



MPE TEST REPORT

Applicant Positioning Universal Inc
FCC ID 2AHRH-FT750
Product In-cab advanced telematics tracker
Model FT750-L43Q-GL
Report No. R2010A0681-M1V2
Issue Date April 7, 2021

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.

Handwritten signature of Yu Wang in black ink.

Prepared by: Yu Wang

Handwritten signature of Guangchang Fan in black ink.

Approved by: Guangchang Fan

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Version	Revision description	Issue Date
Rev.0	Initial issue of report.	January 18, 2021
Rev.1	Update data	March 9, 2021
Rev.12	Update data	April 7, 2021

Note: This revised report (Report No. R2010A0681-M1V2) supersedes and replaces the previously issued report (Report No. R2010A0681-M1V1). 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 **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 electromagnetic emissions measurements.

1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City: Shanghai
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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 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, California, United States
Manufacturer	Positioning Universal Inc
Manufacturer address	4660 La Jolla Village Drive Suite 1100, San Diego, California, United States

General Technologies

Model	FT750-L43Q-GL
Hardware Version	P0
Software Version	2.4.17
Date of Testing:	October 15, 2020~ November 2, 2020
Date of Sample Received	October 13, 2020

Note: 1. The EUT is sent from the applicant to 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 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 Maximum conducted output power (measured) 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	Burst Turn up Power(dBm)	Division Factors (dB)	Time-Averaged Tune up Power (dBm)
GSM 850	33.5	-9.03	24.47
GSM 1900	33.5	-9.03	24.47

Note:

Division Factors

To average the power, the division factor is as follows:

1Txslot = 1 transmit time slot out of 8 time slots

=> conducted power divided by (8/1) => -9.03 dB

Band	Maximum Conducted Output Power (dBm)		Antenna Gain (dBi)	Numeric gain
	(dBm)	(mW)		
GSM 850	24.47	279.898	2.0	1.585
GSM 1900	24.47	279.898	2.0	1.585
WCDMA Band II	24.50	281.838	2.0	1.585
WCDMA Band IV	24.50	281.838	2.0	1.585
WCDMA Band V	24.50	281.838	2.0	1.585
LTE Band 2	24.00	251.189	2.0	1.585
LTE Band 4	24.00	251.189	2.0	1.585
LTE Band 5	24.00	251.189	2.0	1.585
LTE Band 12	24.00	251.189	2.0	1.585
LTE Band 13	24.00	251.189	2.0	1.585
LTE Band 25	24.00	251.189	2.0	1.585
LTE Band 26	24.00	251.189	2.0	1.585
WIFI 2.4G	18.50	70.795	1.0	1.259
Bluetooth (Low Energy)	8.50	7.079	1.0	1.259

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 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
GSM850	0.55mW/cm ²
GSM1900	1.0mW/cm ²
WCDMA Band II	1.0mW/cm ²
WCDMA Band IV	1.0mW/cm ²
WCDMA Band V	0.55mW/cm ²
LTE Band 2	1.0mW/cm ²
LTE Band 4	1.0mW/cm ²
LTE Band 5	0.55mW/cm ²
LTE Band 12	0.47mW/cm ²
LTE Band 13	0.52mW/cm ²
LTE Band 25	1.0mW/cm ²
LTE Band 26	0.55mW/cm ²
Wi-Fi 2.4G	1.0mW/cm ²
Bluetooth (Low Energy)	1.0mW/cm ²

**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/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	PG (mW)	Test Result (mW/cm ²)	Limit Value (mW/cm ²)	The MPE ratio	Conclusion
GSM850	443.609	0.088	0.550	0.160	Pass
GSM1900	443.609	0.088	1.000	0.088	Pass
WCDMA Band II	446.684	0.089	1.000	0.089	Pass
WCDMA Band IV	446.684	0.089	1.000	0.089	Pass
WCDMA Band V	446.684	0.089	0.550	0.162	Pass
LTE Band 2	398.107	0.079	1.000	0.079	Pass
LTE Band 4	398.107	0.079	1.000	0.079	Pass
LTE Band 5	398.107	0.079	0.550	0.144	Pass
LTE Band 12	398.107	0.079	0.470	0.169	Pass
LTE Band 13	398.107	0.079	0.520	0.152	Pass
LTE Band 25	398.107	0.079	1.000	0.079	Pass
LTE Band 26	398.107	0.079	0.550	0.144	Pass
Wi-Fi 2.4G	89.125	0.018	1.000	0.018	Pass
Bluetooth (Low Energy)	8.913	0.002	1.000	0.002	Pass
Note: R = 20cm $\pi = 3.1416$ The MPE ratio = Mac Test Result ÷ Limit Value					

So the simultaneous transmitting antenna pairs as below:

$$\sum \text{of MPE ratios} = \text{Wi-Fi 2.4G} + \text{Main antenna} = 0.169 + 0.018 = 0.187 < 1$$

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

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



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.