

## FCC RF Exposure Evaluation Report

<b>Test Report Number</b>	SUB-21040734-LC-FCC-RF Exposure
<b>FCC ID</b>	2AS4H-BLINC
<b>Applicant</b>	Subeca, Inc.
<b>Applicant Address</b>	4514 Cole Avenue Suite 600, Dallas, TX 75205
<b>Product Name</b>	Subeca BLINC
<b>Model (s)</b>	BLINC
<b>Date of Receipt</b>	05/04/2021
<b>Date of Test</b>	05/04/2021- 06/11/2021
<b>Report Issue Date</b>	06/14/2021
<b>Test Standards</b>	47 CFR §1.1307(b), 47 CFR §1.1310
<b>Test Result</b>	<b>PASS</b>
	<p>Issued by:</p> <p><b>Vista Compliance Laboratories</b> 1261 Puerta Del Sol, San Clemente, CA 92673 USA <a href="http://www.vista-compliance.com">www.vista-compliance.com</a></p>
 <hr/> <p><b>Daniel Bruno (Test Technician)</b></p>	 <hr/> <p><b>David Zhang (Technical Manager)</b></p>
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**REVISION HISTORY**

<b>Report Number</b>	<b>Version</b>	<b>Description</b>	<b>Issued Date</b>
SUB-21040734-LC-RF Exposure	01	Initial report	06/14/2021

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## 1 General Information

### 1.1 Applicant

<b>Applicant</b>	Subeca, Inc.
<b>Applicant address</b>	4514 Cole Avenue Suite 600, Dallas, TX 75205
<b>Manufacturer</b>	Subeca, Inc.
<b>Manufacturer Address</b>	4514 Cole Avenue Suite 600, Dallas, TX 75205

### 1.2 Product information

<b>Product Name</b>	Subeca BLINC
<b>Product Description</b>	Subeca BLINC
<b>Model Number</b>	BLINC
<b>Family Models</b>	N/A
<b>Serial Number</b>	#2 (Low F LORA), #7 (MED F LORA), #3 (HIGH F LORA)
<b>Frequency Band</b>	BLE: 2402-2480MHz LoRA: 902.3-914.9MHz
<b>Type of modulation</b>	GFSK (BLE), LoRA
<b>Equipment Class</b>	DTS, DSS
<b>Antenna Information</b>	PCB Antenna WPANT10148-S1A (BLE antenna), peak gain: 2.3 dBi WPANT10144-S2A (LoRA antenna), peak gain: 1.8 dBi WPANT10123-S1B-01A (LoRA antenna), peak gain: 1.4 dBi
<b>Clock Frequencies</b>	N/A
<b>Input Power</b>	DC 3.7V
<b>Power Adapter Manufacturer/Model</b>	N/A
<b>Power Adapter SN</b>	N/A
<b>Hardware version</b>	N/A
<b>Software version</b>	N/A
<b>Simultaneous Transmission</b>	BLE and LoRa can transmit simultaneously
<b>Additional Info</b>	WPANT10144-S2A was used for testing LoRA as worst case.

### 1.3 Test standard and method

<b>Test standard</b>	47 CFR §1.1307(b), 47 CFR §1.1310
<b>Test method</b>	47 CFR §1.1307(b), 47 CFR §1.1310

## 2 Test Site Information

<b>Lab performing tests</b>	Vista Laboratories, Inc.
<b>Lab Address</b>	1261 Puerta Del Sol, San Clemente, CA 92673 USA
<b>Phone Number</b>	+1 (949) 393-1123
<b>Website</b>	www.vista-compliance.com

Test Condition	Temperature	Humidity	Atmospheric Pressure
RF Testing	23.2°C	57.5%	996 mbar
Radiated Emission Testing	23.2°C	57.5%	996 mbar

### 3 Test Results

#### 3.1 FCC MPE Calculation

RF Exposure Requirements:	47 CFR §1.1307(b)
RF Radiation Exposure Limits:	47 CFR §1.1310
RF Radiation Exposure Guidelines:	FCC OST/OET Bulletin Number 65
EUT Frequency Band:	2402-2480MHz, 902-928MHz
LoRA Power Density Limit:	f/1500 mW/cm <sup>2</sup> (0.601 mW/cm <sup>2</sup> at 902MHz)
BLE Power Density Limit:	1 mW/cm <sup>2</sup>

**Equation:**  $S = PG / 4\pi R^2$  or  $R = \sqrt{PG / 4\pi S}$

Where, S = Power Density  
P = Power Input to Antenna  
G = Antenna Gain  
R = distance to the center of radiated antenna

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Prediction distance 20 cm

Radio	Frequency (MHz)	Conducted Output Power (dBm)	Antenna Gain (dBi)	Separation distance (cm)	Power Density (mW/ cm <sup>2</sup> )	MPE Limit (mW/ cm <sup>2</sup> )
BLE	2402-2480	6.34	2.3	20	0.0015	1
LoRA	902-928	19.562	1.8	20	0.0272	0.601

The above results show that the device complies with the MPE requirement.

The BLE is able to transmit simultaneously with WLAN.

The ratio =  $0.0015/1 + 0.0272/0.601 = 0.0468 < 1.0$

The above results show that the device complies with the simultaneous transmission MPE requirement.