



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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Report No.: SHEM150600191403
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1 Cover Page

FCC MPE REPORT

Application No.:	SHEM1506001914CR
Applicant:	UTC FIRE & SECURITY AMERICAS CORPORATION, INC.
FCC ID:	2AENJ-WEDGEIP
Equipment Under Test (EUT): NOTE: The following sample(s) was/were submitted and identified by the client as	
Product Name:	Camera
Model No.(EUT):	TVW-1106
Add Model No.:	TVW-1103, TVW-3103, TVW-1104, TVW-3104, TVW-1105, TVW-3105, TVW-3106, TVW-1116, TVW-3116, TVW-1120, TVW-3120, TVW-1121, TVW-3121
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance
Date of Receipt:	March 16, 2015
Date of Test:	March 25, 2015 to May 12, 2015
Date of Issue:	July 27, 2015
Test Result:	Pass*

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


Parlam Zhan
E&E Section Manager
SGS-CSTC (Shanghai) Co., Ltd.



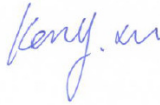
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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. All test results in this report can be traceable to National or International Standards.

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00	/	July 27, 2015	/	Copy (Base on SHEM150300065103)

Authorized for issue by:			
Engineer		Eddy Zong _____ Print Name	 _____
Clerk		Susie Liu _____ Print Name	 _____
Reviewer		Keny Xu _____ Print Name	 _____

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4 General Information

4.1 Client Information

Applicant: UTC FIRE & SECURITY AMERICAS CORPORATION, INC.
Address of Applicant: 2955 Red Hill Ave., Costa Mesa, CA92626, USA
Manufacturer: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Manufacturer: 700 Dongliu Road, Binjiang, Hangzhou, 310052 Zhejiang, China
Factory: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Factory: 700 Dongliu Road, Binjiang, Hangzhou, 310052 Zhejiang, China

4.2 General Description of E.U.T.

Product Description: Fixed product with WiFi function
Power Supply: DC 12V 0.5A or PoE 0.15A
Adapter: Rated Input: AC 100V-240V 50/60Hz
Rated Output: DC 12V 1A
Cable Length: AC port: 2 Wires
DC port: 140cm

4.3 Details of E.U.T.

Operation Frequency: 802.11 b/g/n20: 2412MHz-2462MHz
802.11 n40: 2422MHz-2452MHz
Modulation Technique: 802.11 b: DSSS(CCK, DQPSK, DBPSK)
802.11 g/n20/n40: OFDM(64QAM, 16QAM, QPSK, BPSK)
Number of Channel: 802.11 b/g/n20: 11
802.11 n40: 7
Data Rate: 802.11b: 1/2/5.5/11Mbps
802.11g: 6/9/12/18/24/36/48/54Mbps
802.11n20: 13/26/39/52/78/104/117/135Mbps
802.11n40: 27/54/81/108/162/216/243/270Mbps
Antenna Type: Integral
Antenna Gain: 2.24dBi

4.4 Test Location

All tests were performed at SGS E&E EMC lab

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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4.5 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. Date of expiry: 2017-07-14.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2017-09-16.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1. Expiry Date: 2017-06-18.

- **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-3868, C-4336, T-2221, G-830 respectively. Date of Expiry: 2017-11-16.

5 Test Standards and Limits

According to §1.1310 Radiofrequency radiation exposure limits:

The limit for general population/uncontrolled exposures

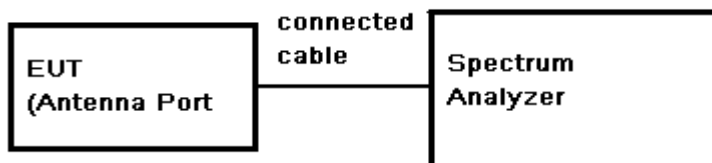
Frequency	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

6 Measurement and Calculation

6.1 Maximum transmit power

EUT Operation: Test in fixing frequency operating mode at lowest, middle and highest frequency.

Test Configuration:



Test Data:

Test mode	Channel	Reading Peak Power (dBm)	Cable Loss (dB)	Output Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
802.11b	Low	19.22	0.5	19.72	93.76	30	PASS
	Mid	19.86	0.5	20.36	108.64		PASS
	High	19.79	0.5	20.29	106.91		PASS
802.11g	Low	19.32	0.5	19.82	95.94		PASS
	Mid	19.90	0.5	20.40	109.65		PASS
	High	20.01	0.5	20.51	112.46		PASS
802.11n20	Low	18.53	0.5	19.03	79.98		PASS
	Mid	18.47	0.5	18.97	78.89		PASS
	High	18.73	0.5	19.23	83.75		PASS
802.11n40	Low	18.61	0.5	19.11	81.47		PASS
	Mid	19.04	0.5	19.54	89.95		PASS
	High	19.38	0.5	19.88	97.27		PASS

6.2 MPE Calculation

According to the formula $S = \frac{PG}{4R^2\pi}$, we can calculate S which is MPE.

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- 1) P (Watts) = Power Input to antenna = $10^{\frac{dBm}{10}} / 1000$
- 2) G (Antenna gain in numeric) = $10^{(Antenna\ gain\ in\ dBi / 10)}$
- 3) R = distance to the center of radiation of antenna (in meter) = 20cm
- 4) MPE limit = 1mW/cm²

The Max Conducted Peak Output Power is 112.46mW in Highest channel of 802.11g;

The best case gain of the antenna is 2.24dBi. 2.24dB logarithmic terms convert to numeric result is nearly 1.6749

$$So, S = \frac{PG}{4R^2\pi} = \frac{112.46 \times 1.6749}{4 \times 400 \times 3.14} = 0.03749\ mW/cm^2$$

The BT and the DTS modules can't simultaneous transmitting at frequency 2.4GHz band, according to the KDB447498 D01 section 7.2 determine the device is exclusion from SAR test.

7 EUT Constructional Details

Refer to the < TVW-1106_External Photos > & < TVW-1106_Internal Photos>.

--End of the Report--