

RF Exposure Report

Report No.: SA200331C03

FCC ID: 2AWD3ESRM

Test Model: ESR-M

Received Date: Mar. 31, 2020

Test Date: May 19 ~ May 28, 2020

Issued Date: Jun. 02, 2020

Applicant: Aetheros Inc

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA200331C03	Original release	Jun. 02, 2020

1 Certificate of Conformity

Product: ESR-M

Brand: Aetheros (AOS)

Test Model: ESR-M

Sample Status: Production Unit

Applicant: Aetheros Inc

Test Date: May 19 ~ May 28, 2020

Standards: FCC Part 2 (Section 2.1091)

References Test KDB 447498 D01 General RF Exposure Guidance v06

Guidance:
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:** Jun. 02, 2020
Polly Chien / Specialist

Approved by :  , **Date:** Jun. 02, 2020
Bruce Chen / Senior Project Engineer

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

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

where

Pd = 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 20cm 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 AV Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2412~2462	23.12	3.79	20	0.098	1
BT EDR 2402~2480	3.92	3.79	20	0.001	1
BT LE 2402~2480	-1.48	3.79	20	0.0003	1
WI-SUN 902.2 ~ 927.8	28.99	1.86	20	0.242	0.601

Noe:

1. The above Max Power is Tune-up Power which client declared.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Conclusion:

The WI-SUN could transmit simultaneously either with WLAN 2.4GHz or BT at the same time, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

1. WLAN 2.4G + WI-SUN = $0.098 / 1 + 0.242 / 0.601 = 0.501$
2. BT EDR + WI-SUN = $0.001 / 1 + 0.242 / 0.601 = 0.404$

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

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