

## RF Exposure Report

**Report No.:** SA200603E15

**FCC ID:** K7S-03580

**Test Model:** MX4200

**Series Model:** MX4050, MX4000, MX4200C

**Received Date:** June 03, 2020

**Test Date:** July 01 to 02, 2020

**Issued Date:** July 17, 2020

**Applicant:** Belkin International, Inc.

**Address:** 12045 East Waterfront Drive Playa Vista, CA. 90094, USA

**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

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

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

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### Release Control Record

| Issue No.   | Description       | Date Issued   |
|-------------|-------------------|---------------|
| SA200603E15 | Original release. | July 17, 2020 |

## 1 Certificate of Conformity

**Product:** Velop AX4200 WiFi 6 System  
**Brand:** Linksys  
**Test Model:** MX4200  
**Series Model:** MX4050, MX4000, MX4200C  
**Sample Status:** ENGINEERING SAMPLE  
**Applicant:** Belkin International, Inc.  
**Test Date:** July 01 to 02, 2020  
**Standards:** FCC Part 2 (Section 2.1091)  
IEEE C95.3 -2002  
**References Test Guidance:** KDB 447498 D01 General RF Exposure Guidance v06

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 :** Phoenix Huang, **Date:** July 17, 2020  
Phoenix Huang / Specialist

**Approved by :** Clark Lin, **Date:** July 17, 2020  
Clark Lin / Technical 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

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

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 38 cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

| Ant. No.  | Transmitter Circuit | Ant.Net Gain (dBi) | Freq. Range (GHz) | Ant. Type | Connector Type |
|-----------|---------------------|--------------------|-------------------|-----------|----------------|
| WiFi LB_1 | Dual A              | 3.1                | 2.4~2.4835        | PCB       | i-pex(MHF)     |
|           |                     | 3.5                | 5.15~5.25         |           |                |
|           |                     | 5                  | 5.25~5.35         |           |                |
|           |                     | 3.7                | 5.47~5.725        |           |                |
|           |                     | 4.6                | 5.725~5.85        |           |                |
| WiFi LB_2 | Dual B              | 2.8                | 2.4~2.4835        | PCB       | i-pex(MHF)     |
|           |                     | 4.8                | 5.15~5.25         |           |                |
|           |                     | 5.1                | 5.25~5.35         |           |                |
|           |                     | 5                  | 5.47~5.725        |           |                |
|           |                     | 4.7                | 5.725~5.85        |           |                |
| WiFi HB_1 | 5/6G A              | 3                  | 5.15~5.25         | PCB       | i-pex(MHF)     |
|           |                     | 3.8                | 5.25~5.35         |           |                |
|           |                     | 3.7                | 5.47~5.725        |           |                |
|           |                     | 3.7                | 5.725~5.85        |           |                |
| WiFi HB_2 | 5/6G B              | 3.3                | 5.15~5.25         | PCB       | i-pex(MHF)     |
|           |                     | 4.1                | 5.25~5.35         |           |                |
|           |                     | 3.3                | 5.47~5.725        |           |                |
|           |                     | 3.3                | 5.725~5.85        |           |                |
| WiFi HB_3 | 5/6G C              | 2.6                | 5.15~5.25         | PCB       | i-pex(MHF)     |
|           |                     | 3.6                | 5.25~5.35         |           |                |
|           |                     | 4.1                | 5.47~5.725        |           |                |
|           |                     | 3.9                | 5.725~5.85        |           |                |
| WiFi HB_4 | 5/6G D              | 2.4                | 5.15~5.25         | PCB       | i-pex(MHF)     |
|           |                     | 2.9                | 5.25~5.35         |           |                |
|           |                     | 2.6                | 5.47~5.725        |           |                |
|           |                     | 3.8                | 5.725~5.85        |           |                |
| BT        | -                   | 2.1                | 2.4~2.4835        | PCB       | i-pex(MHF)     |

Note: The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

## 2.5 Calculation Result of Maximum Conducted Power

| Operation Mode | Evaluation Frequency (MHz) | Max. Average Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------|----------------------------|-------------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN (2.4GHz)  | 2412~2462                  | 799.923                 | 5.96               | 38            | 0.17389                             | 1                           |
| WLAN (U-NII-1) | 5180~5260                  | 648.459                 | 7.18               | 38            | 0.18668                             | 1                           |
| WLAN (U-NII-3) | 5745~5825                  | 961.375                 | 9.70               | 38            | 0.49444                             | 1                           |
| BT-LE          | 2402~2480                  | 104.954                 | 2.10               | 38            | 0.00938                             | 1                           |

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.96 \text{ dBi}$
- 5GHz:
  - U-NII-1: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.18 \text{ dBi}$
  - U-NII-3: Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 9.7 \text{ dBi}$

### 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 (U-NII-1) + WLAN 5GHz (U-NII-3) + Bluetooth =  $0.17389 / 1 + 0.18668 / 1 + 0.49444 / 1 + 0.00938 / 1 = 0.86439$

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

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