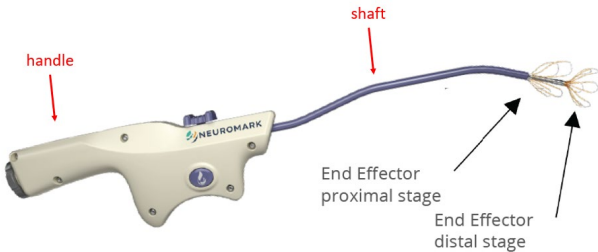
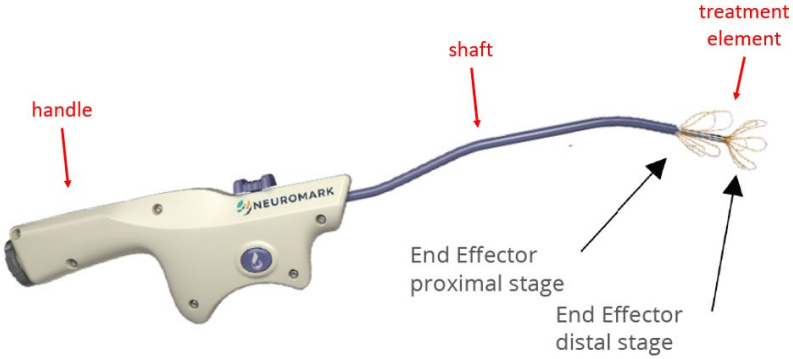


Exhibit X

EXHIBIT X—U.S. Patent No. 11,033,318**I. Claim 1**

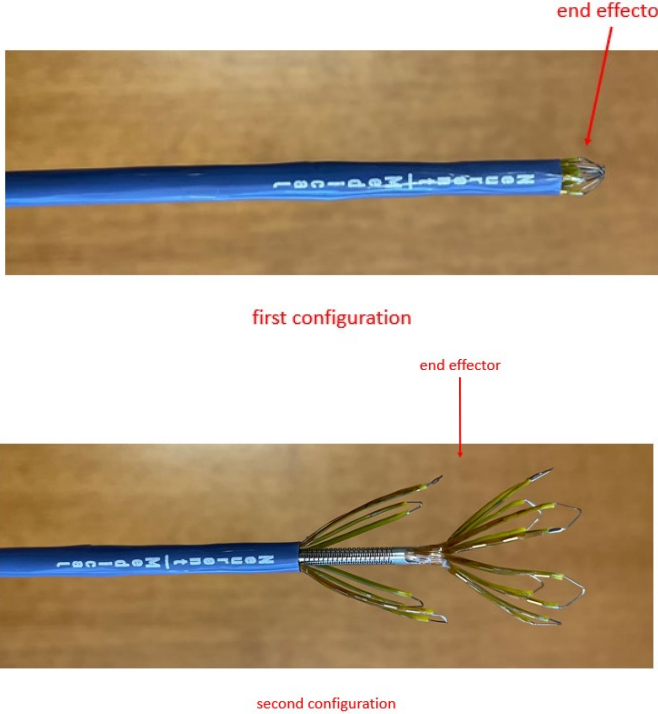
Claim 1 of the '318 Patent	Neuromark System
[1.pre] A device for delivering energy to a nasal airway to improve nasal airflow, the device comprising:	Neurent's Neuromark system includes a device for delivering energy to a nasal airway to improve nasal airflow. The Instructions for Use of the Neuromark system and Neuromark Generator describe "the use of radiofrequency energy on tissue in the nasal airway." Ex. K (Instructions for Use, NEUROMARK® System) at 3; Ex. L (NEURENT Medical, NEUROMARK Generator, Instructions for Use) at 2. Neurent's Neuromark system is indicated for use in "patients with chronic rhinitis." Ex. H (Letter from FDA dated Oct. 22, 2021, regarding 510(k)) at 3. Neurent's technical and marketing literature states that using its Neuromark system "disrupts posterior nasal nerves, resulting in disruption of the neural signals, and so addresses the inflammatory process of the nasal mucosa" and "reduce[s] the symptoms of rhinitis." Ex. Q (NEUROMARK® System Mechanism of Action) at 3-4. It further states that using its Neuromark system "may provide beneficial outcomes in patients with chronic rhinitis." Ex. Q at 4. Clinical studies funded by Neurent indicate that using the Neuromark system pursuant to the procedure led to "significant improvement" of "[r]hinorrhea, nasal congestion, nasal itching, sneezing, and postnasal drip" and that "[w]hile all symptoms improved, the greatest changes were seen in rhinorrhea, nasal congestion, and postnasal drip." Ex. S ("Clinical evaluation of a novel multipoint radiofrequency ablation device to treat chronic rhinitis," Douglas D. Reh, MD et al., Laryngoscope Investigative Otolaryngology, 8:367-372 (2023)) at 369. <i>See also</i> Ex. H at 8 (stating that clinical studies indicate an "improvement in symptoms" of chronic rhinitis using the Neurent Neuromark system).
[1.a] a handle;	Neurent's Neuromark Device includes a handle.

