

**UNITED STATES INTERNATIONAL TRADE COMMISSION**

**Washington, D.C.**

**In the Matter of**

**CERTAIN VAPORIZER DEVICES,  
CARTRIDGES USED THEREWITH, AND  
COMPONENTS THEREOF**

**Inv. No. 337-TA-1372**

**ORDER NO. 36: CONSTRUING DISPUTED CLAIM TERMS**

(April 5, 2024)

**I. BACKGROUND**

The Commission instituted this investigation to determine whether certain vaporizer devices, cartridges used therewith, and components thereof infringe certain claims of U.S. Patent No. 11,497,864 and U.S. Patent No. 10,334,881. 88 Fed. Reg. 66050 (Sept. 26, 2023). The complainant is NJOY, LLC. The respondent is JUUL Labs, Inc. The Commission Investigative Staff is a party to the investigation.

The parties filed a joint claim construction chart and claim construction briefs, after which a claim construction hearing was held. Joint Chart (EDIS Doc. ID 810346); NJOY Br. (EDIS Doc. ID 810485); JLI Br. (EDIS Doc. ID 810484); Staff Br. (EDIS Doc. ID 811140); NJOY Reply (EDIS Doc. ID 811511); JLI Reply (EDIS Doc. ID 811375); and Tr. (EDIS Doc. ID 811746). The parties filed a revised joint chart after the hearing. Revised Joint Chart (EDIS Doc. ID 812427).

During the claim construction hearing, I requested additional briefing regarding the claim term, “heating element,” which the parties filed. NJOY Supp. (EDIS Doc. ID 812388); JLI Supp. (EDIS Doc. ID 812386); Staff Supp. (EDIS Doc. ID 812827); NJOY Supp. Reply (EDIS Doc. ID 813390); and JLI Supp. Reply (EDIS Doc. ID 813369). This order addresses the claim

**NJOY Exhibit 2009.001  
Juul v. NJOY  
IPR2024-00161**

construction issues raised by the parties.

## II. RELEVANT LAW

It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). “[T]here is no magic formula or catechism for conducting claim construction.” *Id.* at 1324. Instead, weight may be attached to appropriate sources “in light of the statutes and policies that inform patent law.” *Id.*

The terms of a claim are generally given their ordinary and customary meaning which is the meaning that the term would have to one of skill in the art at the time of the invention. *Id.* at 1312–13. The ordinary meaning of a claim term is its meaning to one of skill in the art after reading the entire patent. *Id.* at 1321. The patent specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

A court “should also consider the patent’s prosecution history, if it is in evidence.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996). The prosecution history, which is intrinsic evidence, is “the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.” *Phillips*, 415 F.3d at 1317. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.* “[B]ecause the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.*

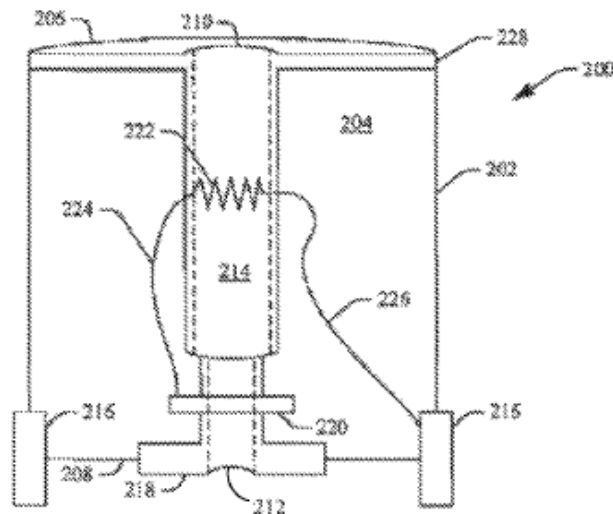
In some situations, a “court will need to look beyond the patent’s intrinsic evidence and to

consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015). Extrinsic evidence is “all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980. While expert testimony can be useful “to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art,” such testimony is “generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” *Phillips*, 415 F.3d at 1318–19. Further, while extrinsic evidence may be useful, it is less reliable than intrinsic evidence, and its consideration “is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Id.* Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999), *citing Vitronics*, 90 F.3d at 1583.

### **III. THE ’881 AND ’864 PATENTS**

The ’881 and the ’864 patents both claim priority to an application filed on July 27, 2010, and provisional applications filed on July 27, 2009, July 31, 2009, and August 25, 2011. ’881 patent, at cover; and ’864 patent, at cover. The ’881 and the ’864 patents share the same specification.

Both patents are titled “Electronic Vaporizer” and relate to “electronic vaporizers, and more particularly . . . to cartridges that comprise heating elements configured to vaporize a solution.” ’881 patent at 1:39–41. One embodiment includes a cartridge 200 comprising a heating element 222, as shown below:



'881 patent at Fig. 2.

According to the '881 patent, a circuit is closed when a user draws a breath by way of airflow passageway 214, thereby providing current to the heating element 222. *Id.* at 6:51–54. The heating element 222 in turn vaporizes a solution held in absorbent material 204 and the resulting vapor is received by the user. *Id.* at 6:54–56.

#### IV. LEVEL OF ORDINARY SKILL IN THE ART

JLI contends that one of ordinary skill in the art “would have had a B.S. in mechanical engineering, electrical engineering, or an equivalent degree, and either at least two years of experience with relevant electro-mechanical technologies or an advanced degree in mechanical engineering, electrical engineering, or an equivalent field, and at least one year of similar experience.” JLI Br. at 1, n.2. NJOY’s expert, Dr. Vallee, applied this level of skill and NJOY agreed with it. CMX-0003 (Vallee Decl.) at ¶ 9; and Tr. at 75:21–76:5. The Staff agrees with JLI’s proposal. Tr. at 46:23–47:15. For purposes of claim construction, I adopt JLI’s proposed level of skill in the art.

#### V. AGREED CONSTRUCTIONS

The parties agree on the following constructions:

| Claim Term and Asserted Claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Agreed Construction                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>an airflow passageway that extends centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing, wherein the airflow passageway is configured to allow an airflow through the cartridge from the first aperture to the second aperture of the housing</p> <p>'881 patent, claim 1</p> <p>an airflow passageway in the interior of the housing extending centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing, the airflow passageway being configured to allow an airflow through the cartridge from the first aperture to the second aperture of the housing</p> <p>'881 patent, claim 8</p> <p>an airflow passageway in the interior of the housing, the airflow passageway having a length extending centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing, the airflow passageway being configured to allow an airflow through the cartridge from the first aperture to the second aperture of the housing</p> <p>'881 patent, claim 16</p> | <p>The airflow passageway extends in a straight path through the center of the housing from a first opening on the first end to a second opening on the opposite end of the housing</p> |
| <p>electrically conductive portion</p> <p>'881 patent, claims 1, 8, 16</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>a portion that is electrically conductive</p>                                                                                                                                        |

Revised Joint Chart at 8–10.

