RF Exposure Evaluation Report

Product	:	WiFi module
Trade mark	:	wireless-tag
Model/Type reference	:	WT-01E
Serial Number	:	N/A
Report Number	:	EED32L00068702
FCC ID	:	2AFOS-WT-01E
Date of Issue	:	May 14, 2019
Test Standards	:	47 CFR Part 1.1307(2015) 47 CFR Part 1.1310(2015) KDB 447498D01v06
Test result	:	PASS

Prepared for:

Wireless-tag Technology Co., LTD
Room 115-118, Building A, ChengshishanhaiCenter, No.11, Zhongxing Road, Bantian Sub-district, Longgang District, Shenzhen

Prepared by:

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Date:	May 14, 2019		Check No.:3757542804

CENTRE TESTING INTERNATIONAL GROUP CO.,LTD. Report Seal

2 Version

Version No.	Date	Description
00	May 14, 2019	Original

3 Contents

4 General Information

4.1 Client Information

Applicant:	Wireless-tag Technology Co., LTD
Address of Applicant:	Room 115-118, Building A, ChengshishanhaiCenter, No.11, Zhongxing Road, Bantian Sub-district, Longgang District, Shenzhen
Manufacturer:	Wireless-tag Technology Co., LTD
Address of Manufacturer:	Room 115-118, Building A, ChengshishanhaiCenter, No.11, Zhongxing Road, Bantian Sub-district, Longgang District, Shenzhen
Factory:	Wireless-tag Technology Co., LTD
Address of Factory:	Room 115-118, Building A, ChengshishanhaiCenter, No.11, Zhongxing Road, Bantian Sub-district, Longgang District, Shenzhen

4.2 General Description of EUT

Product Name:	WiFi module
Model No.(EUT):	WT-01E
Trade Mark:	wireless-tag
EUT Supports Radios application:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz

4.3 Product Specification subjective to this standard

Frequency Range:	2412MHz to 2462MHz
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)
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels
Test Power Grade:	N/A
Test Software of EUT:	ESP Series Modules FCC & CE Test Tool V2.2.3.exe (manufacturer declare)
Antenna Type:	Spring Antenna
Antenna Gain:	3dBi
Power Supply:	DC 3.3V
Max Conducted Peak Output Power:	18.03dBm The Max Conducted Peak Output Power data refer to the report EED32L00068701
Sample Received Date:	Mar. 29, 2019
Sample tested Date:	Apr. 04, 2019 to May 06, 2019
Remark: The tested sample(s) and the sample information are provided by the client.	

4.4 Test Location

All tests were performed at:
Centre Testing International Group Co., Ltd
Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China
Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385
No tests were sub-contracted.
FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

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

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

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

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the centre of radiation of the antenna

EIRP = P*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

5.1.2 Test Procedure

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

5.1.3 EUT RF Exposure Evaluation

Antenna Gain: 3dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power(dBm)	Gain (dBi)	EIRP* (dBm)	EIRP (mW)	R (cm)	S (mW/cm^2)	Limit (mW/cm^2)	Result
Middle	2437	18.03	3	21.03	126.77	20	0.025	1.0	Pass

Note: Refer to report No. EED32L00068701 for EUT test Max Conducted Peak Output Power value.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32L00068701 for EUT external and internal photos.

*** End of Report ***