

MPE TEST REPORT

Applicant	Positioning Universal Inc
FCC ID	2AHRH-FJ940MA
Product	GPS Tracker
Brand	FJ940MA
Model	FJ940MA
Report No.	R2404A0325-M1V1
Issue Date	April 30, 2024

Eurofins 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.

Prepared by: Wei Fangying

Approved by: Fan Guangchang

Eurofins TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

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Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	April 24, 2024
Rev.1	Update information.	April 30, 2024
Note: This revised report (Report No.: R2404A0325-M1V1) supersedes and replaces the previously issued report (Report No.: R2404A0325-M1). Please discard or destroy the previously issued report and dispose of it accordingly.		

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 **Eurofins 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)

Eurofins 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: Eurofins TA Technology (Shanghai) Co., Ltd.
Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Fan Guangchang
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <https://www.eurofins.com/electrical-and-electronics>
E-mail: Jack.Fan@cpt.eurofinscn.com

1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25°C
Relative humidity	Min. = 20%, Max. = 80%
Ground system resistance	< 0.5 Ω
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

Applicant	Positioning Universal Inc
Applicant address	4660 La Jolla Village Drive, Suite 1100, San Diego, CA92122, US
Manufacturer	Positioning Universal Inc
Manufacturer address	4660 La Jolla Village Drive, Suite 1100, San Diego, CA92122, US

General Technologies

EUT Description			
Model	FJ940MA		
Lab internal SN	R2404A0325/S01		
Hardware Version	P1		
Software Version	1.0.0		
Frequency	Band	TX (MHz)	RX (MHz)
	LTE-M Band 2	1850 ~ 1910	1930 ~ 1990
	LTE-M Band 4	1710 ~ 1755	2110 ~ 2155
	LTE-M Band 5	824 ~ 849	869 ~ 894
	LTE-M Band 12	699 ~ 716	729 ~ 746
	LTE-M Band 13	777 ~ 787	746 ~ 756
	LTE-M Band 17	704 ~ 716	734 ~ 746
	LTE-M Band 25	1850 ~ 1915	1930 ~ 1995
	LTE-M Band 66	1710 ~ 1780	2110 ~ 2180
	Bluetooth LE	2400 ~ 2483.5	2400 ~ 2483.5
Date of Testing	April 3, 2024 ~ April 15, 2024		
Date of Sample Received	April 1, 2024		
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. 2. All indications of Pass/Fail in this report are opinions expressed by Eurofins 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.			

3 Tune up and Antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by

$$\text{Numeric gain (G)} = 10^{(\text{antenna gain}/10)}$$

Band	Maximum Tune up Power		Antenna Gain (dBi)	Numeric Gain
	(dBm)	(mW)		
LTE-M Band 2	23.0000	199.5262	6.5900	4.5604
LTE-M Band 4	23.0000	199.5262	6.1000	4.0738
LTE-M Band 5	23.0000	199.5262	4.3000	2.6915
LTE-M Band 12	23.0000	199.5262	1.1200	1.2942
LTE-M Band 13	23.0000	199.5262	3.9000	2.4547
LTE-M Band 17	23.0000	199.5262	1.1200	1.2942
LTE-M Band 25	23.0000	199.5262	6.5900	4.5604
LTE-M Band 66	23.0000	199.5262	6.1000	4.0738
Bluetooth LE	-1.0000	0.7943	-2.7500	0.5309

4 MPE Limit

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 ²)	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 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

* = 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 ²)
LTE-M Band 2	1.0000
LTE-M Band 4	1.0000
LTE-M Band 5	0.5490
LTE-M Band 12	0.4660
LTE-M Band 13	0.5180
LTE-M Band 17	0.4690
LTE-M Band 25	1.0000
LTE-M Band 66	1.0000
Bluetooth LE	1.0000

5 RF Exposure Evaluation Result

RF exposure evaluation method is based on KDB 447498 D01, this calculation is based on the conducted power, maximum power and antenna gain with provides the minimum separation distance. The formula shown below is from OET Bulletin 65 Edition 97-01 Per KDB 447498 D01:

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

Where: S = power density (in appropriate units, e.g. mW/cm²)

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 ²)	Limit Value (mW/cm ²)	The MPE Ratio
LTE-M Band 2	23.0000	6.5900	29.5900	909.9133	0.1810	1.0000	0.1810
LTE-M Band 4	23.0000	6.1000	29.1000	812.8305	0.1617	1.0000	0.1617
LTE-M Band 5	23.0000	4.3000	27.3000	537.0318	0.1068	0.5490	0.1946
LTE-M Band 12	23.0000	1.1200	24.1200	258.2260	0.0514	0.4660	0.1102
LTE-M Band 13	23.0000	3.9000	26.9000	489.7788	0.0974	0.5180	0.1881
LTE-M Band 17	23.0000	1.1200	24.1200	258.2260	0.0514	0.4690	0.1095
LTE-M Band 25	23.0000	6.5900	29.5900	909.9133	0.1810	1.0000	0.1810
LTE-M Band 66	23.0000	6.1000	29.1000	812.8305	0.1617	1.0000	0.1617
Bluetooth LE	-1.0000	-2.7500	-3.7500	0.4217	0.0001	1.0000	0.0001
Note: R = 20cm $\pi = 3.1416$ The MPE Ratio = Mac Result ÷ Limit Value							

So the simultaneous transmitting antenna pairs as below:

$$\sum \text{of MPE ratios} = \text{Main Antenna} + \text{Bluetooth LE} = 0.1946 + 0.0001 = 0.1947 < 1$$

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 *****