For purposes of this investigation, the agreed constructions are adopted.

## VI. CONSTRUCTION OF DISPUTED CLAIM TERMS

The disputed constructions are addressed below.

### A. Proximate

The parties propose:

| Claim Term and Patent Claims                                         | NJOY's Construction                                                                                                                                                                                                        | JLI's Construction | Staff's Construction                                                                                                                             |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Proximate<br><br>'864 patent, claims 1, 5, 9, 21, 25, 29, 38, and 45 | Plain meaning, <i>e.g.</i> , at or close to, and in the context of the 864 patent, proximate is used to indicate a relative position of the apertures, portions of the airflow path, and the ends, not a precise distance. | Indefinite.        | At this time, this term appears to the Staff to be indefinite under 35 U.S.C. § 112. Any forthcoming expert discovery may provide more guidance. |

Revised Joint Chart at 1.

JLI argues that “the term ‘proximate’ is indefinite because it is a term of degree for which the patent provides absolutely no objective standard by which to determine whether something is ‘proximate’ enough to meet the claims.” JLI Br. at 7. According to JLI, “[p]roximate’ means ‘very close’ or ‘near,’ but [the ’864 patent] provides no objective way to determine the degree to which something must be close or near to qualify as the claimed ‘proximate.’” *Id.* at 9. The Staff agrees that the term renders the claims indefinite. Staff Br. at 18–21. NJOY contends that the plain meaning of “proximate,” “at, near, or close to” should govern and that the term does not render the claims in which it appears indefinite. NJOY Br. at 7.

Patents are presumed valid and a party asserting invalidity must prove invalidity by clear and convincing evidence. *See* 35 U.S.C. § 282; *Spanston, Inc. v. Int’l Trade Comm’n*, 629 F.3d 1331, 1344 (Fed. Cir. 2010). “A patent is invalid for indefiniteness if its claims, read in light of

the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Certain Bio-Layer Interferometers and Components Thereof*, Inv. No. 337-TA-1344, Comm’n Op. at 11 (Aug. 24, 2023) (EDIS Doc. ID 803150), *quoting Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). As the Supreme Court noted in *Nautilus*, language has “inherent limitations.” 572 U.S. at 909. The “reasonable certainty” standard exists to strike a “delicate balance,” “afford[ing] clear notice of what is claimed,” while recognizing those inherent limitations. *Id.*, *quoting Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 731 (2002). The definiteness requirement thus “mandates clarity, while recognizing that absolute precision is unattainable.” *Nautilus*, 572 U.S. at 910. Thus, “a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1384 (Fed. Cir. 2005).

Each of independent claims 1, 5, 9, 21, 25, 29, 38, and 45 of the ’864 patent recites the term “proximate.” The term is used in two different contexts. First, each of claims 1, 5, 9, 21, 25, 29, 38, and 45 recite a housing adapted to hold a solution, the housing having first and second ends, and “the housing having a first aperture proximate the first end and a second aperture proximate the second end.” Claims 9 and 29 additionally recite that the first and second apertures are in communication with one another to permit an airflow through the housing:

wherein the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing.

Each of the independent claims of the ’864 patent thus recite that the first end of the housing is proximate a first aperture and the second end of the housing is proximate a second aperture. In

addition, claims 9 and 29 recite a first portion of airflow path proximate the first aperture and a second portion of airflow path proximate the second aperture. The claims thus use the word “proximate” to identify the location of the first and second apertures relative to the respective first and second ends of the housing and to identify the location of portions of the airflow path relative to those apertures.

When the ’864 patent claims use the term “proximate,” they do so with respect to two reference points. Each of claims 1, 5, 9, 21, 25, 29, 38, and 45 recites the phrase: “the housing having a first aperture proximate the first end and a second aperture proximate the second end.” In this context, it is clear that the relative positions of the first and second apertures are recited with respect to the respective first and second ends. This provides significant guidance to one of ordinary skill in the art, because each claim requires certain fixed points, namely the first and second ends of the housing. One of ordinary skill in the art would readily identify the aperture nearer to the first end as the first aperture, and the aperture nearer to the second end as the second aperture. Claims 9 and 29 recite limitations defining first and second portions of the airflow path relative to the first and second apertures. For the same reason, one of ordinary skill in the art would understand “proximate” with respect to the first and second portions of the airflow path.

The specification supports this interpretation, disclosing a housing in which the “first end 206 comprises a first aperture 210” and “the second end 208 comprises a second aperture 212.” JMX-0002 at 6:12–13. Figure 2, in turn, illustrates that the first aperture 210 is located at the first end 206, while the second aperture 212 is located near (but not at) the second end 208. The specification thus supports the relative positioning of the first and second apertures as respectively proximate the first and second ends of the housing. One of skill in the art would likewise understand the relative positioning of the first portion of the airflow path and the second portion

of the airflow path.

The specification uses the term “proximate” in different contexts than used in claims 1, 5, 9, 21, 25, 29, 38, and 45 of the ’864 patent. In particular, the specification discloses that “[t]he cartridge also comprises a solution that is positioned proximate to the heating element” and that a “light emitting diode (LED) 116 is positioned proximate to the first end 108 of the housing 106.” ’864 patent at 1:51–52 and 3:39–40. The specification also discloses that an “airflow passageway 134 extends between the first aperture 130 and the second aperture 132 axially proximate to the center of the housing 120.” *Id.* at 4:35–37. In addressing the embodiment shown in Fig. 2, the specification states that “it is readily recognized that airflow may pass directly over the heating element, through a chamber that is proximate to the heating element, or other suitable configuration.” *Id.* at 7:19–21. With respect to the embodiment shown in Fig. 4, the specification states that “[t]he heating element 126 can be positioned proximate to the second end 310 [sic, 410] of the first cartridge 402, and thus proximate to the solution 128 in the second cartridge 404.” *Id.* at 8:45–48. Though the word “proximate” is used in contexts other than those claimed, the specification uses the word to indicate that items are at, near, or close to each other, as is shown in Fig. 2 with respect to the locations of the apertures with respect to the ends of the housing.

Claim language using terms of degree is not indefinite when it provides sufficient certainty to one of skill in the art when read in the context of the invention. *See, e.g., Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1335 (Fed. Cir. 2010) (holding that the claim phrase “not interfering substantially” was not indefinite even though the construction “define[d] the term without reference to a precise numerical measurement”). As the Supreme Court recognized in *Nautilus*, “absolute precision” in claim language is “unattainable.” 572 U.S. at 910.