Claim 1 of the '318 Patent	Neuromark System
	The Neuromark Device “is a hand-held single-use bi-polar radiofrequency device which comprises a handle, shaft, and treatment tip.” Ex. H at 4; <i>see also</i> Ex. I (Letter from FDA dated Oct. 26, 2022, regarding 510(k)) at 4 (same); Ex. K at 1 (same). The Neuromark “[d]evice design comprises a handle, malleable shaft and treatment tip with bipolar electrodes, radiofrequency generator.” Ex. H at 6.  Figure 2: NEUROMARK Device Ex. Q at 3 (red annotations added).
[1.b] a shaft extending from one end of the handle;	Neurent’s Neuromark Device includes a shaft extending from one end of the handle. The Neuromark Device “is a hand-held single-use bi-polar radiofrequency device which comprises a handle, shaft, and treatment tip.” Ex. H at 4; <i>see also</i> Ex. I at 4 (same); Ex. K at 1 (same). The Neuromark “[d]evice design comprises a handle, malleable shaft and treatment tip with bipolar electrodes, radiofrequency generator.” Ex. H at 6.  Figure 2: NEUROMARK Device Ex. Q at 3 (red annotations added).

Claim 1 of the '318 Patent	Neuromark System
	“The shaft of the device is pre-shaped for optimal access and delivery to the nasal cavity but is malleable to allow the user to bend or shape the shaft to accommodate variations in anatomy to access the desired treatment area(s).” Ex. H at 5; <i>see also</i> Ex. I at 4 (“The shaft . . . is malleable to allow the user to bend or shape it to accommodate variations in anatomy to access the desired treatment area.”); Ex. K at 1 (same).
[1.c] a treatment element coupled with a distal end of the shaft, sized to be inserted into a nostril, and configured to change from a first configuration to a second configuration, wherein the treatment element comprises a tissue treatment surface;	Neurent’s Neuromark Device includes a treatment element coupled with a distal end of the shaft, sized to be inserted into a nostril, and configured to change from a first configuration to a second configuration, wherein the treatment element comprises a tissue treatment surface. The Neuromark Device “is a hand-held single-use bi-polar radiofrequency device which comprises a handle, shaft, and treatment tip.” Ex. H at 4; <i>see also</i> Ex. I at 4 (same); Ex. K at 1 (same). The Neuromark “[d]evice design comprises a handle, malleable shaft and treatment tip with bipolar electrodes, radiofrequency generator.” Ex. H at 6. The Neuromark Device has a “treatment tip, which is referred to as the End Effector.” Ex. H at 4-5; <i>see also</i> Ex. K at 1 (same). The “end effector” is located “at the device tip.” Ex. Q at 3.  Figure 2: NEUROMARK Device Ex. Q at 3 (red annotations added).

