RF Exposure Report

Report No.:	SA190904E03
FCC ID:	2AP7A-AMBERX
Test Model:	AL11
Received Date:	Sep. 04. 2019
Test Date:	Oct. 04, 2019 ; Jan. 09, 2020
Issued Date:	Apr. 22, 2020
Applicant:	LatticeWork, Inc.
Address:	2210 O'Toole Ave, Suite 250, San Jose. CA 95131
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, Taiwa.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan.
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SA190904E03	Original release.	Apr. 22, 2020

1   Certificate of Conformity

Product: Amber X

Brand: Latticework

Test Model: AL11

Sample Status: ENGINEERING SAMPLE

Applicant: LatticeWork, Inc.

Test Date: Oct. 04, 2019 ; Jan. 09, 2020

Standards: FCC Part 2 (Section 2.1091)

IEEE C95.3 -2002

References Test Guidance: KDB 447498 D01 General RF Exposure Guidance v06

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 : _Vivian Huang_ , **Date:** Apr. 22, 2020

Vivian Huang / Specialist

Approved by : _____ , **Date:** Apr. 22, 2020

Clark Lin / Technical 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

Ant. No.	Antenna Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
WiFi-1	3.19	2.4~2.4835	PIFA	IPEX
	3.57	5.15~5.25		
	3.29	5.25~5.35		
	4.28	5.47~5.725		
	4.37	5.725~5.85		
WiFi-2 / BT	3.14	2.4~2.4835	PIFA	IPEX
	4.69	5.15~5.25		
	4.21	5.25~5.35		
	3.81	5.47~5.725		
	4.55	5.725~5.85		

2.5 Calculation Result of Maximum Conducted Power

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	975.486	6.18	20	0.80529	1
WLAN U-NII-1	5200	244.669	7.16	20	0.25311	1
WLAN U-NII-2A	5260	177.977	6.77	20	0.16830	1
WLAN U-NII-2C	5550	243.839	7.06	20	0.24651	1
WLAN U-NII-3	5825	353.643	7.47	20	0.39291	1
Bluetooth	2402	7.161	3.14	20	0.00294	1

NOTE:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2. WLAN 2.4GHz: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.18$dBi
   5GHz:
   U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.16$dBi
   U-NII-2A: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.77$dBi
   U-NII-2C: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.06$dBi
   U-NII-3: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.47$dBi

3. 2.4GHz & 5GHz technology can't transmit at same time.

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