I agree with NJOY that the reasoning of the district court in *Globus Medical Products, LLC*

*v. Depuy Synthes Products, LLC*, No. 13-cv-854, 2015 WL 4886050 at \*10 (D. Del. Aug. 14, 2015) supports that use of the word “proximate” in the ’864 patent claims does not render them indefinite. NJOY Br. at 9. In *Globus*, the claim recited “[t]he implant of claim 14, wherein the first screw hole is located proximate a first lateral end of the anterior surface of the plate and the second screw hole is located proximate a second lateral end of the anterior surface of the plate.” 2015 WL 4886050 at \*9. The court concluded that the term “proximate” was not used to indicate a precise distance but a relative position of the screw holes and the lateral ends. *Id.* Likewise here, in the context of the ’864 patent, the term “proximate” is not used to indicate a precise distance, but rather, relative positions of the apertures with respect to the ends of the housing and relative positions of the airflow portions with respect to the apertures.

The court in *Globus* noted that the patentee had recognized that the relative positioning meant that “each of the screw holes [has] to be located closer to their respective claimed surfaces than the distance in which these screw holes are located from the opposing surfaces recited in each claim.” *Id.* at \*10. Likewise here, the first aperture must be closer to the first end than the second end and the second aperture must be closer to the second end than the first end. And in claims 9 and 29, the first portion of the airflow path must be closer to the first aperture than the second aperture and the second portion of the airflow path must be closer to the second aperture than the first aperture.

JLI cites *Geoscope Techs. Pte. Ltd. v. Google LLC*, No. 1:22-cv-01331, 2023 WL 4627433 at \*11–12 (E.D. Va. July 19, 2023) as supporting “find[ing] ‘proximate’ and similar terms of degree indefinite because [] the intrinsic evidence does not provide any objective boundary by which a POSA would understand the term or any specific guidance about what ‘[proximate]’ might mean.” JLI Reply at 9–10 (internal quotations omitted); *see also* JLI Br. at 10. The invention in

*Geoscope Techs.*, related to improving calibration data used for mobile device geolocation. *Id.* at \*12. In finding that use of the term “in proximity” rendered the claim indefinite, the court distinguished *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275 (Fed. Cir. 2017), explaining that there the term “near” in the context of the invention in *Mentor Graphics* was with respect to a display screen while in the context of the asserted patent “in proximity” “could be anything from one foot to one mile away from the first geographic location” and “the specification and prosecution history lack any particularized guidance about what ‘in proximity’ means in the context of the invention.” As a result, one of skill “would have no way of knowing whether both, only one, or neither of those distances would fall outside the scope of the element.” *Id.* at \*12.

Here, there is no issue that “proximate” may mean “one foot” or “one mile.” Instead, in the context of a vaporizer housing (similar to the context of the invention in *Mentor Graphics*), one of skill would understand whether a first aperture was proximate a first housing end and a second aperture was proximate a second housing end and would understand whether a first airflow portion was proximate a first aperture and a second airflow portion was proximate a second aperture. Those distances are relative and within a confined space.<sup>1</sup> One of ordinary skill in the art would thus readily understand whether the first and second apertures are proximate the first and second ends in the context of a vaporizer device.

JLI also cites *In re Neurografix* ('360) *Patent Litigation* as supporting that use of the word “proximate” renders the claims indefinite. JLI Reply at 10, citing 201 F. Supp. 3d 206, 222–23 (D. Mass. 2016). In *Neurografix*, the invention was used in the context of MRI imaging and “near said

---

<sup>1</sup> The Staff contends that in arguing that “proximate” means “at or close to” and that indicates relative positioning, NJOY has proposed two constructions, supporting that the use of the term “proximate” renders the claims indefinite. Staff Br. at 19. I disagree. Use of “proximate” in the claims indicates relative positioning and the specification supports that proximate means at, near, or close to. There is no inconsistency.

exciting and output arrangement means” was found indefinite when “nothing in the patent explains which of the potentially many possible configurations would achieve the stated goals of the invention (as opposed to taking generic MRI images).” *Id.* at 223. The court contrasted the claim from that in *Nautilus* where the Federal Circuit found “that the scope of the claim term ‘spaced relationship,’ while not explicitly defined, could be ‘neither infinitesimally small or greater than the width of a user’s hands,’ and was therefore sufficiently certain as to be definite.” *Id.* at 222, quoting 783 F.3d 1374, 1378 (Fed. Cir. 2015).

The situation here, in which there first and second apertures are proximate respective first and second ends (and first and second portions of airflow path are proximate respective first and second apertures), more closely resembles that of *Nautilus* because one of ordinary skill in the art would understand the scope of “proximate” against the backdrop of a vaporizer housing having a first end and a second end, with an aperture proximate to each of those ends and with a first portion of airflow path proximate the first aperture and a second portion of airflow path proximate the second aperture (in claims 9 and 29). While proximate is not explicitly defined by a numerical measurement, one of skill in the art would understand that “proximate” indicates relative positioning in the confined context of a vaporizer housing. The other cases JLI cites, *Abdou v. Alphatec Spine, Inc.*, No. 12-cv-1804, 2014 WL 6611422 (S.D. Cal. Nov. 19, 2014) and *Advanced Aerospace Techs., Inc. v. United States*, 124 Fed. Cl. 282, 290–92 (Fed. Cl. 2015), are similarly unpersuasive. See JLI Reply at 10.

Neither JLI nor the Staff has presented clear and convincing evidence that the term “proximate” in claims 1, 5, 9, 21, 25, 38, or 45 of the ’864 patent renders those claims indefinite. Based on the parties’ briefs, the arguments at the hearing, and the evidence, the term “proximate” is construed as meaning at, near, or close to, which in the context of the ’864 patent claims

identifies relative positioning.

**B. Transversely**

The parties propose:

| <b>Claim Term and Patent Claims</b>                                                                              | <b>NJOY's Construction</b>             | <b>JLI's Construction</b> | <b>Staff's Construction</b>                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transversely<br><br>'881 patent claims 1, 8, and 16.<br><br>'864 patent, claims 1, 5, 9, 21, 25, 29, 38, and 45. | Plain meaning, <i>e.g.</i> , crosswise | Indefinite.               | If construction is required, then the Staff proposes that this term should be construed consistent with its plain and ordinary meaning, <i>e.g.</i> , crosswise. Thus, this term does not appear to the Staff to be indefinite under 35 U.S.C. § 112. |

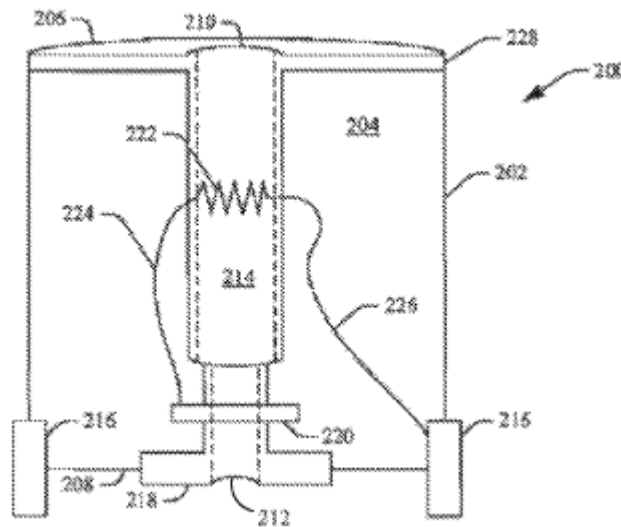
Revised Joint Chart at 1.

