

RF Exposure Evaluation Report

Report No.: JYTSZ-R14-2400102

Applicant: ZillionSource Technologies (Shanghai) Co., Ltd.

Address of Applicant: Room 2207A, 28 Magi Road, China (Shanghai) Pilot Free Trade Zone

Equipment Under Test (EUT)

Product Name: Environmental variable collector for logistics

Model No.: ZT-28S, ZT-28SE, ZT-28S01, ZT-28S02, ZT-28S03, ZT-28L

Trade mark: ZillionTrace/UBITracer

FCC ID: 2ACRJ-ZT-28S

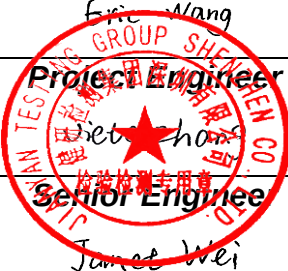
Applicable standards: FCC CFR Title 47 Part 2 (§2.1091)

Date of sample receipt: 02 Sep., 2024

Date of Test: 03 Sep., to 10 Sep., 2024

Date of report issue: 10 Sep., 2024

Test Result: PASS

Project by:	 Eric Wang Project Engineer	Date:	10 Sep., 2024
Reviewed by:	Set Zhao Senior Engineer	Date:	10 Sep., 2024
Approved by:	James Wei Manager	Date:	10 Sep., 2024

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

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1 Version

Version No.	Date	Description
00	10 Sep., 2024	Original

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3 General Information

3.1 Client Information

Applicant:	ZillionSource Technologies (Shanghai) Co., Ltd.
Address:	Room 2207A, 28 Magi Road, China (Shanghai) Pilot Free Trade Zone
Manufacturer:	ZillionSource Technologies (Shanghai) Co., Ltd.
Address:	Room 2207A, 28 Magi Road, China (Shanghai) Pilot Free Trade Zone

3.2 General Description of E.U.T.

Product Name:	Environmental variable collector for logistics	
Model No.:	ZT-28S, ZT-28SE, ZT-28S01, ZT-28S02, ZT-28S03, ZT-28L	
Operation Frequency:	LTE band 4: 1710 MHz - 1755 MHz LTE band 12: 699 MHz - 716 MHz	
Modulation technology:	☒ QPSK	☒ 16QAM
Antenna Type:	Internal Antenna	
Antenna gain:	LTE Band 4: -0.12 dBi (declare by Applicant); LTE Band 12: -6.39 dBi (declare by Applicant)	
Test Sample Condition:	The test samples were provided in good working order with no visible defects.	

3.3 Operating Modes

Operating mode	Detail description
LTE Band 4 mode	Keep the EUT in continuously transmitting in LTE Band 4 mode
LTE Band 12 mode	Keep the EUT in continuously transmitting in LTE Band 12 mode

3.4 Additions to, deviations, or exclusions from the method

No

3.5 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

● **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

● **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

3.6 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTee@lets.com, Website: <http://jyt.lets.com>

4 Technical Requirements Specification

4.1 Limits

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 1.1307(b)

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

4.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

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

4.3 Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm ²)	Limits for General Population/ Uncontrolled Exposure (mW/cm ²)
LTE Band 4							
1710.7	24.50	281.84	-0.12	0.97	20.00	0.0544	1.0
LTE Band 12							
699.70	22.76	188.8	-6.39	0.23	20.00	0.0085	0.47

Note: Just the worst case mode was shown in report.

4.4 Conclusion

The device is exempt from the SAR test and satisfies RF exposure evaluation.

-----End of report-----