

## RF Exposure Report

**Report No.:** SABFBE-WTW-P21010850

**FCC ID:** 2ABLK-GS4227

**Test Model:** u6x GS4227

**Received Date:** Jan. 28, 2021

**Test Date:** Feb. 18, 2021

**Issued Date:** Apr. 29, 2021

**Applicant:** Calix Inc.

**Address:** 1035 N. McDowell Blvd Petaluma, CA94954 U.S.A

**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

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
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**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

Issue No.	Description	Date Issued
SABFBE-WTW-P21010850	Original release.	Apr. 29, 2021

## 1 Certificate of Conformity

**Product:** GigaSpire BLAST  
**Brand:** Calix  
**Test Model:** u6x GS4227  
**Sample Status:** ENGINEERING SAMPLE  
**Applicant:** Calix Inc.  
**Test Date:** Feb. 18, 2021  
**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. 29, 2021  
Vivian Huang / Specialist

**Approved by :** Clark Lin , **Date:** Apr. 29, 2021  
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 <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 22 cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

Antenna NO.	RF Chain NO.	Brand	Model	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length (mm)
DB1	2.4G: Chain 1	HONGBO	290-11015	3.64	2.4~2.4835GHz	Dipole	i-pex(MHF)	110
	5G: Chain 3			4.55	5.15~5.85GHz			
DB2	2.4G: Chain 0	HONGBO	290-11016	3.91	2.4~2.4835GHz	Dipole	i-pex(MHF)	110
	5G: Chain 2			5.94	5.15~5.85GHz			
5G1	Chain 0	HONGBO	290-11013	4.57	5.15~5.85GHz	Dipole	i-pex(MHF)	90
5G2	Chain 1	HONGBO	290-11014	4.68	5.15~5.85GHz	Dipole	i-pex(MHF)	90

**Note:**

1. Antenna Ga Transmit Simultaneously in refer to "P21010850 Multi-Antenna Systems Directional Gain measurement" files.
2. Maximum Correlated Directional Gain following KDB662911 D03 MIMO Antenna Gain Measurement.

Note: The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

## 2.5 Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max. Average Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN (2.4GHz)	2412~2462	757.798	3.91	22	0.30655	1
WLAN (U-NII-1)	5180~5240	978.11	5.94	22	0.63144	1
WLAN (U-NII-3)	5745~5825	922.209	5.94	22	0.59535	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = 3.91 dBi
3. 5GHz (U-NII-1): Directional gain = 5.94 dBi
4. 5GHz (U-NII-3): Directional gain = 5.94 dBi

**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

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.30655 / 1 + 0.63144 / 1 = 0.93799$$

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

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