

RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2110021196AT
Applicant: Shantou Helicute Model Aircraft Industrial Co.,Ltd
Address of Applicant: Jiangbei Road, Longtian, Guangyi Street, Chenghai District, Chenghai, Shantou City, Guangdong, Shantou, China
Manufacturer: Shantou Helicute Model Aircraft Industrial Co.,Ltd
Address of Manufacturer: Jiangbei Road, Longtian, Guangyi Street, Chenghai District, Chenghai, Shantou City, Guangdong, Shantou, China
Factory: Shantou Helicute Model Aircraft Industrial Co.,Ltd
Factory of Manufacturer: Jiangbei Road, Longtian, Guangyi Street, Chenghai District, Chenghai, Shantou City, Guangdong, Shantou, China

Equipment Under Test (EUT):
EUT Name: R/C DRONE
Model No.: DRCLS16-NOC, DRC-445, DRC-447, DRC-250, DRC-251, NH525, NH530, H01C, H037, H05NCL, H07NCL, H09NL, H09NCL, M801R, M803R, H805W, H806, H806W, H809HW, H809SW, H811C, H811W, H812R, S812, H815HW, H816HW, H817HW, H181HW, H818HPW, H819, H819HW, H820HW, H821HW, H822HW, H823, H823W, H823H, H823HW, H802G, H802W, H02G, H825G, H825W, H826H, H827S, H827SC, H827SW, H828HW, H829, H830, H831, H832, H833, H835, H836, H837, H838, H839, H850, H851, H851SW, H851SWP, H852, H853, H855, H856, H857, H858, H859, H860, H860HW, H860SW, H860SPW, H861, H861G, H862, H863 ♣

♣ Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

Standard(s) :
 47 CFR Part 1.1310
 47 CFR Part 2.1093
 KDB447498 D01 General RF Exposure Guidance v06

Date of Receipt: 2021-08-17
Date of Test: 2021-08-25 to 2021-10-12
Date of Issue: 2021-10-13

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



Kobe Jian
 EMC Laboratory Manager




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SGS-CSTC Standards Technical Services Co., Ltd. | No.198 Kiezh Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 | t (86-20) 82155555 f (86-20) 82075058 | www.sgs.com
 Guangzhou Branch | 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

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-10-13		Original

Authorized for issue by			
Tested By		 <hr/> Curry Wu/Project Engineer	
Reviewed By		 <hr/> Ricky Liu/Reviewer	



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2 Evaluation 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.

♣ Declaration of EUT Family Grouping:

Model No.: DRCLS16-NOC, DRC-445, DRC-447, DRC-250, DRC-251, NH525, NH530, H01C, H037, H05NCL, H07NCL, H09NL, H09NCL, M801R, M803R, H805W, H806, H806W, H809HW, H809SW, H811C, H811W, H812R, S812, H815HW, H816HW, H817HW, H181HW, H818HPW, H819, H819HW, H820HW, H821HW, H822HW, H823, H823W, H823H, H823HW, H802G, H802W, H02G, H825G, H825W, H826H, H827S, H827SC, H827SW, H828HW, H829, H830, H831, H832, H833, H835, H836, H837, H838, H839, H850, H851, H851SW, H851SWP, H852, H853, H855, H856, H857, H858, H859, H860, H860HW, H860SW, H860SPW, H861, H861G, H862, H863

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on Model No., packing and color. Therefore, only the model DRCLS16-NOC was tested.



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4 Information

4.1 Details of E.U.T.

Power supply:	Input 7.6Vdc, 1950mAh via rechargeable battery battery charger: Input 5Vdc, 2A, Output 8.8Vdc, 1.8A
Cable(s):	USB cable: 30cm, unshielded
Operation Frequency	5765MHz, 5785MHz, 5805MHz
Modulation Type:	OFDM
Antenna Type:	Integral Antenna
Antenna Gain(Max):	Antenna 1: 2dBi and Antenna 2: 2dBi declared by applicant.



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4.2 Evaluation Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
 198 Kezhu Road, Sciencetech 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.



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4.4 Deviation from Standards

None

4.5 Abnormalities from Standard Conditions

None



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5 Technical Requirements Specification

5.1 RF Exposure Evaluation

5.1.1 Limit & Test Method

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation¹⁷
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

5.1.2 Conclusion

The Max. power (including tune-up tolerance) is -1.98 dBm on the highest chann 5.805 GHz (*)
 -1.98 dBm logarithmic terms convert to numeric result is nearly 0.63 mW

According to the formula. calculate the test exclusion thresholds:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})}$$

$$\text{General RF Exposure} = (0.63 \text{ mW} / 5 \text{ mm}) \times \sqrt{5.805 \text{ GHz}} = 0.30 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

So the SAR report is not required.

(*) Max. power refer to Report No.:GZCR211002119601

6 EUT Constructional Details (EUT Photos)

Refer to Appendix _ Photographs of EUT Constructional Details for GZCR2110021196AT.

- End of the Report -



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