

RF Exposure Report

Report No.: SA181102E08

FCC ID: 2AHKM-CHITA

Test Model: CHITA

Received Date: Nov. 06, 2018

Test Date: Nov. 20, 2018

Issued Date: June 05, 2019

Applicant: Hitron Technologies Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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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
SA181102E08	Original release.	June 05, 2019

1 Certificate of Conformity

Product: Cable modem

Brand: Hitron

Test Model: CHITA

Sample Status: ENGINEERING SAMPLE

Applicant: Hitron Technologies Inc.

Test Date: Nov. 20, 2018

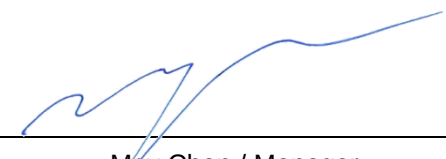
Standards: FCC Part 2 (Section 2.1091)

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 :  , **Date:** June 05, 2019
Claire Kuan / Specialist

Approved by :  , **Date:** June 05, 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

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

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 36cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna No.	Chain No.	Model	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length (mm)
1	5G Chain 0	393000022328	3.32	5.15~5.85GHz	PCB	i-pex(MHF)	190
2	2G Chain 0	393000022428	2.61	2.4~2.4835GHz	PCB	i-pex(MHF)	71
	5G Chain 1		4.25	5.15~5.85GHz			
3	2G Chain 1	393000022528	3.25	2.4~2.4835GHz	PCB	i-pex(MHF)	61
	5G Chain 2		3.71	5.15~5.85GHz			
4	2G Chain 2	393000022628	3.54	2.4~2.4835GHz	PCB	i-pex(MHF)	75
	5G Chain 3		4.79	5.15~5.85GHz			

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	2462	783.792	7.91	36	0.29743	1
WLAN 5GHz	5745	948.464	10.06	36	0.59048	1

Note:

2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20})^2 / 3] = 7.91\text{dBi}$

5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 10.06\text{dBi}$

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

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.29743 / 1 + 0.59048 / 1 = 0.88791$

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

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