Claim 1 of the '881 patent recites that “the housing includes a heating element located in the interior of the housing, wherein the heating element extends transversely across the airflow passageway.” Claim 8 is similar, reciting “a heating element located in the interior of the housing, the heating element being located within and extending transversely across the airflow passageway.” Claim 16 is also similar, reciting “a heating element located in the interior of the housing and extending transversely across the airflow passageway.” Though using slightly different language, each of claims 1, 8, and 16 recites a heating element in the interior of the housing, which extends “transversely across” the airflow passageway.

Claims 1, 5, 9, 38, and 45 of the '864 patent claims recite: “a heating element located in the interior of the housing, the heating element extending transversely to a central longitudinal axis of the housing and being at least partially exposed to the airflow.” Claims 21, 25, 29 of the '864 patent recite: “a heating element located in the interior of the housing, the heating element

including a coil extending transversely to the central longitudinal axis of the housing and transversely to a direction of the airflow.” Though using slightly different language, each of claims 1, 5, 9, 21, 25, 29, 38, and 45 recite a heating element in the interior of the housing “extending transversely to the central longitudinal axis of the housing.” Claims 1, 5, 9, 38, and 45 also recite that the “heating element” is at least partially exposed to the airflow. Claims 21, 25, and 29 add that the heating element extends “transversely to a direction of the airflow.”

The specification does not use the word “transversely.” Figure 2, however, shows heating element 222 and airflow passageway 214, among other things, in an exemplary embodiment:



’881 patent at Fig. 2. NJOY contends that “Figure 2 clearly illustrates the heating element extending transversely across the airflow passageway such that it need not be described in the text.” NJOY Reply at 4–5, n.3. JLI does not address this argument head-on, instead noting that because the specification states that “[w]hile the heating element 222 is shown as residing solely in the airflow passageway 214, it is to be understood that various other configurations of the heating element 222 with respect to the airflow passageway are contemplated and are intended to fall under the scope of the hereto-appended claims,” and that “the claims are not limited to any

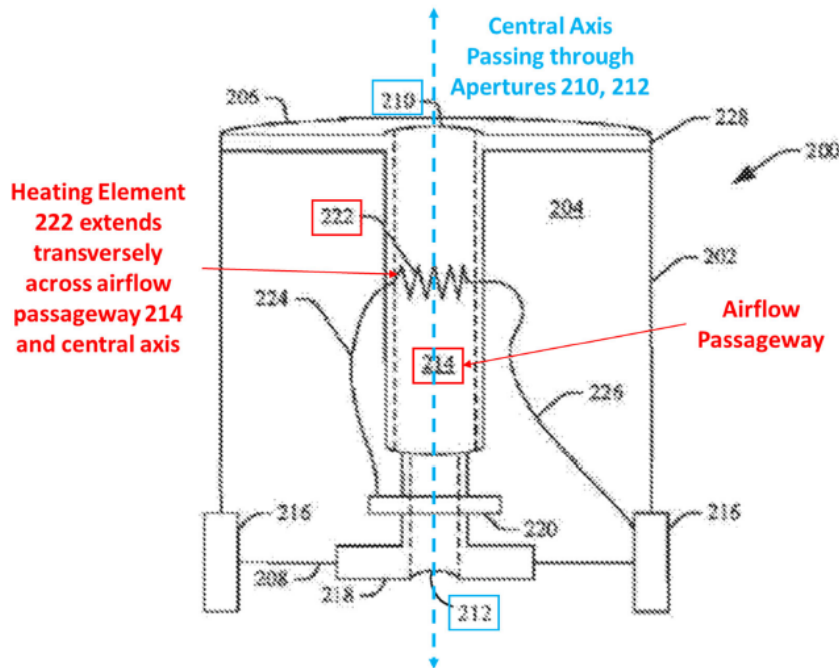
particular orientation of the heating element.” JLI Br. at 13.

JLI argues that the term “transversely” renders the identified claims indefinite because none of the ordinary definitions of “transversely” are consistent with the intrinsic evidence, and the specification does not otherwise use or define the term. JLI Br. at 12–13. According to JLI, construing “transversely” as “crosswise” “would be inconsistent with the claims, which already separately require that the heating element be across the passageway, *i.e.*, that it ‘extends transversely across the airflow passageway.’” *Id.* (emphasis omitted). JLI argues that this is a “fatal defect.” JLI Reply at 11.

Because the claims of the ’864 patent do not recite “transversely across,” they do not separately require that the heating element be across the passageway, as JLI argues. The “fatal defect” that JLI identifies is therefore not present in claims 1, 5, 9, 21, 25, 29, 38, and 45 of the ’864 patent.

As to claims 1, 8, and 16 of the ’881 patent, which do recite “transversely across,” I disagree that this is a “fatal defect.” JLI recognizes that the heating element can be situated in various configurations. JLI Br. at 13. The heating element, therefore, could extend across the airflow passageway in, for example, a V-shape or it could extend across the airflow passageway radially. In neither of those configurations would the heating element be transverse to the airflow passageway because the heating element would not be crosswise to the airflow passageway. As a result, I disagree that “transversely” and “across” are necessarily redundant, as JLI argues.

In the embodiment shown in Fig. 2, the heating element extends across the airflow passageway and is transverse to the airflow passageway, which is described as beginning at the first aperture 210 and extending to the second aperture approximately along the central axis of the cartridge 200. ’881 patent at 6:19–22. This is depicted in the annotated version of Fig. 2, below:



Staff Br. at 24; and CMX-0003 (Vallee Decl.) at ¶ 25.

