



## SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park,  
Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053  
Fax: +86 (0) 755 2671 0594  
Email: ee.shenzhen@sgs.com

Report No.: SZEM170500540605  
Page: 1 of 7

# RF Exposure Evaluation Report

**Application No.:** SZEM1705005406CR  
**Applicant:** PointGrab Ltd.  
**Address of Applicant:** 4 Hacharash St. Building D Floor 12 P.O. Box 6442 Hod Hasharon, Israel  
**Manufacturer:** PointGrab Ltd.  
**Address of Manufacturer:** 4 Hacharash St. Building D Floor 12 P.O. Box 6442 Hod Hasharon, Israel  
**Factory:** EMBEST TECHNOLOGY CO., LTD.  
**Address of Factory:** Tower B 4/F, Shanshui Building, Nanshan Yungu Innovation Industry Park, Liuxian Ave. No.1183, Nanshan District, Shenzhen, Guangdong, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Cognipoint  
**Model No.:** PG1  
**FCC ID:** 2AMYJPG1001A  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 1.1310  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2017-06-05  
**Date of Test:** 2017-06-12 to 2017-06-29  
**Date of Issue:** 2017-07-10

<b>Test Result :</b>	<b>PASS*</b>
----------------------	--------------

\* In the configuration tested, the EUT complied with the standards specified above.



Jack Zhang  
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

## 2 Version

<b>Revision Record</b>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2017-07-10		Original

Authorized for issue by:			
	 Hank Yan		
	Hank Yan /Project Engineer		
	 Eric Fu		
	Eric Fu /Reviewer		

### **3 Contents**

	Page
<b>1 COVER PAGE .....</b>	<b>1</b>
<b>2 VERSION .....</b>	<b>2</b>
<b>3 CONTENTS .....</b>	<b>3</b>
<b>4 GENERAL INFORMATION .....</b>	<b>4</b>
4.1 GENERAL DESCRIPTION OF EUT .....	4
4.2 TEST LOCATION .....	5
4.3 TEST FACILITY .....	5
4.4 DEVIATION FROM STANDARDS .....	5
4.5 ABNORMALITIES FROM STANDARD CONDITIONS .....	5
4.6 OTHER INFORMATION REQUESTED BY THE CUSTOMER .....	5
<b>5 RF EXPOSURE EVALUATION .....</b>	<b>6</b>
5.1 RF EXPOSURE COMPLIANCE REQUIREMENT .....	6
5.1.1 <i>Limits</i> .....	6
5.1.2 <i>Test Procedure</i> .....	6
5.1.3 <i>EUT RF Exposure Evaluation</i> .....	7

## 4 General Information

### 4.1 General Description of EUT

Power supply: DC 15.2V Li-ion Battery

**For Bluetooth Classic:**

Operation Frequency: 2402MHz~2480MHz

Modulation Technique: Frequency Hopping Spread Spectrum(FHSS)

Modulation Type: GFSK, π/4DQPSK, 8DPSK

Number of Channel: 79

Hopping Channel Type: Adaptive Frequency Hopping systems

Sample Type: Fixed production

Antenna Type: Chip Antenna

Antenna Gain: 1.5dBi

**For BLE:**

Operation Frequency: 2402MHz~2480MHz

Modulation Type: GFSK

Number of Channel: 40

Sample Type: Fixed production

Antenna Type: Chip Antenna

Antenna Gain: 1.5dBi

**For WiFi:**

Operation Frequency: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz

Channel Numbers: IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels

Channel Separation: 5MHz

Type of Modulation: IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK)

IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK)

IEEE for 802.11n(HT20) : OFDM (64QAM, 16QAM, QPSK,BPSK)

Antenna Type: Chip Antenna

Antenna Gain: 1.5dBi

## **4.2 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

## **4.3 Test Facility**

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

- CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen 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 No.: 556682.

- Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

## **4.4 Deviation from Standards**

None.

## **4.5 Abnormalities from Standard Conditions**

None.

## **4.6 Other Information Requested by the Customer**

None.

## 5 RF Exposure Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

**TABLE 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> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
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

Friis Formula

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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.

#### 5.1.2 Test Procedure

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

### 5.1.3 EUT RF Exposure Evaluation

#### For Bluetooth Classic:

Antenna Gain: 1.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.413 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max. Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Highest	2480	7.94	6.223	0.002	1.0	PASS

Note: Refer to report No. SZEM170500540602 for EUT test Max Conducted Peak Output Power value.

The distancer (5th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

#### For BLE:

Antenna Gain: 1.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.413 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max. Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Highest	2480	7.83	6.067	0.002	1.0	PASS

Note: Refer to report No. SZEM170500540603 for EUT test Max Conducted Peak Output Power value.

The distancer (5th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

#### For WiFi:

Antenna Gain: 1.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.413 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max. Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Highest	2462	21.31	135.207	0.038	1.0	PASS

Note: Refer to report No. SZEM170500540604 for EUT test Max Conducted Peak Output Power value.

The distancer (5th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.