

RF Exposure Report

Report No.: SA190603E08

FCC ID: NKR-WNCJS8T

Original FCC ID: NKR-VZJS8V

Test Model: JS8T

Received Date: June 03, 2019

Test Date: July 02, 2019

Issued Date: Aug. 20, 2019

Applicant: Wistron NeWeb Corp.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA190603E08	Original release.	Aug. 20, 2019

1 Certificate of Conformity

Product: OTT BOX

Brand: WNC

Test Model: JS8T

Sample Status: ENGINEERING SAMPLE

Applicant: Wistron NeWeb Corp.

Test Date: July 02, 2019

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Wendy Wu , **Date:** Aug. 20, 2019
Wendy Wu / Specialist

Approved by : May Chen , **Date:** Aug. 20, 2019
May Chen / Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
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 ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$Pd = (P_{out} * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

WLAN				
Chain No.	Antenna Net Gain (dBi)	Frequency range (GHz)	Antenna type	Connector type
Chain 0	3.62	2.4~2.4835	On board printed antenna	none
	3.57	5.15~5.25		
	3.63	5.25~5.35		
	2.50	5.47~5.725		
	2.88	5.725~5.85		
Chain 1	5.36	2.4~2.4835	On board printed antenna	none
	3.26	5.15~5.25		
	3.26	5.25~5.35		
	3.75	5.47~5.725		
	4.22	5.725~5.85		
Bluetooth				
Antenna Net Gain (dBi)		Frequency range (GHz)	Antenna type	Connector type
2.39		2.4~2.4835	On board printed antenna	none

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz	2437	662.658	7.54	20	0.74820	1
WLAN 5GHz (U-NII-1)	5230	247.256	6.43	20	0.21621	1
WLAN 5GHz (U-NII-2A)	5260	216.553	6.46	20	0.19067	1
WLAN 5GHz (U-NII-2C)	5580	210.929	6.16	20	0.17333	1
WLAN 5GHz (U-NII-3)	5825	424.896	6.59	20	0.38549	1
Bluetooth (BT-EDR)	2441	15.241	2.39	20	0.00526	1

NOTE:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: The directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2] = 7.54\text{dBi}$
5GHz:
U-NII-1: The directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2] = 6.43\text{dB}$
U-NII-2A: The directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2] = 6.46\text{dBi}$
U-NII-2C: The directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2] = 6.16\text{dBi}$
U-NII-3: The directional gain = $10 \log[(10^{\text{Chain0/20}} + 10^{\text{Chain1/20}})^2 / 2] = 6.59\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{Bluetooth} = 0.74820 / 1 + 0.00526 / 1 = 0.75346$$

$$\text{WLAN 5GHz} + \text{Bluetooth} = 0.38549 / 1 + 0.00526 / 1 = 0.39075$$

Therefore the maximum calculations of above situations are less than the “1” limit.

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