Claim 1 of the '318 Patent	Neuromark System
	The Neuromark “[d]evice [is] inserted via the nostrils.” Ex. H at 6; <i>see also</i> Ex. K at 3 (describing how the Neuromark Device is “[i]nser[t]ed . . . into the selected nares under endoscopic guidance”). NEUROMARK™ PROCEDURE Use Step Visual Examples 5. Insert the device into the selected nares under endoscopic guidance CAUTION: DO NOT use product where the product appears damaged. Neurent’s technical and marketing literature for the Neuromark Device shows that the treatment element is coupled with a distal end of the shaft and is sized to be inserted into a nostril. Figure 3: NEUROMARK Device with deployed end effector accommodating the area of the posterior nasal nerves. Ex. Q at 3 (red annotations added). The “end effector” of the Neuromark Device is configured to change from a first configuration to a second configuration by operation of a slider. “Once in the desired position within the nasal cavity, the operator moves the slider backwards which retracts the outer sheath, deploying the end effector array.” Ex. H at 5. <i>See also</i> Ex. K at 1 (“Once in the desired position within the nasal cavity, the

Claim 1 of the '318 Patent	Neuromark System
	operator moves the slider backwards which retracts the outer sheath, deploying the end effector.”); Ex. I at 4 (same). <i>See also</i> Ex. K at 3 (describing “[m]ov[ing] the slider backwards to deploy the end effector fully” and “ensur[ing] that the slider is fully pulled back to allow for full deployment of the end effector”). NEUROMARK™ PROCEDURE Use Step Visual Examples 9. Move the slider backwards to deploy the end effector fully CAUTION: Ensure that the slider is fully pulled back to allow for full deployment of the end effector Photographs of the Neuromark Device show how moving the slider backwards causes the end effector to change from a first configuration to a second configuration Labels: handle, slider, shaft, end effector

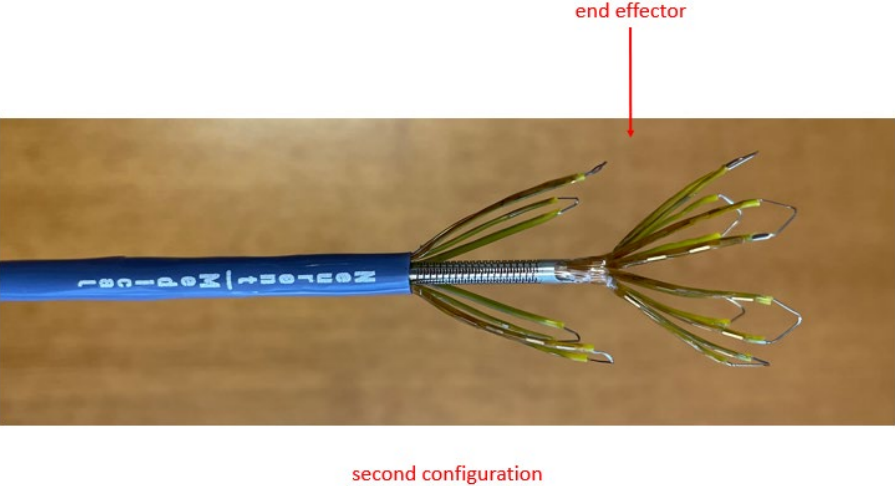
Claim 1 of the '318 Patent	Neuromark System
	 The end effector of the Neuromark Device “has a proximal stage and a distal stage” and “consists of multiple leaflets,” which comprise a tissue treatment surface. Ex. Q at 3.
[1.d] an array of multiple pairs of bipolar radiofrequency electrodes disposed along the treatment surface of the treatment element;	Neurent’s Neuromark Device includes an array of multiple pairs of bipolar radiofrequency electrodes disposed along the treatment surface of the treatment element. The Neuromark Device has a “treatment tip, which is referred to as the End Effector, [and which] consists of an array of bipolar micro electrodes,” which “deliver bipolar RF energy.” Ex. H at 4-5; <i>see also</i> Ex. K at 1 (“The treatment tip, which is referred to as the end effector, consists of an array of bipolar electrodes that deliver bipolar RF energy.”); Ex. Q at 3 (“The device is a hand-held, single-

Claim 1 of the '318 Patent	Neuromark System
	use, low-power, bipolar radiofrequency device with an electrode array (end effector) at the device tip.”); Ex. H at 6 (describing “surface contacting electrode array”). Neurent’s technical and marketing literature for the Neuromark system states that the “end effector consists of multiple leaflets, each of which contain several bipolar electrode pairs allowing for the creation of several discrete ablation sites” Ex. Q at 3. Photographs of the Neuromark Device show an array of multiple pairs of bipolar radiofrequency electrodes along the end effector.  A photograph of the Neuromark device, showing a blue handle and a fan-like array of multiple bipolar radiofrequency electrodes. The electrodes are thin, yellowish-gold wires that fan out from a central point, resembling a hand or a fan. They are set against a light brown wooden background.

