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RF Exposure Report

Report No.: SA130725E01E

FCC ID: Q87-EA6900V11

Test Model: EA6900 V1.1

Received Date: Mar. 17, 2016

Test Date: Mar. 29, 2016

Issued Date: May 19, 2016

Applicant: Linksys LLC

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Report Issue History Record

Issue No.	Reason for Change	Date Issued
SA130725E01E	Original	Feb. 17, 2014
SA130725E01E	Upgraded the standard to section 15.407 under new rule for U-NII-1 and U-NII-3 band.	May 19, 2016

Release Control Record

Issue No.	Description	Date Issued
SA130725E01E	Original release.	May 19, 2016



1 Certificate of Conformity

Product: Linksys Smart Wi-Fi Router AC1900

Brand: Linksys

Test Model: EA6900 V1.1

Sample Status: ENGINEERING SAMPLE

Applicant: Linksys LLC

Test Date: Mar. 29, 2016

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

ANSI/ 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 : Wendy Wu. , **Date:** May 19, 2016
Wendy Wu / Specialist

Approved by : May Chen , **Date:** May 19, 2016
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				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

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 26cm away from the body of the user.

So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Transmitter Circuit	Brand	Antenna Type	Peak Gain(dBi) (Include cable loss)		Connector Type	Cable Loss (dB)	Cable Length (mm)
			For 2.4GHz (2.4GHz to 2.4835GHz)	For 5GHz (Band 1: 5.15 to 5.25GHz Band 4: 5.725 to 5.85GHz)			
Right Side Chain (0)	Galtronics	Dipole	1.3	5G Band1: 0.87 5G Band4: 1.95	R-SMA	NA	168
In center Chain (1)	Galtronics	Dipole	1.1	5G Band1: 0.47 5G Band4: 1.55	R-SMA	NA	262
Left Side Chain (2)	Galtronics	Dipole	1.1	5G Band1: 0.47 5G Band4: 1.55	R-SMA	NA	260

Note: From the above antennas, Chain (0) was selected as representative antenna for the 802.11a/b/g test and its data was recorded in this report.

3 Calculation Result Of Maximum Conducted Power

For 2.4GHz data was copied from the original test report (Report No.: SA130725E01A).

For 2.4GHz

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	986.826	5.94	26	0.45612	1

For 5GHz

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
5180-5240	562.98	0.87	26	0.22874	1
5745-5825	989.626	1.95	26	0.51560	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 5.94\text{dBi}$

5.18-5.24GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 5.38\text{dBi}$

5.745-5.825GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 6.46\text{dBi}$

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

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.45612 / 1 + 0.51560 / 1 = 0.97172$

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

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