

RF Exposure Report

Report No.: SA180822E04

FCC ID: XCNUBC1322

Test Model: UBC1322

Received Date: Sep. 03, 2018

Test Date: Sep. 20, 2018

Issued Date: Oct. 03, 2018

Applicant: Ubee Interactive Corp.

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

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FCC Registration /

723255 / TW2022 **Designation Number:**

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Release Control Record

| Issue No. | Description | Date Issued |
|-------------|-------------------|---------------|
| SA180822E04 | Original release. | Oct. 03, 2018 |



1 Certificate of Conformity

Product: Wireless eMTA

Brand: Ubee

Test Model: UBC1322

Applicant: Ubee Interactive Corp.

Test Date: Sep. 20, 2018

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 EMC characteristics under the conditions specified in this report.

Claire Kuan / Specialist

Approved by: , **Date:** Oct. 03, 2018

May Chen / Manager



2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz) | | | 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/cm²

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 38cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

| Antenna No. | Transmitter Circuit | Ant. Net Gain (dBi) | Freq. range (GHz) | Ant. Type | Connecter Type | Cable Length (mm) |
|----------------|------------------------|------------------------|----------------------|-----------|----------------|-------------------|
| 1 | Chain 2 | 3.48 | 2.4~2.4835 | Dipole | i-pex(MHF) | 85 |
| I | Chain 1 | 4.08 | 5.15~5.85 | Dipole | | |
| 2 | Chain 1 | 3.49 | 2.4~2.4835 | Dinala | i-pex(MHF) | 73 |
| 2 | Chain 2 | 4.49 | 5.15~5.85 | Dipole | | |
| 3 | Chain 0 | 4.49 | 5.15~5.85 | Dipole | i-pex(MHF) | 42 |
| 4 | Chain 0 | 3.49 | 2.4~2.4835 | Dinala | i-pex(MHF) | 81 |
| 4 | Chain 3 | 4.47 | 5.15~5.85 | Dipole | | |

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2.5 Calculation Result of Maximum Conducted Power

| Operation Mode | Evaluation Frequency (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm²) | Limit (mW/cm ²) |
|-------------------|----------------------------------|-------------------|-----------------------|------------------|------------------------|--------------------------------|
| WLAN 2.4GHz | 2437 | 837.761 | 8.26 | 38 | 0.30927 | 1 |
| WLAN 5GHz | 5745 | 995.226 | 10.4 | 38 | 0.60137 | 1 |

Note:

2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20})^2 / 3] = 8.26dBi$ 5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 10.4dBi$

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.30927 / 1 + 0.60137 / 1 = 0.91064

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

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