

RF EXPOSURE REPORT

OF

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1539

IC Applicant: SIGMA ELEKTRO GmbH
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Product Name: ROX 11.1 EVO

Brand Name: SIGMA

Model No.: ROX 11.1 EVO

Model Difference: N/A

Report Number: E2/2020/A0020

FCC ID M5LROX111

IC: 7580A-ROX111

FCC Rule Part Part 2.1093

ISED Rule: RSS-102 issue 5 Mar. 19, 2015

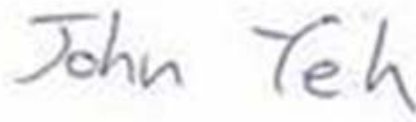
Issue Date: February 19, 2021

Date of Test: This report is only calculated based on the test results, there will be no date of test.

Date of EUT Received: November 10, 2020

We hereby certify that:

The data evaluation in this report is in compliance with FCC Rules Part 2 & RSS-102.
The results of this report relate only to the sample identified in this report.

Approved By: _____*John Yeh / Asst. Manager*

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Report Number	Revision	Description	Issue Date	Remark
E2/2020/A0020	Rev.00	Original.	February 19, 2021	Revised By: Karen Huang

Note:

1. Disclaimer

Antenna information is provided by the applicant, the test results of this report are applicable to the sample EUT received.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 General Information

Product Name:	ROX 11.1 EVO	
Brand Name:	SIGMA	
Model No.:	ROX 11.1 EVO	
Model Difference:	N/A	
Hardware Version:	GS-EB-GB983-01-V1.0	
Software Version:	V0.70	
EUT Series No.:	GB-983 #21	
Power Supply:	3.7Vdc from Rechargeable Li-polymer Battery or 5 Vdc from Micro USB port	
	Battery:	Model No.: JHY802844 3.7V, 1000mAh, 3.7Wh

1.2 Antenna Information:

1.2.1 BT / ANT+

Antenna Type	Supplier	Antenna Part No.	Freq.	Peak Antenna Gain (dBi)	Worst Antenna Gain
Chip	Antech	AT3216-B2R7HAA	2.4GHz	0.5	-

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2 FCC STANDARD APPLICABLE

2.1 FCC Standard Applicable:

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

As per KDB 447498 D01 4.3.1,

Step a: For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as numeric thresholds in **step b**) below

Step b: For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following (also illustrated in Appendix B):

- 1) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz
- 2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for > 1500 MHz and ≤ 6 GHz

2.2 Measurement Result (Worst Case):

Step a:

This is a portable device and the max. output power including tune-up tolerance is 0.673 (mW), lower than the threshold given and derived as formula given above, where

$$\text{BLE Mode} = 0.673(\text{mW}) / 5(\text{mm}) \cdot \sqrt{2.402 (\text{GHz})} = 0.209 < 3.0$$

$$\text{Ant+ Mode} = 0.659(\text{mW}) / 5(\text{mm}) \cdot \sqrt{2.457 (\text{GHz})} = 0.207 < 3.0$$

Mode	Frequency (MHz)	Max. output power including tune-up tolerance(dBm)	Max. output power including tune-up tolerance(mW)	Distance (mm)	Result	Summation	Limit ≤ 3.0 for 1-g SAR
BLE	2402	-1.72	0.673	5	0.209	0.416	Pass
Ant+	2457	-1.81	0.659	5	0.207		

As the result of calculation result indicates, the RF exposure generating from given transmitter (transmitter employed digital modulation) can be excluded from SAR measurement, and is deemed compliant with RF exposure as per FCC.

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~End of Report~

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