

# RF Exposure Report

**Project Number: 4507635****Proposal Number: 9154 rev2****Report Number: 4507635EMC07****Revision Level: 0****Client: Enovate Medical, LLC****Equipment Under Test: Medical Cart****Host Model Name: Encore 1.5****Host Model Number: ENC0-XXXXX****Module Models: P0000457 (External BLE), SIP007AFS00****Module FCC IDs: 2AQ9D-P0000457, A3LSIP007AFS00****Applicable Standards: 47 CFR §§ 2.1091;****FCC KDB 447498 D01 General RF Exposure Guidance v06****Report issued on: 23 December 2021****Result: Exempt from SAR evaluation**

FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER: 3212.01

This 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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*Remarks: This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.*

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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: Medical Cart  
Host Model Name: Encore 1.5  
Host Model Number: ENC0-XXXXX  
Host Serial Number: 12345678  
Module Models: P0000457 (External BLE), SIP007AFS00  
Module FCC IDs: 2AQ9D-P0000457, A3LSIP007AFS00

Frequency Ranges: 2402 – 2480 MHz (Bluetooth/BLE)  
2405 – 2475 MHz (Zigbee)  
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)

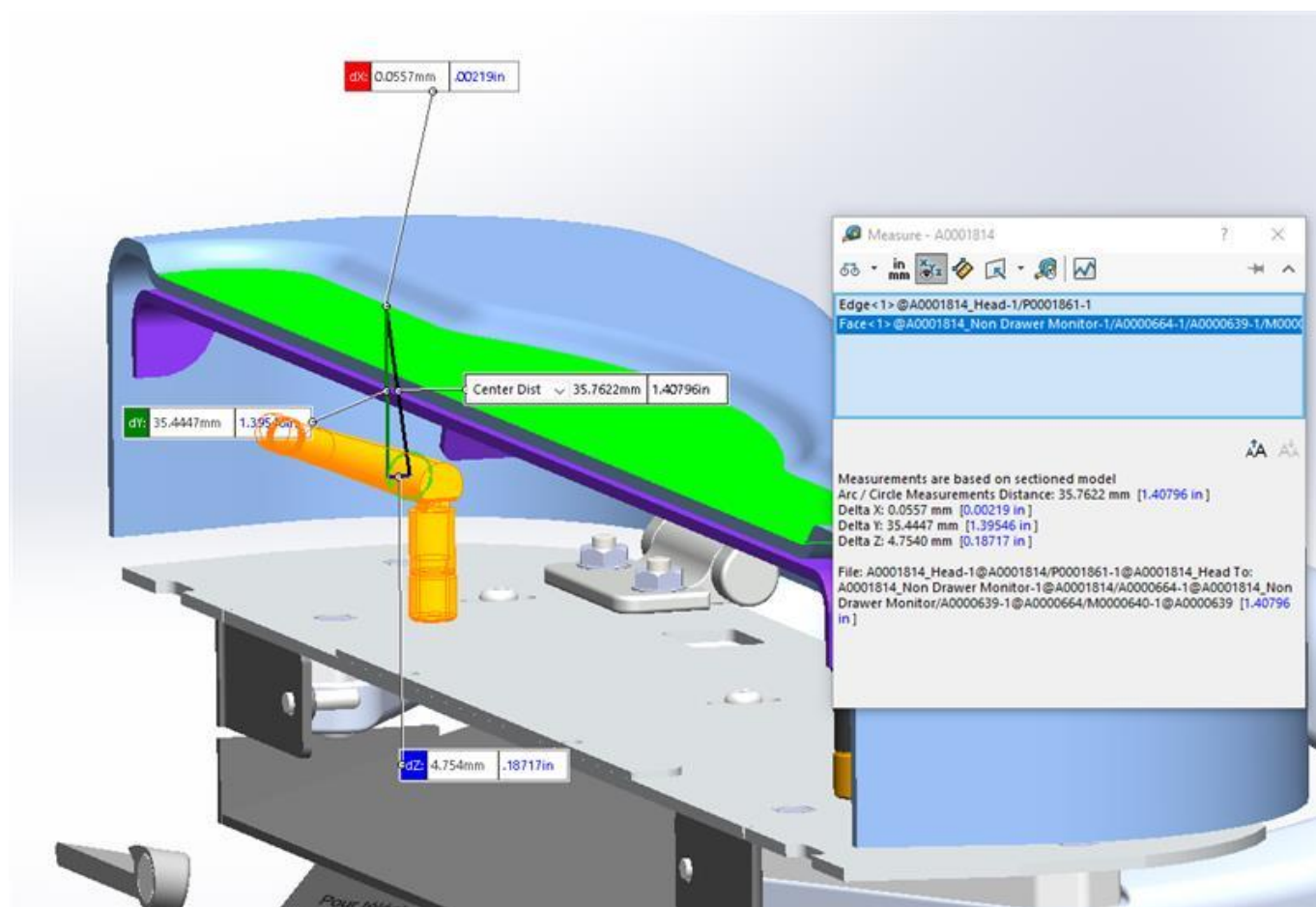
Max Conducted Output Power: External Bluetooth LE: 3.43 dBm (FCC ID: 2AQ9D-P0000457)  
All transmitters listed below are in FCC ID: A3LSIP007AFS00  
Bluetooth BDR: 6.5 dBm  
Bluetooth LE: 3.0dBm  
Zigbee: 7.0 dBm  
WLAN 2.4GHz: 16.0 dBm  
WLAN 5GHz U-NII-1: 13.0 dBm  
WLAN 5GHz U-NII-2A: 14.0 dBm  
WLAN 5GHz U-NII-2C: 12.5 dBm  
WLAN 5GHz U-NII-3: 11.5 dBm

Rated Voltage: 100-240Vac, 50-60Hz  
Test Voltage: 120Vac, 60Hz

Sample Received Date: 14 November 2019  
Dates of testing: 17-18 March 2020

## 1.4 Separation Distance

The closest exposure distance occurs when a user places his or her hand on top of the work surface directly above the antenna. As shown in the drawing below this shortest distance is just over 35mm. This is the case for the antennas for both FCC ID's.



