Vista Labs
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FCC RF Exposure Evaluation Report

Test Report Number	SUB-21040734-LC-FCC-RF Exposure
FCC ID	2AS4H-BLINC
Applicant	Subeca, Inc.
Applicant Address	4514 Cole Avenue Suite 600, Dallas, TX 75205
Product Name	Subeca BLINC
Model (s)	BLINC
Date of Receipt	05/04/2021
Date of Test	05/04/2021- 06/11/2021
Report Issue Date	06/14/2021
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

Daniel Bruno (Test Technician)

David Zhang (Technical Manager)

REVISION HISTORY

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

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1 General Information

1.1 Applicant

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

1.2 Product information

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

1.3 Test standard and method

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

2 Test Site Information

Lab performing tests	Vista Laboratories, Inc.
Lab Address	1261 Puerta Del Sol, San Clemente, CA 92673 USA
Phone Number	+1 (949) 393-1123
Website	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/cm2 (0.601 mW/cm2 at 902MHz)
BLE Power Density Limit:	1 mW/cm2

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

Prediction distance 20 cm

Radio	Frequency (MHz)	Conducted Output Power (dBm)	Antenna Gain (dBi)	Separation distance (cm)	Power Density (mW/ cm^2)	MPE Limit (mW/ cm^2)
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.