RF Exposure Report

Report No.:	SA180430E08
FCC ID:	SUZ-WB01
Test Model:	WB01
Received Date:	Apr. 30, 2018
Test Date:	May 21, 2018
Issued Date:	June 21, 2018
Applicant:	Coretronic Corp.
Address:	No. 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, Taiwan.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA180430E08	Original release.	June 21, 2018

1 Certificate of Conformity

Product:	WiFi 11a/b/g/n/ac 2T2R and BT4.0 Module
Brand:	Coretronic
Test Model:	WB01
Sample Status:	ENGINEERING SAMPLE
Applicant:	Coretronic Corp.
Test Date:	May 21, 2018
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Wendy Wu , **Date:** June 21, 2018

Wendy Wu / Specialist

Approved by : , **Date:** June 21, 2018

May Chen / Manager

2 RF Exposure

2.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
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

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20m away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

For WLAN					
Ant No.	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connecter Type	Cable Length
1	3.61	2.4~2.4835	FPCB	i-pex(MHF)	230mm
	5.55	5.15~5.85			
2	6.47	2.4~2.4835	FPCB	i-pex(MHF)	230mm
	3.94	5.15~5.85			
For Bluetooth					
Ant No.	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connecter Type	Cable Length
1	5.44	2.4~2.4835	FPCB	i-pex(MHF)	170mm

2.5 Calculation Result

WLAN:

Frequency Band (MHz)	Max. Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	371.435	8.17	20	0.48486	1
5180-5240	131.287	7.79	20	0.15702	1
5745-5825	233.814	7.79	20	0.27964	1

Note:
2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 8.17$dBi
5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.79$

BT-EDR:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	6.714	5.44	20	0.00467	1

BT-LE:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	1.365	5.44	20	0.00095	1

Conclusion:
The formula of calculated the MPE is:
CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1
CPD = Calculation power density
LPD = Limit of power density

WLAN 2.4GHz + Bluetooth = 0.48486 / 1 + 0.00467 / 1 = 0.48953
WLAN 5GHz + Bluetooth = 0.27964 / 1 + 0.00467 / 1 = 0.28431

Therefore the maximum calculations of above situations are less than the "1" limit.

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