Report No.:	SABAOZ-WTW-P20090121A
FCC ID:	2AHKM-ARIA2210
Test Model:	ARIA2210
Series Model:	OS2210
Received Date:	Sep. 04, 2020
Test Date:	Sep. 30, 2020
Issued Date:	July 20, 2021
Applicant:	Hitron Technologies Inc.
Address:	No. 1-8, Li-Hsin 1st Rd., Hsinchu Science Park, Hsinchu 30078, Taiwan, R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SABAOZ-WTW-P20090121A	Original release.	July 20, 2021

1 Certificate of Conformity

Product:	WiFi Extender
Brand:	hitron
Test Model:	ARIA2210
Series Model:	OS2210
Applicant:	Hitron Technologies Inc.
Test Date:	Sep. 30, 2020
Standards:	FCC Part 2 (Section 2.1091) IEEE C95.3 -2002
References Test Guidance:	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 : Vivian Huang , **Date:** July 20, 2021

Vivian Huang / Specialist

Approved by : , **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

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

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

2.4 Antenna Gain

Antenna NO.	Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length (mm)
WiFi 2.4G	1	ALPHA	RFPCA252007IMAB301	3.5	2.4~2.4835GHz	PIFA	i-pex(MHF)	7
	2		RFPCA252023IMAB301	2.7	2.4~2.4835GHz			23.5
WiFi 5G	1		RFPCA251812IM5B302	4	5.15~5.85GHz			12
	2		RFPCA251817IM5B301	3.5	5.15~5.85GHz			18
BT	-		RFPCA252019IMAB302	2.8	2.4~2.4835GHz			19

*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

For WLAN (U-NII-1), WLAN (U-NII-3) and Bluetooth data was copied from the original test report (Report No.: SABAOZ-WTW-P20090121)

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	912.141	6.12	26	0.43945	1
WLAN (U-NII-1)	5180-5240	735.268	6.76	26	0.41048	1
WLAN (U-NII-2A)	5260-5320	247.699	6.76	26	0.13828	1
WLAN (U-NII-2C)	5500-5700	245.948	6.76	26	0.13731	1
WLAN (U-NII-3)	5745-5825	664.858	6.76	26	0.37117	1
Bluetooth	2402~2480	5.636	2.80	26	0.00126	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] = 6.12 dBi
3. 5GHz: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.76 dBi

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz + Bluetooth = 0.43945 / 1 + 0.41048 / 1 + 0.00126 / 1= 0.85119

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

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