TEST REPORT

Application No.:	GZCR2203000297AT
Applicant:	Guangzhou Xaircraft Technology Co., Ltd.
Address of Applicant:	Block C, No. 115, Gaopu Road, Tianhe District, Guangzhou City, Guangdong, P.R. China
Manufacturer:	Guangzhou Xaircraft Technology Co., Ltd.
Address of Manufacturer:	Block C, No. 115, Gaopu Road, Tianhe District, Guangzhou City, Guangdong, PR. China
Factory:	DONGGUAN XAIRCRAFT UAS TECHNOLOGY CO. LTD
Address of Factory:	Room 201, Building 2, No.25, Section of Dalingshan, Guanchang Road, Dalingshan Town, Dongguan City, Guangdong, P.R.China
Equipment Under Test (EUT):	
EUT Name:	RTK Ground Module
Model No.:	XRTK4
Trade Mark:	XAG
Standard(s) :	47 CFR Part 1.1310
	KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2022-03-23
Date of Test:	2022-05-09
Date of Issue:	2022-06-20
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Kobe Jian
EMC Laboratory Manager

Revision Record			
Version	**Report No.**	**Date**	**Remark**
01	GZCR220300029703	2022-06-20	Original

Authorized for issue by:				
		Jim Li **Jim Li/Project Engineer**		
		Ricky Liu **Ricky Liu/Reviewer**		

2 Test Summary

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Powered by RTK smart battery as below for normal working:
	Model: B498
	Rated Capacity:6600mAh 97.68Wh
	Input: 12.0V⎓1.5A(Type-C port)
	Output: 14.8V⎓1.0A
	Quick charge 3.0 adapter for RTK smart battery.
	Model: GS-551
	Input: AC 100-240V, 50/60Hz, 0.6A Max
	Output: DC 5V 3A or DC 9V 2A or DC 12V 1.5A
Cable(s):	USB A to Type C cable, 1.0m, unshielded.
	Type C port for charging.
RF character(s):	Refer to report GZCR220300029702 for 2.4G Wi-Fi details.
	Refer to report HR/2019/1001601 for Cell 2/3/4G details.

4.2 Evaluation Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.3 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.4 Deviation from Standards

None

4.5 Abnormalities from Standard Conditions

None

5 Technical Requirements Specification

5.1 General Description of Applied Standards

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions,

by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.2 RF Exposure Evaluation

5.2.1 Limit & Test Method

According to FCC Part1.1310: 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 part1.1307(b)

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
3.0–30	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

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R2)

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm^2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

5.2.2 Conclusion

Normal use condition for Distance between antenna and body:	≥ 20cm declared by applicant
Antenna Gain(max):	2 dBi declared by applicant for 2.4G Wi-Fi both ant1 & ant2. Directional gain=5.01 dBi for 2.4G Wi-Fi both ant1 & ant2. 1 dBi declared by applicant for 2/3/4G antenna.

For 2.4 GHz Wi-Fi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
11N40 MIMO						
2422	3.170	23.38	217.771	0.13732	1	Complies
2437	3.170	22.89	194.536	0.12266	1	Complies
2452	3.170	22.72	187.068	0.11796	1	Complies

For Cell 2/3/4G.

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (Numeric)	Max Conducted Average Output Power (dBm)	Output Power to Antenna (dBm)	EIRP(ERP Limit (dBm)	Max Conducted Average Output Power (mW)	Power Density at R=20cm Antenna (mW/cm2)	Power Density Limit (mW/cm2)	Conclusion
GSM850	824.2	1	1.2589	25.81	25.95	38.45	381.0658	0.0954	0.5495	Pass
GSM1900	1850.2	1	1.2589	22.81	24.40	33.00	190.9853	0.0478	1.0000	Pass
WCDMA B2	1852.4	1	1.2589	25.00	26.59	33.00	316.2278	0.0792	1.0000	Pass
WCDMA B4	1712.4	1	1.2589	25.00	27.00	30.00	316.2278	0.0792	1.0000	Pass
WCDMA B5	826.4	1	1.2589	25.00	25.14	38.45	316.2278	0.0792	0.5509	Pass
LTE B2	1850.7	1	1.2589	25.00	26.59	33.00	316.2278	0.0792	1.0000	Pass
LTE B4	1710.7	1	1.2589	25.00	27.00	30.00	316.2278	0.0792	1.0000	Pass
LTE B5	824.7	1	1.2589	25.00	25.14	38.45	316.2278	0.0792	0.5498	Pass
LTE B7	2502.5	1	1.2589	25.00	28.00	33.00	316.2278	0.0792	1.0000	Pass
LTE B12	699.7	1	1.2589	25.00	26.11	34.77	316.2278	0.0792	0.4665	Pass
LTE B13	779.5	1	1.2589	25.00	27.30	34.77	316.2278	0.0792	0.5197	Pass
LTE B25	1850.7	1	1.2589	25.00	26.59	33.00	316.2278	0.0792	1.0000	Pass
LTE B26(814-824)	814.7	1	1.2589	25.00	25.38	50.00	316.2278	0.0792	0.5431	Pass
LTE B26(824-849)	824.7	1	1.2589	25.00	25.38	38.45	316.2278	0.0792	0.5498	Pass
LTE B38	2572.5	1	1.2589	25.00	27.06	33.00	316.2278	0.0792	1.0000	Pass
LTE B41	2498.5	1	1.2589	25.00	28.00	33.00	316.2278	0.0792	1.0000	Pass

Note:

Refer to report No. GZCR220300029702 & No. HR/2019/1001601 for EUT test Max Conducted Peak Output Power value.

The 2.4G Wi-Fi and 2/3/4G with only one band transmitted can be transmitted simultaneously, the Max. sum of the MPE ratios for all wireless function is

0.13732/1 + 0.0954/0.5495 =0.13732 + 0.1736 =0.31093 < 1.0

The EUT meet the Exemption Limits for Routine Evaluation – SAR Evaluation, so no SAR evaluation is required for the EUT.

6 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZCR2203000297AT

- End of the Report -

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center, EEC Laboratory.
No.198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgsgroup.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com