



REPORT No. : SZ14090074S01

RF EXPOSURE EVALUATION REPORT

APPLICANT : Motic China Group Co., Ltd

PRODUCT NAME : Moticam S2 Smart Camera

MODEL NAME : Moticam S2

TRADE NAME : Motic

BRAND NAME : Motic

FCC ID : PVEMOTICAMS2

STANDARD(S) : 47CFR 2.1091
KDB 447498 D01 General RF Exposure
Guidance v05r02

ISSUE DATE : 2014-10-21



SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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DIRECTORY

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| Change History | | |
|----------------|------------|-------------------|
| Issue | Date | Reason for change |
| 1.0 | 2014-10-21 | First edition |
| | | |

**TEST REPORT DECLARATION**

| | |
|----------------------|---|
| Applicant | Motic China Group Co., Ltd |
| Applicant Address | MOTIC BLDG, TORCH HI-TECH INDUSTRIAL DEV ZONE XIAMEN FUJIAN; 361006;CN |
| Manufacturer | Motic China Group Co., Ltd |
| Manufacturer Address | MOTIC BLDG, TORCH HI-TECH INDUSTRIAL DEV ZONE XIAMEN FUJIAN; 361006;CN |
| Product Name | Moticam S2 Smart Camera |
| Model Name | Moticam S2 |
| Brand Name | Motic |
| HW Version | 1.0.0.0 |
| SW Version | 4.2.2.0 |
| Test Standards | 47CFR 2.1091; KDB 447498 D01 General RF Exposure Guidance v05r02 |
| Test Date | 2014-09-28 |
| SAR Evaluation | Not Required |

Tested by : Zou Jian
Zou Jian

Reviewed by : Peng Huarui
Peng Huarui

Approved by : Zeng Dexin
Zeng Dexin



1. TECHNICAL INFORMATION

Note: the following data is based on the information by the applicant.

1.1. Identification of Applicant

| | |
|---------------|---|
| Company Name: | Motic China Group Co., Ltd |
| Address: | MOTIC BLDG, TORCH HI-TECH INDUSTRIAL DEV ZONE XIAMEN FUJIAN; 361006;CN |

1.2. Identification of Manufacturer

| | |
|---------------|---|
| Company Name: | Motic China Group Co., Ltd |
| Address: | MOTIC BLDG, TORCH HI-TECH INDUSTRIAL DEV ZONE XIAMEN FUJIAN; 361006;CN |

1.3. Equipment Under Test (EUT)

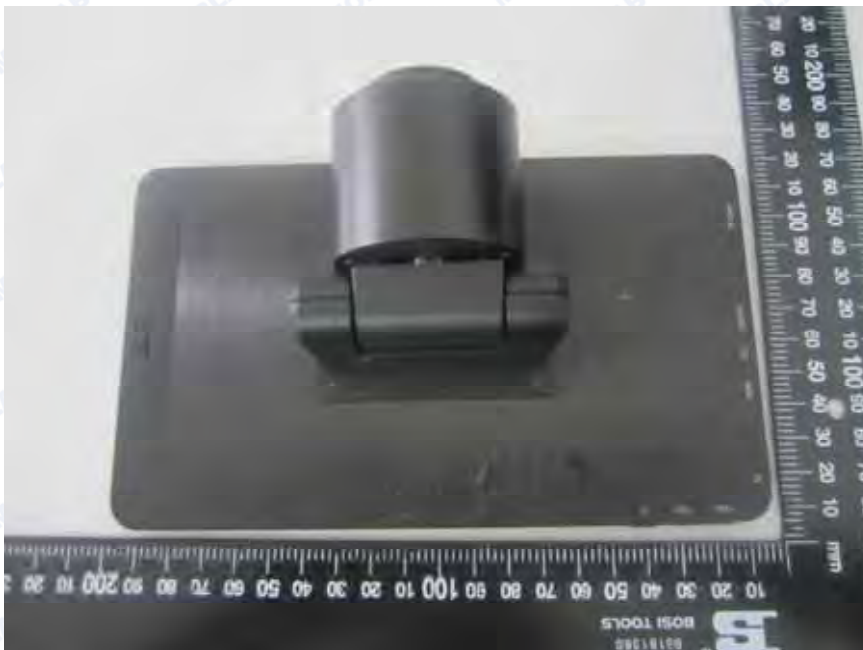
| | |
|--------------------|--|
| Model Name: | Moticam S2 |
| Trade Name: | Motic |
| Brand Name: | Motic |
| Hardware Version: | 1.0.0.0 |
| Software Version: | 4.2.2.0 |
| Frequency Bands: | Wifi802.11b/g/n20/n40:2412-2462MHz; Bluetooth; |
| Modulation Mode: | Wifi802.11b: DSSS; Wifi802.11g/n20/n40: OFDM; Bluetooth: GFSK/ π /4-DQPSK/8-DPSK; |
| Antenna type: | Fixed Internal Antenna |
| Development Stage: | Identical prototype |