Claim 1 of the '318 Patent	Neuromark System
[1.e] multiple radiofrequency output channels connected with the multiple pairs of bipolar radiofrequency electrodes, wherein each pair of the multiple pairs of bipolar radiofrequency electrodes is connected with a respective one of the multiple radiofrequency output channels; and	Neurent's Neuromark Device includes multiple radiofrequency output channels connected with the multiple pairs of bipolar radiofrequency electrodes, wherein each pair of the multiple pairs of bipolar radiofrequency electrodes is connected with a respective one of the multiple radiofrequency output channels. The Instructions for Use of the Neuromark Generator state that the Neuromark generator "supports two channels of bipolar RF power delivery which is distributed to up to 12 bipolar channels." Ex. L at 3. On information and belief, the Neuromark Device has multiple RF output channels, including at least one RF output channel per leaflet. On information and belief, each pair of bipolar radiofrequency electrodes is connected with a radiofrequency output channel.
[1.f] multiple sensors on the tissue treatment surface, wherein the multiple sensors are selected from the group consisting of impedance sensors, electrodes and thermocouples.	Neurent's Neuromark Device includes multiple sensors on the tissue treatment surface, wherein the multiple sensors are selected from the group consisting of impedance sensors, electrodes and thermocouples. The electrodes on the Neuromark Device are also bioimpedance sensors. The electrodes "deliver bipolar RF energy while monitoring feedback on the tissue bio-impedance changes allowing for controlled RF energy level delivery." Ex. H at 5; <i>see also</i> Ex. I at 4 (describing Neuromark's "array of bipolar electrodes that deliver RF energy while monitoring feedback on tissue bio-impedance changes allowing for controlled RF energy delivery"). Neurent's technical and marketing literature further explains that the Neuromark "system uses bioimpedance to monitor the state of the nasal tissue and control power delivery" and that "[t]issue bioimpedance is continuously monitored." Ex. Q at 3.

II. Claim 4

Claim 4 of the '318 Patent	Neuromark System
[4.pre] The device of claim 1,	<i>See</i> Claim 1.
[4.a] wherein the treatment element comprises multiple segments that are expandable from the first configuration to the second configuration.	Neurent's Neuromark Device includes a treatment element that comprises multiple segments that are expandable from the first configuration to the second configuration. As discussed in [1.c], the "end effector" of the Neuromark Device is configured to change from a first configuration to a second configuration by operation of a slider. <i>See</i> [1.c]. The end effector of the Neuromark Device "has a proximal stage and a distal stage" and "consists of multiple leaflets." Ex. Q at 3. "The leaflets are super elastic and spring out." Ex. K at 3. Photographs of the Neuromark Device show how the leaflets on the proximal and distal stage of the end effector to expand from the first configuration to the second configuration  first configuration

Claim 4 of the '318 Patent	Neuromark System
	 second configuration

III. Claim 5

Claim 5 of the '318 Patent	Neuromark System
[5.pre] The device of claim 4,	<i>See</i> Claims 1 and 4.
[5.a] wherein at least one pair of the multiple pairs of bipolar radiofrequency electrodes is coupled with each of the multiple segments.	In Neurent's Neuromark Device, at least one pair of the multiple pairs of bipolar radiofrequency electrodes is coupled with each of the multiple segments. As discussed in [1.d], the Neuromark Device includes multiple pairs of bipolar radiofrequency electrodes. <i>See</i> [1.d]. And as discussed in [4.a], the Neuromark Device includes multiple segments (leaflets) that are expandable from the first configuration to the second configuration. <i>See</i> [4.a].