This configuration is recited in claims 1, 8, and 16 of the '881 patent in which “transversely” modifies how the heating element extends across the airflow passageway, that is, crosswise to it, as opposed to, for example, in a V-shape or radially.<sup>2</sup>

JLI also objects to NJOY’s second “possible definition” of “at a right angle to,” as inconsistent with the intrinsic evidence because the heating element is not disclosed in this orientation, and the specification explicitly discloses that the heating element is not limited to a particular orientation. *Id.* at 13.<sup>3</sup> While the specification is clear that the heating element can be

<sup>2</sup> To the extent the words “transversely” and “across” are redundant, the law is clear that such redundancy, when supported by the intrinsic evidence, is not a fatal claim defect. *VLSI Tech. LLC v. Intel Corp.*, 53 F.4th 646, 653 (Fed. Cir. 2022) (intrinsic evidence may make clear that a redundant construction is correct); *see* NJOY Reply at 6.

<sup>3</sup> JLI also argues that NJOY’s expert changed his opinion when he testified that “transversely” should be construed as “substantially perpendicular.” JLI Reply at 12–13. JLI does not explain how “at a right angle to” and “perpendicular to” are inconsistent. They are not. I disagree that NJOY raised a new construction.

situated in various orientations, Fig. 2 and the specification plainly and unambiguously disclose heating 222 element at a right angle to the airflow (which extends from one end to the other of the airflow passageway 214) and at a right angle to a central axis of the cartridge 200. '881 patent at 6:10–47 and Fig. 2.

JLI also cites to pending prosecution of a related application in arguing that “transversely” is indefinite. JLI Reply at 13, *citing* RMX-0009; *see also* RMDX-68 and 69. The Federal Circuit in *Phillips* noted that “because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” 415 F.3d at 1317. Because the pending prosecution JLI relies on is unfinished, the final product of that negotiation is not yet known. In addition, it appears that the claims in the pending application have different language and the Examiner agreed that the “drawings show a heating element generally transversely mounted with respect to the longitudinal axis.” *See* RMX-0009 and RMDX-68 and 69. For these reasons, I conclude that the unfinished prosecution of a related application does not inform the meaning of the claim term “transversely.”

Based on the parties’ briefing, the arguments at the hearing, and the evidence, JLI has not presented clear and convincing evidence that use of the term “transversely” in claims 1, 8, and 16 of the '881 patent and claims 1, 5, 9, 21, 25, 29, 38, and 45 of the '864 patent renders those claims indefinite. The term “transversely” is construed to have its plain and ordinary meaning, that is, crosswise.

### **C. Both Transverse Sides of the [Heating] Element**

The parties propose:

| Claim Term and Patent Claims                                                                                                                | NJOY's Construction                                                                                                 | JLI's Construction | Staff's Construction                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| both transverse sides of the [heating] element<br><br>'881 patent claims 1, 8, and 16<br><br>'864 patent, claims 11, 21, 25, 29, 38, and 45 | Plain meaning, <i>e.g.</i> , sides of the [heating] element that extend transversely and over which airflow passes. | Indefinite         | If construction is required, then the Staff proposes that these phrases should be construed consistent with its plain and ordinary meaning, which is the claim language itself. <i>See also</i> "transversely" above. Thus, these phrases do not appear to the Staff to be indefinite under 35 U.S.C. § 112. |

Revised Joint Chart at 1.

As noted with respect to the claim term "transversely," claims 1, 8, and 16 of the '881 patent recite that the heating element extends "transversely across the airflow passageway." As also noted, each of claims 9, 21, 25, 29, 38, and 45 of the '864 patent recite a heating element in the interior of the housing "extending transversely to the central longitudinal axis of the housing." Claims 1, 5, 9, 38, and 45 add that the heating element is "at least partially exposed to the airflow." Claims 21, 25, and 29 add that the heating element extends "transversely to a direction of the airflow."

With respect to this disputed claim element, each of claims 1, 8, and 16 of the '881 patent recite "the airflow through the passageway passing on both transverse sides of the [heating] element." Claim 11 of the '864 patent, which depends from claim 9, recites that "the cartridge is adapted to permit the airflow to pass on both transverse sides of the heating element during use of the electronic vaporizer." Claims 21, 25, and 29 recite that "the airflow passes on both transverse sides of the heating element during use of the electronic vaporizer." Claims 38 and 45 recite that "the airflow entering through the first aperture will separate and then pass on both transverse sides of the heating element and then continue along an airflow path co-axial with the central

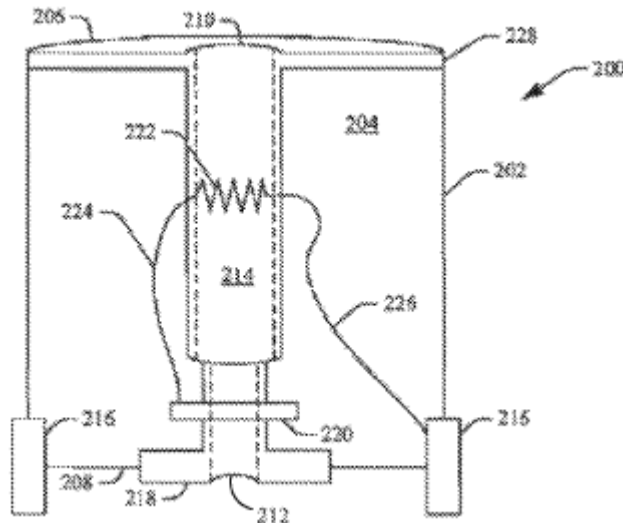
longitudinal axis of the housing toward the second aperture during use of the electronic vaporizer.” Thus, though using slightly different language, each of claims 1, 8, and 16 of the ’881 patent and claims 11, 21, 25, 29, 38, and 45 of the ’864 patent recite airflow on both transverse sides of the heating element or element.

JLI argues that the phrase “both transverse sides of the [heating] element” renders the claims in which it appears indefinite because those claims fail to “recite any sides of the heating element as extending transversely relative to anything.” JLI Br. at 16. JLI also argues that the specification does not use the word “transverse” or identify any sides of a heating element. *Id.* at 14. With respect to the specification, JLI contends that cylindrical center post 218 (which is identified as a heating element) and heating element 302, which are respectively a cylinder and a helical coil, do not have any transverse sides. *Id.* at 14–16.

As noted by the Staff, neither the center post 218 nor the heating element 312 are shown or described as being in the interior of the cartridge or as extending transversely, as recited in the claims. As a result, JLI’s reliance on those embodiments is misplaced. Instead, Fig. 2 depicts heating element 222 within the airflow and extending transversely to the airflow. In a footnote, JLI recognizes that the specification also discloses heating element 222 but contends that it is not described as having any definite structure with sides, transverse or otherwise, and that it is shown only with the electronic symbol for resistor. *Id.* at 14, n.9.

