RF Exposure Report

Report No.: SABEIH-WTW-P20100011

FCC ID: P27IP5446A

Test Model: SAX1V1R

Received Date: Oct. 5, 2020

Test Date: Oct. 14 to Nov. 9, 2020

Issued Date: Nov. 11, 2020

Applicant: Sercomm Corp.

Address: 8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C. (NanKang Software Park)

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

FCC Registration / Designation Number: 198487 / TW2021

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Release Control Record

Issue No.	Description	Date Issued
SABEIH-WTW-P20100011	Original release.	Nov. 11, 2020

1   Certificate of Conformity

Product:	11AX ROUTER_NON IOT
Brand:	Charter Spectrum
Test Model:	SAX1V1R
Sample Status:	Engineering sample
Applicant:	Sercomm Corp.
Test Date:	Oct. 14 to Nov. 9, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance:	KDB 447498 D01 General RF Exposure Guidance v06
	IEEE C95.3 -2002

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 RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** _____Nov. 11, 2020_____

Jessica Cheng / Senior Specialist

Approved by : _____ , **Date:** _____Nov. 11, 2020_____

Rex Lai / Associate 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				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

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 41cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Average Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm²)	Limit (mW/cm²)
CDD Mode					
2412-2462 < Original>	29.99	9.68	41	0.4388	1
5180-5240 < Original>	27.37	10.78	41	0.3092	1
5260~5320 < New>	22.09	10.84	41	0.0929	1
5500~5700 < New>	23.55	10.69	41	0.1257	1
5745-5825 < Original>	29.99	10.48	41	0.5275	1
Beamforming Mode					
2412-2462 < Original>	26.26	9.68	41	0.1859	1
5180-5240 < Original>	25.07	10.78	41	0.1821	1
5260~5320 < New>	19.09	10.84	41	0.0466	1
5500~5700 < New>	19.15	10.69	41	0.0456	1
5745-5825 < Original>	25.20	10.48	41	0.1751	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2. Directional gain:

2.4GHz Band: Directional gain = $10 \log[(10^{Chain0/20} + 10^{Chain1/20} + 10^{Chain2/20} + 10^{Chain3/20})^2 / 4] = 9.68$dBi

5180~5240MHz: Directional gain = $10 \log[(10^{Chain0/20} + 10^{Chain1/20} + 10^{Chain2/20} + 10^{Chain3/20})^2 / 4] = 10.78$dBi

5260~5320MHz: Directional gain = $10 \log[(10^{Chain0/20} + 10^{Chain1/20} + 10^{Chain2/20} + 10^{Chain3/20})^2 / 4] = 10.84$dBi

5500~5700MHz: Directional gain = $10 \log[(10^{Chain0/20} + 10^{Chain1/20} + 10^{Chain2/20} + 10^{Chain3/20})^2 / 4] = 10.69$dBi

5745~5825MHz: Directional gain = $10 \log[(10^{Chain0/20} + 10^{Chain1/20} + 10^{Chain2/20} + 10^{Chain3/20})^2 / /4] = 10.48$dBi

3. 2.4GHz & 5GHz technologies can transmit at same time.

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

2.4GHz + 5GHz = = 0.4388 / 1 + 0.5275 / 1 = 0.9663 < 1

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

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