

1 Cover Page

RF Exposure Evaluation Report

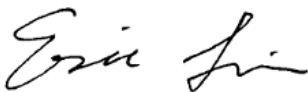
Application No.: KSCR2203000332AT
FCC ID: 2AYF8-ZK201FAU
Applicant: Zhejiang Okai Vehicle Co., Ltd.
Address of Applicant: No.9, Xinxing Road, Xinbi Street, Jinyun, Lishui, Zhejiang, 321400, China
Manufacturer: Zhejiang Okai Vehicle Co., Ltd
Address of Manufacturer: No.9, Xinxing Road, Xinbi Street, Jinyun, Lishui, Zhejiang, 321400, China
Factory: Zhejiang Okai Vehicle Co., Ltd
Address of Factory: No.9, Xinxing Road, Xinbi Street, Jinyun, Lishui, Zhejiang, 321400, China

Equipment Under Test (EUT):

EUT Name: GPS Tracker
Model No.: ZK201FAU
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2022-03-11
Date of Test: 2022-03-25 to 2022-09-14
Date of Issue: 2022-09-14

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Eric Lin
EMC Lab Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2022-09-14		Original

Authorized for issue by:			
		<i>Tommie Tang</i>	
		Tommie_Tang/Project Engineer	
		<i>Eric Lin</i>	
		Eric Lin/Reviewer	



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3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 40~60V
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3.2 Technical Specifications

BLE

Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0 LE
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Data Rate:	1Mbps,2Mbps
Antenna Type:	Shrapnel Antenna
Antenna Gain:	3.12dBi (Provided by the manufacturer)

4G:

Frequency Band	LTE Band 2,4,5,12,13
Output power(dBm)	23.0dBm
Antenna Type	Shrapnel Antenna
Antenna Gain:	LTE Band 2: 0.72dBi(Provided by the manufacturer) LTE Band 4: 0.77dBi(Provided by the manufacturer) LTE Band 5: 1.25dBi(Provided by the manufacturer) LTE Band 12: 0.91dBi(Provided by the manufacturer) LTE Band 13: 1.58dBi(Provided by the manufacturer)



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3.3 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

3.4 Test Facility

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

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC (Designation Number: CN1172)**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

- **ISED (CAB identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

- **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.



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4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSCR220300033201

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Reading Power (mW)
1M	2402	0.89	1.23
	2440	-1.21	0.76
	2480	-0.95	0.80
2M	2402	0.95	1.24
	2440	-1.19	0.76
	2480	-0.88	0.82

*Remark: The tune-up power is 2dBm (1.58mW)

4G

The power of 4G base on the FCC certificate module of L506,

FCC ID is: 2AK9DL506, the maximum output power refer to test report: I22W00049-MPE-Rev3

The Max Conducted Output Power is 23dBm (199.53mW).



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5.2 MPE Calculation

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm²

For BLE:

The max. antenna gain is		3.12	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
2	2.051	20	0.00082	1	Pass

For 4G:

The max. antenna gain is		1.58	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
199.53	1.439	20	0.05711	1	Pass

BT and 4G can transmit simultaneously, and $0.00082/1+0.05711/1=0.05793<1$, so the device is to qualify for SAR test exemption.

--End of the Report--



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