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

Table of Contents

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 : , **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^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 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^2)	Limit (mW/cm^2)
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 + ……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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