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Report Template Version: V03
Report Template Revision Date: Mar.1st, 2017

RF Exposure Evaluation Report

Report No. :	CQASZ20180900208EW-02
Applicant:	Fujian Newland Auto-ID Tech. Co.,Ltd.
Address of Applicant:	Newland Science & Technology Park, No.1 Rujiang West Rd, Mawei, Fuzhou, P.R.China
Manufacturer:	Fujian Newland Auto-ID Tech. Co.,Ltd.
Address of Manufacturer:	Newland Science & Technology Park, No.1 Rujiang West Rd, Mawei, Fuzhou, P.R.China
Equipment Under Test (EUT):	
Product:	Information Terminal
Model No.:	NLS-NQuire300
Brand Name:	Newland
FCC ID:	SL9NLS-NQUIRE300
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Test:	2018-10-29 to 2018-11-02
Date of Issue:	2018-11-02
Test Result :	**PASS***

Tested By： Daisy Qin

(Daisy Qin)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO.,LTD 华夏准测 APPROVED

* In the configuration tested, the EUT complied with the standards specified above.

2 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20180900208EW-02	Rev.01	Initial report	2018-11-02

3 Contents

Page

4 General Information

4.1 Client Information

Applicant:	Fujian Newland Auto-ID Tech. Co.,Ltd.
Address of Applicant:	Newland Science & Technology Park, No.1 Rujiang West Rd,Mawei,Fuzhou, P.R.China
Manufacturer:	Fujian Newland Auto-ID Tech. Co.,Ltd.
Address of Manufacturer:	Newland Science & Technology Park, No.1 Rujiang West Rd,Mawei,Fuzhou, P.R.China

4.2 General Description of EUT

Product Name:	Information Terminal
Model No.:	NLS-NQuire300
Trade Mark:	Newland
Hardware version：	V1.1
Software version：	V1.00.009
Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20) : OFDM (64QAM, 16QAM,QPSK,BPSK)
Transfer Rate:	IEEE for 802.11b: 1Mbps/2Mbps/5.5Mbps/11Mbps IEEE for 802.11g : 6Mbps/9Mbps/12Mbps/18Mbps/24Mbps/36Mbps/48Mbps/54Mbps IEEE for 802.11n(HT20) : 6.5Mbps/13Mbps/19.5Mbps/26Mbps/39Mbps/52Mbps/58.5Mbps/65Mbps
Product Type:	☒ Mobile ☐ Portable ☐ Fix Location
Test Software of EUT:	Wifi Authentication (manufacturer declare)
Antenna Type:	integral antenna
Antenna Gain:	3.7dBi
Power Supply:	Switching Adapter: Model: SYS1541-2412 Input:100-240V~, 1.0A MAX, 50-60Hz Output: DC12V 2.0A

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement for FCC

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	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				
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

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4* Pi * R^2)$

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

5.1.2 Test Procedure

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

5.1.3 EUT RF Exposure Evaluation standalone operations

For WIFI

Antenna Gain: 3.7dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.34 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

802.11b mode	
Test channel	Average Output Power (dBm)
Lowest(2412MHz)	9.89
Middle(2437MHz)	10.87
Highest(2462MHz)	11.71
802.11g mode	
Test channel	Average Output Power (dBm)
Lowest(2412MHz)	10.16
Middle(2437MHz)	10.83
Highest(2462MHz)	11.38
802.11n(HT20)mode	
Test channel	Average Output Power (dBm)
Lowest(2412MHz)	10
Middle(2437MHz)	11.07
Highest(2462MHz)	11.37

802.11g(worst case)

Channel	Frequency (MHz)	Max Conducted average Output Power (dBm)	Output Power to Antenna (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm^2)	Limit	Result
Lowest	2412	11.71	14.825	3.70	0.0069	1.0	PASS

THE END