

RF Exposure Evaluation Report

Product : Automotive Diagnosis Terminal
Trade mark : LAUNCH
Model/Type reference : DBScar VII
Serial Number : N/A
Report Number : EED32N80682003
FCC ID : XUJDBSCARVII
Date of Issue : Sep. 15, 2021
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Test result : PASS

Prepared for:

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2 Version

Version No.	Date	Description
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4 General Information

4.1 Client Information

Applicant:	Launch Tech Co., Ltd.
Address of Applicant:	Launch Industrial Park, North of Wuhe Rd., Banxuegang, Longgang, Shenzhen
Manufacturer:	Launch Tech Co., Ltd.
Address of Manufacturer:	Launch Industrial Park, North of Wuhe Rd., Banxuegang, Longgang, Shenzhen

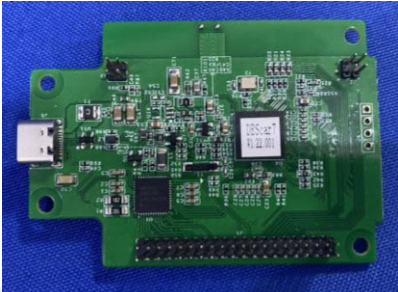
4.2 General Description of EUT

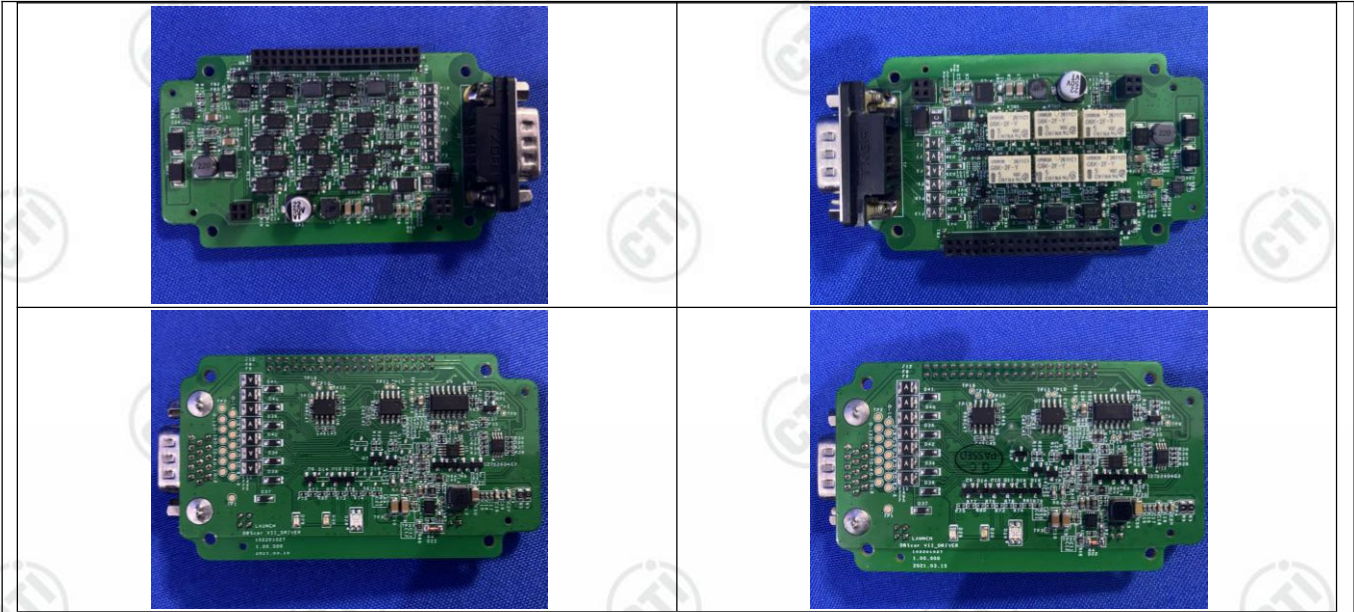
Product Name:	Automotive Diagnosis Terminal
Mode No.:	DBScar VII
Trade mark:	LAUNCH
Power Supply:	DC 5V
Test Voltage:	DC 5V
Sample Received Date:	Aug. 04, 2021
Sample tested Date:	Aug. 11, 2021 to Sep. 01, 2021

Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Model No.:DBScar VII

The RF board is the same, but its diagnostic board has two different circuits. Since the RF board is the same, we tested Spurious emissions of diagnostic board 1 and diagnostic board 2 separately.

RF board	
	
Diagnostic board 1	Diagnostic board 2



4.3 General Description of BT Classic

Operation Frequency:	Bluetooth LE:2402MHz~2480MHz, Bluetooth Classic:2402MHz~2480MHz
Modulation Type:	Bluetooth LE:GFSK, Bluetooth Classic:GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channel:	Bluetooth LE:40, Bluetooth Classic:79
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	Bluetooth LE:1.89dBi, Bluetooth Classic:1.89dBi

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06
Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \left[\sqrt{f(\text{GHz})} \right] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$
$$f(\text{GHz}) \text{ is the RF channel transmit frequency in GHz}$$

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

5.1.2 EUT RF Exposure

1)For Bluetooth LE:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.25	0.30±1	1.30	1.35
Middle(2440MHz)	0.30	0.30±1	1.30	1.35
Highest(2480MHz)	0.46	0.30±1	1.30	1.35

Worst case:GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	0.25	0.30±1	1.30	1.35	0.418	3.0
Middle (2440MHz)	0.30	0.30±1	1.30	1.35	0.422	
Highest (2480MHz)	0.46	0.30±1	1.30	1.35	0.425	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

2)For Bluetooth Classic:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.28	0.30±1	1.30	1.35
Middle(2441MHz)	0.20	0.20±1	1.20	1.32
Highest(2480MHz)	0.56	0.60±1	1.60	1.45
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.12	0.20±1	1.20	1.32
Middle(2441MHz)	0.05	0.10±1	1.10	1.29
Highest(2480MHz)	0.46	0.50±1	1.50	1.41
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.34	0.40±1	1.40	1.38
Middle(2441MHz)	0.36	0.40±1	1.40	1.38
Highest(2480MHz)	0.60	0.60±1	1.60	1.45

Worst case:8DPSK mode						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	0.34	0.40±1	1.40	1.38	0.428	3.0
Middle (2441MHz)	0.36	0.40±1	1.40	1.38	0.431	
Highest (2480MHz)	0.60	0.60±1	1.60	1.45	0.457	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: EED32N80682001 & EED32N80682002.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80682001 for EUT external and internal photos.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***