

Report No.: EED32I00227802 Page 1 of 7

RF Exposure Evaluation Report

Product : Casambi BLE Module

Trade mark : N/A

Model/Type reference : RFM-CSB-2, 3300-00063,

3300-00064, XEN-CSBM-1

Serial Number : N/A

Report Number : EED32100227802 FCC ID : 2AJML-EUCSBM

Date of Issue : Sep. 08, 2016

Test Standards : 47 CFR Part 1.1307 (2015)

47 CFR Part 2.1093 (2015) KDB447498D01v06

Test result : PASS

Prepared for:

EULUM DESIGN, LLC 6131-B Kellers Church Road, Pipersville, PA 18947 USA

Prepared by:

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Sep. 08, 2016 Check No.: 2448766459

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Page 2 of 7

Report No. : EED32I00227802

2 Version

Version No.	Date		Description	
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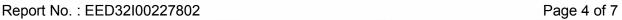




3 Contents

							Page
1 COVER PAGE		••••••	••••••	••••••	••••••	••••••	1
2 VERSION		••••••		•••••		••••••	2
3 CONTENTS		•••••		•••••		•••••	3
4 GENERAL INF	ORMATION	•••••	•••••	•••••	•••••	•••••	4
4.1 CLIENT INF 4.2 GENERAL I 4.3 PRODUCT S 4.4 TEST LOCA 4.5 TEST FACIL 4.6 DEVIATION 4.7 ABNORMAL 4.8 OTHER INF	DESCRIPTION O SPECIFICATION ATION LITY FROM STANDA ITIES FROM ST ORMATION REC	SUBJECTIVE TO SUBJECTIVE TO SUBJECTIVE TO SUBJECTIVE TO SUBJECT SUBJEC	O THIS STANDA	RD			
5 RF EXPOSUR 5.1 RF EXPOS							
5.1.1 Stand	lard Requirem	ent					6
5.1.3 EUT F	RF Exposure					()	6
PHOTOGRAPHS	S OF EUT CO	NSTRUCTIO	NAL DETAILS	S	•••••••••••		7





4 General Information

4.1 Client Information

Applicant:	EULUM DESIGN, LLC
Address of Applicant:	6131-B Kellers Church Road, Pipersville, PA 18947 USA
Manufacturer:	EULUM DESIGN, LLC
Address of Manufacturer:	6131-B Kellers Church Road, Pipersville, PA 18947 USA
Factory:	EULUM DESIGN, LLC
Address of Factory:	6131-B Kellers Church Road, Pipersville, PA 18947 USA

4.2 General Description of EUT

Product Name:	Casambi BLE Module		
Model No.(EUT):	RFM-CSB-2, 3300-00063, 3300-00064, XEN-CSBM-1		
Trade Mark:	N/A		/ 3
EUT Supports Radios	Bluetooth V4.0 BLE		(65)
application:	DIUCIOUIT V4.0 BLE		0

4.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz	
Bluetooth Version:	4.0	
Modulation Technique:	DSSS	1
Modulation Type:	GFSK	
Number of Channel:	40	
Test Power Grade:	N/A	(2)
Test Software of EUT:	N/A	(6)
Antenna Type:	Chip Antenna	
Antenna Gain:	1.3dBi	
Test Voltage:	DC 5V	
Max Conducted Output Power:	-2.784dBm	
Sample Received Date:	Aug. 17, 2016	
Sample tested Date:	Aug. 17, 2016 to Sep. 08, 2016	

The tested samples and the sample information are provided by the client.

Model No.: RFM-CSB-2, 3300-00063, 3300-00064, XEN-CSBM-1

These models are similar identical on the circuit design, layout and transmission portion. The only difference in the power supply voltage.

Therefore in this report the Model No. RFM-CSB-2 were fully tested, and the Model No.3300-00063, 3300-00064, XEN-CSBM-1 were retested for Radiated Emission and Conducted Peak Output Power.

4.4 Test Location

All tests were performed at:

Centre Testing International (Shenzhen) Corporation

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

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Report No. : EED32I00227802 Page 5 of 7

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 886427

Centre Testing International (Shenzhen) Corporation. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 886427.

IC-Registration No.: 7408A-2

The 3m Alternate Test Site of Centre Testing International (Shenzhen) Corporation. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A-2.

IC-Registration No.: 7408B-1

The 10m Alternate Test Site of Centre Testing International (Shenzhen) Corporation., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B-1.

NEMKO-Aut. No.: ELA503

Centre Testing International Group Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 &10 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

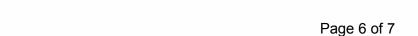
None.

4.8 Other Information Requested by the Customer

None.

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5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Standard Requirement

Report No.: EED32I00227802

According to KDB447498D01 General RF Exposure Guidance v06

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] $[\sqrt{f(GHz)}] \le 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation 17

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is \leq 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is \leq 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

5.1.3 EUT RF Exposure

The Max Conducted Output Power is -2.784dBm in Middle channel(2.480GHz);

-2.784dBm logarithmic terms convert to numeric result is nearly 0.53mW

According to the formula. calculate the power test result:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] $\cdot [\sqrt{f(GHz)}]$

General RF Exposure = $(0.53\text{mW} / 5 \text{ mm}) \times \sqrt{2.480\text{GHz}} = 0.17$

SAR requirement:

S= 3.0 ②;

1 < 2.

So the SAR report is not required.











Report No.: EED32I00227802 Page 7 of 7

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32l00227801 for EUT external and internal photos.



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