

RF Exposure Report

Report No.: SABCMA-WTW-P21050301

FCC ID: RAXHT3000W

Test Model: HT3000W

Series Model: WN3000

Received Date: Mar. 16, 2021

Test Date: Apr. 12 to June 02, 2021

Issued Date: July 20, 2021

Applicant: Arcadyan Technology Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
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**FCC Registration /
Designation Number:** 723255 / TW2022



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Release Control Record

Issue No.	Description	Date Issued
SABCMA-WTW-P21050301	Original release.	July 20, 2021

1 Certificate of Conformity

Product: Wi-Fi Daughtercard
Brand: Hughes
Test Model: HT3000W
Series Model: WN3000
Sample Status: Engineering sample
Applicant: Arcadyan Technology Corporation
Test Date: Apr. 12 to June 02, 2021
Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D01 General RF Exposure Guidance v06

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 : Phoenix Huang , **Date:** July 20, 2021
Phoenix Huang / Specialist

Approved by : Clark Lin , **Date:** July 20, 2021
Clark Lin / Technical 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

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

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 20 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna Set	RF Chain No.	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
1	0	WG622221-HS	1.9	2.4~2.4835	Dipole	i-pex(MHF)	60
	1	WG622221-HS	2.1	2.4~2.4835	Dipole	i-pex(MHF)	70
	0	WG622221-HS	2.5	5.15~5.85	Dipole	i-pex(MHF)	40
	1	WG622221-HS	3	5.15~5.85	Dipole	i-pex(MHF)	41
2	0	WE620221-HS	1.5	2.4~2.4835	Dipole	i-pex(MHF)	90
	1	WE620221-HS	2	2.4~2.4835	Dipole	i-pex(MHF)	70
	0	WE620221-HS	2.4	5.15~5.85	Dipole	i-pex(MHF)	43
	1	WE620221-HS	2.9	5.15~5.85	Dipole	i-pex(MHF)	40

Note: Max. gain was selected for the final test.

* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN (2.4GHz)	2412~2462	546.729	5.01	20	0.34475	1
WLAN (U-NII-1)	5180~5240	568.329	5.76	20	0.42592	1
WLAN (U-NII-2A)	5260~5320	246.883	5.76	20	0.18502	1
WLAN (U-NII-2C)	5500~5720	248.442	5.76	20	0.18619	1
WLAN (U-NII-3)	5745~5825	474.031	5.76	20	0.35525	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.01 \text{ dBi}$
3. 5GHz: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.76 \text{ dBi}$

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$WLAN \ 2.4GHz + WLAN \ 5GHz = 0.34475 / 1 + 0.42592 / 1 = 0.77067$

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

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