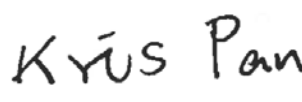


## MPE Report

Applicant : Edimax Technology Co., Ltd.  
Product Type : Indoor Air Quality Detector  
Trade Name : EDIMAX  
Model Number : AI-2004W, AI-2003W  
Test Specification : ANSI / IEEE Std.C95.1  
47 CFR § 2.1091  
47 CFR § 1.1310  
Received Date : Aug. 01, 2019  
Test Period : Aug. 21 ~ Aug. 29, 2019  
Issue Date : Sep. 27, 2019

### Issue by

Approved By :   
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Taiwan Accreditation Foundation accreditation number: 1330  
Test Firm MRA designation number: TW0010

#### **Note:**

- 1.The test results are valid only for samples provided by customers and under the test conditions described in this report.
- 2.This report shall not be reproduced except in full, without the written approval of A Test Lab Technology Corporation.
- 3.The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.



### **Revision History**

| Rev. | Issue Date    | Revisions     | Revised By   |
|------|---------------|---------------|--------------|
| 00   | Sep. 27, 2019 | Initial Issue | Jennifer Liu |
|      |               |               |              |
|      |               |               |              |
|      |               |               |              |



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## 1. Reference Testing Standards

| Standard        | Description                                                                                                                                      | Version |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| ANSI/IEEE C95.1 | American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 KHz to 100 GHz, New York. | 1992    |

## 2. Description of Equipment under Test (EUT)

|                                        |                                                                                         |                  |                |                       |
|----------------------------------------|-----------------------------------------------------------------------------------------|------------------|----------------|-----------------------|
| Applicant                              | Edimax Technology Co., Ltd.<br>No.278, Xinhua 1st Rd., Neihu Dist., Taipei City, Taiwan |                  |                |                       |
| Manufacturer                           | Edimax Technology Co., Ltd.<br>No.278, Xinhua 1st Rd., Neihu Dist., Taipei City, Taiwan |                  |                |                       |
| Product Type                           | Indoor Air Quality Detector                                                             |                  |                |                       |
| Trade Name                             | EDIMAX                                                                                  |                  |                |                       |
| Model Number                           | AI-2004W, AI-2003W                                                                      |                  |                |                       |
| Difference description of model number | AI-2004W has a carbon monoxide sensor.<br>AI-2003W has no carbon monoxide sensor.       |                  |                |                       |
| FCC ID                                 | NDD9520041907                                                                           |                  |                |                       |
| Frequency Range                        | Operate Band                                                                            |                  |                | Frequency Range (MHz) |
|                                        | IEEE 802.11b / 802.11g / 802.11n 2.4 GHz 20 MHz                                         |                  |                | 2412 - 2462           |
|                                        | Bluetooth LE                                                                            |                  |                | 2402 - 2480           |
| Antenna Information                    | Band                                                                                    | Model            | Type           | Max. Gain (dBi)       |
|                                        | WLAN                                                                                    | ALA120-051028-01 | Dipole antenna | 4.7                   |
|                                        | Bluetooth LE                                                                            | STBT40-XXX       | PCB antenna    | 0                     |
| Antenna Delivery                       | 1TX                                                                                     |                  |                |                       |
| RF Evaluation                          | 0.050 mW/cm <sup>2</sup>                                                                |                  |                |                       |
| Operate Temp. Range                    | 0 ~ +40°C                                                                               |                  |                |                       |

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1091 / 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties



### 3. *Human Exposure Assessment*

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device 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 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. " This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: "IMPORTANT: To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b).

Exposure evaluation

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.



#### 4. RF Output Power

| Band                        | Data Rate (Mbps) | Frequency (MHz) | Average Conducted power (dBm) |
|-----------------------------|------------------|-----------------|-------------------------------|
| IEEE 802.11b                | 1                | 2412.0          | 15.29                         |
|                             | 6                | 2437.0          | 15.25                         |
|                             | 11               | 2462.0          | <b>15.62</b>                  |
| IEEE 802.11g                | 1                | 2412.0          | 14.28                         |
|                             | 6                | 2437.0          | <b>18.78</b>                  |
|                             | 11               | 2462.0          | 14.68                         |
| IEEE 802.11n 2.4 GHz 20 MHz | 1                | 2412.0          | 12.75                         |
|                             | 6                | 2437.0          | <b>18.19</b>                  |
|                             | 11               | 2462.0          | 14.78                         |

| Operate Band | Frequency (MHz) | Packet Type | Average Conducted power (dBm) |
|--------------|-----------------|-------------|-------------------------------|
| Bluetooth LE | 2402.0          | ---         | 1.83                          |
|              | 2440.0          |             | <b>2.14</b>                   |
|              | 2480.0          |             | 1.93                          |



## 5. Test Result

| Antenna           | Band   | Frequency (MHz) | Limit (mw)/cm <sup>2</sup> | Distance [R] (cm) | Tune-up Power [P] (dBm) | ANT Gain (dBi) | Numeric Gain [G] | Duty Cycle | Power with Duty cycle [TP] (mW) | Power Density [S] (mw)/cm <sup>2</sup> |
|-------------------|--------|-----------------|----------------------------|-------------------|-------------------------|----------------|------------------|------------|---------------------------------|----------------------------------------|
| Bluetooth Antenna | 2.4GHz | 2402-2480       | 1                          | 20                | 2.64                    | 0.00           | 1.00             | 1          | 1.84                            | 0.000                                  |
| Wi-Fi Antenna     | 2.4GHz | 2412-2462       | 1                          | 20                | 19.28                   | 4.70           | 2.95             | 1          | 249.93                          | 0.050                                  |

Note:

1. Mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.
2. We used the maximum power and gain to provide MPE results.
3. The Numeric Gain calculated by  $10^{(\text{ant. Gain(dBi)} / 10)}$ .
4. The MPE results are evaluated by lowest data rate for WLAN.

### Simultaneous Transmitting:

Total MPE = Bluetooth MPE + 2.4GHz MPE = 0.000 + 0.050 = 0.050 (mw)/cm<sup>2</sup> < 1 (mw)/cm<sup>2</sup>

---END---