



F2 Labs
16740 Peters Road
Middlefield, Ohio 44062
United States of America
www.f2labs.com

SAR EXCLUSION REPORT

Manufacturer: **SEAL Innovation, Inc.**
3801 Computer Drive, Suite 201
Raleigh, North Carolina 27609 USA

Product Name: **SEAL SwimSafe 2.0 Hub**

Product Description: Base station for a swim safety monitoring system.

Model: **SH200**

FCC ID: **2AFCI-SH200**

Standard(s):

- **KDB447498 Appendix A**

Report Constructed by:

Julius Chiller, EMC/Wireless Engineer

Report Reviewed by:

Ken Littell, Director of EMC & Wireless Operations

F2 Labs
26501 Ridge Road
Damascus, MD 20872
Ph 301.253.4500

F2 Labs
16740 Peters Road
Middlefield, OH 44062
Ph 440.632.5541

F2 Labs
8583 Zionsville Road
Indianapolis, IN 46268
Ph 317.610.0611

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Order Number: F2P21802

Applicant: SEAL Innovation, Inc.

Model: SH200

TABLE OF CONTENTS

Section	Title	Page
1	ADMINISTRATIVE INFORMATION	3
2	SUMMARY OF TEST RESULTS/MODIFICATIONS	4
3	ENGINEERING STATEMENT	5
4	EUT INFORMATION AND DATA	6



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1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

1.2 Document History

Document Number	Description	Issue Date	Approved By
F2P21802-02E	First Issue	Oct. 24, 2019	K. Littell



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2 SUMMARY OF RESULTS

	Standard(s)	Results
SAR Exclusion	KDB447498, Appendix A	Complies

Modifications Made to the Equipment
None

083118

Report Number: F2P21802-02E

Page 4 of 6

Issue Date: Oct. 24, 2019



3 ENGINEERING STATEMENT

This report has been prepared on behalf of SEAL Innovation, Inc., to provide documentation for the SAR Exclusion herein. This equipment has been tested and found to comply with the SAR Exclusion listed in section 4.3 of KDB447498 based on Duty Cycle.

4.3. General SAR test exclusion guidance

4.3.1. 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 Test Exclusion Threshold condition(s), listed below, is (are) satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.²⁸ The minimum test separation distance defined in 4.1 f) is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander. To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified, typically in the SAR measurement or SAR analysis report, by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting are required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for SAR test exclusion. When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops and tablets, etc.²⁹ a) For 100 MHz to 6 GHz and test separation distances \leq 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 SAR, and ≤ 7.5 for 10-g extremity SAR, 30 where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation³¹
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as numeric thresholds

The minimum separation distance used for the calculation is 5mm for extremities (<7.5) and 5mm for Body-Worn (<3.0). The exclusion is based on the 1% Duty Cycle of the transmitter. To determine the exclusion, the formula $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR was used. The highest Peak output power of 43.15mW EIRP was at the low channel 906 MHz and the Time Averaged Power was 0.432mW. This would make the calculation for extremities be $(0.432/5) (\sqrt{0.906}) = 0.082$ which is less than the 7.5 required for SAR Exclusion. The calculation for Body-Worn would be $(0.432/5) (\sqrt{0.906}) = 0.082$ which is less than the 3.0 required for SAR Exclusion.



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4 EUT INFORMATION AND DATA

4.1 Equipment Under Test:

Product: **SEAL** **SwimSafe 2.0 Hub**

Model: SH200

Serial No.: None Specified

FCC ID: **2AFCI-SH200**

4.2 Trade Name:

SEAL Innovation, Inc.

4.3 Power Supply:

AC Adapter – Globtek GT86120-1005-W2

4.4 Applicable Rules:

KDB447498

4.5 Equipment Category:

Radio Transmitter-DTS

4.6 Antenna:

Dipole – Pulse W3538B0150

4.7 Accessories:

N/A