RF Exposure Evaluation Declaration

Product Name	:	Ring Bridge
Model No.	:	5B01S8
HVIN	:	5B01S8
FVIN	:	0.7.5-33
FCC ID	:	2AEUPBHARB001

Applicant	:	Ring, LLC.
Address	:	1523 26th St, Santa Monica, CA 90404

Date of Receipt	:	Feb. 02, 2020
Issued Date	:	Apr. 07, 2020
Report No.	:	2080843R-RF-US-P20V01
Report Version	:	V1.0

Test Report Certification

Issued Date : Apr. 07, 2020
Report No. : 2080843R-RF-US-P20V01

Product Name	:	Ring Bridge
Applicant	:	Ring, LLC.
Address	:	1523 26th St, Santa Monica, CA 90404
Manufacturer	:	Ring, LLC.
Address	:	1523 26th St, Santa Monica, CA 90404
Model No.	:	5B01S8
HVIN	:	5B01S8
FVIN	:	0.7.5-33
FCC ID	:	2AEUPBHARB001
EUT Voltage	:	DC 5V
Test Voltage	:	AC 120V/60Hz
Applicable Standard	:	KDB 447498D01V06 FCC Part1.1310
Test Result	:	Complied
Performed Location	:	DEKRA Testing and Certification (Suzhou) Co., Ltd. No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Designation Number: CN1199

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Approved By : Jack Zhang
(Supervisor: Jack Zhang)

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4*pi*r2)

Where

Pd = power density in mW/cm2

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

Pd is the limit of MPE, 1 mW/cm2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product	:	Ring Bridge
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

- **Antenna Information:**

LoRa/FSK:

Model No.	N/A							
Antenna manufacturer	N/A							
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX	☐	4*TX+4*RX
Antenna technology	☒	SISO						
	☐	MIMO	☐	Basic				
			☐	CDD				
			☐	Sectorized				
			☐	Beam-forming				
Antenna Type	☐	External	☐	Dipole				
			☐	Sectorized				
	☒	Internal	☐	PIFA				
			☒	PCB				
			☐	Ceramic Chip Antenna				
			☐	Metal plate type F antenna				
Antenna Gain	-1dBi							

WIFI(2.4G):

Model No.	N/A							
Antenna manufacturer	N/A							
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX	☐	4*TX+4*RX
Antenna technology	☒	SISO						
	☐	MIMO	☐	Basic				
			☐	CDD				
			☐	Sectorized				
			☐	Beam-forming				
Antenna Type	☐	External	☐	Dipole				
			☐	Sectorized				
	☒	Internal	☐	PIFA				
			☐	PCB				
			☐	Ceramic Chip Antenna				
			☒	Metal plate type F antenna				
Antenna Gain	1.8dBi							

- **Power Density:**

Standlone modes:

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (dBm)	Directional Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Power Density Limit at R = 20 cm (mW/cm2)
LoRa FHSS 250KHz: 902.3~926.7MHz, 400KHz	902 ~ 928	17.96	-1	0.00988	0.6
LoRa FHSS 125KHz: 902.2~927.8MHz, 200KHz	902 ~ 928	17.86	-1	0.00965	0.6
LoRa FHSS 125KHz: 902.3~914.9MHz, 200KHz	902 ~ 928	17.89	-1	0.00972	0.6
FSK FHSS 5Kbps: 902.2~927.8MHz, 200KHz	902 ~ 928	18.21	-1	0.01046	0.6
FSK FHSS 50Kbps: 902.2~927.8MHz, 200KHz	902 ~ 928	17.89	-1	0.00972	0.6
FSK FHSS 150Kbps: 902.4~927.6MHz, 400KHz	902 ~ 928	18.05	-1	0.01009	0.6
FSK FHSS 250Kbps: 902.5~927.5MHz, 500KHz	902 ~ 928	17.92	-1	0.00979	0.6
LoRa DTS 500KHz	902 ~ 928	18.26	-1	0.011	0.6
WIFI(2.4G)	2412 ~ 2462	13.55	1.8	0.00682	1

Simultaneous transmission mode:

Wireless Configure	Maximum EIRP (dBm)	Limit of Power Density S(mW/cm2)	Power Density S at R = 20 cm (mW/cm2)	Rate	Limit
LoRa	17.26	0.6	0.011	0.0251	1
WIFI(2.4G)	15.35	1	0.00682		

Note: Rate<1.0, Simultaneous transmission mode compliant

The End