



REPORT No. : SZ17120046S01

RF EXPOSURE

EVALUATION REPORT

APPLICANT : DELTA NETWORKS (XIAMEN) LTD.

PRODUCT NAME : 2.4G WiFi Module

MODEL NAME : VCB-5001LN-Wv2

BRAND NAME : VidaGrid

FCC ID : 2AMVP-VCB5001LNW

STANDARD(S) : 47CFR 2.1091
KDB 447498

ISSUE DATE : 2018-01-19

Tested by:

Peng Fuwei

Peng Fuwei (Test engineer)

Approved by:

Peng Huarui

Peng Huarui (Supervisor)

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MORLAB

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| Change History | | |
|----------------|------------|-------------------|
| Issue | Date | Reason for change |
| 1.0 | 2018-01-19 | First edition |
| | | |



1. Technical Information

Note: Provide by manufacturer.

1.1 Applicant and Manufacturer Information

| | |
|------------------------------|---|
| Applicant: | DELTA NETWORKS (XIAMEN) LTD. |
| Applicant Address: | Room 416, 4F, Buliding No.39, Wanghai Road Xiamen Software Park, Fujian, 361008, P.R.C. |
| Manufacturer: | DELTA NETWORKS (XIAMEN) LTD. |
| Manufacturer Address: | Room 416, 4F, Buliding No.39, Wanghai Road Xiamen Software Park, Fujian, 361008, P.R.C. |

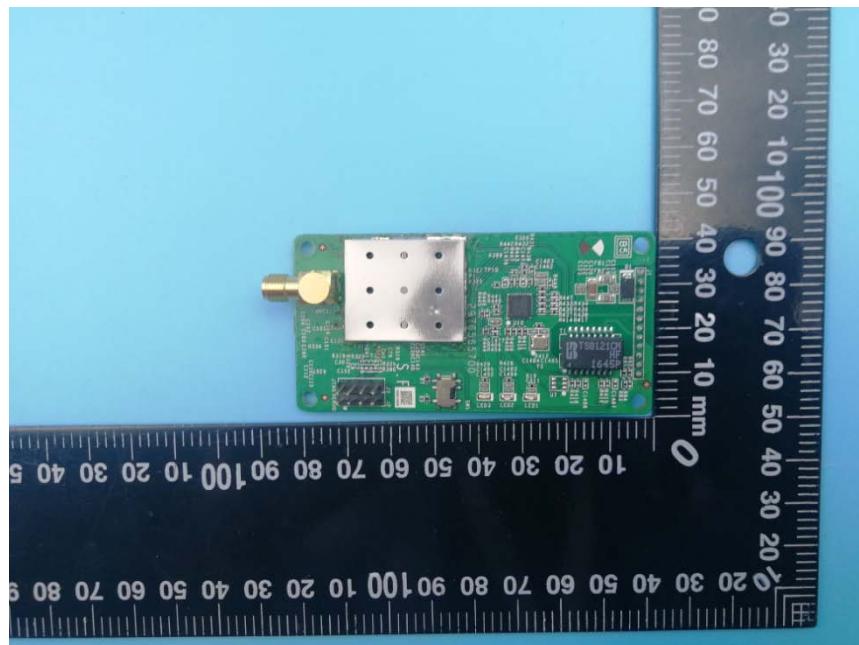
1.2 Equipment Under Test (EUT) Description

| | |
|--------------------------|--|
| EUT Type: | 2.4G WiFi Module |
| Series No: | VCB-5001LN-W-yyxx (yy="CN" or "WW"; xx=01~99; for marketing purpose) |
| Hardware Version: | V0.8 |
| Software Version: | V0.8 |
| Frequency Bands: | WLAN 2.4GHz: 2.412GHz - 2.462GHz; |
| Modulation Mode: | WLAN 2.4GHz:802.11b/g/n HT-20/HT-40 |
| Antenna type: | External Antenna |

