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Certificate No.: CB10309100

Maximum Permissible Exposure

Applicant's company	PEGATRON CORPORATION
Applicant Address	5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 112 Taiwan
FCC ID	VUICLG8202-NA
Manufacturer's company	MAINTEK COMPUTER
Manufacturer Address	233 Jinfeng Rd., Suzhou, Jiangsu, PRC

Product Name	Wireless Home Automation and Security
Brand Name	CISCO
Model Name	CLG-8202 NA; CLG-8202-WW NA
Ref. Standard(s)	47 CFR FCC Part 2 Subpart J, section 2.1091
EUT Freq. Range	2400 ~ 2483.5MHz / 2402 ~ 2480MHz / 2405~ 2480MHz
Received Date	Jul. 21, 2014
Final Test Date	Sep. 03, 2014
Submission Type	Original Equipment

Sam Chen

SPORTON INTERNATIONAL INC.



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Issued Date : Sep. 18, 2014



History of This Assessment Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA472942	Rev. 01	Initial issue of report	Sep. 18, 2014

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1. TABLE FOR MULTIPLE LIST

1.1. Table for Multiple List

The model names in the following table are all refer to the identical product.

Brand Name Model Name		Description	
CICCO	CLG-8202 NA	All the models are identical, the difference model for difference	
CISCO	CLG-8202-WW NA	brand served as marketing strategy.	

Note: Assessed as above, there is only model: CLG-8202 NA selected to test and recorded in the report as a result.

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2. MAXIMUM PERMISSIBLE EXPOSURE

2.1. Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	• , , ,	
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Power Density (S) Strength (H) (A/m) (mW/ cm²)		Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz; *Plane-wave equivalent power density

2.2. MPE Calculation Method

E (V/m) =
$$\frac{\sqrt{30 \times P \times G}}{d}$$
 Power Density: Pd (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

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2.3. Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

<For WLAN>

Antenna Type: Printed Antenna

Conducted Power for IEEE 802.11n HT20: 18.73 dBm

	Distance (m)	Antenna Gain (dBi)	Antenna Gain	Average O	utput Power	out Power Power Density (S)		Test Result
			(numeric)	(dBm)	(mW)	(mW/cm²) Density	Density (S) (mW/cm²)	iooi koodii
	0.2	3.62	2.3014	18.7306	74.6548	0.034199	1	Complies

<For Bluetooth>

Antenna Type: Printed Antenna

Conducted Power for Bluetooth 1.0: 9.22 dBm

Distance	Antenna Gain (dBi)	Antenna Gain	Average Output Power		Power Density (S)	Limit of Power	Test Result
(m)		(numeric)	(dBm)	(mW)	(mW/cm²)	Density (S) (mW/cm²)	icoi icodii
0.2	3.62	2.3014	9.2200	8.3560	0.003828	1	Complies

<For Zigbee>

Antenna Type: Printed Antenna

Conducted Power for Zigbee: 14.48 dBm

Distance	Antenna	Antenna Gain	Average Output Power		Power Density (S)	Limit of Power	Test Result
(m)	Gain (dBi)	(numeric)	(dBm)	(mW)	(mW/cm²) Density (S) (mW/cm²)	Density (S) (mW/cm²)	Tool Roodii
0.2	1.68	1.4723	14.4800	28.0543	0.008221	1	Complies

CONCULSION:

There are two Simultaneous Transmission Configurations as following:

- (1) Both of the WiFi + Zigbee
- (2) Both of the Bluetooth +Zigbee

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

Therefore, the worst-case situation is

(1) 0.034199 / 1 + 0.008221 / 1 = 0.04242

(2) 0.003828 / 1 + 0.008221 / 1 = 0.012049

which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

Note: Z-wave and NFC not need to assess co-location maximum permissible exposure.

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