# RF EXPOSURE

# EVALUATION REPORT

| | | |
|---|---|---|
| **APPLICANT** | : | Hangzhou Vision Insight Technology Co., Ltd. |
| **PRODUCT NAME** | : | Smart Pan-Tilt Camera |
| **MODEL NAME** | : | A31,A31C,A31D,A31S,A31F |
| **BRAND NAME** | : | blurams |
| **FCC ID** | : | 2ASAQ-A31 |
| **STANDARD(S)** | : | 47CFR 2.1091<br>KDB 447498 |
| **RECEIPT DATE** | : | 2019-07-31 |
| **TEST DATE** | : | 2019-08-06 to 2019-09-12 |
| **ISSUE DATE** | : | 2019-09-16 |

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| Change history | | |
|---|---|---|
| **Version** | **Date** | **Reason of changed** |
| 1.0 | 2019-09-16 | Original |
| | | |

# 1. Technical Information

**Note:** Provide by manufacturer.

## 1.1 Applicant and Manufacturer Information

| | |
|---|---|
| **Applicant:** | Hangzhou Vision Insight Technology Co., Ltd. |
| **Applicant Address:** | Room 203,South Floor 2,Building 5,90 Wensan Road,Xihu District, Hangzhou,Zhejiang |
| **Manufacturer:** | Hangzhou Vision Insight Technology Co., Ltd. |
| **Manufacturer Address:** | Room 203,South Floor 2,Building 5,90 Wensan Road,Xihu District, Hangzhou,Zhejiang |

## 1.2 Equipment under Test (EUT) Description

| | |
|---|---|
| **EUT Name:** | Smart Pan-Tilt Camera |
| **Hardware Version:** | C31_MB_V1.10 |
| **Software Version:** | 19.0723.728.1719 |
| **Frequency Bands:** | WLAN 2.4GHz: 2412 MHz ~2472 MHz |
| **Modulation Mode:** | 802.11b: DSSS<br>802.11g/n-HT20: OFDM |
| **Antenna Type:** | Metal Antenna |
| **Antenna Gain:** | 2.1dBi |

**Note:**

According to the declaration that all of the models(A31,A31C,A31D,A31S,A31F) are the same except the model name and package, only the results of A31 was recorded in this report.

## 1.3 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

| EUT Identity | Hardware Version | Software Version |
|---|---|---|
| 1# | C31_MB_V1.10 | 19.0723.728.1719 |

## 1.4 Applied Reference Documents

**Leading reference documents for testing:**

| No. | Identity | Document Title | Method determination /Remark |
|---|---|---|---|
| 1 | 47 CFR§2.1091 | Radio Frequency Radiation Exposure Evaluation: mobile devices | No deviation |
| 2 | KDB 447498 D01v06 | General RF Exposure Guidance | No deviation |

# 2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

**Mobile Devices:**

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term “fixed location” means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

**GENERAL POPULATION / UNCONTROLLED EXPOSURE**

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

**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) |
|---|---|---|---|---|
| **(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 |
| 300-1500 | - | - | f/1500 | 30 |
| 1500-100,000 | - | - | 1.0 | 30 |

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

# 3. RF Output Power

**<WLAN 2.4GHz>**

| | Mode | Channel | Frequency (MHz) | Average power (dBm) | Tune-up Power | Duty Cycle % |
|---|---|---|---|---|---|---|
| 2.4GHz WLAN | 802.11b 1Mbps | CH 1 | 2412 | **17.02** | **17.5** | 100.0 |
| | | CH 6 | 2437 | 15.45 | 16.0 | |
| | | CH 11 | 2462 | 13.92 | 14.5 | |
| | | CH 12 | 2467 | 13.78 | 14.0 | |
| | | CH 13 | 2472 | 13.43 | 14.0 | |
| | 802.11g 6Mbps | CH 1 | 2412 | 12.95 | 13.5 | 95.20 |
| | | CH 6 | 2437 | 10.40 | 11.0 | |
| | | CH 11 | 2462 | 8.57 | 9.0 | |
| | | CH 12 | 2467 | 8.50 | 9.0 | |
| | | CH 13 | 2472 | 8.39 | 9.0 | |
| | 802.11n-HT20 MCS0 | CH 1 | 2412 | 12.81 | 13.0 | 93.02 |
| | | CH 6 | 2437 | 10.58 | 11.0 | |
| | | CH 11 | 2462 | 8.77 | 9.0 | |
| | | CH 12 | 2467 | 8.63 | 9.0 | |
| | | CH 13 | 2472 | 8.43 | 9.0 | |

# 4. RF Exposure Evaluation

➢ **Standalone transmission evaluation:**

| Bands | Frequency (MHz) | Maximum Tune-up Power (dBm) | Antenna Gain (dBi) | EIRP (mW) | Power density (mW/cm²) | Limit for MPE (mW/cm²) |
|---|---|---|---|---|---|---|
| WLAN 2.4GHz | 2412 | 17.5 | 2.1 | 91.2 | 0.018 | 1.0 |

**Note:**

1. According to KDB 447498, SAR test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.
2. MPE calculate method

$$\text{Power Density} = EIRP/4\pi R^2$$

Where: EIRP = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)

➢ **Simultaneous transmission evaluation:**

This device only incorporates a WLAN 2.4G transmitter, Therefore simultaneous SAR evaluation is not required.

# Annex A General Information

## 1. Identification of the Responsible Testing Laboratory

| | |
|---|---|
| **Laboratory Name:** | Shenzhen Morlab Communications Technology Co., Ltd.<br>Morlab Laboratory |
| **Laboratory Address:** | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |
| **Telephone:** | +86 755 36698555 |
| **Facsimile:** | +86 755 36698525 |

## 2. Identification of the Responsible Testing Location

| | |
|---|---|
| **Name:** | Shenzhen Morlab Communications Technology Co., Ltd.<br>Morlab Laboratory |
| **Address:** | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China |

END OF REPORT