FCC MPE Evaluation Report

Report No: WD-RF-R-190342-K0

Product Name	:	Time Clock
Model Name	:	NT8000X-XX(X can be 0~9 or a~z or A~Z or blank)
Series Model Name	:	NT8000Y-YY(Y can be 0~9 or a~z or A~Z or blank)
FCC ID	:	2ASPANOVATIME-OEM
Applicant	:	NOVAtime Technology, Inc.
Received Date	:	Feb. 18, 2019
Tested Date	:	May. 09, 2019 ~ Jun. 26, 2019
Applicable Standard	:	47 CFR FCC Part 2.1091 47 CFR FCC Part 1.1310 KDB 447498 D01 OET Bulletin 65 Supplement C

Wendell Industrial Co., Ltd
Wendell Electrical Testing Lab.

Test Report

Issued Date: June 26, 2019

Project No.: 19Q021808

Product Name	Time Clock
Trade Name	NOVAtime Technology, Inc.
Model Name	NT8000X-XX(X can be 0~9 or a~z or A~Z or blank)
Series Model Name	NT8000Y-YY(Y can be 0~9 or a~z or A~Z or blank)
FCC ID	2ASPANOVATIME-OEM
Applicant	NOVAtime Technology, Inc.
Manufacturer	unitech electronics co., ltd.
EUT Rated Voltage	AC 100 ~ 240V / 50 or 60Hz、PoE
EUT Test Voltage	AC 120V / 60Hz
EUT Supports Radios Application	WLAN 802.11a/b/g WLAN 802.11n (HT20/HT40) Bluetooth BR/EDR/LE RFID
Applicable Standard	47 CFR FCC Part 2.1091 47 CFR FCC Part 1.1310 KDB 447498 D01 OET Bulletin 65 Supplement C
RF Evaluation	0.04156 mW/cm^2
Test Result	Complied

Documented : Emma Lu

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Approved : Gary Wu

(Project Manager / Gary Wu)

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Document Revision History

Report No.	Issue date	Description
WD-RF-R-190342-K0	June 26, 2019	Initial report

Reference Testing Standard

Standard	Description	Version
47 CFR FCC Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.	--
47 CFR FCC Part 1.1310	Radiofrequency radiation exposure limits.	--
KDB 447498 D01	RF Exposure procedures and equipment authorization policies for mobile and portable devices.	V06
OET Bulletin 65 Supplement C	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.	Edition 01-01

1 Generation Information

1.1 Applicant

NOVAtime Technology, Inc.
9680 Haven Avenue, Suite #200, Rancho Cucamonga, CA 91730

1.2 Manufacturer

unitech electronics co., ltd.
5FI., No.136, Lane 235, Pao-Chiao Rd., Hsin-Tien Dist, New Taipei City, Taiwan 231, R.O.C.

1.3 Description of Equipment under Test

Product Name	Time Clock
Model No.	NT8000X-XX(X can be 0~9 or a~z or A~Z or blank)
Series Model No.	NT8000Y-YY(Y can be 0~9 or a~z or A~Z or blank)
FCC ID	2ASPANOVATIME-OEM
Frequency Range	802.11b/g/n-20MHz: 2412~2462MHz 802.11n-40MHz: 2422~2452MHz 802.11a/n-20MHz: 5180-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11n-40MHz: 5190-5310, 5510-5670MHz, 5755-5795MHz Bluetooth: 2402-2480MHz RFID: 13.56 MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Antenna Information	Refer to the table “Antenna List”

The above equipment was tested by Wendell Electrical Testing Lab. For compliance with the requirements set forth in 47 CFR § 2.1091 / 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties

The EUT uses following adapter.

Trade Name	ENG Electric co., Ltd.
Model No.	6A-601DB12
Input Power	AC 100 ~ 240V / 50 or 60Hz、PoE
Output Power	DC 12V/5.0A
Power Line	Non-shielded, 1 Core, 1.5m

Antenna List

No.	Manufacturer	Model No.	Antenna Type	Peak Gain
1	SCHLAGE	OEM200	Coil Antenna	--

1.4 Test Facility

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	25
Humidity (% RH)	25-75	65
Barometric pressure (mbar)	860-1060	1001

Description: Accredited by TAF
Accredited Number: 2965

Issued by: Wendell Industrial Co., Ltd

Lab Address: 6F/6F-1, No.188, Baoqiao Rd., Xindian Dist.,
New Taipei City 23145, Taiwan R.O.C

Test Lab: Wendell Electrical Testing Lab.

Test Location: No.67-9, Shimen Rd., Tucheng Dist.,
New Taipei City 236, Taiwan R.O.C

FCC Accreditation Number: TW2965

2 Mobile device Assessment Procedure

In 47 CFR § 2.1091, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term “fixed location” means that the device is physically secured at one location and is not able to be easily moved to another location.

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained

between the transmitter's radiating structure(s) and the body of the user or nearby persons.

3 RF Exposure Assessment

Estimation of the expected exposure in power density can be made with the following equation:

$$S = \frac{P \times G}{4\pi \times R^2} = \frac{EIRP}{4\pi \times R^2}$$

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.

EIRP: Effective Isotropic Radiated Power

4 Limit Requirement

In 47 CFR § 1.1310, use of the device as based upon the user's awareness and ability to exercise control over human exposure. The two categories defined are Occupational/Controlled Exposure and General Population/Uncontrolled. These two categories are defined as follow:

Occupational/Controlled Exposure:

Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

General Population/Uncontrolled:

General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time|E|²,|H|² or S (minutes)**
0.3-3.0	614	1.63	(100)*	6
3.0-30	1,842 / f	4.89 / f	($900 / f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f / 300	6
1,500-100,000	--	--	5	6

Note：

(1) f = frequency in MHz

(2) * = Plane-wave equivalent power density

Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/ cm²)**	**Averaging Time|E|²,|H|² or S (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 / 1,500	30
1,500-100,000	--	--	1.0	30

Note：

(1) f = frequency in MHz

(2) * = Plane-wave equivalent power density

5 Test Results

Mode	Max. Average Power (E.I.R.P)		Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
	dBm	mW				
BT	10.49	11.19	20	0.00223	1	Pass
LE	11.00	12.59	20	0.00250	1	Pass
WLAN 2.4G	21.23	132.74	20	0.02641	1	Pass
WLAN 5G	22.93	196.34	20	0.03906	1	Pass
RFID 13.56M	-61.87	0.00	20	0.00000	0.9789	Pass

Note：

＊ The Numeric Gain calculated by 10^(dBi/10).

＊ Each Function of the max power which perform MPE of any configurations.

＊ RFID 13.56MHz : Max. EIRP = 22.99 dBuV/10m = - 61.78 dBm

＊ The allowed Frequency (Range) of the RF function is 13.56MHz,2400~2483.5MHz and 5150~5850MHz , and the exemption limit is e.i.r.p. less than or equal to 0.9789 mW/cm^2

＊ The limit is equal to the minimum value.

＊ The Max total MPE = LE + WLAN 5G + RFID 13.56M = 0.04156 (mW/cm^2)

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