

1 Cover Page

RF Exposure REPORT

Application No.: SHCR2305000976HS
FCC ID: J2MPM5N
IC: 6620A-PM5N
Applicant: Concept2, Inc.
Address of Applicant: 105 Industrial Park Drive, Morrisville, VT, 05661, USA
Manufacturer: Concept2, Inc.
Address of Manufacturer: 105 Industrial Park Drive, Morrisville, VT, 05661, USA
Factory: 1, Dong Guan Sharp Motion Ltd.
 2, Cenxi Eastar Electronics Ltd.
 3, Mack Technologies Florida, In.
Address of Factory: 1, 56 Block (D-1) Wei Jian Road, Wei Jian Industrial Park Chashan, Dongguan, Guangdong 523000, PRC
 2, Zini Industrial Park, Yuwu Road Cenxi City, Guangxi Zhuang Autonomous Region Guandong 543200, PRC
 3, 7505hnology Drive, Melbourne, Florida, 32904 USA
Equipment Under Test (EUT):
EUT Name: Performance Monitor 5
Model No.: PM5
HVIN: PM5N
Trade mark: Concept2
Standard(s) : FCC Rules 47 CFR §2.1093
 KDB447498 D01 General RF Exposure Guidance v06
 RSS-102 Issue 5 Amendment 1 (February 2, 2021)
Date of Receipt: 2023-05-16
Date of Test: 2023-06-01 to 2023-06-16
Date of Issue: 2023-06-19

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Parlan Zhan

Parlan Zhan
E&E Section 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.



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Testing Center Elm...

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Revision Record			
Version	Description	Date	Remark
00	Original	2023-06-19	/

Authorized for issue by:				
		Bill Wu		
		Bill Wu/Project Engineer		
		Parlam Zhan		
		Parlam Zhan /Reviewer		



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3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 3V By 2*LR20 batteries
S/N:	431861432
Firmware version:	554.000

3.2 Details of E.U.T.

BLE

Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.3 LE
Data Rate:	1Mbps
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	PCB Antenna
Antenna Gain:	3.3 dBi (Provided by manufacturer)

2.4GHz SRD

Operation Frequency:	2457MHz
Modulation Type:	GFSK
Number of Channels:	1
Antenna Type:	PCB Antenna
Antenna Gain:	3.3 dBi (Provided by manufacturer)



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3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

3.4 Test Facility

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

• **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

• **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

• **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory
Company Number: 8617A

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.



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4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure 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:

$[(\text{max power of channel})/(\text{min test separation distance})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

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

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion. For 2.4G band device, the limit of worse case is

$$P_{\text{max}} \leq 3 \cdot D_{\text{min}} / \sqrt{f} = 3 \cdot 5 / \sqrt{2.480} = 9.525 \text{ mW}$$



4.2 IC Radiofrequency radiation exposure limits

According to RSS-102 section 2.5.1, SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance

MHz	5	10	15	20	25	30	35	40	45	50	mm
≤300	71	101	132	162	193	223	254	284	315	345	mW
450	52	70	88	106	123	141	159	177	195	213	
835	17	30	42	55	67	80	92	105	117	130	
1900	7	10	18	34	60	99	153	225	316	431	
2450	4	7	15	30	52	83	123	173	235	309	
3500	2	6	16	32	55	86	124	170	225	290	
5800	1	6	15	27	41	56	71	85	97	106	

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

For 2.4G band device, the worse case limit is $P_{\max} \leq 4\text{mW}$



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHCR230500097601&SHCR230500097602.

For 2.4GHz SRD

Frequency (MHz)	Field strength (dBuV/m@3m)	Power (mW)
2457	96.58	1.29

For BLE

Test Mode	Channel	Peak Power [dBm]	Peak Power (mW)
BLE_1M	2402	0.83	1.21
	2440	0.83	1.21
	2480	0.25	1.06

5.2 RF Exposure Calculation

For FCC:

For BLE

The Max Conducted Peak Output Power is 1.21mW. The best case gain of the antenna is 3.3dBi.

3.3dBi logarithmic terms convert to numeric result is nearly 2.14

According to the formula. calculate the EIRP test result:

$$\text{EIRP} = P \times G = 1.21 \text{ mW} \times 2.14 = 2.59\text{mW} < 9.525\text{mW}$$

For 2.4GHz SRD

$$\text{EIRP} = 1.29\text{mW} < 9.525\text{mW}$$

For IC:

For BLE

$$\text{EIRP} = P \times G = 1.21 \text{ mW} \times 2.14 = 2.59\text{mW} < 4\text{mW}$$

For 2.4GHz SRD

$$\text{EIRP} = 1.29\text{mW} < 4\text{mW}$$

Consider the BLE and 2.4GHz SRD can simultaneous transmitting, so the maximum rate of MPE is $2.59/4+1.29/4=0.97 \leq 1.0$. according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

-End of the Report-



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