

RF Exposure Report

Report No.: SA141229E04E R1

FCC ID: Q87-WRT1200AC

Test Model: WRT1200AC

Series Model: WRT1200AC V2

Received Date: Mar. 25, 2016

Test Date: Mar. 25 ~ May 11, 2016

Issued Date: Jun. 14, 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

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

Test Location (1): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, 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.

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Report Issue History Record

| Issue No. | Reason for Change | Date Issued |
|-----------------|--|---------------|
| SA141229E04 | Original release. | Mar. 13, 2015 |
| SA141229E04D | <ol style="list-style-type: none"> 1. Upgrade the standard to section 15.407 under new rule for U-NII-3 band. 2. Removed the original adapter "Model : MU30-5120250-A1 and MU30-P120250-A1" 3. Added one Model No.: WRT1200ACV2 | May 04, 2016 |
| SA141229E04E | Upgrade the standard to section 15.407 under new rule (16-24) for U-NII-3 band. | May 19, 2016 |
| SA141229E04E R1 | Modified the series model from WRT1200ACV2 to WRT1200AC V2. | Jun. 14, 2016 |

Release Control Record

| Issue No. | Description | Date Issued |
|-----------------|---|---------------|
| SA141229E04E | Original release | May 19, 2016 |
| SA141229E04E R1 | Modified the series model from WRT1200ACV2 to WRT1200AC V2. | Jun. 14, 2016 |

1 Certificate of Conformity

Product: 802.11ac Router
Brand: Linksys
Test Model: WRT1200AC
Series Model: WRT1200AC V2
Sample Status: Engineering sample
Applicant: Linksys LLC
Test Date: Mar. 25 ~ May 11, 2016
Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D01 (October 23, 2015)
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 :  , Date: Jun. 14, 2016
Polly Chien / Specialist

Approved by :  , Date: Jun. 14, 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

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 22cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 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 | Connector 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 | | |

4 Calculation Result Of Maximum Conducted Power

For WLAN (2.4GHz) & WLAN (5GHz - U-NII-1) data was copied from the original test report (Report No.: SA141229E04).

| Frequency Band (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm ²) | Limit (mW/cm ²) |
|----------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462 | 938.114 | 4.51 | 22 | 0.43571 | 1 |
| 5180-5240 | 928.803 | 4.06 | 22 | 0.38893 | 1 |
| 5745-5825 | 961.541 | 4.81 | 22 | 0.47853 | 1 |

Note:

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.51 \text{dBi}$

5GHz (5180-5240MHz): Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.06 \text{dBi}$

5GHz (5745-5825MHz): Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 4.81 \text{dBi}$

Conclusion:

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, 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 = $0.43571/1 + 0.47853 / 1 = 0.91424$

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

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