RF Exposure Report

Report No.:	SABCMA-WTW-P21010371-1
FCC ID:	RAXCM4642342
Test Model:	CM4642342XXX
Series Model:	CG4634XXXXXX (where X character can be replaced by either alphanumeric character between A and Z and between 0 and 9 or "-" or "." or "blank")
Received Date:	Dec. 22, 2020
Test Date:	Feb. 02, 2021
Issued Date:	Feb. 26, 2021
Applicant:	Arcadyan Technology Corporation
Address:	No.8, Sec.2, Guangfu Rd.,Hsinchu City 30071, 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
SABCMA-WTW-P21010371-1	Original release.	Feb. 26, 2021

1   Certificate of Conformity

Product: DOCSIS® 3.1 Dual-Band AX5660 Wi-Fi 6 Cable Gateway

Brand: XTREAM

Test Model: CM4642342XXX

Series Model: CG4634XXXXXX
(where X character can be replaced by either alphanumeric character between A and Z and between 0 and 9 or "-" or "." or "blank")

Sample Status: ENGINEERING SAMPLE

Applicant: Arcadyan Technology Corporation

Test Date: Feb. 02, 2021

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:** Feb. 26, 2021
Vivian Huang / Specialist

Approved by : _____ , **Date:** Feb. 26, 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 32 cm away from the body of the user.

So, this device is classified as **Mobile Device**.

2.4   Antenna Gain

Ant. No	RF Chain No.	Ant. Net Gain (dBi)	Freq. Range (GHz)	Ant. Type	Connector Type
1	2.4GHz Chain 0	1.83	2.4~2.4835	PCB	none
2	2.4GHz Chain 1	0.03	2.4~2.4835	PCB	none
3	2.4GHz Chain 2	1.97	2.4~2.4835	PCB	none
4	5GHz Chain 0	1.81	5.15~5.85	PCB	none
5	5GHz Chain 1	3.32	5.15~5.85	PCB	none
6	5GHz Chain 2	2.37	5.15~5.85	PCB	none
7	5GHz Chain 3	2.07	5.15~5.85	PCB	none

Note: 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

For 2.4GHz and 5GHz (U-NII-1 and U-NII-3 band) data was copied from the original test report (Report No.: SABCMA-WTW-P21010371)

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	986.76	6.09	32	0.31167	1
WLAN 5GHz (U-NII-1)	5180~5240	990.208	8.43	32	0.53606	1
WLAN 5GHz (U-NII-2A)	5250~5320	245.391	8.43	32	0.13285	1
WLAN 5GHz (U-NII-2C)	5500~5720	237.806	8.43	32	0.12874	1
WLAN 5GHz (U-NII-3)	5745~5825	972.881	8.43	32	0.52668	1

Note:
1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20})^2 / 3] = 6.09$ dBi
3. 5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 8.43$ 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 (U-NII-1) = 0.31167 / 1 + 0.53606 / 1 = 0.84773

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

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