

## RF Exposure Report

**Report No.:** SA190514C12A

**FCC ID:** 2ARXKVHE10

**Contains module FCC ID:** 2ATM8EC25A

2ATM8EC25V

**Test Model:** VHE10

**Series Model:** VHE10XXX (X=A-Z, 0-9, blank or "-")

**Received Date:** May 14, 2019

**Test Date:** Jun. 21 ~ Jul. 20, 2019

**Issued Date:** Sep. 25, 2019

**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



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### Release Control Record

Issue No.	Description	Date Issued
SA190514C12A	Original release	Sep. 25, 2019

## 1 Certificate of Conformity

**Product:** veeaHub

**Brand:** 

**Test Model:** VHE10

**Series Model:** VHE10XXX (X=A-Z, 0-9, blank or "-")

**Sample Status:** Engineering sample

**Applicant:** Veea Inc

**Test Date:** Jun. 21 ~ Jul. 20, 2019

**Standards:** FCC Part 2 (Section 2.1091)  
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 :** Celine Chou , **Date:** Sep. 25, 2019  
Celine Chou / Senior Specialist

**Approved by :** Bruce Chen , **Date:** Sep. 25, 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 <sup>2</sup> )	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<sup>2</sup>

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 <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN, CDD Mode					
2412-2462	27.02	6.21	28	0.2135	1
5180-5240	28.96	8.12	28	0.5182	1
5260-5320	23.88	8.12	28	0.1609	1
5500-5720	23.88	8.12	28	0.1609	1
5745-5825	29.70	8.12	28	0.6144	1
WLAN, Beamforming Mode					
5180-5240	27.77	8.12	28	0.3940	1
5260-5320	21.82	8.12	28	0.1001	1
5500-5720	21.83	8.12	28	0.1003	1
5745-5825	27.87	8.12	28	0.4032	1
Bluetooth LE					
2402-2480	-2.94	6.00	28	0.0002	1
Bluetooth EDR					
2402-2480	5.92	6.00	28	0.0016	1
Zigbee					
2405-2475	20.02	3.20	28	0.0213	1
WWAN (module model: EC25-A)					
WCDMA Band 2 1850.2-1909.8MHz	23.50	1.50	28	0.0321	1
WCDMA Band 4 1712.4-1752.6MHz	23.50	1.50	28	0.0321	1
WCDMA Band 5 826.4-846.6MHz	23.50	-1.60	28	0.0157	0.549
LTE Band 2 1850.7-1909.3MHz	24.00	1.50	28	0.0360	1
LTE Band 4 1710.7-1754.3MHz	24.00	1.50	28	0.0360	1
LTE Band 12 699.7-715.3MHz	24.00	-1.60	28	0.0176	0.466
WWAN (module model: EC25-V)					
LTE Band 4 1710.7-1754.3MHz	23.50	1.50	28	0.0321	1
LTE Band 13 779.5-784.5MHz	23.50	-1.60	28	0.0157	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:

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

CPD = Calculation power density

LPD = Limit of power density

1. WLAN 2.4G + WLAN 5G + Bluetooth + Zigbee =  $0.2135 / 1 + 0.6144 / 1 + 0.0016 / 1 + 0.0213 / 1 = 0.8508$
2. WLAN 2.4G + WLAN 5G + Bluetooth + Zigbee + WWAN (module model: EC25-A) =  $0.2135 / 1 + 0.6144 / 1 + 0.0016 / 1 + 0.0213 / 1 + 0.0176 / 0.466 = 0.889$
3. WLAN 2.4G + WLAN 5G + Bluetooth + Zigbee + WWAN (module model: EC25-V) =  $0.2135 / 1 + 0.6144 / 1 + 0.0016 / 1 + 0.0213 / 1 + 0.0321 / 1 = 0.883$

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

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