

RF Exposure Evaluation Report

Product : Bus Validator
Trade mark : 
Model/Type reference : P18Q
Serial Number : N/A
Report Number : EED32R81026607
FCC ID : 2AFSMP18Q
Date of Issue : Sep. 23, 2025
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091(mobile devices)
47 CFR Part 2.1093(portable devices)
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

ShenZhen Decard SmartCard Tech co.,LTD
F4,Bldg17,Wenguang Industrial Zone,Chaguang Rd,Nanshan
District,Shenzhen, Guangdong,P.R.China

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Sep. 23, 2025

Check No.:9743230625

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2 General Information

2.1 Client Information

Applicant:	ShenZhen Decard SmartCard Tech co.,LTD
Address of Applicant:	F4,Bldg17,Wenguang Industrial Zone,Chaguang Rd,Nanshan District,Shenzhen, Guangdong,P.R.China
Manufacturer:	ShenZhen Decard SmartCard Tech co.,LTD
Address of Manufacturer:	F4,Bldg17,Wenguang Industrial Zone,Chaguang Rd,Nanshan District,Shenzhen, Guangdong,P.R.China

2.2 General Description of EUT

Product Name:	Bus Validator
Model No.(EUT):	P18Q
Trade Mark:	

2.3 Product Specification subjective to this standard

Frequency Range:	BLE/BT: 2402MHz~2480MHz 2.4G Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz 5G Wi-Fi: U-NII-1: 5150-5250MHz U-NII-2A: 5250-5350MHz U-NII-2A: 5470-5725MHz U-NII-3:5745-5825MHz NFC: 13.56MHz
Modulation Type:	BLE: GFSK BT: GFSK, $\pi/4$ DQPSK, 8DPSK 2.4G Wi-Fi: IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM,QPSK, BPSK) 5G Wi-Fi: IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11ac(VHT20/VHT40/VHT80): OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) NFC: ASK
Test Power Grade:	Default
Test Software of EUT:	android
Antenna Type:	BLT/BT: PCB Antenna 2.4G Wi-Fi: PCB Antenna 5G Wi-Fi: External Antenna NFC: Internal antenna
Antenna Gain:	BLT/BT: 2.41dBi 2.4G Wi-Fi: 2.41dBi 5G Wi-Fi: U-NII-1: 3.69 dBi

	U-NII-2A: 3.44 dBi U-NII-2C: 4.47 dBi U-NII-3: 4.40 dBi NFC: 3 dBi
Power Supply:	DC 9-48V
Sample Received Date:	Jul. 17, 2025
Sample tested Date:	Jul. 17, 2025 to Aug. 28, 2025

2.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Hongwei Industrial Park, Zone 70, Bao'an District, Shenzhen, Guangdong, China

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

No tests were sub-contracted.

FCC Designation No.: CN1164

2.5 Deviation from Standards

None.

2.6 Abnormalities from Standard Conditions

None.

2.7 Other Information Requested by the Customer

None.

3 SAR Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and ERP20cm is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

Maximum tune-up Power

	Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
BT	39	4.34	4.5 ± 1	5.5	3.548
BLE	19	-2.61	-2.0 ± 1	-1.0	0.794
2.4G Wi-Fi	6	12.45	12.50 ± 1	13.5	22.387
5G Wi-Fi	110	10.95	11.00 ± 1	12.0	15.849
LTE	Band 4	24.25	24.5 ± 1	25.5	354.813

Remark: The Max Conducted Peak Output Power data refer to the report EED32R81026601, EED32R81026602, EED32R81026603, EED32R81026604, EED32R81026605 Only the worst case was recorded in the report.

For Stand alone:
BT :

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@2.4GHz	20	4.34	2.41	4.6	2.8840	3060	0.0009	Pass

BLE :

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@2.4GHz	20	-2.61	2.41	-2.35	0.5821	3060	0.0002	Pass

2.4G Wi-Fi:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@2.4GHz	20	12.45	2.41	12.71	18.6638	3060	0.0061	Pass

5G Wi-Fi:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@5GHz	20	10.95	4.47	13.27	21.2324	3060	0.0069	Pass

GSM:

Band	Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
GSM850	848.8	20	28.63	-1.75	23.71	234.963	1731.55	0.1716	Pass
GSM1900	1909.8	20	29.32	4.63	31.53	1422.329	3060.00	0.4648	Pass

WCDMA:

Band	Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
WCDMA Band 2	1907.6	20	23.14	4.63	25.35	342.7678	3060.00	0.1120	Pass
WCDMA Band 5	826.4	20	18.43	-1.75	14.53	28.379	1685.86	0.0168	Pass

LTE:

Band	Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
Band 2	1909.3	20	23.41	4.46	25.72	373.250	3060.00	0.1220	Pass
Band 4	1711.5	20	24.25	2.84	24.94	311.889	3060.00	0.1019	Pass
Band 5	824.7	20	22.25	-1.75	18.35	68.391	1682.39	0.0407	Pass
Band 7	2502.5	20	22.55	5.06	25.46	351.560	3060.00	0.1149	Pass

Band 41	2565	20	22.66	5.22	25.73	374.111	3060.00	0.1223	Pass
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NFC:

Frequency (MHz)	Estimation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
@NFC	20	-39.07	3	-38.22	0.00015		0.0069	Pass

Frequency (MHz)	Estimation distance (cm)	Field strength of the fundamental signal (dBuV/m@3m)	ERP (dBm)	ERP (W)	Threshold ERP (W)	MPE ratio	Result
13.56MHz	20	56.16	-38.22	0.00000015	≤ 0.7505	0.0000002	Pass

Note:

① EIRP=conducted power+antenna gain;

② ERP=EIRP-2.15;

③ EIRP(dBm) = Field strength of the fundamental signal(dBuV/m@3m) – 95.23;

④ ERP(mW) = $10^{(ERP \text{ (dBm)}/10)}$;

⑤ The estimation distance is 20cm;

⑥ The test data please refer to the report of EED32R81026601, EED32R81026602, EED32R81026603, EED32R81026604, EED32R81026605 and only the worst case data was recorded in the report.

For Simultaneous Transmission:

As MPE ratio (BT+BLE+2.4G Wi-Fi + 5G Wi-Fi+GSM+NFC)=

$0.0009^2 + 0.0002^2 + 0.0061^2 + 0.0069^2 + 0.4648^2 + 0.0000002^2 = 0.216 < 1$,

it' s deemed to fulfil the RF exposure requirement.

Statement

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule stated in ILAC-G8:09/2019/CNAS-GL015:2022;
5. Without written approval of CTI, this report can't be reproduced except in full;

*** End of Report ***