



# RF Exposure Evaluation Report

**Equipment** : 2x2 802.11n PCIe module  
**Brand Name** : WNC  
**Model No.** : DNXA-116  
**FCC ID** : NKR-DNXA116  
**Standard** : 47 CFR Part 2.1091  
**Applicant** : Wistron NeWeb Corporation  
20 Park Avenue II, Hsinchu Science Park, Hsinchu  
308,Taiwan,R.O.C.  
**Manufacturer** : Wistron NeWeb Corporation  
20 Park Avenue II, Hsinchu Science Park, Hsinchu  
308,Taiwan,R.O.C.

The product sample received on May 15, 2017 and completely tested on Jun. 12, 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.

Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

  
Cliff Chang  
SPORTON INTERNATIONAL INC.





## TABLE OF CONTENTS

**1 GENERAL DESCRIPTION .....4**

1.1 EUT General Information .....4

1.2 Table for Class II Change.....4

1.3 Testing Location .....4

**2 MAXIMUM PERMISSIBLE EXPOSURE .....5**

2.1 Limit of Maximum Permissible Exposure .....5

2.2 MPE Calculation Method.....5

2.3 Calculated Result and Limit.....6

**PHOTOGRAPHS OF EUT V01**





# 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)
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)

## 1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: 290357.

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

Modifications	Performance Checking
1. Changing the antenna to "Model No.: MS-9A38" from "Model No.: 1000615-A". 2. Adding 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device. 3. Updating RF test rule of 5GHz band 1 and band 4 (5150~5250 MHz, 5725~5850MHz) to "New Rules" from "Old Rules".	RF Exposure Evaluation.

## 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. 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

## 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:

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

**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)	EIRP (W)	Distance (cm)	S (mW/cm <sup>2</sup> )	S Limit (mW/cm <sup>2</sup> )
2.4G;G1D	2.60	13.85	16.45	0.04416	20	0.00879	1.00000
2.4G;D1D	2.60	20.30	22.90	0.19498	20	0.03879	1.00000

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm <sup>2</sup> )	S Limit (mW/cm <sup>2</sup> )
5.2G;D1D	2.50	23.78	26.28	0.42462	20	0.08448	1.00000
5.3G;D1D	2.50	23.77	26.27	0.42364	20	0.08428	1.00000
5.6G;D1D	2.50	22.25	24.75	0.29854	20	0.05939	1.00000
5.8G;D1D	2.50	20.69	23.19	0.20845	20	0.04147	1.00000