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Report No.: GZEM190701414604
Page: 1 of 10

TEST REPORT

Application No.: GZEM1907014146CR
Applicant: GUANGZHOU BOSMA TECHNOLOGY CO., LTD.
Address of Applicant: FL. 2&3, A5, NO.11 Kaiyuan Ave., Science City, Guangzhou, China
Manufacturer: GUANGZHOU BOSMA TECHNOLOGY CO., LTD.
Address of Manufacturer: FL. 2&3, A5, NO.11 Kaiyuan Ave., Science City, Guangzhou, China
Factory: GUANGZHOU BOSMA TECHNOLOGY CO., LTD.
Address of Factory: FL. 2&3, A5, NO.11 Kaiyuan Ave., Science City, Guangzhou, China
Equipment Under Test (EUT):
EUT Name: IP Camera
Model No.: XC
Trade Mark: BOSMA
Standard(s) : 47 CFR Part 1.1307, Part 1.1310
Date of Receipt: 2019-07-09
Date of Test: 2019-07-22
Date of Issue: 2019-08-26

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

Kobe Jian

Kobe Jian
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



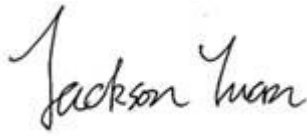
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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2019-08-26		Original

Authorized for issue by:			
Tested By	 Jackson_Yuan /Project Engineer	2019-07-22	Date
Checked By	 Ricky_Liu /Reviewer	2019-08-26	Date



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
RF Exposure	47 CFR Part 1.1307, Part 1.1310	CFR 47 Part 1.1310	CFR 47 Part 1.1310	Pass



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4 General Information

4.1 Details of E.U.T.

Power Supply: DC 5.0 V powered by the AC/DC adapter as below:
Model: GQ-050200-ZU
Input: AC 100-240 V, 50/60 Hz, 0.4 A Max
Output: DC 5V 2 A

Test Voltage: AC 120 V, 60 Hz

Cable: For main unit: Micro USB ports;
Mini SD card ports;
For AC/DC adapter: AC plug;
USB ports with 1.5 m unshielded cables.

For WIFI

Antenna Gain 3 dBi
Antenna Type PIFA Antenna
Channel Spacing 5MHz
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
802.11n(HT40):7

Operation Frequency 802.11b/g/n(HT20): 2412MHz to 2462MHz
802.11n(HT40): 2422MHz to 2452MHz

Software QSTool

For 915 MHz

Antenna Type: Integral
Antenna Gain: 0.2 dBi
Modulation Type: GFSK
Number of Channels: 1
Operation Frequency: 915 MHz
Software: Smart RF studio

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Test 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.



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4.4 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 C-Tick mark as a result of our NVLAP accreditation.

● **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 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

● **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, Jul 13, 2017.

● **Industry Canada (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-10449 and T-11179)**

The 10m Semi-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-10449 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 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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4.5 Deviation from Standards

None

4.6 Abnormalities from Standard Conditions

None



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5 Radio Spectrum Technical Requirement

5.1 RF Exposure

5.1.1 Test Requirement:

CFR 47 Part 1.1310

Limit:

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

According to IEEE C95.3:2002 section 5.5.1.1, The power density S at a point on the axis at a distance d from a transmitting antenna is given by the Friis free-space transmission formula

$$S = \frac{PG}{4\pi d^2}$$

S = power density (mW/cm²)
P = the net power delivered to the antenna (mW)
G = gain of the antenna in linear scale
d = distance between observation point and center of the radiator (cm)



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5.1.2 Conclusion**For WIFI**

Antenna Gain: 3dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.995 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Lowest	2442	15.49	35.400	0.01405	1.0	PASS

For 915MHz

Antenna Gain: 0.2 dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.047 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Frequency (MHz)	Output Power to Antenna (dBuV/m)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
915	92.83	0.55	0.00011	1.0	PASS

2.4GHz WIFI and 915MHz modules can simultaneous transmitting, so the maximum rate of MPE is $0.01405/1+0.00011/1 = 0.01416 \leq 1.0$

According to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

Note: Refer to report No. GZEM190701414602, GZEM190701414603 for EUT test Max Peak Output Power value.

The distance r calculated from the Fries transmission formula is far greater than 20 cm separation requirement.



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6 Photographs

6.1 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for GZEM1907014146CR

--End of Report--



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