

# RF Exposure Report

**Project Number: 5179386****Offer Number: SUW-202407006787****Report Number: 5179386EMC13****Revision Level: 2****Client: Alarm.com Incorporated****Equipment Under Test: Premium Video Camera****Host Model: ADC-V730****Module FCC ID: YL6-143V730****IC ID: 9111A-143V730****Applicable Standards: 47 C.F.R. §§ 2.1091****FCC KDB 447498 D01 General RF Exposure Guidance v06****FCC OET Bulletin 65****RSS-102, Issue 6 (December 15, 2023)****Report issued on: 20 February 2025****Report revised on: 26 March 2025****Test Result: Compliant**

FOR THE SCOPE OF ACCREDITATION UNDER 17025 CERTIFICATE NUMBER: 3212.01

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# 1 General Information

## 1.1 Client Information

Name: Alarm.com Incorporated  
Address: 8281 Greensboro Drive, Suite 100  
City, State, Zip, Country: Tysons, VA 22102, USA

## 1.2 Test Laboratory

Name: SGS North America, Inc.  
Address: 620 Old Peachtree Road NW, Suite 100  
City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA  
Type of lab: Testing Laboratory  
Certificate Number: 3212.01  
FCC Designation: US1126

## 1.3 General Information of EUT

Equipment Under Test: Premium Video Camera  
Host Model: ADC-V730  
Serial Number: 504074C00096 (Conducted Sample) / 504074C0250 (Radiated Sample)  
LoRa: (902 – 928 MHz) CCS, 125kHz / 500kHz (Hybrid, FHSS, DTS) / Max: 18.48 dBm  
BLE: (2402 – 2480 MHz) 1Mbps, 2Mbps (GFSK) / Max: 12.95 dBm  
2.4GHz WLAN: (2412 – 2462 MHz) IEEE 802.11b/g/n (DSSS, OFDM) / Max: 23.83 dBm  
5GHz WLAN: (5180 – 5825 MHz) IEEE 802.11a/n/ac/ax (OFDM, MCS, VHT) / Max: 19.23 dBm  
\*Antenna Gain:

|       | Frequency(MHz) | 2400 | 2450 | 2500 | 5150 | 5350 | 5550 | 5750 | 5850 |
|-------|----------------|------|------|------|------|------|------|------|------|
| Ant.1 | Peak Gain(dBi) | 3.0  | 3.1  | 2.9  | 5.2  | 5.3  | 5.0  | 4.0  | 3.9  |
|       | Efficiency(%)  | 64   | 62   | 58   | 73   | 76   | 78   | 73   | 69   |
| Ant.2 | Peak Gain(dBi) | 4.2  | 4.0  | 3.5  | 4.7  | 4.5  | 3.9  | 3.9  | 3.8  |
|       | Efficiency(%)  | 67   | 66   | 61   | 73   | 71   | 73   | 77   | 77   |

|       | Frequency(MHz) | 865  | 902  | 928  |
|-------|----------------|------|------|------|
| Ant.3 | Peak Gain(dBi) | -0.4 | -0.4 | -0.5 |
|       | Efficiency(%)  | 41   | 43   | 40   |

*\*Data was not measured by SGS laboratory and therefore SGS is not responsible for accuracy. Data obtained via customer, specification sheet, previous regulatory filing or other.*

## 1.4 Operating Modes and Conditions

Evaluation was performed as specified in FCC KDB 558074 D01 v05r02 and FCC KDB 447498 D01 v06. Maximum power levels were utilized for all calculations. Simultaneous transmission is possible with one LoRa band, one WLAN band and BLE. The separation distance from antenna and/or radiating structure is 20cm.

## 2 RF Exposure

### 2.1 Test Result

| Test Description | Product Specific Standard | Test Result |
|------------------|---------------------------|-------------|
| RF Exposure      | FCC Part 1.1310 & RSS-102 | Compliant   |

### 2.2 Test Method

Using the maximum power (including tune-up tolerances), the power density was calculated. Maximum antenna gains were used.

