

RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2310001030AT
Applicant: Shenzhen Raycloud Technology Co.,Ltd
Address of Applicant: Bulong Road No.663, Building F, 4th Floor, 411A, Dafabu Community, Bantian Street, Longgang District, Shenzhen, Guangdong, China
Manufacturer: Shenzhen Raycloud Technology Co.,Ltd
Address of Manufacturer: Bulong Road No.663, Building F, 4th Floor, 411A, Dafabu Community, Bantian Street, Longgang District, Shenzhen, Guangdong, China
Factory: Shenzhen Raycloud Technology Co.,Ltd
Address of Factory: Bulong Road No.663, Building F, 4th Floor, 411A, Dafabu Community, Bantian Street, Longgang District, Shenzhen, Guangdong, China

Equipment Under Test (EUT):

EUT Name: 4K/5MP Battery Wireless Camera
Model No.: B221, B220 □
 □ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Trade Mark: 

Standard(s) : 47 CFR Part 1.1310
 KDB447498D01 General RF Exposure Guidance v06

Date of Receipt: 2023-10-09
Date of Evaluation: 2023-11-30 to 2023-11-30
Date of Issue: 2024-04-07

Evaluation Result:	Pass*
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* In the configuration evaluated, the EUT complied with the standards specified above.



Jerry Chan
Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Testing Center EEC Laboratory

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

EMC-TRF-03 Rev 1.1

Report No.: GZCR231000103003

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Revision Record			
Version	Report No.	Date	Remark
01	GZCR231000103003	2024-04-07	Original

Authorized for issue by:			
		Kevin Zhang	
		Kevin Zhang/Project Engineer	
		Vico Cui	
		Vico Cui/Reviewer	

2 Evaluation Summary

Item	Standard	Method	Requirement	Result
RF Exposure	KDB447498D01 General RF Exposure Guidance v06	KDB447498D01 General RF Exposure Guidance v06	47 CFR Part 1.1310	Pass

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.: B221, B220

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 the resolution ratio.

Therefore, only one model **B221** with more resolution ratio were evaluated in this report.



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4 General Information

4.1 Details of E.U.T.

Power supply:	Powered by built-in battery as below: Model: RCA00-4BU Rated: DC 3.7 V, 42.92Wh, 11600mAh
Cable(s):	DC input ports Micro SD card ports
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK); 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11
Channel Spacing:	5MHz
Antenna Type:	Internal Antenna
Antenna Gain:	2.71 dBi max according to the antenna specification
Antenna Number:	1

4.2 Evaluating Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,
Guangdong, China 510663

Tel: +86 20 82155555

No tests were sub-contracted.



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4.3 Facility

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

- **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.

- **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



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5 Technical Requirements Specification

5.1 General Description of Applied Standards

KDB447498D01 General RF Exposure Guidance v06

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: $P_d = (P_{out} * G) / (4 * P_i * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

P_i = 3.1416

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

P_d is the limit of MPE, 1 mW/cm². 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.



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5.2.2 Conclusion

Normal use condition for
Distance between antenna and body: $\geq 20\text{cm}$ declared by applicant

Antenna Gain: 2.71 dBi

For 2.4 GHz Wi-Fi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
11B						
2412	1.866379691	17.07	50.93	0.01891	1	Complies
2442	1.866379691	16.77	47.53	0.01765	1	Complies
2462	1.866379691	16.51	44.77	0.01662	1	Complies
11G						
2412	1.866379691	20.39	109.40	0.04062	1	Complies
2442	1.866379691	19.48	88.72	0.03294	1	Complies
2462	1.866379691	19.17	82.60	0.03067	1	Complies
11N20						
2412	1.866379691	19.94	98.63	0.03662	1	Complies
2442	1.866379691	19.07	80.72	0.02997	1	Complies
2462	1.866379691	18.53	71.29	0.02647	1	Complies

So SAR report is not required.

Note: Refer to report No. GZCR231000103002 for EUT test Max Conducted Peak Output Power value.

6 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2310001030AT

- End of the Report -

