

RF Exposure Report

Report No.: SA170925E04

FCC ID: Q87-CG6350

Test Model: CG6350

Received Date: Sep. 25, 2017

Test Date: Oct. 27, 2017

Issued Date: Nov. 21, 2017

Applicant: Linksys LLC

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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
SA170925E04	Original release.	Nov. 21, 2017

1 Certificate of Conformity

Product: D3 WiFi Gateway

Brand: Linksys

Test Model: CG6350

Sample Status: ENGINEERING SAMPLE

Applicant: Linksys LLC

Test Date: Oct. 27, 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 :

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Date:

Nov. 21, 2017

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:

Approved by

May Chen

Date:

Nov. 21, 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 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/cm²

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 35cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Ant Set.	Brand	Model	Antenna Net Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type	*Cable Length
1	Airgain	N5X20B5-T-PK1-G1XST85BU	2.8	5.15~5.35	PCB	I-PEX(U.FL)	85
			4.1	5.47~5.725			
			5.0	5.725~5.85			
		N5X20SD-T-PK1-G1XST85BU	3.48	5.15~5.35	PCB	I-PEX(U.FL)	85
			3.48	5.47~5.725			
			3.48	5.725~5.85			
2	Airgain	N2420GS-T-PK1-B1XST210BU	1.6	2.4~2.49	PCB	I-PEX(U.FL)	210
		N2420GS-T-PK1-B1XST245BU	1.6	2.4~2.49	PCB	I-PEX(U.FL)	245

2.5 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	564.108	4.61	35	0.10593	1
5180-5240	939.469	6.16	35	0.25208	1
5745-5825	156.806	7.28	35	0.05445	1

NOTE:

2.4GHz: Directional gain = 1.60dBi + 10log(2) = 4.61dBi

5GHz:

For U-NII-1: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.16\text{dBi}$

For U-NII-3: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.28\text{dBi}$

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

WLAN 2.4GHz + WLAN 5GHz = $0.10593 / 1 + 0.25208 / 1 = 0.35801$

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

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