RF EXPOSURE REPORT

For

Fujian Newland Auto-ID Tech Co., Ltd.

Newland Science & Technology Park No.1 Rujiang West Rd., Mawei district, Fuzhou, Fujian, China

FCC ID: SL9NLS-NQUIRE

Report Type:	Product Name:
Original Report	Information Terminal

Report Number:	2407V20721E-RF-05
Report Date:	2025-01-06
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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	2407V20721E-RF-05	R1V1	2025-01-06	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Name:	Information Terminal	
Tested Model:	NLS-NQuire1500, NLS-NQuire500, NLS-NQuire700, NLS-NQuire1000	
NLS-NQuire1500 Series Model(s):	NLS-NQuire	
Power Supply:	DC 12V from Adapter	
Adapter Information	Model:	R361-1203000I
	Input:	AC 100-240V, 50/60Hz, 1.5A
	Output:	DC 12V, 3A, 36W
Maximum Output Power:	**Classic BT:** 13.09dBm **2.4G WIFI:** 23.305dBm **5G WIFI:** 13.926 dBm in 5150-5250 MHz Band 13.852 dBm in 5250-5350 MHz Band 12.053 dBm in 5470-5725 MHz Band 10.932 dBm in 5725-5850 MHz Band	
Operating Band/Frequency:	**BT:** 2402-2480MHz **2.4G WIFI:** 2412-2462MHz **NFC:** 13.56MHz **5G WIFI:** **Band1:** 5180-5240 MHz (802.11a/n ht20/ac vht20) 5190-5230 MHz(802.11n ht40/ac vht40) 5210 MHz(802.11ac vht80) **Band2:** 5260-5320 MHz (802.11a/n ht20/ac vht20) 5270-5310 MHz(802.11n ht40/ac vht40) 5290 MHz(802.11ac vht80) **Band3:** 5500-5720 MHz (802.11a/n ht20/ac vht20) 5510-5710 MHz(802.11n ht40/ac vht40) 5530-5690MHz(802.11ac vht80) **Band4:** 5745-5825 MHz (802.11a/n ht20/ac vht20) 5755-5795 MHz(802.11n ht40/ac vht40) 5775 MHz(802.11ac vht80)	
★Maximum Antenna Gain:	**NLS-NQuire1500：** 5G WIFI: 4.02dBi@B1, 3.71dBi@B2, 3.09dBi@B3, 3.53dBi@B4 2.4G WIFI & BT: 1.29dBi **NLS-NQuire500：** 5G WIFI: 3.1dBi@B1, 3.1dBi@B2, 3.63dBi@B3, 3.82dBi@B4 2.4G WIFI & BT: 3.8dBi **NLS-NQuire700:** 5G WIFI: 3.61dBi@B1, 3.61dBi@B2, 3.67dBi@B3, 2.23dBi@B4 2.4G WIFI & BT: 0.46dBi **NLS-NQuire1000:** 5G WIFI: 4.59dBi@B1, 4.59dBi@B2, 3.26dBi@B3, 2.08dBi@B4 2.4G WIFI & BT: 5.48dBi	
EUT Received Status:	Good	

Note:
1. The Maximum Antenna Gain was declared by manufacturer.
2. All models have the same motherboard except for screen size, USB interface and antenna. NLS-NQuire is identify with NLS-NQuire1500 except for the model name, please refer to declaration for more details.
3. All measurement and test data in this report was gathered from production sample serial number: 2ORR-1(NLS-NQuire1500), 2PL7-1(NLS-NQuire500), 2PL8-1(NLS-NQuire700), 2PL5-1(NLS-NQuire1000) Assigned by the BACL (Xiamen). The EUT supplied by the applicant was received on 2024-08-02)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Xiamen) to collect test data is located on the Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen

Bay Area Compliance Laboratories Corp. (Xiamen) Lab is accredited to ISO/IEC 17025 by A2LA (Certificate Number: 7134.01) and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No. : CN1384.

MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to FCC §1.1307(b)(1) & §2.1091, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f²)	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 §1.1307(b)(1) & §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);
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);

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

Calculated Data

For NLS-NQuire1500

Bluetooth & WLAN

Mode	Frequency (MHz)	Antenna Gain		★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limt (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G Wi-Fi	2412-2462	1.29	1.35	23.5	223.87	20	0.0601	1
BT	2402-2480	1.29	1.35	13.5	22.39	20	0.0060	1
5.2G Wi-Fi	5150-5250	4.02	2.52	14	25.12	20	0.0126	1
5.3G Wi-Fi	5250-5350	3.71	2.35	14	25.12	20	0.0117	1
5.5G Wi-Fi	5470-5725	3.09	2.04	12.5	17.78	20	0.0072	1
5.8G Wi-Fi	5725-5850	3.53	2.25	11	12.59	20	0.0056	1

Note: 1. The Tune-up output power was declared by the Manufacturer.

NFC

Mode	Frequency (MHz)	★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limt (mW/cm^2)
		(dBm)	(mW)			
NFC	13.56	-33.74	0.0004	20	<<0.0001	0.98

Note:
1. The Tune-up output power was declared by the Manufacturer.
2. NFC (13.56MHz) field strength is 61.46dBµV/m @ 3m = -33.74 dBm (0.0004mW) EIRP. That equal to antenna gain is 0dBi and used the EIRP value as conducted power.

Simulatneous transmission:

NFC and Bluetooth/ 2.4G Wi-Fi/5G Wi-Fi can transmit simultaneously, the worst case is:

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

$= S_{NFC} /S_{limit-NFC} + S_{2.4G\ Wi-Fi}/S_{limit-2.4G\ Wi-Fi}$

$=0.0001/0.98+0.0601/1$

$=0.0001+0.0601$

<1.0

Result: The device meets MPE at distance 20cm.

