

## RF Exposure Report

**Report No.:** SA180626C38

**FCC ID:** 2AAC6-C10

**Test Model:** AUT-450C

**Received Date:** Jun. 26, 2018

**Date of Evaluation:** Aug. 03, 2018

**Issued Date:** Aug. 06, 2018

**Applicant:** Automatic Labs, Inc.

**Address:** 128 KING ST, 3RD FLOOR, SAN FRANCISCO CA 94107

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

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

**Test Location:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
SA180626C38	Original Release	Aug. 06, 2018

## 1 Certificate of Conformity

**Product:** OBD2 dongle

**Brand:** Automatic Labs

**Test Model:** AUT-450C

**Sample Status:** Production Unit

**Applicant:** Automatic Labs, Inc.

**Date of Evaluation:** Aug. 03, 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 :** Evonne Liu, **Date:** Aug. 06, 2018  
Evonne Liu / Specialist

**Approved by :** Dylan Chiou, **Date:** Aug. 06, 2018  
Dylan Chiou / Project Engineer

## 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 <sup>2</sup> )	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 <sup>2</sup> )*	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

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

BT/WLAN: metal antenna with 1.08 dBi gain

LTE Band 2: metal antenna with 3.6 dBi gain

LTE Band 4: metal antenna with 3.25 dBi gain

LTE Band 12: metal antenna with 2.88 dBi gain

## 2.5 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
LTE 2	1850-1910	24.22	3.6	20	0.120	1.00
LTE 4	1710-1755	24.24	3.25	20	0.112	1.00
LTE 12	699-716	24.45	2.88	20	0.108	0.47
WLAN	2412-2462	16.23	1.08	20	0.011	1.00
BT	2402-2480	5.95	1.08	20	0.001	1.00

### 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

$WWAN + WLAN + BT = 0.120 + 0.011 + 0.001 = 0.132$

**Therefore the maximum calculations of above situations are less than the “1” limit.**

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