



# RF EXPOSURE REPORT

**Report Reference No.**..... : **TRE1605007402** R/C.....: 90792

**FCC ID**..... : **2AAP6SC241BA**

**Applicant's name**..... : **SHENZHEN ZOWEE TECHNOLOGY CO.,LTD**

**Address**..... : Science &Technology Industrial Park of Privately Owned Enterprises,  
Pingshan, Xili, Nanshan District, Shenzhen, CHINA

**Manufacturer**..... : SHENZHEN ZOWEE TECHNOLOGY CO.,LTD

**Address**..... : Science &Technology Industrial Park of Privately Owned Enterprises,  
Pingshan, Xili, Nanshan District, Shenzhen, CHINA

**Test item description** ..... : **Smart Wifi Camera**

**Trade Mark** ..... : Zowee

**Model/Type reference**..... : SC-241BA

**Listed Model(s)** ..... : IPC3518E-241BA-ZW

**Standard** ..... : **FCC Per 47 CFR 2.1093(d)**

**Date of receipt of test sample**..... : May. 18, 2016

**Date of testing** ..... : May. 19, 2016~ Jun. 12, 2016

**Date of issue**..... : Jun. 12, 2016

**Result**..... : **PASS**

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**Testing Laboratory Name** ..... : **Shenzhen Huatongwei International Inspection Co., Ltd**

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## Contents

|           |   |                 |
|-----------|---|-----------------|
| <b>1.</b> | <b><u>SUMMARY .....</u></b>               | <b><u>3</u></b> |
| 1.1.      | Client Information                        | 3               |
| 1.2.      | Product Description                       | 3               |
| 1.3.      | EUT operation mode                        | 4               |
| 1.4.      | EUT configuration                         | 4               |
| 1.5.      | Modifications                             | 4               |
| <b>2.</b> | <b><u>TEST ENVIRONMENT .....</u></b>      | <b><u>5</u></b> |
| 2.1.      | Address of the test laboratory            | 5               |
| 2.2.      | Test Facility                             | 5               |
| 2.3.      | Environmental conditions                  | 6               |
| 2.4.      | Statement of the measurement uncertainty  | 6               |
| <b>3.</b> | <b><u>METHOD OF MEASUREMENT .....</u></b> | <b><u>7</u></b> |
| 3.1.      | Applicable Standard                       | 7               |
| 3.2.      | Limit                                     | 7               |
| 3.3.      | Test Procedure                            | 7               |
| 3.4.      | Test Result of RF Exposure Evaluation     | 7               |
| <b>4.</b> | <b><u>CONCLUSION .....</u></b>            | <b><u>8</u></b> |

## 1. SUMMARY

### 1.1. Client Information

|               |  |
|---------------|--|
| Applicant:    | SHENZHEN ZOWEE TECHNOLOGY CO.,LTD  |
| Address:      | Science &Technology Industrial Park of Privately Owned Enterprises,<br>Pingshan, Xili, Nanshan District, Shenzhen, CHINA |
| Manufacturer: | SHENZHEN ZOWEE TECHNOLOGY CO.,LTD  |
| Address:      | Science &Technology Industrial Park of Privately Owned Enterprises,<br>Pingshan, Xili, Nanshan District, Shenzhen, CHINA |

### 1.2. Product Description

|                        |   |
|------------------------|---|
| Name of EUT            | Smart Wifi Camera   |
| Trade Mark:            | Zowee   |
| Model No.:             | SC-241BA  |
| Listed Model(s):       | IPC3518E-241BA-ZW   |
| Power supply:          | AC 120V/60Hz  |
| Adapter information 1: | Model:LPL-A005050100Z<br>Input: AC 100-240V 50/60Hz 200mA Max<br>Output: 5Vd.c., 1000mA     |
| Adapter information 2: | Model:RD0501000-USBA-18MG<br>Input: AC 100-240V 50/60Hz 0.25A Max<br>Output: 5Vd.c., 1000mA |
| Hardware version:      | V1.0  |
| Software version:      | V1.0  |
| <b>WIFI</b>            |   |
| Supported type:        | 802.11b/802.11g/802.11n(H20)/802.11n(H40)   |
| Modulation:            | 802.11b: DSSS<br>802.11g/802.11n(H20)/802.11n(H40):OFDM                                     |
| Operation frequency:   | 802.11b/802.11g/802.11n(H20): 2412MHz~2462MHz<br>802.11n(H40): 2422MHz~2452MHz              |
| Channel number:        | 802.11b/802.11g/802.11n(H20): 11<br>802.11n(H40): 9   |
| Channel separation:    | 5MHz  |
| Antenna type:          | FPC   |
| Antenna gain:          | 2.5dBi  |

