RF Exposure Report

Report No.:	SA190918C14A
FCC ID:	2ARXKVHH10
Contains module FCC ID:	2ATM8EC25A
	2ATM8EC25V
Test Model:	VHH10
Series Model:	VHH10XXX (X=A-Z, 0-9, blank or "-")
Received Date:	Sep. 18, 2019
Test Date:	Oct. 29 ~ Nov. 29, 2019
Issued Date:	Dec. 11, 2019
Applicant:	Veea Inc
Address:	164 E 83rd Street, New York NY, 10028, USA
Applicant of Contained Module:	Hawkeye Tech Co., Ltd.
Address of Contained Module:	13F. No. 736, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan
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
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SA190918C14A	Original release	Dec. 11, 2019

1 Certificate of Conformity

Product:	veeaHub
Brand:	veeaHub
Test Model:	VHH10
Series Model:	VHH10XXX (X=A-Z, 0-9, blank or "-")
Sample Status:	Engineering sample
Applicant:	Veea Inc
Applicant of Contained Module:	Hawkeye Tech Co., Ltd.
Test Date:	Oct. 29 ~ Nov. 29, 2019
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance:	IEEE C95.3 -2002 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 RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Dec. 11, 2019

Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Dec. 11, 2019

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				
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 28cm 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 Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN, CDD Mode					
2412-2462	29.90	6.21	28	0.4145	1
5180-5240	18.78	8.12	28	0.0497	1
5260-5320	23.97	8.12	28	0.1642	1
5500-5720	23.75	8.12	28	0.1561	1
5745-5825	26.37	8.12	28	0.2854	1
WLAN, Beamforming Mode					
5180-5240	12.76	8.12	28	0.0124	1
5260-5320	17.95	8.12	28	0.0411	1
5500-5720	17.73	8.12	28	0.0390	1
5745-5825	19.96	8.12	28	0.0652	1
Bluetooth LE					
2402-2480	-5.02	6.00	28	0.0001	1
Bluetooth EDR					
2402-2480	7.77	6.00	28	0.0024	1
Zigbee					
2405-2475	19.18	3.20	28	0.0176	1
WWAN (module model: EC25-A)					
WCDMA Band 2 1850.2-1909.8MHz	23.50	1.70	28	0.0336	1
WCDMA Band 4 1712.4-1752.6MHz	23.50	1.70	28	0.0336	1
WCDMA Band 5 826.4-846.6MHz	23.50	0.30	28	0.0243	0.549
LTE Band 2 1850.7-1909.3MHz	24.00	1.70	28	0.0377	1
LTE Band 4 1710.7-1754.3MHz	24.00	1.70	28	0.0377	1
LTE Band 12 699.7-715.3MHz	24.00	0.30	28	0.0273	0.466
WWAN (module model: EC25-V)					
LTE Band 4 1710.7-1754.3MHz	23.50	1.70	28	0.0336	1
LTE Band 13 779.5-784.5MHz	23.50	0.30	28	0.0243	0.521

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

2.4GHz: Directional Gain = 3.2dBi + 10log(2) = 6.21dBi

5GHz: Directional Gain = 2.1dBi + 10log(4)= 8.12dBi

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

1. WLAN 2.4G + WLAN 5G B2 + WLAN 5G B4 + Bluetooth + Zigbee = 0.4145 / 1 + 0.1642 / 1 + 0.2854 / 1 + 0.0024 / 1 + 0.0176 / 1 = 0.884
2. WLAN 2.4G + WLAN 5G B2 + WLAN 5G B4 + Bluetooth + Zigbee + WWAN (module model: EC25-A) = 0.4145 / 1 + 0.1642 / 1 + 0.2854 / 1 + 0.0024 / 1 + 0.0176 / 1 + 0.0273 / 0.466 = 0.943
3. WLAN 2.4G + WLAN 5G B2 + WLAN 5G B4 + Bluetooth + Zigbee + WWAN (module model: EC25-V) = 0.4145 / 1 + 0.1642 / 1 + 0.2854 / 1 + 0.0024 / 1 + 0.0176 / 1 + 0.0336 / 1 = 0.918

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

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