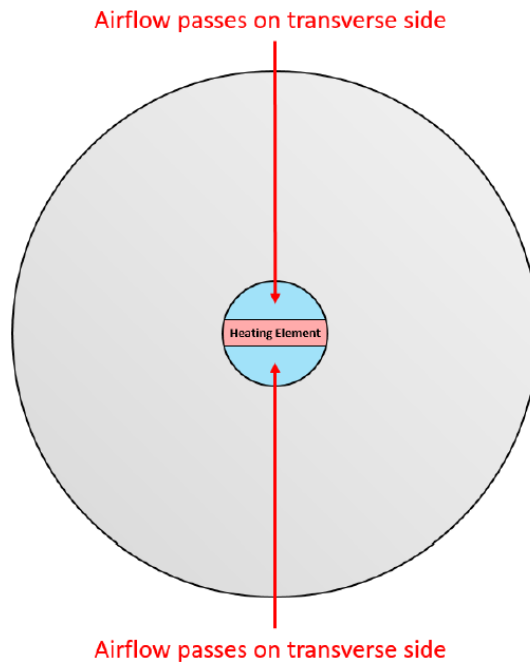
The specification states that “cartridge 200 further comprises a heating element 222 that is coupled to the electrical isolator 220 and the conductive element 216 in the interior of the housing 202 by way of conductive lines 224 and 226.” ’881 patent at 6:41–44. “When the cartridge 200 is coupled to a power source, the conductive element 216 is electrically coupled to a negative terminal of the power source and the center post 218 (and thus the electrical isolator 220) is

electrically coupled to a positive terminal of the power source. When a user draws a breath by way of the airflow passageway 214, a circuit is closed, thereby providing current to the heating element 222.” *Id.* at 6:47–54. This is shown in Fig. 2:



’881 patent at Fig. 2. The specification also explains that “it is readily recognized that airflow may pass directly over the heating element, through a chamber that is proximate to the heating element, or other suitable configuration.” *Id.* at 7:16–19.

One of skill in the art would recognize that when the airflow passes from the second aperture 212 to the first aperture 210 through air passageway 214, it will pass over the heating element 222. Because the ends of the heating element 222 are respectively coupled to conductive lines 224 and 226 and because the heating element 222 extends transversely to the airflow, one of skill in the art would understand that the airflow may pass on transverse sides of heating element 222. Though not specifically illustrated in the ’881 patent, one of skill in the art would understand such a configuration as shown below:



Staff Br. at 27; and CMX-0003 (Vallee Decl.) at ¶ 30. Based on the claim language and specification, one of ordinary skill in the art would recognize that airflow may pass on both transverse sides of heating element 222. Indeed, by reciting “both transverse sides of the [heating] element,” the claims recite a specific orientation of the heating element relative to the airflow passageway.

JLI has not presented clear and convincing evidence that the term “both transverse sides of the [heating] element” renders indefinite the claims in which it appears. Based on the parties’ briefs, the arguments at the hearing, and the evidence, this term is construed as having its plain and ordinary meaning, which is the claim language itself.

#### **D. The Portion of the Solution**

The parties propose:

| Claim Term and Patent Claims                                                  | NJOY's Construction | JLI's Construction | Staff's Construction                                                                                                                               |
|-------------------------------------------------------------------------------|---------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| the portion of the solution<br><br>'864 patent, claims 21, 25, 29, 38, and 45 | Plain meaning       | Indefinite         | At this time, this phrase appears to the Staff to be indefinite under 35 U.S.C. § 112. Any forthcoming expert discovery may provide more guidance. |

Revised Joint Chart at 2–3.

The term “the portion of the solution” is in independent claims 21, 25, 29, 38, and 45 of the '864 patent. JLI argues that these claims are indefinite because this term lacks antecedent basis. JLI Br. at 17. The Staff agrees. Staff Br. at 28–30. NJOY does not disagree that this term lacks antecedent basis but argues that this does not render these claims indefinite. NJOY Br. at 16–18.

The claims recite “a housing having an interior and a solution holding medium adapted to hold a solution,” “a heating element located in the interior of the housing,” and “the heating element being configured to vaporize at least the portion of the solution drawn to the heating element for oral provision to an individual.” '864 patent at claims 21, 25, and 29. Claims 38 and 45 recite “the heating element being configured to vaporize at least the portion of the solution for oral provision to an individual.” That is, claims 38 and 45 do not recite “drawn to the heating element” as do claims 21, 25, and 29.

JLI is correct that the various recitations of “the portion of the solution” are not preceded by a recitation of “a portion of the solution.” The question is whether that renders the claims invalid as indefinite.

The antecedent basis requirement is a rule of patent drafting, administered during patent examination. *Energizer Holdings, Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006). With respect to antecedent basis, the Manual of Patent Examination Procedures states:

A claim is indefinite when it contains words or phrases whose meaning is unclear.

The lack of clarity could arise where a claim refers to “said lever” or “the lever,” where the claim contains no earlier recitation or limitation of a lever and where it would be unclear as to what element the limitation was making reference. Similarly, if two different levers are recited earlier in the claim, the recitation of “said lever” in the same or subsequent claim would be unclear where it is uncertain which of the two levers was intended. A claim which refers to “said aluminum lever,” but recites only “a lever” earlier in the claim, is indefinite because it is uncertain as to the lever to which reference is made. Obviously, however, the failure to provide explicit antecedent basis for terms does not always render a claim indefinite. If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite.

MPEP § 2173.05(e) (9th ed. 2019) (internal citations omitted); *see* NJOY Br. at 17, *citing* this section.

“A claim is invalid for indefiniteness if its language, when read in light of the specification and the prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Certain Wireless Mesh Networking Products and Related Components Thereof*, Inv. No. 337-TA-1131, Order No. 26 at 34–35 (Aug. 13, 2019) (EDIS Doc. ID 685208), *quoting Media Rights Techs., Inc. v. Capital One Financial Corp.*, 800 F.3d 1366, 1371 (Fed. Cir. 2015). “[A] claim is indefinite if its language might mean several different things and no informed and confident choice is available among the contending definitions.” *Id.* at 35, *quoting Nautilus*, 572 U.S. at 912, n.8. While the lack of an antecedent basis may render claim language indefinite, it does not do so when “the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by § 112 ¶ 2.” *In re Downing*, 754 Fed. App’x 988, 996 (Fed. Cir. 2018) (alterations omitted), *referencing* MPEP § 2173.05(e).

The language of the claims “provide[s] substantial guidance as to the meaning” of the “the portion of the solution.” *Phillips*, 415 F.3d at 1314. The term “portion of the solution” appears in the claim’s description of the heating element. Claims 21, 25, and 29 recite that the heating element is configured to vaporize at least the portion of the solution drawn to the heating element for oral

provision to an individual in the airflow. Claims 38 and 45 recite the heating element being configured to vaporize at least the portion of the solution for oral provision to an individual. This is consistent with the specification, which states that “[t]he heating element 126 outputs a sufficient amount of heat to vaporize at least a portion of the solution 128, and the user receives the vaporized solution orally.” ’864 patent at 4:52–54; *see also id.* at 11:13–17, 11:25–29. Consistent with the claim language, the specification discloses that a portion of the solution is vaporized by the heating element, and that vaporized portion is received orally by the user.

