MPE REPORT

FCC ID: 2AFZB-VHM

Date of issue: Nov. 05, 2019

Report number:	MTi19092106-1E2
Sample description:	Vehicle Health Monitor
Model(s):	Vehicle Health Monitor, ELM327
Applicant:	No NDA Inc.
Address:	320 Mountainview Avenue, Mountainview California, United States, 94041
Date of test:	Oct. 12, 2019 to Nov. 05, 2019

Shenzhen Microtest Co., Ltd.

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TEST RESULT CERTIFICATION	
Applicant's name:	No NDA Inc.
Address:	320 Mountainview Avenue, Mountainview California, United States, 94041
Manufacture's name:	Shenzhen Vnvtent Co., Ltd.
Address:	FL5 Bldg A,Yuandong Industrial Park, Xuexiang Rd, Bantian St, Longgang Dist, Shenzhen. 518109
Product name:	Vehicle Health Monitor
Trademark:	nonda
Model and/or type reference .:	Vehicle Health Monitor
Serial model.....:	ELM327
RF exposure procedures.....:	KDB 447498 D01 v06

This device described above has been tested by Shenzhen Microtest Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by: Demi Mu Nov. 05, 2019

Reviewed by: Blue Zheng Nov. 05, 2019

Approved by: Smith Chen Nov. 05, 2019

RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) 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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1415926

R= distance between observation point and center of the radiator in cm (20cm)

Pd the limit of MPE, 1mW/cm2. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

BLE:

Operation Frequency: GFSK: 2402-2480MHz,

Power density limited: 1mW/ cm^2

Antenna Type: PCB Antenna;
WIFI antenna gain: 0.55dBi

R=20cm

mW=10^(dBm/10)

Antenna gain Numeric=10^(dBi/10)= 10^(0.55/10)=1.14

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	-2.601	(-2±1)	-1	0.794	0.55	1.14	0.0002	1
2440		-2.163	(-2±1)	-1	0.794	0.55	1.14	0.0002	1
2480		-2.163	(-2±1)	-1	0.794	0.55	1.14	0.0002	1

Conclusion:

For the max result: 0.0002≤ 1.0 for 1g SAR, No SAR is required.

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