MPE REPORT

FCC ID:2AVYWPRO

Date of issue: Aug. 17, 2020

Report number:	MTi20032406-6E2
Sample description:	Smart Automotive Diagnostic System
Model(s):	Phoenix Pro
Applicant:	Topdon Technology Co., Ltd
Address:	701, G Block, Inteligence Valley Technology Park, Yintian Road No.4, Xixiang, Bao'an, Shenzhen, 518129, China
Date of test:	June 04, 2020 to Aug. 06, 2020

Shenzhen Microtest Co., Ltd.

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TEST RESULT CERTIFICATION	
Applicant's name:	Topdon Technology Co., Ltd
Address:	701, G Block, Inteligence Valley Technology Park, Yintian Road No.4, Xixiang, Bao'an, Shenzhen, 518129, China
Manufacture's name:	Topdon Technology Co., Ltd
Address:	701, G Block, Inteligence Valley Technology Park, Yintian Road No.4, Xixiang, Bao'an, Shenzhen, 518129, China
Product name:	Smart Automotive Diagnostic System
Trademark:	TOPDON
Model and/or type reference:	Phoenix Pro
Serial model:	N/A
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 — Aug. 06, 2020

Reviewed by: Leo Su — Aug. 17, 2020

Approved by: Tom Xue — Aug. 17, 2020

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

R=20cm

2.4GWiFi

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	11.70	12±1	13	19.952	1.59	0.00631	1
2437		12.07	12±1	13	19.952	1.59	0.00631	1
2462		11.57	12±1	13	19.952	1.59	0.00631	1
2412	802.11g	8.86	9±1	10	10	1.59	0.00316	1
2437		9.41	9±1	10	10	1.59	0.00316	1
2462		9.05	9±1	10	10	1.59	0.00316	1
2412	802.11n H20	7.84	8±1	9	7.943	1.59	0.00251	1
2437		8.31	8±1	9	7.943	1.59	0.00251	1
2462		7.93	8±1	9	7.943	1.59	0.00251	1
2422	802.11n H40	6.64	7±1	8	6.309	1.59	0.00200	1
2437		7.07	7±1	8	6.309	1.59	0.00200	1
2452		7.09	7±1	8	6.309	1.59	0.00200	1

BT

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	4.515	5±1	6	3.981	2.01	1.59	0.0013	1
2441		4.86	5±1	6	3.981	2.01	1.59	0.0013	1
2480		5.788	5±1	6	3.981	2.01	1.59	0.0013	1
2402	π/4-DQPSK	3.773	4±1	5	3.162	2.01	1.59	0.0010	1
2441		4.003	4±1	5	3.162	2.01	1.59	0.0010	1
2480		4.944	4±1	5	3.162	2.01	1.59	0.0010	1
2402	8DPSK	4.859	5±1	6	3.981	2.01	1.59	0.0013	1
2441		4.166	5±1	6	3.981	2.01	1.59	0.0013	1
2480		5.039	5±1	6	3.981	2.01	1.59	0.0013	1

Simultaneous transmit:

BT+2.4GWiFi =0.00631+0.0013=0.00761 mW/cm2

Conclusion: For the max result: 0.00761≤ 1.0 for 1g SAR, No SAR is required.

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