017  
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

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

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 35cm away from the body of the user.

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

### 2.4 Antenna Gain

| Chain No. | Brand  | Model        | Antenna Gain (dBi) | Frequency range (MHz) | Antenna Type | Connector Type | Cable Length |
|-----------|--------|--------------|--------------------|-----------------------|--------------|----------------|--------------|
| 2G1       | Walsin | 393000015827 | 3.56               | 2400-2500             | PCB          | IPEX           | 185mm        |
| 2G2       |        | 393000015927 | 4.15               | 2400-2500             | PCB          | IPEX           | 100mm        |
| 5G1       |        | 393000016027 | 5.27               | 5150~5850             | PCB          | IPEX           | 135mm        |
| 5G2       |        | 393000016127 | 6.17               | 5150~5850             | PCB          | IPEX           | 185mm        |
| 5G3       |        | 393000016227 | 5.05               | 5150~5850             | PCB          | IPEX           | 110mm        |
| 5G4       |        | 393000016327 | 5.64               | 5150~5850             | PCB          | IPEX           | 60mm         |

## 2.5 Calculation Result of Maximum Conducted Power

| Frequency Band (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462            | 684.125        | 6.87               | 35            | 0.21617                             | 1                           |
| 5180-5240            | 463.333        | 11.56              | 35            | 0.43107                             | 1                           |
| 5745-5825            | 793.302        | 11.56              | 35            | 0.73806                             | 1                           |

**NOTE:**

2.4GHz: Directional gain =  $10 \log[(10^{C0/20} + 10^{C1/20})^2 / 2] = 6.87\text{dBi}$

5.0GHz: Directional gain =  $10 \log[(10^{C0/20} + 10^{C1/20} + 10^{C2/20} + 10^{C3/20})^2 / 4] = 11.56\text{dBi}$

**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

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.21617 / 1 + 0.73806 / 1 = 0.95423$

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

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