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.
Address:	2200 Faraday Ave. Suite 150, Carlsbad, CA 92008, United States
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

Table of Contents

Release Control Record **3**

1 Certificate of Conformity **4**

2 RF Exposure **5**

2.1 Limits for Maximum Permissible Exposure (MPE) 5
2.2 MPE Calculation Formula 5
2.3 Classification 5
2.4 Antenna Gain 6
2.5 Calculation Result 7

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

Wendy Wu / Specialist

Approved by : _____ , **Date:** Aug. 21, 2019

May Chen / Manager

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^2)	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	($180/f^2$)*	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

2.2 MPE Calculation Formula

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

where

Pd = power density in mW/cm^2

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^2)	Limit (mW/cm^2)
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:

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

Z-Wave Field Strength Conversion:

Frequency (MHz)	Field Strength of Fundamental (dBuV/m) @3m	EIRP (dBm)	EIRP (mW)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
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 + ……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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