FCC TEST REPORT

FCC ID: 2AVZV-N1W04

Product	:	POS SYSTEM
Model Name	:	N1W04,N1W01,N1W02,N1W03,N1W01-X,N1W02-X,N1W03-X,N1W04-X ("X" can be represented 1~9)
Brand	:	CITAQ
Report No.	:	PTC24091003601E-FC05

Prepared for

CITAQ CO., LTD

9F&13F.， Chuangye Bldg.， Keji Middle Road.， Hi-Tech Zone， Shantou.， Guangdong

Prepared by

Precise Testing & Certification Co., Ltd.

Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China.

TEST RESULT CERTIFICATION

Applicant's name	:	CITAQ CO., LTD
Address	:	9F&13F., Chuangye Bldg., Keji Middle Road., Hi-Tech Zone, Shantou., Guangdong
Manufacture's name	:	CITAQ CO., LTD
Address	:	9F&13F., Chuangye Bldg., Keji Middle Road., Hi-Tech Zone, Shantou., Guangdong
Product name	:	POS SYSTEM
Model name	:	N1W04,N1W01,N1W02,N1W03,N1W01-X,N1W02-X,N1W03-X,N1W04-X ("X" can be represented 1~9)
Test procedure	:	FCC CFR47 Part 1.1307(b)(1)
Test Date	:	Sep. 29, 2024 to Oct. 25, 2024
Date of Issue	:	Oct. 25, 2024
Test Result	:	PASS

This device described above has been tested by PTC, 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.

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Test Engineer:

Jack zhou / Engineer

Technical Manager:

Simon Pu / Manager

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2 Test Summary

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	15.247 (i)	PASS
Remark:		
N/A: Not Applicable		

3 General Information

3.1 General Description of E.U.T.

Product Name	:	POS SYSTEM
Model Name	:	N1W04
Additional model	:	N1W01,N1W02,N1W03,N1W01-X,N1W02-X,N1W03-X,N1W04-X ("X" can be represented 1~9)
Specification	:	Bluetooth BDR+EDR; Bluetooth BLE 802.11b/g/n HT20/HT40 802.11a/n HT20/HT40/ac20/ac40/ac80
Operation Frequency	:	2400-2480MHz for BT 2412-2462MHz for 802.11b/g/ n(HT20) 2422-2452MHz for 802.11 n(HT40) 5G Wifi: 5180-5240MHz 5.8G Wifi: 5745-5825MHz
Number of Channel	:	79 channels for BDR+EDR 40 channels For DTS 11 channels for 802.11b/g/ n(HT20) 7 channels for 802.11n(HT40) 4 channels for 802.11a/n20/ac20 5180-5240 MHz 5 channels for 802.11a/n20/ac20 5745MHz~5825MHz 2 channels for 802.11n40/ac40 5190-5230 MHz 2 channels for 802.11n40/ac40 5755MHz~5795MHz 1 channels for 802.11 ac80
Type of Modulation	:	GFSK, П/4-DQPSK,8DPSK For DSS GFSK, For DTS DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n/a/ac
Antenna installation	:	Ant1:FPC antenna Ant2:FPC antenna
Antenna Gain	:	Ant1_2.4G :1.88 dBi Ant2_5G:3.97 dBi
Power supply	:	Adapter: SOY-1200300-327 Input: AC100-240V 50/60Hz 0.3A Output: DC 12V 3A
Hardware Version	:	N/A
Software Version	:	N/A

4 RF Exposure

Test Requirement   :   FCC Part 1.1307(b)(1)

Evaluation Method   :   KDB 447498 D01 General RF Exposure Guidance v06

4.1 Requirements

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 levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

4.2 The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range	Electric Field	Magnetic Field	Power Density (S)	Averaging Time
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range	Electric Field	Magnetic Field	Power Density (S)	Averaging Time
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

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

4.3 MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m²)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2} \theta\varphi$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

4.4 Test Result

Mode	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Tune up tolerance (dBm)	Max Tune Up Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Result
2402(3DH5_Ant1)	1.54	7.69	7.69±1	7.3961	0.002268	1	Pass
2402(BLE_1M_Ant1)	1.54	8.81	8.81±1	9.5719	0.002936	1	Pass
2437(11B_Ant1)	1.54	15.17	15.17±1	41.4000	0.012698	1	Pass
5.2G(Ant2)	2.49	15.54	15.54±1	45.0817	0.022373	1	Pass
5.8G(Ant2)	2.49	14.1	14.1±1	32.3594	0.016059	1	Pass

Note:

1.Ant1 supports Bluetooth and WLAN (2.4GHz);Ant2 support WLAN (5GHz).

4.5 simultaneous MPE Result

2437(11B) MPE ratio	5.2GWIFI (11N20SISO) MPE ratio	simultaneous MPE ratio	MPE Limits ratio	Test result
0.012698	0.022373	0.035071	1	PASS

Conclusion:

Both of the WLAN (5GHz) and WLAN (2.4GHz) can transmit simultaneously, the formula of calculated the exposure is:

(CPD1/LPD1)+(CPD2/LPD2)+........etc.<1

CPD=Calculation Power Density; LPD= Limit of Power Density

Therefore, the calculation of this situation is (0.012698/1) + (0.022373/ 1)= 0.035071.

which is less than the "1" limit.

******THE END REPORT*****