

RF Exposure Report

Report No.: SA191106E07

FCC ID: Q87-08177

Test Model: EA8100 V2

Received Date: Nov. 06, 2019

Test Date: Nov. 23, 2019

Issued Date: Dec. 20, 2019

Applicant: LINKSYS LLC

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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
SA191106E07	Original release.	Dec. 20, 2019

1 Certificate of Conformity

Product: LINKSYS MAX-STREAM AC2600 MU-MIMO GIGABIT ROUTER

Brand: Linksys

Test Model: EA8100 V2

Sample Status: ENGINEERING SAMPLE

Applicant: Linksys LLC

Test Date: Nov. 23, 2019

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.3 -2002

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 : Vivian Huang , **Date:** Dec. 20, 2019
Vivian Huang / Specialist

Approved by : Clark Lin , **Date:** Dec. 20, 2019
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 35cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna NO.	RF Chain NO.	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length	Cable Loss(dB)	excluding cable loss Antenna Gain(dBi)
1	Chain3	0.38	2.4~2.4835GHz	Dipole	i-pex(MHF)	290mm	0.9	1.28
	Chain0	0.14	5.15~5.47GHz				1.8	1.94
		0.78	5.5~5.85GHz					2.58
2	Chain2	0.63	2.4~2.4835GHz	Dipole	i-pex(MHF)	245mm	0.75	1.38
	Chain1	0.09	5.15~5.47GHz				1.5	1.59
		0.96	5.5~5.85GHz					2.46
3	Chain1	0.64	2.4~2.4835GHz	Dipole	i-pex(MHF)	300mm	0.9	1.54
	Chain2	0.25	5.15~5.47GHz				1.8	2.05
		0.84	5.5~5.85GHz					2.64
4	Chain0	0.94	2.4~2.4835GHz	Dipole	i-pex(MHF)	215mm	0.6	1.54
	Chain3	0.93	5.15~5.47GHz				1.2	2.13
		1.44	5.5~5.85GHz					2.64

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	855.123	6.67	35	0.25804	1
WLAN 5GHz U-NII-1	5230	560.772	6.38	35	0.15828	1
WLAN 5GHz U-NII-3	5825	771.566	7.03	35	0.25295	1

NOTE:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 6.67\text{dBi}$
5GHz U-NII-1: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 6.38\text{dBi}$
5GHz U-NII-3: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 7.03\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.25804 / 1 + 0.25295 / 1 = 0.51099$$

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

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