NVLAP TESTING
NVLAP LAB CODE 600341-0

BACL Bay Area Compliance Labs Corp.

MAXIMUM PERMISSIBLE EXPOSURE EVALUATION REPORT

Applicant:	**Shenzhen Xinguodu Technology Co., Ltd.**
Address:	**17B JinSong Mansion, Terra Industrial & Trade Park Chegongmiao, Futian District, Shenzhen, Guangdong, China.**
Product Name:	**POS terminal**
FCC ID:	**XDQCT20-01**
Standard(s):	**47 CFR §1.1310, 47 CFR §2.1091, 47 CFR §15.247(i),47 CFR §15.407(f)**
Report Number:	**2402T76961E-RF-00H**
Report Date:	**2024/6/22**

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

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Title: RF Engineer	Title: EMC Manager

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2402T76961E-RF-00H	Original Report	2024/6/22

1. GENERAL INFORMATION

1.1 General Description of Equipment under Test

EUT Name:	POS Terminal
EUT Model:	CT20
Rated Input Voltage:	DC 9.0V from Adapter
Serial Number:	2LTC-4
EUT Received Date:	2024/5/23
EUT Received Status:	Good

1.2 EUT Parameters▲:

Operation Modes	Operation Frequency (MHz)	Max Conducted output power including Tune-up Tolerance (dBm)	Maximum Antenna Gain (dBi)
Bluetooth BDR/EDR	2402-2480	6.0	3.49
BLE	2402-2480	-2.0	3.49
WiFi 2.4G	2412-2462	17	3.49
WiFi 5.2G	5150-5250	15	2.02
WiFi 5.3G	5250-5350	15	1.83
WiFi 5.6G	5470-5725	15	2.93
WiFi 5.8G	5725-5850	15	1.97
GPRS/EDGE 850	824-849	34	-0.9
GPRS/EDGE 1900	1850-1910	31	-0.25
WCDMA Band 2	1850-1910	24	-0.25
WCDMA Band 4	1710-1755	24	1.25
WCDMA Band 5	824-849	24.5	-0.9
LTE Band 2	1850-1910	23	-0.25
LTE Band 4	1710-1755	23	1.25
LTE Band 5	824-849	24	-0.9
LTE Band 7	2500-2570	23.5	3.34
Note: The Above Parameters were provided by the manufacturer.			

2 RF EXPOSURE EVALUATION (MPE)

2.1 RF Exposure Evaluation

2.1.1 Applicable Standard

According to subpart 15.247(i)& 15.407(f) and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
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;

According to §1.1310 and §2.1091 RF exposure is calculated.

2.1.2 Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

2.1.3 Calculated Data:

Operation Modes	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
Bluetooth BDR/EDR	2402-2480	3.49	2.23	6	3.98	20.00	0.0018	1.0
BLE	2402-2480	3.49	2.23	-2	0.63	20.00	0.0003	1.0
WiFi 2.4G	2412-2462	3.49	2.23	17	50.12	20.00	0.0223	1.0
WiFi 5.2G	5150-5250	2.02	1.59	15	31.62	20.00	0.0100	1.0
WiFi 5.3G	5250-5350	1.83	1.52	15	31.62	20.00	0.0096	1.0
WiFi 5.6G	5470-5725	2.93	1.96	15	31.62	20.00	0.0124	1.0
WiFi 5.8G	5725-5850	1.97	1.57	15	31.62	20.00	0.0099	1.0
GPRS/EDGE 850	824-849	-0.9	0.81	34	2511.89	20.00	0.4064	0.55
GPRS/EDGE 1900	1850-1910	-0.25	0.94	31	1258.93	20.00	0.2366	1.0
WCDMA Band 2	1850-1910	-0.25	0.94	24	251.19	20.00	0.0472	1.0
WCDMA Band 4	1710-1755	1.25	1.33	24	251.19	20.00	0.0667	1.0
WCDMA Band 5	824-849	-0.9	0.81	24.5	281.84	20.00	0.0456	0.55
LTE Band 2	1850-1910	-0.25	0.94	23	199.53	20.00	0.0375	1.0
LTE Band 4	1710-1755	1.25	1.33	23	199.53	20.00	0.0530	1.0
LTE Band 5	824-849	-0.9	0.81	24	251.19	20.00	0.0406	0.55
LTE Band 7	2500-2570	3.34	2.16	23.5	223.87	20.00	0.0962	1.0
NFC	13.56	/	/	-25.39	0.003	20.00	<<0.0001	0.98
NFC field strength is -25.39dBm (0.003mW)EIRP. That equal to antenna gain is 0dBi and used the EIRP value as conducted power.								

Note:
The Conducted output power including Tune-up Tolerance provided by manufacturer.
For NFC, the power of EUT: E Field@3m is 69.81 dBuV/m =-25.39dBm (0.003mW)
E[dBμV/m] = EIRP[dBm] + 95.2 for d = 3 m.

For Simultaneous transmission:

Bluetooth/2.4G WiFi/5G WiFi can`t transmit simultaneously,
WWAN ,NFC and Bluetooth/2.4G WiFi/5G WiFi can transmit simultaneously:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

$= S_{WWAN} / S_{limit\text{-}WWAN} + S_{WLAN} / S_{limit\text{-}WLAN} + S_{NFC} / S_{limit\text{-}NFC}$

=0.4064/0.55+0.0223/1.0+0.0001/0.98

=0.76

Result: Compliant. The device compliant Simultaneous transmission at 20cm distances.

APPENDIX A - EUT PHOTOGRAPHS

Please refer to the attachment 2402T76961E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2402T76961E-RF-INP EUT INTERNAL PHOTOGRAPHS

******* END OF REPORT *******