

## RF Exposure Report

**Report No.:** SA190711E04

**FCC ID:** 2APLE18300399

**Test Model:** VMB4540

**PCBA Rev:** V005

**Received Date:** July 11, 2019

**Test Date:** Aug. 02, 2019

**Issued Date:** Aug. 21, 2019

**Applicant:** Arlo Technologies, Inc.

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

Issue No.	Description	Date Issued
SA190711E04	Original release.	Aug. 21, 2019

## 1 Certificate of Conformity

**Product:** Arlo Pro 3 SmartHub

**Brand:** Arlo

**Test Model:** VMB4540

**PCBA Rev:** V005

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Arlo Technologies, Inc.

**Test Date:** Aug. 02, 2019


**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

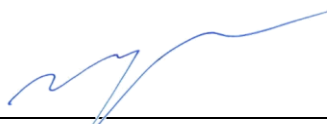
**Prepared by :**

  
Wendy Wu / Specialist

**Date:**

Aug. 21, 2019

**Approved by :**

  
May Chen / Manager

**Date:**

Aug. 21, 2019

## 2 RF Exposure

### 2.1 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> )	Average Time (minutes)
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 <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 ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

WLAN					
Ant No.	Antenna Net Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type	Cable Length (mm)
1	2.8	2.4~2.4835	Dipole	i-pex (MHF)	65
2	2.5	2.4~2.4835	Dipole	i-pex (MHF)	85
Sub-GHz					
Ant No.	Antenna Gain (dBi)	Frequency rang (MHz)	Antenna type	Connector type	
1	1	860~930	PIFA	NA	
Z-Wave					
Ant No.	Antenna Gain (dBi)	Frequency rang (MHz)	Antenna type	Connector type	
1	1	860~930	PIFA	NA	
Zigbee					
Ant No.	Antenna Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type	
1	3	2.4~2.4835	Chip	NA	

## 2.5 Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN 2.4GHz	2437	924.882	5.66	20	0.67735	1
Zigbee	2440	87.096	3.00	20	0.03457	1
Sub-GHz	915	112.979	1.00	20	0.02830	0.61

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: The directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.66\text{dBi}$

### Z-Wave Field Strength Conversion:

Frequency (MHz)	Field Strength of Fundamental (dBuV/m) @3m	EIRP (dBm)	EIRP (mW)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
908.4	93.7	-1.53	0.703	20	0.00014	0.6053

Note: 1. Pout EIRP (dBm) = Field Strength of Fundamental (dBuV/m) - 95.23 (dB)

2. Power Density Limit = F/1500

**NOTE:** The Max. Power = Max. tune up power including tolerance.

### Conclusion:

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4GHz + Zigbee + Sub-GHz + Z-Wave = 0.67735 / 1 + 0.03457 / 1 + 0.02830 / 0.61 + 0.00014 / 0.6053 = 0.75854$

**Therefore the maximum calculations of above situations are less than the “1” limit.**

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