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 : (Mark Duan)

Tested By : (Kris Pan)

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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

Contents

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. No.278, Xinhu 1st Rd., Neihu Dist., Taipei City, Taiwan			
Manufacturer	Edimax Technology Co., Ltd. No.278, Xinhu 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. 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^2			
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	**15.62**
IEEE 802.11g	1	2412.0	14.28
	6	2437.0	**18.78**
	11	2462.0	14.68
IEEE 802.11n 2.4 GHz 20 MHz	1	2412.0	12.75
	6	2437.0	**18.19**
	11	2462.0	14.78

Operate Band	Frequency (MHz)	Packet Type	Average Conducted power (dBm)
Bluetooth LE	2402.0	---	1.83
	2440.0		**2.14**
	2480.0		1.93

5. Test Result

Antenna	Band	Frequency (MHz)	Limit (mw)/cm^2	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^2
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^(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^2 < 1 (mw)/cm^2

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