The Staff contends that the claims containing this term are indefinite because it is unclear which portion of the solution is being claimed. Staff Br. at 29, *citing* RMX-0012 (Leinsing Decl.) at ¶ 54. The claims, however, state what portion of the fluid is being claimed: (1) “the portion of the solution drawn to the heating element for oral provision to an individual” in claims 21, 25, and 29; and (2) “the portion of the solution for oral provision to an individual” in claims 38 and 45. There is no other “portion of the solution” recited in the claim. *See* CMX-0003 (Vallee Decl.) at ¶ 32 (noting that “[t]here is only a single ‘solution’ recited in each claim, and there is only a single ‘portion of the solution’ recited in each claim”).

JLI’s expert, Dr. Leinsing, states that it is unclear which portion of the solution would be the portion of the solution for oral provision. RMX-0012 (Leinsing Decl.) at ¶ 54. The claim language, however, answers this question and recites that the vaporized solution is the portion of the solution provided to the user. ’864 patent at claims 21, 25, 29, 38, and 45. This is, therefore, unlike the situation identified in the MPEP, in which the lack of antecedent basis makes it unclear what element is being referred to. MPEP § 2173.05(e). Here, there is a single solution and a single portion of the solution is vaporized and provided to the user. There is no confusion in the claims regarding what “the portion of the solution” is and there is no confusion between multiple portions

because only a single portion is claimed.

The Staff also argues that there is a distinction between claims 38 and 45, which recite “vaporize at least the portion of the solution for oral provision,” and claims 21, 25, and 29, which recite “vaporize at least the portion of the solution drawn to the heating element for oral provision.” Staff Br. at 29. While I agree that there is a distinction, it does not make a difference for purposes of whether “the portion” recited in the claims renders the claims indefinite. In claims 38 and 45, “the portion of the solution” is that which is vaporized for oral provision, while in claims 21, 25, and 29, “the portion of the solution” is that which is vaporized for oral provision and drawn to the heating element.<sup>4</sup>

The evidence supports that, despite a technical lack of antecedent basis, the term “the portion of the solution” informs one of ordinary skill in the art about the scope of the invention “with reasonable certainty.” *Nautilus*, 572 U.S. at 910. Neither JLI nor the Staff have presented clear and convincing evidence that this term renders the claims indefinite. The claim term “the portion of the solution” is construed as having its plain and ordinary meaning, that is, the words of the claims.

**E. In an Airflow from the Second Aperture/ In the Airflow**

The parties propose:

---

<sup>4</sup> The Staff also argues that it is unclear whether NJOY’s construction of “the portion of the solution” takes into account any difference in the scope of claim 31 of the ’864 patent, which depends from claim 29 and recites “wherein the heating element includes a wicking material being operative to permit at least a portion of the solution to be held in the solution holding medium to be drawn toward the heating element to be vaporized.” Staff Br. at 29, n.7. The indefinite article “a” in claim 31 renders this claim term distinct from “the portion of the solution” recited in claim 29. No party has requested a construction for “a portion of the solution” in claim 31.

| Claim Term and Patent Claims                                                                                                                                                                                                                                                                                                                                                                                                                                                    | NJOY's Construction | JLI's Construction | Staff's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium [reservoir] for oral provision to an individual in an airflow from the second aperture</p> <p>'881 patent, claims 1, 8, and 16</p> <p>configured to vaporize at least [a/the] portion of the solution [drawn to the heating element] for oral provision to an individual in the airflow</p> <p>'864 patent, claims 1, 5, 9, 21, 25, 29, 38, and 45</p> | Plain meaning       | Indefinite         | <p><u>'881 Patent – Claims 1, 8, 16:</u><br/>If construction is required, then the Staff proposes that these phrases should be construed consistent with their plain and ordinary meaning, which is the claim language itself. <i>See also</i> “heating element” below. Thus, these phrases do not appear to the Staff to be indefinite under 35 U.S.C. § 112.</p> <p><u>'864 Patent – Claims 1, 5, 9:</u> If construction is required, then the Staff proposes that this phrase should be construed consistent with its plain and ordinary meaning, which is the claim language itself. <i>See also</i> “heating element” below. Thus, this phrase does not appear to the Staff to be indefinite under 35 U.S.C. § 112.</p> <p><u>'864 Patent – Claims 21, 25, 29, 38, 45:</u> At this time, these phrases appear to the Staff to be indefinite under 35 U.S.C. § 112. See “the portion of the solution” above. Any forthcoming expert discovery may provide more guidance.</p> |

Revised Joint Chart at 3–4.

JLI contends that “[e]ach asserted claim requires that something occurs in or is located ‘in’ a claimed airflow, although the particular airflow varies from claim to claim.” JLI Br. at 17. JLI then compares and contrasts the language of different claims and contends that “in each limitation, the phrase ‘in [the claimed] airflow’ is ambiguously preceded by a laundry list of elements, making it impossible to ascertain which of those listed elements is ‘in [the claimed] airflow,’ and which is not.” *Id.* at 18.

Claim 1 of the ’881 patent recites that “the airflow passageway is configured to allow an airflow through the cartridge from the first aperture to the second aperture of the housing” and “the housing includes a heating element located in the interior of the housing, wherein the heating element extends transversely across the airflow passageway, wherein the airflow through the passageway passes on both transverse sides of the element” and “the heating element is electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium for oral provision to an individual in an airflow from the second aperture.” The claim thus unambiguously recites an airflow passageway with an airflow from the first aperture to the second aperture of the housing, a heating element in the airflow passageway, and an airflow from the second aperture provided to the user. There is no “laundry list” of claim elements; it is not unclear what is in the airflow between the first and second apertures and what is in the airflow from the second aperture.

Claim 8 of the ’881 patent recites “an airflow passageway in the interior of the housing extending centrally and axially with respect to the housing intermediate of the first aperture on the first end of the housing and the second aperture on the second end of the housing, the airflow passageway being configured to allow an airflow through the cartridge from the first aperture to

the second aperture of the housing” and “ the heating element being located within and extending transversely across the airflow passageway, the airflow through the passageway passing on both transverse sides of the heating element” and “the heating element being electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium reservoir for oral provision to an individual in an airflow from the second aperture.” Like claim 1, claim 8 unambiguously recites an airflow passageway with an airflow from the first aperture to the second aperture of the housing, a heating element in the airflow passageway, and an airflow from the second aperture provided to the user. There is no “laundry list” of claim elements; it is not unclear what is in the airflow between the first and second apertures and what is in the airflow from the second aperture.

