

RF Exposure Report

Report No.: SA160727E11

FCC ID: MQT-PRESTOA3

Test Model: PRESTO A3

Received Date: July 27, 2016

Test Date: Aug. 01 to Oct. 04, 2016

Issued Date: Oct. 25, 2016

Applicant: XAC AUTOMATION CORP.

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Release Control Record

Issue No.	Description	Date Issued
SA160727E11	Original release.	Oct. 25, 2016

1 Certificate of Conformity

Product: Terminal

Brand: ElaCarte

Test Model: PRESTO A3

Sample Status: ENGINEERING SAMPLE

Applicant: XAC AUTOMATION CORP.

Test Date: Aug. 01 to Oct. 04, 2016

Standards: FCC Part 2 (Section 2.1093)

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 : Midoli Peng , **Date:** Oct. 25, 2016
Midoli Peng / Specialist

Approved by : May Chen , **Date:** Oct. 25, 2016
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/cm²

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

The antennas provided to the EUT, please refer to the following table:

WiFi/BT Antenna Spec.					
Brand	Model No.	Antenna Type	Antenna Connector	Gain(dBi)	
INPAQ	WA-P-LB-02-368	PCB	HRS U.FL-LP(V)-040	2.4GHz:4.23 5GHz:4.02	
RFID Antenna Spec.					
Brand	Model No.	Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (MHz)
INPAQ	NF-C-F10-R0-083	PCB	ZIF	13	13.56

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	115.611	4.23	20	0.06092	1
5180 ~ 5240 5260 ~ 5320 5500 ~ 5700 5745 ~ 5825	21.429	4.02	20	0.01076	1

BT-EDR

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2402 ~ 2480	16.293	4.23	20	0.00858	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	1.567	4.23	20	0.00083	1

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	71.7	-23.53	0.004436	0.00000088	0.9789334	PASS

NOTE:

Pout EIRP (dBm) = Field Strength Of Fundamental (dBuV/m) - 95.23 (dB)

Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

Simultaneously transmission condition.

Condition	Technology		
1	WLAN (2.4GHz)	Bluetooth	RFID
2	WLAN (5GHz)	Bluetooth	RFID

$WLAN(2.4GHz) + BT + RFID = 0.06092/1 + 0.00858/1 + 0.00000088/ 0.9789334 = 0.06950$

$WLAN(5GHz) + BT + RFID = 0.01076/1 + 0.00858/1 + 0.00000088/ 0.9789334 = 0.01934$

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

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