RF Exposure Evaluation Declaration

FCC ID:	2ALGLE1000
APPLICANT:	Cassia Networks Inc.
Application Type:	Certification
Product:	Cassia Bluetooth Router
Model No.:	E1000, E1000-10, E1000-20
Brand Name:	CASSIA
FCC Classification:	Digital Transmission System (DTS) Unlicensed National Information Infrastructure (NII)

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ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

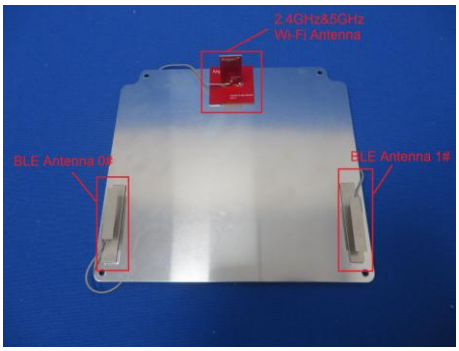
Report No.	Version	Description	Issue Date	Note
1711RSU04005	Rev. 01	Initial report	12-13-2017	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	Cassia Bluetooth Router
Model No.	E1000, E1000-10, E1000-20
Wi-Fi Specification:	802.11a/b/g/n/ac
Bluetooth Version:	v4.2 single mode

1.2. Description of Available Antennas

Antenna	Frequency Band (MHz)	Ant Gain (dBi)	Tx Paths
	2400 ~ 2483.5 (Wi-Fi)	3.7	1
	2400 ~ 2483.5 (BLE)	5.0	1
	5150 ~ 5250	6.6	1
	5745 ~ 5825	7.3	1

2. RF Exposure Evaluation

2.1. 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/cm^2)	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

Calculation Formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where
Pd = power density in mW/cm^2
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, $1mW/cm^2$. 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.

2.2. Test Result of RF Exposure Evaluation

Product	Cassia Bluetooth Router
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to Clause 1.2 of antenna description.

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
Wi-Fi	2412 ~ 2462	17.88	0.0286	1
Wi-Fi	5180 ~ 5240 5745 ~ 5825	15.81	0.0407	1
Bluetooth	2402 ~ 2480	12.74	0.0118	1

CONCULISON:

Both of the WLAN and Bluetooth can transmit simultaneously. Therefore, the Max Power Density at R (20 cm) = $0.0407mW/cm^2 + 0.0118mW/cm^2 = 0.0525mW/cm^2 < 1mW/cm^2$.

So the EUT complies with the requirement.

The End