RF Exposure Report

Report No.:	SA200424C06
FCC ID:	2ARXKVHE09-4GL
Contains module FCC ID:	2ATM8EC25A
Test Model:	VHE09-4GL
Series Model:	VHE09XXXXX (X=A-Z, 0-9, blank or “-”)
Received Date:	Apr. 24, 2020
Test Date:	Jun. 02 ~ Jun. 11, 2020
Issued Date:	Jun. 17, 2020
Applicant:	Veea Inc
Address:	164 E 83rd Street, New York NY, 10028, USA
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

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SA200424C06	Original release.	Jun. 17, 2020

1 Certificate of Conformity

Product:	veeaHub
Brand:	veeaHub
Test Model:	VHE09-4GL
Series Model:	VHE09XXXXX (X=A-Z, 0-9, blank or "-")
Sample Status:	Engineering sample
Applicant:	Veea Inc
Test Date:	Jun. 02 ~ Jun. 11, 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:** Jun. 17, 2020

Polly Chien / Specialist

Approved by : _____ , **Date:** Jun. 17, 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

$Pd = (Pout*G) / (4*pi*r^2)$
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 29cm 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	27.13	6.21	29	0.204	1
WLAN 5180~5240	28.94	8.12	29	0.481	1
WLAN 5260~5320	23.36	8.12	29	0.133	1
WLAN 5500~5720	23.63	8.12	29	0.142	1
WLAN 5745~5825	29.65	8.12	29	0.566	1
Zigbee 2405~2475	16.76	3.2	29	0.009	1
BT LE 2402~2480	-5.33	6.0	29	0.0001	1
BT EDR 2402~2480	0.03	6.0	29	0.0004	1
LoRa 923.3 MHz – 927.5 MHz	24.71	5.0	29	0.089	0.616

For WLAN 2.4GHz Band: Directional gain = 3.2dBi + 10log(2) = 6.21dBi
For WLAN 5.0GHz Band: Directional gain = 2.1dBi + 10log(4) = 8.12dBi
For Zigbee: antenna gain = 3.2dBi
For BT: max. antenna gain = 6.0dBi
For LoRa: antenna gain = 5.0dBi

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WWAN (module model: EC25-A)					
WCDMA Band 2 1850.2-1909.8MHz	23.50	1.50	29	0.030	1
WCDMA Band 4 1712.4-1752.6MHz	23.50	1.50	29	0.030	1
WCDMA Band 5 826.4-846.6MHz	23.50	-1.60	29	0.015	0.549
LTE Band 2 1850.7-1909.3MHz	24.00	1.50	29	0.034	1
LTE Band 4 1710.7-1754.3MHz	24.00	1.50	29	0.034	1
LTE Band 12 699.7-715.3MHz	24.00	-1.60	29	0.016	0.466

Note:

1. WLAN, WWAN, zigbee, Bluetooth and LoRa technology can transmit at same time.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. 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.

Conclusion:
The formula of calculated the MPE is:
CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1
CPD = Calculation power density
LPD = Limit of power density

WLAN 2.4G + WLAN 5G + Zigbee + Bluetooth + LoRa + WWAN (module model: EC25-A) =
0.204/1+0.566/1+0.009/1+0.0004/1+0.089/0.616+0.016/0.466=0.9574

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

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