




FCC RADIO EXPOSURE TEST REPORT

FCC ID : NKR-LVSK-R1
Equipment : Router
Brand Name : verizon
Model Name : LVR1
Applicant : Wistron NeWeb Corporation
20 Park Ave. II, Hsinchu Science Park, Hsinchu
308, Taiwan
Manufacturer : Wistron NeWeb Corporation
20 Park Ave. II, Hsinchu Science Park, Hsinchu
308, Taiwan
Standard : 47 CFR Part 2.1091

The product was received on May 29, 2019, and testing was started from Jun. 01, 2019 and completed on Aug. 21, 2019. 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

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



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Photographs of EUT v01



History of this test report

Report No.	Version	Description	Issued Date
FA952921-01	01	Initial issue of report	Nov. 15, 2019



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: **Wendy Pan**



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) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5720 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Bluetooth	2400-2483.5	2402-2480	BR / EDR: FHSS (GFSK / $\pi/4$ -DQPSK / 8DPSK) LE: GFSK

1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA952921

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

Modifications	Performance Checking
1. Adding 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device. 2. Adding bridge mode.	Maximum Permissible Exposure.
3. Removing the aluminum foil of FFC cable. 4. Adding the ferrite core on FFC cable (Optional). 5. Changing adapter model name to "1A95" from "1A95-US1223".	Do not affect the test results.

Note: Maximum Permissible Exposure of 2.4GHz, Bluetooth and 5GHz band 1, 4 are based on original test report.



1.3 Table for EUT support function

Function	Support Type	Support Band
AP Router	Master	WLAN 2.4GHz/WLAN 5GHz Band 1~4
Bridge	Master + Slave	WLAN 2.4GHz/WLAN 5GHz Band 1~4 (Band 1/2: Master, Band 3/4: Client without radar detection)

1.4 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. 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. 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 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 31 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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 ²)	S Limit (mW/cm ²)
2.4G;D1D	5.45	29.98	35.43	0.50	35.93	3.91742	31	0.32438	1.00000
5.2G;D1D	5.88	29.86	35.74	0.25	35.99	3.97192	31	0.32889	1.00000
5.3G;D1D	5.88	23.73	29.61	0.38	29.99	0.99770	31	0.08261	1.00000
5.6G;D1D	6.94	22.98	29.92	0.07	29.99	0.99770	31	0.08261	1.00000
5.8G;D1D	6.94	28.94	35.88	0.11	35.99	3.97192	31	0.32889	1.00000
2.4G;BT-BR	2.72	8.67	11.39	0.50	11.89	0.01545	31	0.00128	1.00000
2.4G;BT-LE	2.72	8.66	11.38	0.50	11.88	0.01542	31	0.00128	1.00000

Simultaneous Transmission Analysis Mode:

WLAN 2.4GHz + WLAN 5GHz Band 1/2 + WLAN 5GHz Band 3/4 + 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)
2.4G;D1D	5.45	29.98	35.43	0.50	35.93	3.91742	31	0.32438	1.00000	0.32438
5.2G;D1D	5.88	29.86	35.74	0.25	35.99	3.97192	31	0.32889	1.00000	0.32889
5.8G;D1D	6.94	28.94	35.88	0.11	35.99	3.97192	31	0.32889	1.00000	0.32889
2.4G;BT-BR	2.72	8.67	11.39	0.50	11.89	0.01545	31	0.00128	1.00000	0.00128
									Sum Ratio	0.98344
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————