



FCC RADIO EXPOSURE TEST REPORT

FCC ID : Q87-EA8300
Equipment : Linksys Tri-Band Wireless-AC Router
Brand Name : Linksys
Model Name : EA8300, EA8250, MR8300, MR8250
Applicant : Linksys LLC
121 Theory, Irvine CA 92617, United States
Standard : 47 CFR Part 2.1091

The product was received on Jul. 27, 2018, and testing was started from Jul. 31, 2018 and completed on Aug. 28, 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 variant 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

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Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 EUT General Information	5
1.2 Table for Multiple Listing	5
1.3 Table for Class II Change.....	6
1.4 Testing Location	6
2 Maximum Permissible Exposure	7
2.1 Limit of Maximum Permissible Exposure	7
2.2 MPE Calculation Method	7
2.3 Calculated Result and Limit.....	8
Photographs of EUT v01	

History of this test report

[illegible]



Summary of Test Result

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

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) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Bluetooth	2400-2483.5	2402-2480	BR / EDR: FHSS (GFSK / $\pi/4$ -DQPSK / 8DPSK) LE: DSSS (GFSK)

1.2 Table for Multiple Listing

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

EUT	Model name	Support 256QAM	Software Versions	Equip Adapter	LED design	Support Function	Description
1	EA8300	Yes	1.1.1.179884	Adapter 1~4	Please refer to the Photographs of EUT	AP, Bridge	All models are identical except for the EA8300 supports 256QAM and the EA8250 disable 256QAM.
2	EA8250	No			Same as EUT 1	AP, Bridge	
3	MR8300	Yes	1.1.1.189701	Adapter 1~4	Please refer to the Photographs of EUT	AP	All models are identical; different models serve as marketing strategy.
4	MR8250				Same as EUT 3	AP	

Note: Only test for EUT 1, and the above changes do not effect the MPE test.



1.3 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA710901-01

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
- Adding a new adapter 1 (Model: KSA-24W-120200HU). - Change the software version to "1.1.1.189701" for the two new model names: MR8300 and MR8250. - Change the LED design for the two new model names: MR8300 and MR8250. - Adding two model names: MR8300 and MR8250. The difference between old and new model names, please refer to section 1.2 Table for Multiple Listing. - Removing the bridge Mode for the two new model names: MR8300 and MR8250.	It is not necessary to re-test all test items.

Note: All test results are based on original test report.

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/ cm ²)	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/ cm ²)	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 27 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

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 ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.8G;D1D	6.32	29.60	35.92	0.08	36.00	3.98107	27	0.40408	1.00000	0.43456
5.3G;D1D	6.55	23.34	29.89	0.11	30.00	1.00000	27	0.10916	1.00000	0.10916
5.6G;D1D	6.32	23.64	29.96	0.04	30.00	1.00000	27	0.10916	1.00000	0.10916
2.4G;D1D	5.40	29.30	34.69	0.50	35.19	3.30370	27	0.33610	1.00000	0.36062
									Sum Ratio	0.79518
									Ratio Limit	1

Simultaneous Transmission Analysis Mode: WLAN 5GHz + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.8G;D1D	6.32	29.60	35.92	0.08	36.00	3.98107	27	0.40408	1.00000	0.43456
5.3G;D1D	6.55	23.34	29.89	0.11	30.00	1.00000	27	0.10916	1.00000	0.10916
5.6G;D1D	6.32	23.64	29.96	0.04	30.00	1.00000	27	0.10916	1.00000	0.10916
2.4G;BT-LE	2.54	7.74	10.28	0.50	10.78	0.01197	27	0.00131	0.54689	0.00131
									Sum Ratio	0.43587
									Ratio Limit	1

————THE END————