

# Neuro Medical, Inc.

## SAR Test Exclusion

# Report

### SCOPE OF WORK

SAR Test Exclusion Report of the Wireless Charger of the Altius system

### REPORT NUMBER

105246853BOX-011d.1

### ISSUE DATE

July 26, 2023

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July 24, 2024

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## SAR TEST EXCLUSION REPORT (FULL COMPLIANCE)

**Report Number:** 105246853BOX-011d.1  
**Project Number:** G105246853

**Report Issue Date:** July 26, 2023  
**Report Revision Date:** July 24, 2024

**Model(s) Tested:** Wireless Charger of the Altius system

**Model(s) Partially Tested:** None

**Model(s) Not Tested but declared equivalent by the client:** None

**Standards:** KDB 447498 D01 General RF Exposure Guidance v06

Tested by:

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Client:

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## 1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

## 2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	SAR Test Exclusion KDB 447498 D01 General RF Exposure Guidance v06	Pass
6	Revision History	--

### 3 Client Information

**This EUT was tested at the request of:**

**Client:** Neuros Medical, Inc.  
35010 Chardon Road, Suite 210  
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**Contact:** Raymond Zackowski  
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### 4 Description of Equipment Under Test and Variant Models

**Manufacturer:** Neuros Medical, Inc.  
35010 Chardon Road, Suite 210  
Willoughby, OH 44094  
USA

#### Description of Equipment Under Test (provided by client)

The Altius system is intended to treat residual limb pain and phantom pain in lower limb amputees. The Implanted system consists of an implanted IPG (Implantable Pulse Generator) and one or two cuff electrodes. The non-implantable system consists of a patient controller for activating an on demand therapy setting, a Battery charger intended for recharging the IPG, and a programmer system which consists of a programmer application software running on an off the shelf laptop, and a programmer which is used to communicate with the IPG.

#### Variant Models:

The following variant models were not tested as part of this evaluation and are not eligible for certification; but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

## 5 SAR Test Exclusion

### 5.1 SAR Test Exclusion Calculation

#### KDB 447498 D01 General RF Exposure Guidance v06 – SAR Test Exclusion Calculation

##### 4.3.1. Standalone SAR test exclusion considerations

- c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion:  
 c (2) For test separation distances  $\leq$  50 mm, the power threshold determined by the equation in c (1) for 50 mm and 100 MHz is multiplied by  $\frac{1}{2}$

$$1,595.182 \text{ mW} * 0.5 = 797.591 \text{ mW}$$

- c (1) For test separation distances  $>$  50 mm and  $<$  200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step (b) is multiplied by  $[1 + \log(100/f(\text{MHz}))]$

$$474.684 \text{ mW} * [1 + \log(100/0.436 \text{ MHz})] = 474.684 \text{ mW} * 3.361 \text{ or } 1,595.182 \text{ mW}$$

- 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:

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

$$[474.684 \text{ mW} + [50-50 \text{ mm} * (100/150)]] = 474.684 \text{ mW, at test separation distance of 50 mm at 100 MHz}$$

- 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:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR, 30 where } \bullet f(\text{GHz}) \text{ is the RF channel transmit frequency in GHz}$$

$$[\text{Threshold Power} / 50 \text{ mm}] * [\sqrt{f(0.1\text{GHz})}] \leq 3.0 \text{ for 1-g SAR,}$$

$$[\text{Threshold Power} / 50 \text{ mm}] * [0.316] = 3.0$$

$$\text{Threshold Power (mW)} = (50 \text{ mm} * 3) / 0.316$$

$$\text{Threshold Power} = 474.684 \text{ mW at 1-g SAR test exclusion threshold of 3.0, at 100 MHz}$$

The device meets the SAR Test Exclusion since the resulted EIRP of 0.06 mW from below is less than the limit of 797.59 mW.

Detector Type	Pol. (X, Y, Z)	Frequency MHz	Reading dB(uV)	Factor dB(1/m)	Loss dB	Factor dB	Factor dB	Net EIRP dB(m)	Net EIRP mW	Limit mW	Bandwidth
PK	X	0.438	83.27	0.00	0.00	0.00	0.00	-11.99	0.06	797.59	9/30kHz

#### Net EIRP Calculation:

Net EIRP (dBm) =  $E + 20 \cdot \log(d) - 104.8$ , where  $d = 3$  meters, E-field from Intertek Report #: 10524683BOX-017F on page 19.

$$\text{EIRP} = 83.27 \text{ dB}\mu\text{V/m} + 20 \cdot \log(3) - 104.8$$

$$\text{EIRP} = -11.99 \text{ dBm}$$

$$\text{EIRP} = 0.060 \text{ mW}$$

## 447498 D01 General RF Exposure Guidance v06 Appendix C For SAR Test Exclusion Thresholds

## Appendix C

*SAR Test Exclusion Thresholds for < 100 MHz and < 200 mm*

Approximate SAR test exclusion power thresholds at selected frequencies and test separation distances are illustrated in the following table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	< 50	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
100	237	474	481	487	494	501	507	514	521	527	534	541	547	554	561	567	mW
50	308	617	625	634	643	651	660	669	677	686	695	703	712	721	729	738	
10	474	948	961	975	988	1001	1015	1028	1041	1055	1068	1081	1095	1108	1121	1135	
1	711	1422	1442	1462	1482	1502	1522	1542	1562	1582	1602	1622	1642	1662	1682	1702	
0.1	948	1896	1923	1949	1976	2003	2029	2056	2083	2109	2136	2163	2189	2216	2243	2269	
0.05	1019	2039	2067	2096	2125	2153	2182	2211	2239	2268	2297	2325	2354	2383	2411	2440	
0.01	1185	2370	2403	2437	2470	2503	2537	2570	2603	2637	2670	2703	2737	2770	2803	2837	

**6 Revision History**

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	07/26/2023	105246853BOX-011d	KPS <i>KPS</i>	MFM <i>MFM</i>	Original Issue
1	07/24/2024	105246853BOX-011d.1	KPS <i>KPS</i>	VFV <i>VFV</i>	Used data from Intertek Report # 10524683BOX-017F for SAR Test Exclusion calculation