



## Shenzhen Huaxia Testing Technology Co., Ltd

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640  
Fax: +86-755-26648637  
Website: [www.cqa-cert.com](http://www.cqa-cert.com)

Report Template Version: V03  
Report Template Revision Date: Mar.1st, 2017

# RF Exposure Evaluation Report

**Report No. :** CQASZ20190500017EX-02

**Applicant:** Hangzhou Meari Technology Co., Ltd.

**Address of Applicant:** No.91, Chutian Road,Xixing Block, Binjiang, Hangzhou, 310051 Zhejiang, CHINA

**Manufacturer:** Hangzhou Meari Technology Co., Ltd.

**Address of Manufacturer:** No.91, Chutian Road,Xixing Block, Binjiang, Hangzhou, 310051 Zhejiang, CHINA

**Equipment Under Test (EUT):**

**Product:** IP Camera

**All Models:** Bullet 2S, Bullet 2

**Test Model No.:** Bullet 2S

**Brand Name:** N/A

**FCC ID:** 2AG7C-SPEED5S

**Standards:** 47 CFR Part 1.1307  
47 CFR Part 1.1310  
KDB447498D01 General RF Exposure Guidance v06

**Date of Test:** May 06, 2019 to May 30, 2019

**Date of Issue:** May 30, 2019

**Test Result :** PASS\*

**Tested By:**

*Daisy Xin*

(Martin Lee)

**Reviewed By:**

*Aaron Ma*

(Aaron Ma)

**Approved By:**

*Jack Ai*  
( Jack Ai)



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

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

## 2 Version

### Revision History Of Report

| Report No.            | Version | Description    | Issue Date   |
|-----------------------|---------|----------------|--------------|
| CQASZ20190500017EX-02 | Rev.01  | Initial report | May 30, 2019 |

### 3 Contents

|                                              | Page |
|----------------------------------------------|------|
| 1 COVER PAGE.....                            | 1    |
| 2 VERSION .....                              | 2    |
| 3 CONTENTS .....                             | 3    |
| 4 GENERAL INFORMATION.....                   | 4    |
| 4.1 CLIENT INFORMATION.....                  | 4    |
| 4.2 GENERAL DESCRIPTION OF EUT .....         | 4    |
| 5 RF EXPOSURE EVALUATION .....               | 5    |
| 5.1 RF EXPOSURE COMPLIANCE REQUIREMENT ..... | 5    |
| 5.1.1 Limits .....                           | 5    |
| 5.1.2 Test Procedure .....                   | 5    |
| 5.2 1.1.3 EUT RF EXPOSURE EVALUATION .....   | 6    |

## 4 General Information

### 4.1 Client Information

|                          |                                                                              |
|--------------------------|------------------------------------------------------------------------------|
| Applicant:               | Hangzhou Meari Technology Co., Ltd.                                          |
| Address of Applicant:    | No.91, Chutian Road,Xixing Block, Binjiang, Hangzhou, 310051 Zhejiang, CHINA |
| Manufacturer:            | Hangzhou Meari Technology Co., Ltd.                                          |
| Address of Manufacturer: | No.91, Chutian Road,Xixing Block, Binjiang, Hangzhou, 310051 Zhejiang, CHINA |

### 4.2 General Description of EUT

|                       |                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:         | IP Camera                                                                                                                          |
| Model No.:            | Bullet 2S                                                                                                                          |
| Trade Mark:           | N/A                                                                                                                                |
| Hardware version:     | V1.1                                                                                                                               |
| Software version:     | V1.0                                                                                                                               |
| Operation Frequency:  | IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz<br>IEEE 802.11n(H40): 2422MHz~2452MHz                                                   |
| Channel Numbers:      | IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels<br>IEEE 802.11n HT40: 7                                                             |
| Channel Separation:   | 5MHz                                                                                                                               |
| Type of Modulation:   | IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK)<br>IEEE for 802.11g : OFDM<br>IEEE for 802.11n(HT20): OFDM<br>IEEE for 802.11n(HT40): OFDM |
| Product Type:         | <input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fix Location                 |
| Test Software of EUT: | RF test (manufacturer declare )                                                                                                    |
| Antenna Type          | Internal Antenna                                                                                                                   |
| Antenna Gain          | 2.5dBi                                                                                                                             |
| Power Supply:         | DC 12V from adapter                                                                                                                |
| Adapter Information:  | MODEL: KA1201A-1201000US<br>INPUT:100~240V ~50/60Hz 0.4A Max<br>OUTPUT: 12V 1000mA                                                 |
| Product Name:         | IP Camera                                                                                                                          |

## 5 RF Exposure Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Limits

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 <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 Formula

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.

#### 5.1.2 Test Procedure

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

## 5.2 1.1.3 EUT RF Exposure Evaluation

### 1) For WIFI

Antenna Gain: 2.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.78 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

### Measurement Data

| 802.11b          |                            |                            |                       |        |
|------------------|----------------------------|----------------------------|-----------------------|--------|
| Test channel     | Peak Output Power<br>(dBm) | Tune up tolerance<br>(dBm) | Maximum tune-up Power |        |
|                  |                            |                            | (dBm)                 | (mW)   |
| Lowest(2412MHz)  | 14.114                     | 14.5                       | 16                    | 39.811 |
| Middle(2437MHz)  | 14.355                     | 14.5                       | 16                    | 39.811 |
| Highest(2462MHz) | 15.270                     | 15.5                       | 16                    | 39.811 |
| 802.11g          |                            |                            |                       |        |
| Test channel     | Peak Output Power<br>(dBm) | Tune up tolerance<br>(dBm) | Maximum tune-up Power |        |
|                  |                            |                            | (dBm)                 | (mW)   |
| Lowest(2412MHz)  | 14.170                     | 14.5                       | 14.5                  | 28.184 |
| Middle(2437MHz)  | 12.847                     | 13.0                       | 14                    | 25.119 |
| Highest(2462MHz) | 12.987                     | 13.0                       | 14                    | 25.119 |
| 802.11n(HT20)    |                            |                            |                       |        |
| Test channel     | Peak Output Power<br>(dBm) | Tune up tolerance<br>(dBm) | Maximum tune-up Power |        |
|                  |                            |                            | (dBm)                 | (mW)   |
| Lowest(2412MHz)  | 13.282                     | 13.5                       | 14                    | 25.119 |
| Middle(2437MHz)  | 13.284                     | 13.5                       | 14                    | 25.119 |
| Highest(2462MHz) | 13.341                     | 13.5                       | 14                    | 25.119 |
| 802.11n(HT40)    |                            |                            |                       |        |
| Test channel     | Peak Output Power<br>(dBm) | Tune up tolerance<br>(dBm) | Maximum tune-up Power |        |
|                  |                            |                            | (dBm)                 | (mW)   |
| Lowest(2422MHz)  | 13.743                     | 14.0                       | 14                    | 25.119 |
| Middle(2437MHz)  | 12.763                     | 13.0                       | 14                    | 25.119 |
| Highest(2452MHz) | 12.568                     | 13.0                       | 14                    | 25.119 |

The worst case:

| Maximum tune-up Power (mW) | Antenna Gain (dBi) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit | Result |
|----------------------------|--------------------|--------------------------------------------------|-------|--------|
| 39.811                     | 2.5                | 0.0141                                           | 1.0   | PASS   |

Note: 1) Refer to report No. CQASZ20190500017EX-01 for EUT test Max Conducted Peak Output Power value.

2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (39.811 * 1.78) / (4 * 3.1416 * 20^2) = 0.0141$