

# MPE TEST REPORT

<b>Applicant</b>	Tag-N-Trac Inc.
<b>FCC ID</b>	2A24I-V07G0BJ17
<b>Product</b>	SmartSense Label
<b>Brand</b>	Tag-N-Trac Inc.
<b>Model</b>	SSL300
<b>Report No.</b>	R2306A0684-M1
<b>Issue Date</b>	August 18, 2023

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1 1.1310**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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*Approved by: Fan Guangchang*

## **TA Technology (Shanghai) Co., Ltd.**

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# 1 Test Laboratory

## 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2 Test Facility

### FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

## 1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.  
 Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China  
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## 1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 $\Omega$
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

## 2 Description of Equipment Under Test

### Client Information

<b>Applicant</b>	Tag-N-Trac Inc.
<b>Applicant address</b>	4250 Executive Sq, #675, La Jolla, California, United States, 92037
<b>Manufacturer</b>	Tag-N-Trac Inc.
<b>Manufacturer address</b>	4250 Executive Sq, #675, La Jolla, California, United States, 92037

### General Technologies

<b>Model</b>	SSL300
<b>IMEI</b>	868617060225648
<b>Hardware Version</b>	V1.1
<b>Software Version</b>	IRONHIDE_00_11_LO
<b>Date of Sample Received</b>	June 15, 2023
<p>Note:</p> <ol style="list-style-type: none"> <li>1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.</li> <li>2. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.</li> </ol>	

### 3 Maximum Tune up and Antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by  
 Numeric gain (G) =  $10^{(\text{antenna gain}/10)}$

Band	Maximum Tune up Power		Antenna Gain (dBi)	Numeric Gain	
	(dBm)	(mW)			
LTE-M Band 2	25.70	371.535	1.48	1.406	
LTE-M Band 4	25.70	371.535	2.32	1.706	
LTE-M Band 5	25.70	371.535	4.47	2.799	
LTE-M Band 12	25.70	371.535	1.67	1.469	
LTE-M Band 13	25.70	371.535	3.61	2.296	
LTE-M Band 25	25.70	371.535	1.48	1.406	
LTE-M Band 26	25.70	371.535	4.47	2.799	
LTE-M Band 66	25.70	371.535	2.41	1.742	
NB-IoT Band 2	25.70	371.535	1.48	1.406	
NB-IoT Band 4	25.70	371.535	2.32	1.706	
NB-IoT Band 5	25.70	371.535	4.47	2.799	
NB-IoT Band 12	25.70	371.535	1.67	1.469	
NB-IoT Band 13	25.70	371.535	3.61	2.296	
NB-IoT Band 17	25.70	371.535	1.67	1.469	
NB-IoT Band 25	25.70	371.535	1.48	1.406	
NB-IoT Band 66	25.70	371.535	2.41	1.742	
2.4G	802.11b	20.00	100.000	1.05	1.274
	802.11g	19.00	79.433	1.05	1.274
	802.11n HT20	19.00	79.433	1.05	1.274
	802.11n HT40	18.50	70.795	1.05	1.274
Bluetooth LE	6.00	3.981	1.05	1.274	

## 4 Test Result

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following.

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 <sup>2</sup> )	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0 .....	614	1.63	*(100)	6
3-30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	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 <sup>2</sup> )	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

Note1. Occupational/controlled 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. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The maximum permissible exposure for 300~1500 MHz is  $f/1500$ , for 1500~100,000MHz is 1.0. So

Band		The Maximum Permissible Exposure (mW/cm <sup>2</sup> )
LTE-M Band 2		1.000
LTE-M Band 4		1.000
LTE-M Band 5		0.549
LTE-M Band 12		0.466
LTE-M Band 13		0.518
LTE-M Band 25		1.000
LTE-M Band 26		0.549
LTE-M Band 66		1.000
NB-LoT Band 2		1.000
NB-LoT Band 4		1.000
NB-LoT Band 5		0.549
NB-LoT Band 12		0.466
NB-LoT Band 13		0.518
NB-LoT Band 17		0.469
NB-LoT Band 25		1.000
NB-LoT Band 66		1.000
Wi-Fi 2.4GHz	802.11b	1.000
	802.11g	1.000
	802.11n HT20	1.000
	802.11n HT40	1.000
Bluetooth LE		1.000

**RF Exposure Calculations:**

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the conducted power, considering maximum power and antenna gain. The formula shown in KDB 447498 D01 is used in the calculation.

Equation from KDB 447498 D01 General RF Exposure Guidance v06 (10/23/2015) is:

$$S = PG / 4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

Band	Maximum Tune up (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)	PG (mW)	Result (mW/cm <sup>2</sup> )	Limit Value (mW/cm <sup>2</sup> )	
LTE-M Band 2	25.70	1.48	27.180	522.396	0.104	1.000	
LTE-M Band 4	25.70	2.32	28.020	633.870	0.126	1.000	
LTE-M Band 5	25.70	4.47	30.170	1039.920	0.207	0.549	
LTE-M Band 12	25.70	1.67	27.370	545.758	0.109	0.466	
LTE-M Band 13	25.70	3.61	29.310	853.100	0.170	0.518	
LTE-M Band 25	25.70	1.48	27.180	522.396	0.104	1.000	
LTE-M Band 26	25.70	4.47	30.170	1039.920	0.207	0.549	
LTE-M Band 66	25.70	2.41	28.110	647.143	0.129	1.000	
NB-IoT Band 2	25.70	1.48	27.180	522.396	0.104	1.000	
NB-IoT Band 4	25.70	2.32	28.020	633.870	0.126	1.000	
NB-IoT Band 5	25.70	4.47	30.170	1039.920	0.207	0.549	
NB-IoT Band 12	25.70	1.67	27.370	545.758	0.109	0.466	
NB-IoT Band 13	25.70	3.61	29.310	853.100	0.170	0.518	
NB-IoT Band 17	25.70	1.67	27.370	545.758	0.109	0.469	
NB-IoT Band 25	25.70	1.48	27.180	522.396	0.104	1.000	
NB-IoT Band 66	25.70	2.41	28.110	647.143	0.129	1.000	
Wi-Fi 2.4GHz	802.11b	20.00	1.05	21.050	127.350	0.025	1.000
	802.11g	19.00	1.05	20.050	101.158	0.020	1.000
	802.11n HT20	19.00	1.05	20.050	101.158	0.020	1.000
	802.11n HT40	18.50	1.05	19.550	90.157	0.018	1.000
Bluetooth LE	6.00	1.05	7.050	5.070	0.001	1.000	
Note: R = 20cm							
π = 3.1416							

WWAN antenna and Bluetooth antenna and Wi-Fi 2.4G antenna can't transmit simultaneously.

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.



## ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

\*\*\*\*\*END OF REPORT \*\*\*\*\*