



Test report No. : 4789544899-US-R1-V0  
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Issued date : Sep. 2, 2020  
FCC ID : 2APLE18300409

## **Maximum Permissible Exposure Report**

**Product** : Essential Spotlight Camera

**Model Name** : VMC2030

**Series Model** : VMC2032

**FCC ID** : 2APLE18300409

**Test Regulation** : 47 CFR FCC Part 2.1091

**Received Date** : Jul. 31, 2020

**Issued Date** : Sep. 2, 2020

**Applicant** : Arlo Technologies Inc  
2200 Faraday Avenue, Suite 150, Carlsbad, CA 92008, USA

**Issued By** : Underwriters Laboratories Taiwan Co., Ltd.  
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd.,  
Zhudong Township, Hsinchu County, Taiwan



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Doc No: 17-EM-F0864 / 3.0



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## REVISION HISTORY

**Original Test Report No.: 4789544899-US-R1-V0**

[illegible]

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## 1. Attestation of Test Results

**APPLICANT:** Arlo Technologies Inc  
2200 Faraday Avenue, Suite 150, Carlsbad, CA 92008, USA

**MANUFACTURER** Funing Precision Component Co., Ltd.  
Lot B, Que Vo Industrial Zone, Van Duong Ward, Bac Ninh City, Bac  
Ninh Province, VIETNAM

**EUT DESCRIPTION:** Essential Spotlight Camera

**BRAND:** Arlo

**MODEL:** VMC2030

**SERIES MODEL:** VMC2032

**SAMPLE STAGE:** Identical Prototype

APPLICABLE STANDARDS	
STANDARD	Test Results
47 CFR FCC PART 2.1091	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Cindy Hsin  
Project Handler

Date : Sep. 2, 2020

Approved and Authorized By:

Waternil Guan Date : Sep. 2, 2020  
Engineer

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## 2. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with KDB 447498 D01 General RF Exposure Guidance v06.

## 3. Facilities and Accreditation

<b>Test Location</b>	Underwriters Laboratories Taiwan Co., Ltd.
<b>Address</b>	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
<b>Accreditation Certificate</b>	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at <a href="http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398">http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398</a>

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## 4. Equipment Under Test

### 4.1. Description of EUT

<b>Product Name</b>	Essential Spotlight Camera	
<b>Brand Name</b>	Arlo	
<b>Model Name</b>	VMC2030	
<b>Series Model</b>	VMC2032	
<b>Operating Frequency</b>	WLAN	2.4GHz: 2412MHz ~ 2462MHz
<b>Modulation</b>	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>Number of Channel</b>	WLAN	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11
<b>Normal Voltage</b>	5Vdc (adapter or host equipment) 3.63Vdc for battery	
<b>Hardware Version</b>	DV2	
<b>SW/FW version</b>	20200324-2_mfg	

Note:

1. This report is as a supplementary report of UL TW report no.: 4789445245-US-R1-V0. The difference compared with original report are list as below.

<b>Model Name</b>	<b>Difference</b>
VMC2032	<ul style="list-style-type: none"><li>- The housing size is different from VMC2030.</li><li>- Change C3937 from 1.3pF to 0.8Nh (Antenna matching).</li><li>- Remove C3939 component (Antenna matching).</li><li>- Add 1.2pF to C112(Antenna matching).</li><li>- Change C3938 from 1.2pF to 0ohm.(Antenna matching).</li><li>- Remove C3940 component (Antenna matching).</li><li>- Change R183 component size from 0603 to 1206.</li><li>- Remove the CN5 connector and the original place has been cover by the shielding case with the same material.</li><li>- Antenna gain changed.</li><li>- Change Battery Cell from 1S2P to 1S4P. *</li></ul>

\*: It is only for new model VMC2032.

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2. The EUT incorporates a SISO diversity function. Physically, the EUT provides one completed transmitter and one receiver.

Modulation Mode	Tx,Rx Function
802.11b	1TX,1RX
802.11g	1TX,1RX
802.11n (HT20)	1TX,1RX

3. The EUT contains following accessory devices

Product	Brand	Model	Description
Security Mount	Arlo	300-11092-01	-
Mount Screw kit	Arlo	422-50002-01	-
USB Cable	Arlo	310-50001-01	Length: 0.3m

Product	Manufacturer / Trademark	Model	Description
Rechargeable Li-ion Battery	CELXPERT ENERGY CORP	A-11	3.63Vdc, 47.19Wh

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

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## 4.2. Description Of Available Antennas

### WLAN 2.4GHz

Antenna	Brand Name	Model Name	Antenna Type	Antenna Gain(dBi)
Ant 0	Masterwave	902P00239S0	Monopole	1.7
Ant 1	Masterwave	902P00239S0	Monopole	2.0

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual.

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## 5. Requirement

### Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
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
Note 1: f = frequency in MHz, * means Plane-wave equivalent power density				
Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.				

Power Density (S) is calculated by the following formula:

$$S=(P*G)/4\pi R^2$$

where: S = power density (in appropriate units, e.g. mW/ cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

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## 6. Radio Frequency Radiation Exposure Evaluation

### WLAN 2.4GHz

Evaluation Frequency	Max. Average Power	Antenna Gain	Max. EIRP	Max. EIRP	Power density @ 20 cm	Limit
(MHz)	(dBm)	(dBi)	(dBm)	(mW)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
2412 ~ 2462	24.11	2	26.11	408.319	0.081	1

Note:

1. Max. EIRP (dBm) = Max. Average power (dBm) + Antenna Gain (dBi)
2. Max. EIRP (mW) =  $10^{(\text{Max. EIRP (dBm)} / 10)}$
3. Power density (mW/cm<sup>2</sup>) = Max. EIRP (mW) /  $[4 \times \pi \times (\text{calculated distance})^2]$ , the calculated distance is 20 cm.

### Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

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