1 Cover Page

RF Exposure Evaluation Report

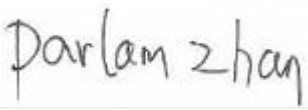
Application No.:	SHEM1908016588CR
FCC ID:	ZZ2-AMC057
IC:	21923-AMC057
Applicant:	Amcrest Technologies LLC
Address of Applicant:	16727 Park Row Dr, Houston, TX 77084
Manufacturer:	Amcrest Technologies LLC
Address of Manufacturer:	16727 Park Row Dr, Houston, TX 77084
Equipment Under Test (EUT):	
EUT Name:	1080P Pan/Tilt wireless IP Camera
Model No.:	IP2M-841W-V3
Add Model No.:	IP2M-841B-V3
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5 (March 2015)
Date of Receipt:	2019-08-26
Date of Test:	2019-08-29 to 2019-09-09
Date of Issue:	2019-09-09
Test Result:	**Pass***

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

Parlam Zhan
E&E Section 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.

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2019-09-09	/

Authorized for issue by:				
				
		Micheal Niu / Project Engineer		
				
		Parlam Zhan / Reviewer		

2 Contents

3 General Information

3.1 General Description of E.U.T.

Product Description:	AC 120V/50Hz By Adapter Adapter: Model: E010-1D050150VUU Input:100~240V, 50/60Hz,0.3A Output: DC 5.0V/1.5A
Test voltage:	AC 120V/60Hz
Cable:	DC-DC Cable: Unshielding 280cm

3.2 Technical Specifications

Antenna Gain	0.92dBi
Antenna Type	Chip 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

3.3 Test Location

All tests were performed at:

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

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

3.4 Test Facility

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

• CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 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.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

IC Registration No.: 8617A-1. CAB Identifier: CN0020.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

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

4.2 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

• at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);

• at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2}\ f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

For 2.4G device, the limit of worse case is 2.68 W

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM190801658801

Test Mode	Test Channel	Ant	Power [dBm]	Power [mW]
802.11b	2412	Ant1	17.05	**50.70**
	2437	Ant1	16.83	48.19
	2462	Ant1	17.00	50.12
802.11g	2412	Ant1	16.76	47.42
	2437	Ant1	16.57	45.39
	2462	Ant1	16.84	48.31
802.11n(HT20)	2412	Ant1	16.63	46.03
	2437	Ant1	16.46	44.26
	2462	Ant1	16.60	45.71
802.11n(HT40)	2422	Ant1	16.45	44.16
	2437	Ant1	16.58	45.50
	2452	Ant1	16.77	47.53

5.2 MPE Calculation

For FCC:

According to the formula S=PG/4πR², 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

The max. antenna gain is 0.92 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
50.7	1.236	20	0.01247	1	Pass

For IC:

E.I.R.P.= P*G= 0.0507×1.236=0.063W＜2.68W

So the device is exclusion from SAR test.

--End of the Report--