Operation Frequency List:

WIFI

| Channel | Frequency (MHz) |
|---------|-----------------|
| 01      | 2412            |
| 02      | 2417            |
| :       | :               |
| 06      | 2437            |
| :       | :               |
| 10      | 2452            |
| 11      | 2462            |

Note:In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above gray bottom.

### 1.3. EUT operation mode

The EUT has been tested under test mode condition. The Applicant provides software to control the EUT for staying in continous transmitting and receiving mode for testing.

Test mode:GFSK Modulation

### 1.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

|                       |             |                  |
|-----------------------|-------------|------------------|
| <input type="radio"/> | Power Cable | Length (m) : /   |
|                       |             | Shield : /       |
|                       |             | Detachable : /   |
| <input type="radio"/> | Multimeter  | Manufacturer : / |
|                       |             | Model No. : /    |

### 1.5. Modifications

No modifications were implemented to meet testing criteria.

## **2. TEST ENVIRONMENT**

### **2.1. Address of the test laboratory**

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.  
Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China  
Phone: 86-755-26748019 Fax: 86-755-26748089

### **2.2. Test Facility**

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

#### **CNAS-Lab Code: L1225**

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: February 28, 2015. Valid time is until February 27, 2018.

#### **A2LA-Lab Cert. No. 3902.01**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until December 31, 2016.

#### **FCC-Registration No.: 317478**

Shenzhen Huatongwei International Inspection 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 317478, Renewal date Jul. 18, 2014, valid time is until Jul. 18, 2017.

#### **IC-Registration No.: 5377A&5377B**

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Dec. 31, 2013, valid time is until Dec. 31, 2016.  
Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B on Dec.03, 2014, valid time is until Dec.03, 2017.

#### **ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

#### **VCCI**

Radiated disturbance above 1GHz measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2013. Valid time is until Dec. 23, 2016.  
Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2013. Valid time is until May 06, 2016.

#### **DNV**

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2016.

**2.3. Environmental conditions**

During the measurement the environmental conditions were within the listed ranges:

|                    |             |
|--------------------|-------------|
| Temperature:       | 15~35°C     |
| Relative Humidity: | 30~60 %     |
| Air Pressure:      | 950~1050mba |

**2.4. Statement of the measurement uncertainty**

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 2 " and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

| Test Items                  | Measurement Uncertainty | Notes |
|-----------------------------|-------------------------|-------|
| Transmitter power conducted | 0.57 dB                 | (1)   |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

### 3. METHOD OF MEASUREMENT

#### 3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310, KDB447498 and §2.1093 RF exposure is required.

OET Bulletin 65 Supplement C [June 2001]: Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields

#### 3.2. Limit

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 1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

| Frequency range (MHz)  | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                               |                               |                                     |                          |
| 0.3–3.0  | 614                           | 1.63                          | *(100)                              | 6                        |
| 3.0–30   | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | 6                        |
| 30–300   | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300–1500   | -                             | -                             | f/300                               | 6                        |
| 1500–100,000   | -                             | -                             | 5                                   | 6                        |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3–1.34   | 614                           | 1.63                          | *(100)                              | 30                       |
| 1.34–30  | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | 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 transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>,  $P_{out}$  = output power to antenna in mW;

$G$  = gain of antenna in linear scale,  $\pi = 3.1416$ ;

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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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.

#### 3.3. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

#### 3.4. Test Result of RF Exposure Evaluation

| Channel | Output power to antenna (mW) | G(dBi)    | Power Density at R=20cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Result |
|---------|------------------------------|-----------|---|-----------------------------|--------|
| 2.412   | 53.70                        | 1.7782794 | 0.02  | 1.00                        | Pass   |
| 2.437   | 49.77                        | 1.7782794 | 0.02  | 1.00                        | Pass   |
| 2.462   | 48.75                        | 1.7782794 | 0.02  | 1.00                        | Pass   |

#### **4 . CONCLUSION**

So standalone SAR measurements are not required for both head and body.

**.....End of Report.....**