RF Exposure Evaluation Report

Product	:	PANEL PC
Trade mark	:	IEI
Model/Type reference	:	IOVU-210AD-RK39
Serial Model	:	/
Report Number	:	EED39N00008307
FCC ID	:	RFH-IOVU-210AD
Date of Issue	:	May 26, 2021

Test Standards	Results
☒ 47 CFR Part 1.1307	PASS
☒ 47 CFR Part 1.1310	PASS
☒ KDB 447498 D01v06	PASS

Prepared for:

IEI INTEGRATION CORP.

NO.29,ZHONGXING RD.,XIZHI DIST.,NEW TAIPEI CITY 22161,TAIWAN

Prepared by:

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Approved by: Jeff Fang Date: May 26, 2021

Check No.: 3915514199

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Modification Record

No.	Last Report No.	Modification Description
1	EED39N00008307	First report

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1 General Information

1.1 Client Information

Applicant:	IEI INTEGRATION CORP.
Address of Applicant:	NO.29,ZHONGXING RD.,XIZHI DIST.,NEW TAIPEI CITY 22161,TAIWAN
Manufacturer:	IEI INTEGRATION CORP.
Address of Manufacturer:	NO.29,ZHONGXING RD.,XIZHI DIST.,NEW TAIPEI CITY 22161,TAIWAN
Factory:	Armorlink SH Corp.
Address of Factory:	No.515,Shenfu Rd,Xinzhuang Industrial Development Zone,Minhang District,Shanghai,P.R.China

1.2 General Description of EUT

Product Name:	PANEL PC
Model No.(EUT):	IOVU-210AD-RK39
Trade Mark:	
EUT Supports Radios application:	2.4G WIFI: IEEE802.11b/g/n(20MHz), 2412MHz-2462MHz 5G WIFI: IEEE802.11a/ac(HT20)/ac(HT40)/ac(HT80),5150-5350MHz,5470-5725MHz, 5725-5850MHz. Bluetooth BR+EDR& Bluetooth V4.1 BLE NFC13.56MHz
Power Supply:	Model No: FSP060-DHAN3 Input: AC100-240V 1.8A, 50/60Hz Output: DC 12V 5.0A
Sample Received Date:	Feb 09,2021
Sample tested Date:	Feb 09,2021 to Apr 07,2021

1.3 Product Specification subjective to this standard

Frequency Range:	2.4G WiFi: IEEE802.11b/g/n(20MHz), 2412MHz-2462MHz 5G WiFi: IEEE802.11a/ac(HT20)/ac(HT40)/ac(HT80), 5150-5350MHz, 5470-5725MHz ,5725-5850MHz Bluetooth BR+EDR& Bluetooth V4.1 BLE NFC13.56MHz
Antenna Type:	FPC antenna
Antenna gain for ANT1:	2.4G: 2.46dBi, 5G: 3.68dBi
Antenna gain for ANT2:	2.4G: 3.06dBi, 5G: 3.95dBi
Power Supply:	AC120V/60Hz
Max Conducted Output Power:	BT: 8.17 dBm
	BLE:8.43
	2.4GHz: 25.75dBm
	5GHz :14.68dBm
	The Max Conducted Output Power data refer to the report EED39N00008301, EED39N00008302, EED39N00008303,

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	EED39N00008304
Sample Received Date:	Feb 09,2021
Sample tested Date:	Feb 09,2021 to Apr 07,2021

1.4 Test Location

All test facilities used to collect the test data are located at Building 18, Zhihui New Town Ecological Industrial Park, No. 1206, Jinyang East Road, Lujia Town, Kunshan, Jiangsu, China.

1.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

A2LA-Lab Cert. No. 5734.01

Centre Testing International (Suzhou) CO., LTD. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration. Laboratories and any additional program requirements in the identified field of testing.

FCC-Designation No.:CN1290

Centre Testing International Group Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The American association for Centre Testing International Group Co., Ltd. EMC laboratory accreditation Designation No.:CN1290

1.6 Deviation from Standards

None.

1.7 Abnormalities from Standard Conditions

None.

1.8 Other Information Requested by the Customer

None.

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2 RF Exposure Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

Limits For Maximum Permissible Exposure(MPE)

Frequency Range (MHz)	Electric field strength (V/m)	Magentic field strength (A/m)	Power density (Mw/CM^2)	Averaging time (minutees)
(A)Limits for Occupational/Controlled Exposures				
0.3 ~ 3.0	614	1.63	100	6
3.0 ~ 30	1842/f	4.89/f	$900/f^2$	6
30 ~ 300	61.4	0.163	1.0	6
300 ~ 1500	---	---	f/300	6
1500 ~ 100000	---	---	5	6
(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 ~ 100000	---	---	1.0	30

A rough estimation of the expected exposure in power flux density on a given point can be made with the
following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:
S = power density
P = power input to the antenna
G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator
R= distance to the centre of radiation of the antenna
EIRP = P*G
The antenna of the product, under normal use condition is at least 20 cm away from the body of the user.
Warning statement to the user for keeping at least 20cm separation distance and the pr ohibition of operating to
a person has been printed on the user's manual. Therefore, the S of the device is calcul ated with R=20cm,
and if it is below the limit S, then we can conclude the device complies with the rules.

2.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually.

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2.1.3 EUT RF Exposure Evaluation

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Output Power(dBm)	Gain (dBi)	EIRP* (dBm)	EIRP (mW)	R (cm)	S (mW/cm^2)	Limit (mW/cm^2)	Result
BT	2480	8.17	2.46	10.63	11.69	20	0.0023	1.0	Pass
BLE	2480	8.43	2.46	10.83	12.11	20	0.0024	1.0	Pass
2.4G	2462	25.75	3.06	28.81	760.33	20	0.1513	1.0	Pass
5G	5745	14.68	3.95	18.63	72.95	20	0.0145	1.0	Pass

Note:

All of the Bluetooth& WLAN can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

Bluetooth+ WLAN =0.0023+0.1513=0.1536mW/cm^2

APPENDIX 1 PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Refer to Report No. EED39N0008301 for EUT external and internal photos.

The testing data and results in this report are just for scientific research, education, internal quality control and product development etc.

*** End of Report ***

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

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