RF Exposure Report

Report No.: SA170414E05

FCC ID: MQT-E200CP

Test Model: xCL_E200CP

Received Date: Apr. 14, 2017

Test Date: Apr. 28 to May 16, 2017

Issued Date: May 31, 2017

Applicant: XAC AUTOMATION CORP.

Address: 4F, No. 30, INDUSTRY E. RD. IX, SCIENCE-BASED INDUSTRIAL PARK,HSINCHU,TAIWAN

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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Release Control Record

Issue No.	Description	Date Issued
SA170414E05	Original release.	May 31, 2017

1 Certificate of Conformity

Product:	Terminal
Brand:	XAC
Test Model:	xCL_E200CP
Sample Status:	ENGINEERING SAMPLE
Applicant:	XAC AUTOMATION CORP.
Test Date:	Apr. 28 to May 16, 2017
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 : _____ , **Date:** _____

Claire Kuan / Specialist

Approved by : _____ , **Date:** _____

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				
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

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 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

WiFi/BT Antenna Spec.			
Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Antenna Connector
4.01	2.4~2.4835	PCB	i-pex(MHF)
3.79	5.15~5.85		
RFID Antenna Spec.			
Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Antenna Connector
13	13.56	Loop	N/A

2.5 Calculation Result

For RFID

Freq. (MHz)	Electric field (dBuV/m)@3m	Pout EIRP (dBm)	Pout EIRP (mW)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Pass /Fail
13.56	86.23	-9.00	0.1259	0.00003	0.97893	Pass

NOTE: 1. Limit of Electric field=824/f

2. Pout EIRP (dBm) = Field Strength of Fundamental (dBuV/m) - 95.23 (dB)

3. This power included tune-up tolerance range (1dB) that specified by manufacturer.

WLAN

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412-2462	100.000	4.01	20	0.05009	1
5180-5240, 5260-5320, 5500-5700, 5745-5825	12.589	3.79	20	0.00599	1

NOTE: 1. This power included tune-up tolerance range (1dB) that specified by manufacturer.

BT-EDR

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	7.943	4.01	20	0.00158	1

NOTE: 1. This power included tune-up tolerance range (1dB) that specified by manufacturer.

BT-LE

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	1.585	4.01	20	0.00079	1

NOTE: 1. This power included tune-up tolerance range (1dB) that specified by manufacturer.

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 + RFID = 0.05009/ 1 + 0.00398 / 1 + 0.00003 / 0.97893 = 0.05410

WLAN 5GHz + Bluetooth + RFID = 0.00599 / 1 + 0.00398 / 1 + 0.00003 / 0.97893 = 0.01000

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

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