The formula below was used to calculate power density.

$$S = \frac{PG}{4\pi R^2} \quad \text{or} \quad S = \frac{EIRP}{4\pi R^2}$$

where:

$S$  = power density (mW/cm<sup>2</sup>)

$P$  = maximum sourced based average power delivered to antenna port (mW)

$G$  = maximum numeric power gain of antenna relative to an isotropic radiator (dBi -> linear)

$R$  = distance from reference point of antenna (cm)

$EIRP$  = equivalent (or effective) isotropically radiated power

### 2.3 Single transmission RF Exposure Levels (mW/cm<sup>2</sup>)

#### FCC

| Band of Operation   |             | Conducted Power w/tolerance | Antenna Gain | Cable Loss | Average EIRP |     | Distance (R) | Power Density EIRP <sub>avg</sub> /(4πR <sup>2</sup> ) | FCC                | % of Limit | Verdict |
|---------------------|-------------|-----------------------------|--------------|------------|--------------|-----|--------------|--------------------------------------------------------|--------------------|------------|---------|
| Type                | MHz         | dBm                         |              |            | dBm          | mW  | cm           | mW/cm <sup>2</sup>                                     | mW/cm <sup>2</sup> |            |         |
| WLAN 2.4            | 2400-2483.5 | 23.8                        | 4.2          | 0.0        | 28.0         | 631 | 20           | 0.126                                                  | 1.00               | 13%        | Pass    |
| Bluetooth           | 2400-2483.5 | 13.0                        | 4.2          | 0.0        | 17.2         | 52  | 20           | 0.010                                                  | 1.00               | 1%         | Pass    |
| WLAN 5 GHz (UNII-2) | 5250-5700   | 19.2                        | 5.3          | 0.0        | 24.5         | 284 | 20           | 0.056                                                  | 1.00               | 6%         | Pass    |
| LoRa                | 902-928     | 18.5                        | -0.4         | 0.0        | 18.1         | 64  | 20           | 0.013                                                  | 0.60               | 2%         | Pass    |

#### RSS-102

| Band of Operation   |             | Conducted Power w/tolerance | Antenna Gain | Cable Loss | Average EIRP |     | Distance (R) | Power Density EIRP <sub>avg</sub> /(4πR <sup>2</sup> ) | IC               | % of Limit | Verdict |
|---------------------|-------------|-----------------------------|--------------|------------|--------------|-----|--------------|--------------------------------------------------------|------------------|------------|---------|
| Type                | MHz         | dBm                         |              |            | dBm          | mW  | cm           | W/m <sup>2</sup>                                       | W/m <sup>2</sup> |            |         |
| WLAN 2.4            | 2400-2483.5 | 23.8                        | 4.2          | 0.0        | 28.0         | 631 | 20           | 1.255                                                  | 5.35             | 23%        | Pass    |
| Bluetooth           | 2400-2483.5 | 13.0                        | 4.2          | 0.0        | 17.2         | 52  | 20           | 0.103                                                  | 5.35             | 2%         | Pass    |
| WLAN 5 GHz (UNII-2) | 5250-5700   | 19.2                        | 5.3          | 0.0        | 24.5         | 284 | 20           | 0.565                                                  | 9.13             | 6%         | Pass    |
| LoRa                | 902-928     | 18.5                        | -0.4         | 0.0        | 18.1         | 64  | 20           | 0.128                                                  | 2.74             | 5%         | Pass    |

## 2.4 Simultaneous Conditions

Simultaneous transmissions are evaluated using the equation and highest results from each technology.

$$\frac{S_1}{S_1 \text{ Limit}} + \frac{S_2}{S_2 \text{ Limit}} + \dots + \frac{S_n}{S_n \text{ Limit}} \leq 1.0$$

### Example

LoRa + WLAN + BLE < 1.0

5% + 15% + 1% < 100%

| Simultaneous Transmissions - Percent of Limit |          |           |                     |      |     |
|-----------------------------------------------|----------|-----------|---------------------|------|-----|
|                                               | WLAN 2.4 | Bluetooth | WLAN 5 GHz (UNII-2) | LoRa | All |
| WLAN 2.4                                      |          |           | 18%                 | 15%  | 18% |
| Bluetooth                                     |          |           | 7%                  | 3%   | 9%  |
| WLAN 5 GHz (UNII-2)                           | 18%      | 7%        |                     | 8%   | 20% |
| LoRa                                          | 15%      | 3%        | 8%                  |      | 20% |

## 3 Revision History

| Revision Level | Description of changes                                  | Revision Date    |
|----------------|---------------------------------------------------------|------------------|
| -              | Draft Release                                           | 21 February 2025 |
| 0              | Initial Release                                         | 21 February 2025 |
| 1              | Updated RSS-102 table in section 2.3                    | 21 February 2025 |
| 2              | Updated section 2.3 and 2.4 to account for antenna gain | 25 March 2025    |
| 3              | Updated section 2.3 and 2.4 to account for antenna gain | 26 March 2025    |
|                |                                                         |                  |
|                |                                                         |                  |
|                |                                                         |                  |