RF Exposure Evaluation Report

Equipment	: MAX-STREAM AC4000 MU-MIMO TRI-BAND ROUTER
Brand Name	: LINKSYS
Model No.	: EA9300, EA9250
FCC ID	: Q87-EA9300
Standard	: 47 CFR Part 2.1091
Applicant	: Linksys LLC 121 Theory Drive, Irvine, CA 92617, USA

The product sample received on Dec. 27, 2016 and completely tested on Mar. 13, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit.

Cliff Chang
SPORTON INTERNATIONAL INC.

Testing Laboratory
1190

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA6D1310	Rev. 01	Initial issue of report	Mar. 23, 2017

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) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)

1.2 Table for Multiple Model Name

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

Model Name	Description
EA9300	All the models are identical, the different model names served as marketing strategy.
EA9250	

Note: From the above models, model: EA9300 was selected as representative model for the test and its data was recorded in this report.

1.3 Table for Multiple Source

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

Source	Brand Name	VENDORNO	PARTDESC
First source	SK HYNIX	H5TC2G63GFR-PBA	MEMORY,SDRAM DDR3,128MX16,FBGA, 96PIN,H5TC2G63GFR-PBA,0~+95,CLASS 2
Second source	WINBOND	W632GU6KB-12	MEMORY,SDRAM DDR3,128MX16,WBGA, 96PIN,W632GU6KB,0~+85,CLASS 2

1.4 Testing Location

Testing Location			
☐	HWA YA	ADD :	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
		TEL :	886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD :	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
		TEL :	886-3-656-9065 FAX : 886-3-656-9085

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/ cm²)	Averaging Time |E|²,|H|² 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/ cm²)	Averaging Time |E|²,|H|² 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 32 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

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)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;G1D	6.35	29.52	35.87	3.86367	32	0.300	1	0.30040
5.2G;D1D	7.18	28.79	35.97	3.95367	32	0.307	1	0.30740
5.8G;D1D	6.62	29.18	35.80	3.80189	32	0.296	1	0.29560
							Sum Ratio	0.9034
							Ratio Limit	1