

## RF EXPOSURE REPORT



**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

**Product Name:** WNC WLAN (11a/b/g/n) 1x1 & BLE 5.0 LGA combo module

**Brand Name:** WNC

**Model No.:** DHSK-H04

**Model Difference:** N/A

**Report Number:** TESA2401000058ES

**FCC ID** NKR-DHSKH04

**IC:** 4441A-DHSKH04

**Date of EUT Received:** January 24, 2024

**Issue Date:** March 8, 2024

Approved By

John Teh

John Yeh

**We hereby certify that:**

The above equipment was evaluated by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §2.1091 and RSS-102.

The results of this report relate only to the sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History					
Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2401000058ES	00	Original	March 8, 2024	Yuri Tsai	

**Note:**

- 1、The remark "" indicates modification of the report upon requests from certification body.

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## 1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

### 1.1 Product Description

Product Name:	WNC WLAN (11a/b/g/n) 1x1 & BLE 5.0 LGA combo module
Brand Name:	WNC
Model No.:	DHSK-H04
Model Difference:	N/A
Hardware Version:	G02
Firmware Version:	1
Power Supply:	3.3Vdc

### 1.2 Evaluation site

Laboratory	Site Address	FCC Designation number	ISED Company Number	CAB Identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	<input type="checkbox"/> No. 134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, 24803, Taiwan.	TW0027	4620A	TW3702
	<input checked="" type="checkbox"/> No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan.	TW0028	4620E	
	<input type="checkbox"/> 1F, No. 8, Alley 15, Lane 120, Sec. 1, Nei Hu Road, Neihu District, Taipei City, 222 Taiwan.	TW0029	23862	

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**1.3 Antenna Information:**

The antenna information is provided by the applicant.

**1.3.1 BLE / WLAN 2.4GHz**

Supplier	Freq. (MHz)	Peak Antenna Gain (dBi)
WNC	2.4GHz	2.4

**1.3.2 WLAN 5GHz**

Supplier	Note	Operating Frequency (MHz)		Ant 1 Peak Gain (dBi)
		Min	Max	
WNC	Ant 1	5150.0	~ 5250.0	1.80
		5250.0	~ 5350.0	1.40
		5470.0	~ 5725.0	1.70
		5725.0	~ 5850.0	1.20

**Note:** Antenna information is provided by the applicant.

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## 2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### 2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission’s guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

$$S = PG / 4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

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## 2.2 ISED Standard Applicable

This submittal(s) (test report) is intended to comply with RSS-102 issue 5 Radio frequency Radiation Exposure requirement.

This is a Mobile device, the MPE is required.

Limits for Maximum Permissible Exposure (MPE)

RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)				
Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field Strength (A/m rms)	Power Density (W/m <sup>2</sup> )	Reference Period (minutes)
0.003-10	83	90	-	Instantaneous*
0.1-10	-	0.73/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> <sup>0.5</sup>	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ <i>f</i> <sup>0.25</sup>	0.1540/ <i>f</i> <sup>0.25</sup>	8.944/ <i>f</i> <sup>0.5</sup>	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> <sup>0.3417</sup>	0.008335 <i>f</i> <sup>0.3417</sup>	0.02619 <i>f</i> <sup>0.6834</sup>	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> <sup>1.2</sup>
150000-300000	0.158 <i>f</i> <sup>0.5</sup>	4.21 x 10 <sup>-4</sup> <i>f</i> <sup>0.5</sup>	6.67 x 10 <sup>-5</sup> <i>f</i>	616000/ <i>f</i> <sup>1.2</sup>

F = frequency in MHz

\* = Based on nerve stimulation (NS).

\*\* = Based on specific absorption rate (SAR)

Maximum Permissible Exposure (MPE) Evaluation

Prediction of MPE limit at a given distance

$$S = PG / 4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

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### 2.3 Power Density Calculation (Worst Case)

#### FCC Standalone MPE

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. Output Power Include Tolerance (dBm)	Antenna Gain (dBi)	Max. EIRP (mW)	Power Density (PD) (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass / Fail	Power Density / Limit
BLE	2442.00	20	9.05	2.40	13.96	0.0028	1.000	Pass	0.003
WLAN 2.4G	2462.00	20	19.87	2.40	168.66	0.034	1.000	Pass	0.034
WLAN 5G	5220.00	20	17.95	1.80	94.41	0.019	1.000	Pass	0.019

#### ISED Standalone MPE

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. Output Power Include Tolerance (dBm)	Antenna Gain (dBi)	Max. EIRP (mW)	Power Density (PD) (W/m <sup>2</sup> )	Limit (W/m <sup>2</sup> )	Pass / Fail	Power Density / Limit
BLE	2442.00	20	9.05	2.40	13.96	0.028	5.412	Pass	0.005
WLAN 2.4G	2462.00	20	19.87	2.40	168.66	0.336	5.442	Pass	0.062
WLAN 5G	5220.00	20	17.95	1.80	94.41	0.188	9.095	Pass	0.021

### 2.4 Collocated Power Density Calculation

FCC Collocated MPE		
Operation Mode	Power Density / Limit	Σ (Power Density / Limit)
BLE	0.003	0.056
WLAN 2.4G	0.034	
WLAN 5G	0.019	
ISED Collocated MPE		
Operation Mode	Power Density / Limit	Σ (Power Density / Limit)
BLE	0.005	0.088
WLAN 2.4G	0.062	
WLAN 5G	0.021	

**Note:**

- Σ(Power Density / Limit): This is a summation of [(Power Density for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)].
- Considering the collocated transmitters, the aggregated (Power Density /limit) is smaller than 1, and MPE of collocated transmitters is compliant

~ End of Report ~

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