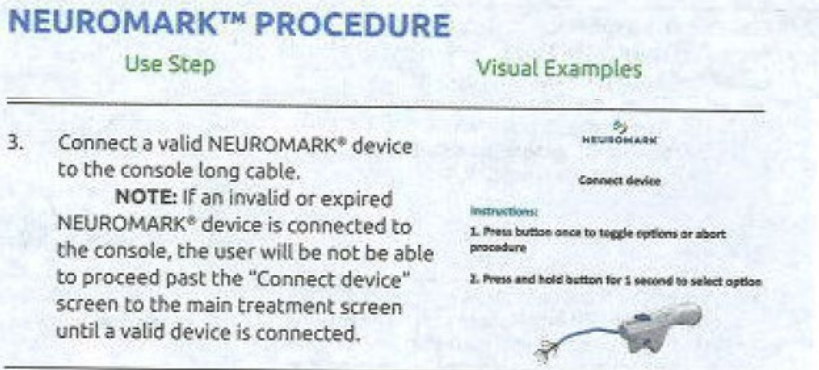
Claim 5 of the '318 Patent	Neuromark System
	Neurent's technical and marketing literature for the Neuromark system states that the "end effector consists of multiple leaflets, each of which contain several bipolar electrode pairs allowing for the creation of several discrete ablation sites." Ex. Q at 3.

IV. Claim 6

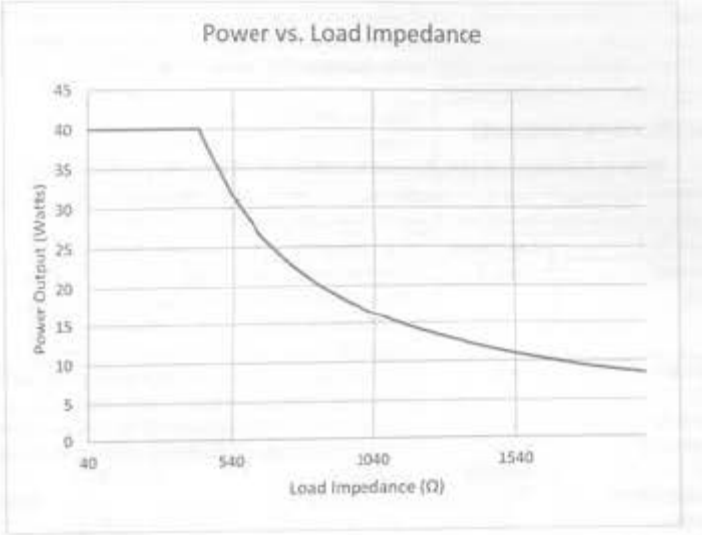
Claim 6 of the '318 Patent	Neuromark System
[6.pre] The device of claim 4,	<i>See</i> Claims 1 and 4.
[6.a] wherein the multiple segments comprise a shape-memory alloy material configured to expand to a desired size and shape.	In Neurent's Neuromark Device, the multiple segments comprise a shape-memory alloy material configured to expand to a desired size and shape. As discussed in [4.a], the Neuromark Device includes multiple segments (leaflets) that are expandable from the first configuration to the second configuration. <i>See</i> [4.a]. "The leaflets are super elastic and spring out." Ex. K at 3. Clinical studies funded by Neurent describe the leaflets as "elastic." Ex. S at 369. On information and belief, the leaflets of the Neuromark Device are made of a shape-memory alloy material. <i>See, e.g.</i>, Neurent's U.S. Patent No. 10,695,557 at 4:2-19 (stating that the "composite wires may include a shape memory alloy, such as nitinol, for example"), 7:39-42 ("The first and second sets of support elements comprise deformable composite wires and may include a shape memory material, such as nitinol."), 22:53-55 ("[I]n some embodiments, the composite wires include a shape memory material, such as nitinol."); Neurent's U.S. Patent No. 11,547,473 at 4:2-19, 7:39-42, 22:53-55.