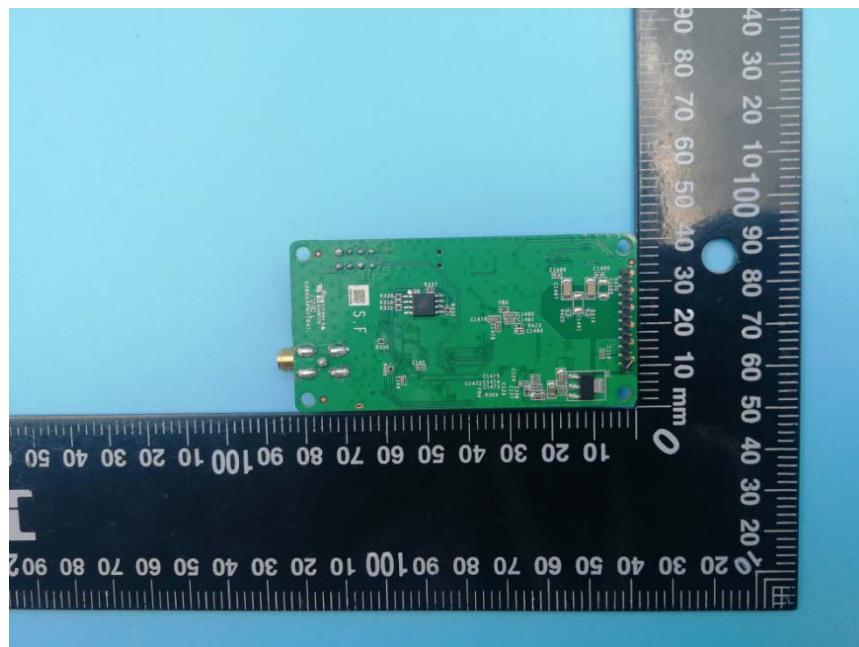
Note 1: According to the designer, they declare that series model: VCB-5001LN-W-yyxx (yy="CN" or "WW"; xx=01~99), their electrical circuit design, layout, components used and internal wiring are identical, only models are different for marketing purpose. The main test model is VCB-5001LN-WV2, only the results for VCB-5001LN-WV2 were recorded in this report.

1.3 Photographs of the EUT

1. EUT front view



2. EUT rear view





1.3.1 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

| EUT Identity | Hardware Version | Software Version |
|--------------|------------------|------------------|
| 1# | V0.8 | V0.8 |

1.4 Applied Reference Documents

Leading reference documents for testing:

| No. | Identity | Document Title |
|-----|-------------------|---|
| 1 | 47 CFR§2.1091 | Radio frequency Radiation Exposure Evaluation: mobile devices |
| 2 | KDB 447498 D01v06 | General RF Exposure Guidance |



2. Device Category And RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

TABLE 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) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (B) 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



3. Measurement Of conducted Peak Output Power

1. Wifi Peak output power

| Band | Channel | Frequency (MHz) | Output Power(dBm) | | |
|------|---------|--------------------|-------------------|---------|-----------|
| | | | 802.11b | 802.11g | 802.11n20 |
| Wifi | 1 | 2412 | 18.56 | 22.97 | 22.68 |
| | 6 | 2437 | 18.22 | 22.53 | 22.12 |
| | 11 | 2462 | 17.62 | 22.04 | 21.47 |

| Band | Channel | Frequency (MHz) | Output Power(dBm) |
|------|---------|--------------------|----------------------|
| | | | 802.11n40 |
| Wifi | 3 | 2422 | 22.39 |
| | 6 | 2437 | 22.02 |
| | 9 | 2452 | 21.68 |

4. RF Exposure Evaluation

Standalone transmission MPE evaluation

| Bands | Frequency (MHz) | Antenna Gain (dBi) | Conducted Peak Power (dBm) | EIRP (mW) | Power density (mW/cm ²) | Limit for MPE (mW/cm ²) |
|--------|--------------------|--------------------------|----------------------------------|--------------|---|---|
| 2.4GHz | 2412 | 0 | 22.97 | 198.153 | 0.039 | 1.0 |

1. MPE calculation method

$$\text{Power Density} = \text{EIRP}/4\pi R^2$$

Where: EIRP = P.G

P = Peak output power

G = Antenna gain

R = Separation distance (20cm)



Annex A General Information

1. Identification of the Responsible Testing Laboratory

| | |
|-------------------------------|--|
| Company Name: | Shenzhen Morlab Communications Technology Co., Ltd. |
| Department: | Morlab Laboratory |
| Address: | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |
| Responsible Test Lab Manager: | Mr. Su Feng |
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2. Identification of the Responsible Testing Location

| | |
|----------|--|
| Name: | Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory |
| Address: | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |

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