RF Exposure Report

Report No.:	SA141225E12
FCC ID:	Q87-WRT1900ACV2
Test Model:	WRT1900AC V2
Received Date:	Dec. 25, 2014
Test Date:	Jan. 22, 2015
Issued Date:	Mar. 13, 2015
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:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
Test Location (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, 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 byr any government agencies.

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
SA141225E12	Original release.	Mar. 13, 2015

1 Certificate of Conformity

Product:	802.11ac Router
Brand:	Linksys
Test Model:	WRT1900AC V2
Sample Status:	ENGINEERING SAMPLE
Applicant:	Linksys LLC
Test Date:	Jan. 22, 2015
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D03 IEEE C95.1

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 : Phoenix Huang , **Date:** Mar. 13, 2015

Phoenix Huang / Specialist

Approved by : , **Date:** Mar. 13, 2015

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/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 28cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Brand	Gain (dBi)	Cable Loss (dB)	Net Gain (dBi)	Frequency Range (GHz to GHz)	Antenna Type	Connecter Type
Chain (0)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.6	1	5.15 ~ 5.25		
		3.8	1.9	1.9	5.725 ~ 5.85		
Chain (1)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.5	1.1	5.15 ~ 5.25		
		3.8	2.1	1.7	5.725 ~ 5.85		
Chain (2)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.5	1.1	5.15 ~ 5.25		
		3.8	2.1	1.7	5.725 ~ 5.85		
Chain (3)	LINKSYS	2.5	0.5	2	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	0.9	1.7	5.15 ~ 5.25		
		3.8	1.6	2.2	5.725 ~ 5.85		

3 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	981.935	7.65	28	0.58017	1
5180-5240	701.93	7.25	28	0.37824	1
5745-5825	622.189	7.90	28	0.38940	1

NOTE:
For 15.247
2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 7.65$dBi
5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 7.90$dBi
For 15.407
5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 7.25$dBi

Conclusion:

Both of the 2.4GHz and 5GHz WLAN can transmit simultaneously, the formula of calculated the MPE is:

$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \ldots\ldots$etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is 0.58017 / 1 + 0.38940 / 1 = 0.97, which is less than “1”.

--- END ---