For NLS-NQuire500

Bluetooth & WLAN

Mode	Frequency (MHz)	Antenna Gain		★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limt (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G Wi-Fi	2412-2462	3.8	2.4	23.5	223.87	20	0.1069	1
BT	2402-2480	3.8	2.4	13.5	22.39	20	0.0107	1
5.2G Wi-Fi	5150-5250	3.1	2.04	14	25.12	20	0.0102	1
5.3G Wi-Fi	5250-5350	3.1	2.04	14	25.12	20	0.0102	1
5.5G Wi-Fi	5470-5725	3.63	2.31	12.5	17.78	20	0.0082	1
5.8G Wi-Fi	5725-5850	3.82	2.41	11	12.59	20	0.0060	1

Note: 1. The Tune-up output power was declared by the Manufacturer.

NFC:

Mode	Frequency (MHz)	★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limt (mW/cm^2)
		(dBm)	(mW)			
NFC	13.56	-33.73	0.0004	20	<<0.0001	0.98

Note:
1. The Tune-up output power was declared by the Manufacturer.
2. NFC (13.56MHz) field strength is 61.47dBμV/m @ 3m = -33.73 dBm (0.0004mW) EIRP. That equal to antenna gain is 0dBi and used the EIRP value as conducted power.

Simulatneous transmission:

NFC and Bluetooth/ 2.4G Wi-Fi/5G Wi-Fi can transmit simultaneously, the worst case is:

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

$= S_{NFC} / S_{limit\text{-}NFC} + S_{2.4G\ Wi\text{-}Fi} / S_{limit\text{-}2.4G\ Wi\text{-}Fi}$

$=0.0001/0.98+0.1069/1$

$=0.0001+0.1069$

<1.0

Result: The device meets MPE at distance 20cm.

For NLS-NQuire700

Bluetooth & WLAN

Mode	Frequency (MHz)	Antenna Gain		★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limt (mW/cm²)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G Wi-Fi	2412-2462	0.46	1.11	23.5	223.87	20	0.0494	1
BT	2402-2480	0.46	1.11	13.5	22.39	20	0.0049	1
5.2G Wi-Fi	5150-5250	3.61	2.30	14	25.12	20	0.0115	1
5.3G Wi-Fi	5250-5350	3.61	2.30	14	25.12	20	0.0115	1
5.5G Wi-Fi	5470-5725	3.67	2.33	12.5	17.78	20	0.0082	1
5.8G Wi-Fi	5725-5850	2.23	1.67	11	12.59	20	0.0042	1

Note: 1. The Tune-up output power was declared by the Manufacturer.

NFC:

Mode	Frequency (MHz)	★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limt (mW/cm²)
		(dBm)	(mW)			
NFC	13.56	-33.73	0.0004	20	<<0.0001	0.98

Note:
1. The Tune-up output power was declared by the Manufacturer.
2. NFC (13.56MHz) field strength is 61.33dBμV/m @ 3m = -33.87 dBm (0.0004mW) EIRP. That equal to antenna gain is 0dBi and used the EIRP value as conducted power.

Simulatneous transmission:

NFC and Bluetooth/ 2.4G Wi-Fi/5G Wi-Fi can transmit simultaneously, the worst case is:

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

$= S_{NFC} / S_{limit\text{-}NFC} + S_{2.4G\ Wi\text{-}Fi} / S_{limit\text{-}2.4G\ Wi\text{-}Fi}$

$=0.0001/0.98+0.0494/1$

$=0.0001+0.0494$

<1.0

Result: The device meets MPE at distance 20cm.

For NLS-NQuire1000

Bluetooth & WLAN

Mode	Frequency (MHz)	Antenna Gain		★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limt (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G Wi-Fi	2412-2462	5.48	3.53	23.50	223.87	20	0.1572	1
BT	2402-2480	5.48	3.53	13.5	22.39	20	0.0157	1
5.2G Wi-Fi	5150-5250	4.59	2.29	14	25.12	20	0.0114	1
5.3G Wi-Fi	5250-5350	4.59	2.29	14	25.12	20	0.0114	1
5.5G Wi-Fi	5470-5725	3.26	2.12	12.5	17.78	20	0.0075	1
5.8G Wi-Fi	5725-5850	2.08	1.61	11	12.59	20	0.0040	1

Note: 1. The Tune-up output power was declared by the Manufacturer.

NFC

Mode	Frequency (MHz)	★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limt (mW/cm^2)
		(dBm)	(mW)			
NFC	13.56	-33.73	0.0004	20	<<0.0001	0.98

Note:
1. The Tune-up output power was declared by the Manufacturer.
2. NFC (13.56MHz) field strength is 61.24dBμV/m @ 3m = -33.96 dBm (0.0004mW) EIRP. That equal to antenna gain is 0dBi and used the EIRP value as conducted power.

Simulatneous transmission:

NFC and Bluetooth/ 2.4G Wi-Fi/5G Wi-Fi can transmit simultaneously, the worst case is:

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

$= S_{NFC} /S_{limit\text{-}NFC}+S_{2.4G\ Wi\text{-}Fi}/S_{limit\text{-}2.4G\ Wi\text{-}Fi}$

$=0.0001/0.98+0.1572/1$

$=0.0001+0.1572$

<1.0

Result: The device meets MPE at distance 20cm.

Declarations

1. Bay Area Compliance Laboratories Corp. (Xiamen) is not responsible for authenticity of any information provided by the applicant. Information from the applicant that may affect test results are marked with an asterisk "★".

2. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.

3. Unless required by the rule provided by the applicant or product regulations, then decision rule in this report did not consider the uncertainty.

4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95% confidence interval.

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