



FCC RADIO EXPOSURE TEST REPORT

FCC ID : NKR-SWA52
Equipment : Wireless Audio Module
Brand Name : WNC
Model Name : SWA52
Applicant : Wistron NeWeb Corporation
20 Park Avenue II, Hsinchu Science Park, Hsinchu 308 Taiwan
Manufacturer : Wistron NeWeb Corporation
20 Park Avenue II, Hsinchu Science Park, Hsinchu 308 Taiwan
Standard : 47 CFR Part 2.1091

The product was received on Mar. 22, 2019, and testing was started from Mar. 29, 2019 and completed on Apr. 24, 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
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Photographs of EUT v01



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	Bandwidth
5GHz WLAN	5150~5250	5155.35-5247.35	pi/4-DQPSK	2 MHz
		5158.35-5246.35		4 MHz
	5725~5850	5726.35-5824.35		2 MHz
		5727.35-5825.35		4 MHz

1.2 Table for Multiple Listing

The difference for each EUT is shown as below:

Model Name	EUT	Internal antenna	External antenna
SWA52	1	V	X
	2	X	V

1.3 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA5N2023-01.

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

Modifications	Performance Checking
1. Add the 5GHz band 1 (Bandwidth 2MHz/4MHz). 2. Add the Bandwidth 4MHz in 5GHz Band 4. 3. Add the 2MHz frequencies (5726.35/5728.35/5822.35/5824.35MHz) in 5GHz Band 4.	Re-evaluated Maximum Permissible Exposure.

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

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086B 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 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

EUT 1 <Internal antenna>

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)
5.2G;G7D	4.32	11.08	15.40	0.50	15.90	0.03890	20	0.00774	1.00000
5.8G;G7D	4.90	12.25	17.15	0.50	17.65	0.05821	20	0.01158	1.00000

EUT 2 <External antenna>

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)
5.2G;G7D	4.17	9.90	14.07	0.50	14.57	0.02864	20	0.00570	1.00000
5.8G;G7D	4.35	11.69	16.04	0.50	16.54	0.04508	20	0.00897	1.00000

————THE END————