## 2 SAR Exclusion Calculations

The highest conducted output power in each frequency band has been used to demonstrate compliance.

For the transmitters in the Samsung radio module with FCC ID: A3LSIP007AFS00, this evaluation is based on the Class II Permissive Change dated 15 November 2018 which (among other things) reduced the output power levels to support higher antenna gains.

The EUT is considered an extremity application.

### External Bluetooth LE (FCC ID: 2AQ9D-P0000457)

#### 447498 D01 General RF Exposure Guidance v06

##### 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:	3.43	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	35	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	35 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  $\leq 50$  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):	0.1	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 (FCC ID: A3LSIP007AFS00)

#### 447498 D01 General RF Exposure Guidance v06

##### 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:	6.5	dBm	
Duty Cycle:	100.0%		<== Source based time average duty cycle
Min separation distance:	35	mm	
Frequency, f:	2441	MHz	

Value reference Number	Values used for Calculation	Reference number definition
v1	4.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	35 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  $\leq 50$  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

## Bluetooth LE (FCC ID: A3LSIP007AFS00)

### 447498 D01 General RF Exposure Guidance v06

#### 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:	3	dBm
Duty Cycle:	100.0%	
Min separation distance:	35	mm
Frequency, f:	2402	MHz

<== Source based time average duty cycle

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	35 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	1.550	[f(GHz)]

- 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  $\leq 7.5$  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

## Zigbee (FCC ID: A3LSIP007AFS00)

### 447498 D01 General RF Exposure Guidance v06

#### 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:	7	dBm
Duty Cycle:	100.0%	
Min separation distance:	35	mm
Frequency, f:	2475	MHz

<== Source based time average duty cycle

Value reference Number	Values used for Calculation	Reference number definition
v1	5.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW
v2	35 mm	[min. test separation distance, mm] 'Rounded to nearest mm
v3	1.573	[f(GHz)]

- 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  $\leq 7.5$  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 (FCC ID: A3LSIP007AFS00)

### 447498 D01 General RF Exposure Guidance v06

#### 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:	16	dBm
Duty Cycle:	100.0%	<= Source based time average duty cycle
Min separation distance:	35	mm
Frequency, f:	2437	MHz

Value reference Number	Values used for Calculation	Reference number definition
v1	40.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW'
v2	35 mm	[min. test separation distance, mm] 'Rounded to nearest mm'
v3	1.561	[f(GHz)]

- 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:  

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

Exclusion Calculation(1g):	1.8	number	<= [v2 / v3] must be less than 3
Exclusion Calculation(10g):	1.8	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 (FCC ID: A3LSIP007AFS00)

### 447498 D01 General RF Exposure Guidance v06

#### 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	dBm
Duty Cycle:	100.0%	<= Source based time average duty cycle
Min separation distance:	35	mm
Frequency, f:	5180	MHz

Value reference Number	Values used for Calculation	Reference number definition
v1	20.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW'
v2	35 mm	[min. test separation distance, mm] 'Rounded to nearest mm'
v3	2.276	[f(GHz)]

- 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:  

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

Exclusion Calculation(1g):	1.3	number	<= [v2 / v3] must be less than 3
Exclusion Calculation(10g):	1.3	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 (FCC ID: A3LSIP007AFS00)

### 447498 D01 General RF Exposure Guidance v06

#### 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	dBm
Duty Cycle:	100.0%	
Min separation distance:	35	mm
Frequency, f:	5320	MHz

<== Source based time average duty cycle

Value reference Number	Values used for Calculation	Reference number definition
v1	25.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW'
v2	35 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  $\leq 50$  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  $\leq 7.5$  for 10-g extremity SAR,

Exclusion Calculation(1g):	1.6	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	1.6	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 (FCC ID: A3LSIP007AFS00)

### 447498 D01 General RF Exposure Guidance v06

#### 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:	12.5	dBm
Duty Cycle:	100.0%	
Min separation distance:	35	mm
Frequency, f:	5500	MHz

<== Source based time average duty cycle

Value reference Number	Values used for Calculation	Reference number definition
v1	18.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW'
v2	35 mm	[min. test separation distance, mm] 'Rounded to nearest mm'
v3	2.345	[f(GHz)]

- 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  $\leq 7.5$  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-3 (FCC ID: A3LSIP007AFS00)

## 447498 D01 General RF Exposure Guidance v06

### 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:	11.5	dBm
Duty Cycle:	100.0%	
Min separation distance:	35	mm
Frequency, f:	5825	MHz

<== Source based time average duty cycle

Value reference Number	Values used for Calculation	Reference number definition
v1	14.00 mW	[max. power of channel, including tune-up tolerance, mW] 'Rounded to nearest mW'
v2	35 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  $\leq 50$  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):	1.0	number	<== [v2 / v3] must be less than 3
Exclusion Calculation(10g):	1.0	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	23 December 2021