

# FCC RF Exposure Evaluation Report

**Test Report Number** SUB-23071961-LC-FCC-MPE

**FCC ID** 2AS4H-BLINC2

**Applicant** Subeca, Inc.

**Applicant Address** 4514 Cole Avenue Suite 600, Dallas, TX 75205

**Product Name** Subeca BLINC

**Model (s)** BLINC

**Date of Receipt** 08/15/2023

**Date of Test** 08/15/2023- 08/21/2023

**Report Issue Date** 02/27/2024

**Test Standards** 47 CFR §1.1307(b), 47 CFR §1.1310

**Test Result** PASS



Issued by:

**Vista Compliance Laboratories**

1261 Puerta Del Sol, San Clemente, CA 92673 USA

[www.vista-compliance.com](http://www.vista-compliance.com)

**Devin Tai (Test Engineer)**

**David Zhang (Technical Manager)**

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**REVISION HISTORY**

Report Number	Version	Description	Issued Date
SUB-23071961-LC-MPE	01	Initial report	02/27/2024

## **TABLE OF CONTENTS**

<b>1</b>	<b>GENERAL INFORMATION.....</b>	<b>4</b>
1.1	Applicant .....	4
1.2	Product information .....	4
1.3	Test standard and method.....	4
<b>2</b>	<b>TEST SITE INFORMATION.....</b>	<b>5</b>
<b>3</b>	<b>TEST RESULTS.....</b>	<b>6</b>
3.1	Limits for Maximum Permissible Exposure (MPE) .....	6
3.2	MPE Calculation Formula .....	6
3.3	Classification .....	6
3.4	Antenna Gain .....	6
<b>4</b>	<b>TEST RESULTS.....</b>	<b>7</b>

## 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>	N/A
<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>	FPC Antenna: WPANT10148-S1A (BLE antenna), peak gain: 2 dBi WPANT10144-S2A (LoRA antenna), peak gain: -1 dBi WPANT10129-S1A (LoRA antenna), peak gain: 2 dBi
<b>Clock Frequencies</b>	N/A
<b>Input Power</b>	DC 3.7V
<b>Power Adapter</b>	N/A
<b>Manufacturer/Model</b>	
<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>	N/A

### 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	23.5°C	55.1%	996 mbar
Radiated Emission Testing	23.5°C	55.1%	996 mbar

### 3 Test Results

#### 3.1 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

#### 3.2 MPE Calculation Formula

**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 in cm

#### 3.3 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.

#### 3.4 Antenna Gain

EUT has two removable FPC antennas which connect to the main board through unique U.FL RF connectors. One for BLE and one for LoRa.

WPANT10148-S1A (BLE antenna), peak gain: 2 dBi

WPANT10144-S2A (LoRA antenna), peak gain: -1 dBi

WPANT10129-S1A (LoRA antenna), peak gain: 2 dBi

## 4 Test Results

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	5.67	2	20	0.0012	1
LoRA	908.5	19.56	2	20	0.0285	0.606

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

The BLE is able to transmit simultaneously with LoRA.

The ratio =  $0.0012/1 + 0.0285/0.606 = 0.0482 < 1.0$

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

**---END---**