

RF Exposure Report

Report No.: SA200603E15A

FCC ID: K7S-03580

Test Model: MX4200

Series Model: MX4050, MX4000, MX4200C

Received Date: June 03, 2020

Test Date: Aug. 05 to 06, 2020

Issued Date: Jan. 12, 2021

Applicant: Belkin International, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA200603E15A	Original release.	Jan. 12, 2021

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: Aug. 05 to 06, 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:** Jan. 12, 2021
Phoenix Huang / Specialist

Approved by : Clark Lin, **Date:** Jan. 12, 2021
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 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

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

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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

For 2.4GHz, 5GHz (U-NII-1 & U-NII-3 band) and BT-LE data was copied from the original test report (Report No.: SA200603E15)

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN (2.4GHz)	2412~2462	799.923	5.96	38	0.17389	1
WLAN (U-NII-1)	5180~5240	648.459	7.18	38	0.18668	1
WLAN (U-NII-2A)	5260~5320	239.143	8.06	38	0.08431	1
WLAN (U-NII-2C)	5500~5720	241.145	9.46	38	0.11735	1
WLAN (U-NII-3)	5745~5825	961.375	9.7	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-2A: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 8.06 \text{ dBi}$
 - U-NII-2C: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 9.46 \text{ dBi}$
 - 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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