RF Exposure Report

Report No.: SA171204E07-2

FCC ID: Q87-03331

Test Model: WHW01

Series Model: VLP01, A01

Received Date: Dec. 04, 2017

Test Date: Dec. 08, 2017 to Jan. 12, 2018

Issued Date: Mar. 13, 2018

Applicant: Linksys LLC

Address: 121 Theory Drive, Irvine, CA 92617, 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 R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
SA171204E07-2	Original release.	Mar. 13, 2018

1 Certificate of Conformity

Product:	Velop
Brand:	Linksys
Test Model:	WHW01
Series Model:	VLP01, A01
Sample Status:	ENGINEERING SAMPLE
Applicant:	Linksys LLC
Test Date:	Dec. 08, 2017 to Jan. 12, 2018
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 : _____ , **Date:** _____ Mar. 13, 2018 _____

Wendy Wu / Specialist

Approved by : _____ , **Date:** _____ Mar. 13, 2018 _____

May Chen / Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

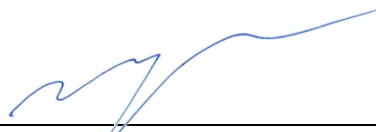| Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f^2)*	30
30-300	27.5	0.073	0.2	30
300-1500	…	…	f/1500	30
1500-100,000	…	…	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/cm^2

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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

WLAN						
Ant No.	Brand	Model	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	ARISTOTLE	RFA-25-9800-P11	2.4	2.4~2.4835	PCB	i-pex(MHF)
			3.6	5.15~5.85		
2	ARISTOTLE	RFA-25-9800-P22	1.36	2.4~2.4835	PCB	i-pex(MHF)
			3.5	5.15~5.85		
Bluetooth						
Ant No.	Brand	Model	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type
1	ARISTOTLE	RFA-BT-9800-40	1.48	2.4~2.4835	PCB	i-pex(MHF)

2.5 Calculation Result of Maximum Conducted Power

For 2.4GHz, 5GHz (U-NII-1 & UNII-3 band) and Bluetooth data was copied from the original test report (Report No.: SA171204E07)

WLAN:

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	474.875	4.91	20	0.29262	1
5180-5240	658.559	6.56	20	0.59337	1
5260-5320	240.196	6.56	20	0.21642	1
5500-5720	234.449	6.56	20	0.21124	1
5745-5825	700.831	6.56	20	0.63146	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 4.91$ dBi

5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.56$ dBi

BT-EDR

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	6.324	1.48	20	0.00177	1

BT-LE

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	6.109	1.48	20	0.00171	1

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz + Bluetooth = 0.29262 / 1 + 0.63146 / 1 + 0.00177 / 1 = 0.92585

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

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