V. Claim 9

Claim 9 of the '318 Patent	Neuromark System
[9.pre] The device of claim 1, further comprising:	<i>See</i> Claim 1.
[9.a] a radiofrequency generator configured to receive sensed signals from the multiple sensors and deliver radiofrequency energy separately to each of the multiple radiofrequency output channels in the form of a 460 KHz sinusoid wave; and	Neurent's Neuromark system includes a radiofrequency generator configured to receive sensed signals from the multiple sensors and deliver radiofrequency energy separately to each of the multiple radiofrequency output channels in the form of a 460 KHz sinusoid wave. As discussed in [1.e] and [1.f], the Neuromark Device includes multiple sensors and multiple radiofrequency output channels. <i>See</i> [1.e], [1.f]. The Neuromark system also includes a radiofrequency generator. "The NEUROMARK Generator is a bipolar radiofrequency (RF) platform intended for connection to the NEUROMARK Device to form the NEUROMARK System." Ex. L at 2. "The NEUROMARK Radiofrequency Generator delivers, monitors and controls RF energy to the device." Ex. H at 5; <i>see also</i> Ex. K at 1 ("The NEUROMARK Console delivers, monitors and controls RF energy to the Device."). The Neuromark Generator receives sensed signals from the multiple sensors and delivers radiofrequency energy separately to each of the multiple radiofrequency output channels. Neurent's technical and marketing literature for the Neuromark system states that "[t]he device is used with an algorithmically controlled Console" and "uses bioimpedance to monitor the state of the nasal tissue and control power delivery" and that "[b]y using bioimpedance control, the NEUROMARK System can adjust for local tissue conditions, altering energy delivery time depending on the detected tissue state." Ex. Q at 3. Specifically, "a baseline bioimpedance check ensures contact between the leaflets and the tissue is established. When RF treatment has started, energy delivery is sequentially directed to each leaflet on the end effector. Tissue bioimpedance is continuously monitored and energy delivery is stopped when a treatment cycle is complete (as the bioimpedance, or resistance,

Claim 9 of the '318 Patent	Neuromark System
	indicates that the state of the tissue has changed). The algorithm then directs energy to the next leaflet in the sequence until the cycle is completed.” Ex. Q at 3. The Neuromark Generator “meets the following requirements: RF operating frequency of 460 – 480 kHz (± 5 kHz); bipolar low power energy delivery and feedback control with low overshoot capabilities.” Ex. H at 5. The Instructions for Use of the Neuromark Generator says that the output of the RF generator is a frequency of “465.1 kHz $\pm 3\%$” and is a “[q]uasi-sinusoidal voltage waveform.” Ex. L at 6.
[9.b] a cable coupled to the handle for plugging the handle into the radiofrequency generator.	Neurent’s Neuromark system includes a cable coupled to the handle for plugging the handle into the radiofrequency generator. “The NEUROMARK Device is . . . designed for use with the NEUROMARK Radiofrequency Generator” and is “connected, via a flexible cable, to the NEUROMARK Radiofrequency Generator.” Ex. H at 5. The Instructions for Use of the Neuromark Generator describes an “Interface Cable for the NEUROMARK Device.” Ex. L at 3. And the Instructions for Use of the Neuromark system describes a “Neuromark procedure” that instructs users to perform several “[u]se [s]tep[s],” including “[c]onnect[ing] a valid NEUROMARK device to the console long cable.” Ex. K at 3.  The screenshot shows a document titled "NEUROMARK™ PROCEDURE". It is divided into two columns: "Use Step" and "Visual Examples". Under "Use Step", step 3 states: "Connect a valid NEUROMARK® device to the console long cable." followed by a "NOTE: If an invalid or expired NEUROMARK® device is connected to the console, the user will be not be able to proceed past the 'Connect device' screen to the main treatment screen until a valid device is connected." Under "Visual Examples", there is a diagram of a device connected to a console, with the text "Connect device" above it. Below the diagram, "Instructions:" are listed: "1. Press button once to toggle options or abort procedure" and "2. Press and hold button for 1 second to select option".

VI. Claim 10

Claim 10 of the '318 Patent	Neuromark System
[10.pre] The device of claim 9,	<i>See</i> Claims 1 and 9.
[10.a] wherein the radiofrequency generator is configured to run at a power of between 5 and 75 watts.	Neurent's Neuromark system includes a radiofrequency generator configured to run at a power of between 5 and 75 watts. As discussed in [9.a], the Neuromark Device includes a radiofrequency generator. <i>See</i> [9.a]. The Neuromark RF Generator has a maximum power or "shutdown limit" at 40 watts. Ex. L at 7. The Instructions for Use of the Neuromark Generator shows a "Power vs. Load Impedance chart," which also reflects a maximum power output of 40 watts. Ex. L at 7.  On information and belief, then, the Neuromark RF Generator runs at a power of between 5 and 40 watts.

