

RF Exposure Report

Report No.: SA121222E03D

FCC ID: Q87-EA6700

Test Model: EA6700

Received Date: May 09, 2016

Test Date: May 13, 2016

Issued Date: Aug. 19, 2016

Applicant: Linksys LLC

Address: 121 Theory Drive Irvine California 92617 United States

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.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by any government agencies.

Table of Contents

Report Issue History Record	3
Release Control Record	3
1 Certificate of Conformity	4
2 RF Exposure	5
2.1 Limits for Maximum Permissible Exposure (MPE)	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
2.4 Antenna Gain	6
2.1 Calculation Result of Maximum Conducted Power	7

Report Issue History Record

Issue No.	Reason for Change	Date Issued
SA121222E03	Original	Mar. 07, 2013
SA121222E03C	Upgraded the standard to section 15.407 under new rule for U-NII-1 and U-NII-3 band.	May 19, 2016
SA121222E03D	Upgraded the standard to section 15.407 under new rule (16-24) for U-NII-3 band.	Aug. 19, 2016

Release Control Record

Issue No.	Description	Date Issued
SA121222E03D	Original release.	Aug. 19, 2016

1 Certificate of Conformity

Product: Linksys Smart Wi-Fi Router AC1750

Brand: Linksys

Test Model: EA6700

Sample Status: ENGINEERING SAMPLE

Applicant: Linksys LLC

Test Date: May 13, 2016

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 : Midoli Peng , **Date:** Aug. 19, 2016
Midoli Peng / Specialist

Approved by : May Chen , **Date:** Aug. 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 23cm away from the body of the user.

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

2.4 Antenna Gain

For 2.4GHz						
Transmitter Circuit	Brand	Model	Antenna Type	Peak Gain(dBi) (Include cable loss)	Frequency range (MHz to MHz)	Connecter Type
Left side Chain (1)	Galtronics	02100073-05389A1	Dipole	2.48	2400~2483.5	NA
Right side Chain (0)	Galtronics	02100073-05389A2	Dipole	3.15	2400~2483.5	NA
Front side Chain (2)	Galtronics	02100073-05389B1	Dipole	1.65	2400~2483.5	NA
For 5GHz (Band 1)						
Transmitter Circuit	Brand	Model	Antenna Type	Peak Gain(dBi) (Include cable loss)	Frequency range (MHz to MHz)	Connecter Type
Left side Chain (1)	Galtronics	02102142-05389A2	Dipole	3.55	5150~5250	NA
Right side Chain (0)	Galtronics	02102142-05389A3	Dipole	4.29	5150~5250	NA
Front side Chain (2)	Galtronics	02102142-05389B1	Dipole	3.86	5150~5250	NA
For 5GHz (Band 4)						
Transmitter Circuit	Brand	Model	Antenna Type	Peak Gain(dBi) (Include cable loss)	Frequency range (MHz to MHz)	Connecter Type
Left side Chain (1)	Galtronics	02102142-05389A2	Dipole	4.23	5725~5850	NA
Right side Chain (0)	Galtronics	02102142-05389A3	Dipole	4.79	5725~5850	NA
Front side Chain (2)	Galtronics	02102142-05389B1	Dipole	3.68	5725~5850	NA
Note: According to the above antennas, there are three antennas will transmit simultaneously (one is Vertical and the others are Horizontal).						

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	255.092	5.83	23	0.14690	1
5180-5240	543.153	6.94	23	0.44143	1
5745-5825	954.431	7.52	23	0.81111	1

NOTE:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 5.83\text{dBi}$

5GHz(5180-5240MHz): Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.94\text{dBi}$

5GHz(5745-5825MHz): Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.52\text{dBi}$

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 = $0.14690 / 1 + 0.81111 / 1 = 0.96$

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

--- END ---