

RF Exposure Report

Project Number: 5024907 **Proposal Number:** SUW-202302004058

Report Number: 5024907EMC06 **Revision Level:** 2

Client: Enovate Medical, LLC

Equipment Under Test: ENV2SOM

Model Name: ENV2SOM

Model Number: ENV2SOM

FCC ID: 2AQ9D-ENV2SOM

Applicable Standards: 47 CFR §§ 2.1093 (Portable)

FCC KDB 447498 D01 General RF Exposure Guidance v06

Report revised on: 19 October 2023

Result: Exempt from SAR evaluation



FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER: 3212.01

Report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the Federal Government.

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1 General Information

1.1 Client Information

Name: Enovate Medical, LLC
 Address: 1152 Park Avenue
 City, State, Zip, Country: Murfreesboro, TN 37129, USA

1.2 Test Laboratory

Name: SGS North America, Inc.
 Address: 620 Old Peachtree Road NW, Suite 100
 City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA
 Type of lab: Testing Laboratory
 Certificate Number: 3212.01

1.3 General Information of EUT

Type of Product: ENV2SOM
 Model Name: ENV2SOM
 Model Number: ENV2SOM
 Serial Number: 0000000020d6f686; 000000007add4646 (Conducted Samples)

Frequency Ranges: 2402 – 2480 MHz (Bluetooth/BLE)
 2412 – 2462 MHz (WLAN 2.4GHz)
 5180 – 5240 MHz (WLAN 5GHz U-NII-1)
 5260 – 5320 MHz (WLAN 5GHz U-NII-2A)
 5500 – 5720 MHz (WLAN 5GHz U-NII-2C)
 5745 – 5825 MHz (WLAN 5GHz U-NII-3)

Antenna: Trace, 2402-2462MHz, 3.5dBi*
 Trace, 5180 – 5825MHz, 2.3dBi*

Max Conducted Output Power: Bluetooth BDR: 4.91 dBm*
 Bluetooth LE: 2.3 dBm*
 WLAN 2.4GHz: 13.4 dBm*
 WLAN 5GHz U-NII-1: 14.39 dBm*
 WLAN 5GHz U-NII-2A: 14.5 dBm*
 WLAN 5GHz U-NII-2C: 13.3 dBm*
 WLAN 5GHz U-NII-3: 13.3 dBm*

Sample Received Date: 10 April 2019
 Dates of testing: 10 to 23 April 2019

**Data was not measured by SGS laboratory and therefore not responsible for accuracy. Data obtained via customer, specification sheet, previous regulatory filing or other.*

1.4 Separation Distance

The closest exposure distance for head and body exposure is 30mm.

2 SAR Exclusion Calculations

The highest conducted output power in conjunction with the Upper and Lower frequency boundaries have been used to demonstrate compliance for both WLAN and Bluetooth transmission mode.

Power levels were referenced from measurements captured in report number UL-RPT-RP12663640-1216B V2.0; UL-RPT-RP12663640-1416A V2.0; UL-RPT-RP12663640-1616A.

The EUT was considered for body application.

Bluetooth LE (2AQ9D-ENV2SOM)

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SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units	
Max Power:	2.3	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	30	mm	
Frequency, f:	2480	MHz	

Value reference Number	Values used for Calculation		Reference number definition
v1	2.00	mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	30	mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	1.575		[√f(GHz)]

- 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 SAR, and ≤ 7.5 for 10-g extremity SAR,

Exclusion Calculation(1g):	0.1	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	0.1	number	<== [v2 / v3] must be less than 7.5

Conclusions (Body):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications
Conclusions (Extremity):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications

Bluetooth BDR (2AQ9D-ENV2SOM)

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SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units	
Max Power:	4.91	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	30	mm	
Frequency, f:	2441	MHz	

Value reference Number	Values used for Calculation	Reference number definition
v1	3.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	30 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	1.562	[√f(GHz)]

- 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:

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

Exclusion Calculation(1g):	0.2	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	0.2	number	<== [v2 / v3] must be less than 7.5

Conclusions (Body):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications
Conclusions (Extremity):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications

WLAN 2.4GHz: (2AQ9D-ENV2SOM)

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SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units	
Max Power:	13.4	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	30	mm	
Frequency, f:	2462	MHz	

Value reference Number	Values used for Calculation	Reference number definition
v1	22.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	30 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	1.569	[√f(GHz)]

- 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:

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

Exclusion Calculation(1g):	1.2	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	1.2	number	<== [v2 / v3] must be less than 7.5

Conclusions (Body):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications
Conclusions (Extremity):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications

WLAN 5GHz U-NII-1: (2AQ9D-ENV2SOM)

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SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units	
Max Power:	14.39	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	30	mm	
Frequency, f:	5240	MHz	

Value reference Number	Values used for Calculation	Reference number definition
v1	27.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	30 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	2.289	[√f(GHz)]

- 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 SAR, and ≤ 7.5 for 10-g extremity SAR,

Exclusion Calculation(1g):	2.1	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	2.1	number	<== [v2 / v3] must be less than 7.5

Conclusions (Body):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications
Conclusions (Extremity):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications

WLAN 5GHz U-NII-2A: (2AQ9D-ENV2SOM)

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SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units	
Max Power:	14.5	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	30	mm	
Frequency, f:	5320	MHz	

Value reference Number	Values used for Calculation	Reference number definition
v1	28.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	30 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	2.307	[√f(GHz)]

- 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 SAR, and ≤ 7.5 for 10-g extremity SAR,

Exclusion Calculation(1g):	2.2	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	2.2	number	<== [v2 / v3] must be less than 7.5

Conclusions (Body):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications
Conclusions (Extremity):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications

WLAN 5GHz U-NII-2C: (2AQ9D-ENV2SOM)

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SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units	
Max Power:	13.3	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	30	mm	
Frequency, f:	5720	MHz	

Value reference Number	Values used for Calculation	Reference number definition
v1	21.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	30 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	2.392	[√f(GHz)]

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:

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

Exclusion Calculation(1g):	1.7	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	1.7	number	<== [v2 / v3] must be less than 7.5

Conclusions (Body):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications
Conclusions (Extremity):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications

WLAN 5GHz U-NII-3: (2AQ9D-ENV2SOM)

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SAR test exclusion calculations

Section 4.3: General SAR test exclusion guidance / Section 4.3.1: Standalone SAR test exclusion considerations

	Input	Select Units	
Max Power:	13.3	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	30	mm	
Frequency, f:	5825	MHz	

Value reference Number	Values used for Calculation	Reference number definition
v1	21.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	30 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	2.414	[√f(GHz)]

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:

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

Exclusion Calculation(1g):	1.7	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	1.7	number	<== [v2 / v3] must be less than 7.5

Conclusions (Body):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Body applications
Conclusions (Extremity):	The EUT max power is BELOW the threshold. SAR Testing is NOT required for Extremity applications

3 Revision History

Revision Level	Description of changes	Revision Date
0	Initial Release	19-Sep-23
1	Updated tables for new use distance	05-Oct-2023
2	Updated section 1.3 & Section 2	19 October 2023