VII. Claim 12

Claim 12 of the '318 Patent	Neuromark System
[12.pre] The device of claim 1,	<i>See</i> Claim 1.
[12.a] wherein the radiofrequency electrodes comprise non-penetrating electrodes.	Neurent's Neuromark Device includes radiofrequency electrodes that comprise non-penetrating electrodes. As discussed in [1.d], the Neuromark Device includes radiofrequency electrodes along the treatment surface of the treatment element. <i>See</i> [1.d]. These electrodes contact, but do not penetrate, the mucosal tissue. Neurent's technical and marketing literature describes using the Neuromark system in a "minimally invasive" procedure. Ex. Q at 4. Neurent's literature does not describe the electrodes penetrating the mucosal tissue. And none of the "[u]se [s]tep[s]" described in the Instructions for Use include penetrating the mucosal tissue. Ex. K at 3-4.

VIII. Claim 13

Claim 13 of the '318 Patent	Neuromark System
[13.pre] The device of claim 1,	<i>See</i> Claim 1.
[13.a] wherein the multiple pairs of bipolar radiofrequency electrodes, the multiple radiofrequency output channels and the multiple sensors are organized into multiple subsystems, and	In Neurent's Neuromark Device, the multiple pairs of bipolar radiofrequency electrodes, the multiple radiofrequency output channels and the multiple sensors are organized into multiple subsystems, wherein each of the multiple subsystems comprises one of the multiple pairs of bipolar radiofrequency electrodes, one of the multiple radiofrequency output channels and one of the multiple sensors. As discussed in [1.d], the Neuromark Device includes multiple pairs of bipolar radiofrequency electrodes. <i>See</i> [1.d]. As discussed in [1.e], the Neuromark Device also includes multiple radiofrequency output channels connected with the multiple pairs of bipolar radiofrequency

Claim 13 of the '318 Patent	Neuromark System
wherein each of the multiple subsystems comprises one of the multiple pairs of bipolar radiofrequency electrodes, one of the multiple radiofrequency output channels and one of the multiple sensors.	electrodes, wherein each pair of the multiple pairs of bipolar radiofrequency electrodes is connected with a respective one of the multiple radiofrequency output channels. <i>See</i> [1.e]. And as discussed in [1.f], the Neuromark Device also includes multiple sensors. <i>See</i> [1.f]. On information and belief, the Neuromark Device has multiple RF output channels, including at least one RF output channel per leaflet. On information and belief, each RF output channel is connected with at least one of the multiple pairs of bipolar RF electrodes and at least one of the multiple sensors in a subsystem.

IX. Claim 15

Claim 15 of the '318 Patent	Neuromark System
[15.pre] The device of claim 1,	<i>See</i> Claim 1.
[15.a] wherein the multiple pairs of bipolar radiofrequency electrodes comprise two rows of electrodes.	In Neurent's Neuromark Device, the multiple pairs of bipolar radiofrequency electrodes comprise two rows of electrodes. As discussed in [1.d], the Neuromark Device includes multiple pairs of bipolar radiofrequency electrodes. <i>See</i> [1.d]. Photographs of the Neuromark Device show multiple pairs of bipolar radiofrequency electrodes in two rows.

Claim 15 of the '318 Patent	Neuromark System
	

X. Claim 16

Claim 16 of the '318 Patent	Neuromark System
[16.pre] The device of claim 1,	<i>See</i> Claim 1.
[16.a] wherein each of the multiple sensors is coupled	In Neurent's Neuromark Device, each of the multiple sensors is coupled with a respective one of the multiple radiofrequency output channels.

Claim 16 of the '318 Patent	Neuromark System
with a respective one of the multiple radiofrequency output channels.	As discussed in [1.e], the Neuromark Device includes multiple radiofrequency output channels connected with the multiple pairs of bipolar radiofrequency electrodes, wherein each pair of the multiple pairs of bipolar radiofrequency electrodes is connected with a respective one of the multiple radiofrequency output channels. <i>See</i> [1.e]. And as discussed in [1.f], the electrodes, which monitor bioimpedance, are the multiple sensors. <i>See</i> [1.f]. Thus, each of the multiple sensors is coupled to one of the multiple radiofrequency output channels.