1.3.1. Photographs of the EUT

1. EUT front view



2. EUT rear view





1.3.2. 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# | 1.0.0.0 | 4.2.2.0 |

1.4. Applied Reference Documents

Leading reference documents for testing:

| No. | Identity | Document Title |
|-----|-----------------------------|--|
| 1 | 47 CFR§2.1091 | Radiofrequency Radiation Exposure Evaluation: mobile devices |
| 2 | KDB 447498 D01v05r02 | General RF Exposure Guidance |



2. DEVICE CATEGORY AND RF EXPOSURE LIMIT

Per user manual, this device is a Moticam S2 Smart Camera. 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. MEASUREMENT OF CONDUCTED PEAK OUTPUT POWER

1. Wifi Conducted Output Power

| Band | Channel | Frequency (MHz) | Output Power(dBm) | | |
|------|---------|-----------------|-------------------|----------------|------------------|
| | | | 802.11b (DSSS) | 802.11g (OFDM) | 802.11n20 (OFDM) |
| WiFi | 1 | 2412 | 13.36 | 15.76 | 15.90 |
| | 6 | 2437 | 13.01 | 15.49 | 15.95 |
| | 11 | 2462 | 12.62 | 15.00 | 14.94 |

| Band | Channel | Frequency (MHz) | Output Power(dBm) |
|------|---------|-----------------|-------------------|
| | | | 802.11n40 (OFDM) |
| Wifi | 3 | 2422 | 16.20 |
| | 6 | 2437 | 15.92 |
| | 9 | 2452 | 15.67 |

2. BT3.1+EDR Conducted Output Power

| Band | Channel | Frequency (MHz) | Output Power(dBm) | | |
|------|---------|-----------------|-------------------|----------------|--------|
| | | | GFSK | $\pi/4$ -DQPSK | 8-DPSK |
| BT | 0 | 2402 | 9.255 | 10.540 | 2.565 |
| | 39 | 2441 | 9.354 | 10.560 | 1.806 |
| | 78 | 2480 | 8.434 | 9.862 | 0.866 |



4. RF EXPOSURE EVALUATION

Standalone transmission MPE evaluation

| Bands | Frequency (MHz) | Antenna Gain (dBi) | Conducted Peak Power (dBm) | Time-averaging EIRP (mW) | Power density (mW/cm ²) | Limit for MPE (mW/cm ²) |
|-----------|-----------------|--------------------|----------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 802.11n40 | 2422 | 1.21 | 16.20 | 55.08 | 0.011 | 1.0 |
| Bluetooth | 2441 | 1.21 | 10.56 | 15.03 | 0.003 | |

Note:

1. MPE calculation method

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

Where: EIRP = P·G

P = Peak out power

G = Antenna gain

R = Separation distance (20cm)

2. According to section 3, we know the limit for MPE of wifi 802.11b/g/n and BT is 1.0mW/cm²

Simultaneous transmission MPE evaluation

There is only one transmitter incorporated in this Moticam S2 Smart Camera, wifi 802.11b/g/n20/n40 and Bluetooth can not simultaneous transmission, so simultaneous transmission is not required.



ANNEX A GENERAL INFORMATION

1. Identification of the Responsible Testing Laboratory

| | |
|-------------------------------|--|
| Company Name: | Shenzhen Morlab Communications Technology Co., Ltd. |
| Department: | Morlab Laboratory |
| Address: | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China |
| Responsible Test Lab Manager: | Mr. Su Feng |
| Telephone: | +86 755 36698555 |
| Facsimile: | +86 755 36698525 |

2. Identification of the Responsible Testing Location

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

3. Accreditation Certificate

Accredited Testing Laboratory: CNAS No. L3572
(Shenzhen Morlab Communications Technology Co., Ltd.)

***** END OF REPORT *****