



# FCC RADIO EXPOSURE TEST REPORT

**FCC ID** : Q87-03418

**Equipment** : LINKSYS E2500 N600 Dual-Band WIFI ROUTER,  
LINKSYS E5350 AC1000 Dual-Band WIFI ROUTER,  
LINKSYS E5400 AC1200 Dual-Band WIFI ROUTER,  
LINKSYS E5300 AC750 Dual-Band WIFI ROUTER

**Brand Name** : LINKSYS

**Model Name** : E2500 V4, E5350, E5400, E5300

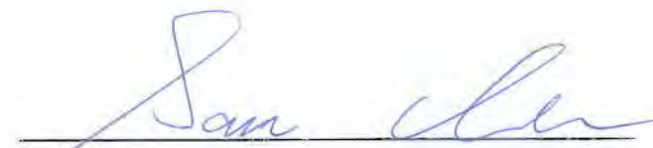
**Applicant** : Linksys LLC  
121 Theory, Irvine CA 92617, United States

**Standard** : 47 CFR Part 2.1091

The product was received on Oct. 31, 2018, and testing was started from Oct. 31, 2018 and completed on Dec. 27, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**  
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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Report Template No.: CB Ver1.0



## Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items          | Result (PASS/FAIL) | Remark |
|---------------|-----------------|---------------------|--------------------|--------|
| 2             | -               | Exposure evaluation | PASS               | -      |

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by: Sam Chen**

**Report Producer: Sandy Chuang**

# 1 General Description

## 1.1 EUT General Information

| RF General Information |                        |                           |                                                                                                 |
|------------------------|------------------------|---------------------------|-------------------------------------------------------------------------------------------------|
| Evaluation Mode        | Frequency Range (MHz)  | Operating Frequency (MHz) | Modulation Type                                                                                 |
| 2.4GHz WLAN            | 2400-2483.5            | 2412-2462                 | 802.11b: DSSS (DBPSK, DQPSK, CCK)<br>802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)                 |
| 5GHz WLAN              | 5150-5250<br>5725-5850 | 5180-5240<br>5745-5825    | 802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) |

## 1.2 Table for Multiple Listing

The EUT has four equipment names and model names which are identical to each other in all aspects except for the following table:

| Item | Equipment Name                             | Model Name |
|------|--------------------------------------------|------------|
| 1    | LINKSYS E2500 N600 Dual-Band WIFI ROUTER   | E2500 V4   |
| 2    | LINKSYS E5350 AC1000 Dual-Band WIFI ROUTER | E5350      |
| 3    | LINKSYS E5400 AC1200 Dual-Band WIFI ROUTER | E5400      |
| 4    | LINKSYS E5300 AC750 Dual-Band WIFI ROUTER  | E5300      |

| Item | Radio Type |         |         |         |          | Description                                                                                     |
|------|------------|---------|---------|---------|----------|-------------------------------------------------------------------------------------------------|
|      | 802.11b    | 802.11g | 802.11n | 802.11a | 802.11ac |                                                                                                 |
| 1    | V          | V       | V       | V       | X        | The difference equipment and model name served as marketing strategy and supporting radio type. |
| 2    | V          | V       | V       | V       | V        |                                                                                                 |
| 3    | V          | V       | V       | V       | V        |                                                                                                 |
| 4    | V          | V       | V       | V       | V        |                                                                                                 |

From the above models, model: E5400 is the highest speed of this series and include all functions and standard, so it was selected as representative model for the test and its data was recorded in this report.



### 1.3 Testing Location

| Testing Location                    |        |                                                                                                                               |
|-------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL : 886-3-327-3456 FAX : 886-3-327-0973   |
| <input checked="" type="checkbox"/> | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.<br>TEL : 886-3-656-9065 FAX : 886-3-656-9085 |

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

## 2 Maximum Permissible Exposure

### 2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                   | 6                                                                |
| 3.0-30                | 1842 / f                          | 4.89 / f                          | (900 / f)*                               | 6                                                                |
| 30-300                | 61.4                              | 0.163                             | 1.0                                      | 6                                                                |
| 300-1500              |                                   |                                   | F/300                                    | 6                                                                |
| 1500-100,000          |                                   |                                   | 5                                        | 6                                                                |

(B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | (100)*                                   | 30                                                               |
| 1.34-30               | 824/f                             | 2.19/f                            | (180/f)*                                 | 30                                                               |
| 30-300                | 27.5                              | 0.073                             | 0.2                                      | 30                                                               |
| 300-1500              |                                   |                                   | F/1500                                   | 30                                                               |
| 1500-100,000          |                                   |                                   | 1.0                                      | 30                                                               |

Note: f = frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



## 2.3 Calculated Result and Limit

### Exposure Environment: General Population / Uncontrolled Exposure

| Mode     | DG (dBi) | Power (dBm) | EIRP (dBm) | Tolerance (dB) | Tune-up EIRP (dBm) | Tune-up EIRP (W) | Distance (cm) | S (mW/cm <sup>2</sup> ) | S Limit (mW/cm <sup>2</sup> ) |
|----------|----------|-------------|------------|----------------|--------------------|------------------|---------------|-------------------------|-------------------------------|
| 2.4G;G1D | 2.53     | 25.84       | 28.37      | 0.50           | 28.87              | 0.77090          | 20            | 0.15337                 | 1.00000                       |
| 5.2G;D1D | 6.34     | 24.53       | 30.87      | 0.50           | 31.37              | 1.37088          | 20            | 0.27273                 | 1.00000                       |
| 5.8G;D1D | 6.34     | 24.41       | 30.75      | 0.50           | 31.25              | 1.33352          | 20            | 0.26530                 | 1.00000                       |

### Simultaneous Transmission Analysis Mode: WLAN 2.4GHz+WLAN 5GHz

| Mode     | DG (dBi) | Power (dBm) | EIRP (dBm) | Tolerance (dB) | Tune-up EIRP (dBm) | Tune-up EIRP (W) | Distance (cm) | S (mW/cm <sup>2</sup> ) | S Limit (mW/cm <sup>2</sup> ) | Ratio (S/Limit) |
|----------|----------|-------------|------------|----------------|--------------------|------------------|---------------|-------------------------|-------------------------------|-----------------|
| 2.4G;G1D | 2.53     | 25.84       | 28.37      | 0.50           | 28.87              | 0.77090          | 20            | 0.15336                 | 1                             | 0.15336         |
| 5.2G;D1D | 6.34     | 24.53       | 30.87      | 0.50           | 31.37              | 1.37088          | 20            | 0.27272                 | 1                             | 0.27272         |
|          |          |             |            |                |                    |                  |               |                         | Sum Ratio                     | 0.42608         |
|          |          |             |            |                |                    |                  |               |                         | Ratio Limit                   | 1               |

Note: The above antenna gain was declared by manufacturer.

————THE END————