Claim 16 of the '881 patent recites “an airflow passageway in the interior of the housing . . . the airflow passageway being configured to allow an airflow through the cartridge from the first aperture to the second aperture of the housing” and “a heating element located in the interior of the housing and extending transversely across the airflow passageway, the airflow through the passageway passing on both transverse sides of the heating element” and “the heating element being electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium for oral provision to an individual in an airflow from the second aperture.” Like claims 1 and 8, claim 16 unambiguously recites an airflow passageway with an airflow from the first aperture to the second aperture of the housing, a heating element in the airflow passageway, and an airflow from the second aperture provided to the user. There is no “laundry list” of claim elements; it is not unclear what is in the airflow between the first and second apertures and what is in the airflow from the second aperture.

Claim 1 of the '864 patent recites “the housing having a first end and a second end that is

opposite the first end, the housing having a first aperture proximate the first end and a second aperture proximate the second end . . . the first aperture and the second aperture being in communication with one another to permit an airflow through the housing from the first aperture to the second aperture” and “a heating element . . . at least partially exposed to the airflow, the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow.” Claim 1 unambiguously recites an airflow through the housing, a heating element at least partially exposed to the airflow, and a portion of the solution vaporized in the airflow. There is no “laundry list” of elements; and it is clear what is in the airflow.

Claim 5 of the '864 patent recites “a housing . . . having a first aperture proximate the first end and a second aperture proximate the second end . . . the first aperture and the second aperture being in communication with one another to permit an airflow through the housing from the first aperture to the second aperture” and “a heating element . . . being at least partially exposed to the airflow, the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow” and “only the heating element obstructing a portion of the airflow through the airflow passageway along the central longitudinal axis of the housing.” Claim 5 unambiguously recites an airflow through the housing from the first aperture to the second aperture, a heating element at least partially exposed to the airflow, a portion of the solution vaporized in the airflow, and only the heating element obstructing a portion of the airflow. There is no “laundry list” of elements; and it is clear what is in the airflow.

Claim 9 recites “a housing . . . having a first aperture proximate the first end and a second aperture proximate the second end” and “the first aperture and the second aperture being in communication with one another to permit an airflow through the housing from the first aperture to the second aperture” and “a heating element . . . being at least partially exposed to the airflow,

the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow” and “wherein the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing, and a second portion of the airflow path proximate to the second aperture being defined substantially centrally and axially with respect to the central longitudinal axis of the housing.” Claim 9 unambiguously recites an airflow through the housing from the first aperture to the second aperture, a heating element at least partially exposed to the airflow, a portion of the solution vaporized in the airflow, and a first portion of an airflow path proximate the first aperture and a second portion of the airflow path proximate the second aperture. There is no “laundry list” of elements; and it is clear what is in the airflow.

Claim 21 recites “a housing . . . having a first aperture proximate the first end and a second aperture proximate the second end . . . the first aperture and the second aperture being in communication with one another to permit an airflow through the housing” and “a heating element . . . extending . . . transversely to a direction of the airflow such that the airflow passes on both transverse sides of the heating element” and “the heating element being configured to vaporize at least the portion of the solution drawn to the heating element for oral provision to an individual in the airflow.” Claim 21 unambiguously recites an airflow through the housing from the first aperture to the second aperture, a heating element transverse to the airflow, and a portion of the solution vaporized in the airflow. There is no “laundry list” of elements; and it is clear what is in the airflow.

Claim 25 recites “a housing . . . having a first aperture proximate the first end and a second aperture proximate the second end . . . the first aperture and the second aperture being in

communication with one another to permit an airflow through the housing” and “a heating element . . . extending . . . transversely to a direction of the airflow such that the airflow passes on both transverse sides of the heating element during use of the electronic vaporizer, the heating element being configured to vaporize at least the portion of the solution drawn to the heating element for oral provision to an individual in the airflow” and “only the heating element obstructing a portion of the airflow through the airflow passageway along the central longitudinal axis of the housing.” Claim 25 unambiguously recites an airflow through the housing from the first aperture to the second aperture, a heating element transverse to the airflow, and only the heating element obstructing a portion of the airflow. There is no “laundry list” of elements; and it is clear what is in the airflow.

Claim 29 recites “a housing . . . having a first aperture proximate the first end and a second aperture proximate the second end . . . the first aperture and the second aperture being in communication with one another to permit an airflow through the housing” and “a heating element . . . extending transversely . . . to a direction of the airflow such that the airflow passes on both transverse sides of the heating element” and “the heating element being configured to vaporize at least the portion of the solution drawn to the heating element for oral provision to an individual in the airflow” and “wherein the airflow through the housing follows an airflow path, a first portion of the airflow path proximate the first aperture . . . and a second portion of the airflow path proximate to the second aperture.” Claim 29 unambiguously recites an airflow through the housing from the first aperture to the second aperture, a heating element transverse to the airflow, a portion of the solution vaporized in the airflow, and a first portion of an airflow path proximate the first aperture and a second portion of the airflow path proximate the second aperture. There is no “laundry list” of elements; and it is clear what is in the airflow.

Claim 38 recites “a housing . . . having a first aperture proximate the first end and a second aperture proximate the second end” and “the first aperture and the second aperture being in communication with one another to permit an airflow through the housing” and “a heating element . . . at least partially exposed to the airflow such that the airflow entering through the first aperture will separate and then pass on both transverse sides of the heating element and then continue along an airflow path co-axial with the central longitudinal axis of the housing toward the second aperture during use of the electronic vaporizer,” and “at least the portion of the solution for oral provision to an individual in the airflow.” Claim 38 unambiguously recites an airflow through the housing from the first aperture to the second aperture, a heating element at least partially exposed to the airflow, and a portion of the solution vaporized in the airflow. There is no “laundry list” of elements; and it is clear what is in the airflow.

Claim 45 recites “a housing . . . having a first aperture proximate the first end and a second aperture proximate the second end . . . the first aperture and the second aperture being in communication with one another to permit an airflow through the housing” and “a heating element . . . at least partially exposed to the airflow such that the airflow entering through the first aperture will separate and then pass on both transverse sides of the heating element and then continue along an airflow path” and “the heating element being configured to vaporize at least the portion of the solution for oral provision to an individual in the airflow” and “only the heating element obstructing a portion of the airflow through the airflow passageway.” Claim 45 unambiguously recites an airflow through the housing from the first aperture to the second aperture, a heating element at least partially exposed to the airflow, and a portion of the solution vaporized in the airflow, and only the heating element obstructing a portion of the airflow. There is no “laundry list” of elements; and it is clear what is in the airflow.

The language of each claim clearly articulates what is in the airflow. With respect to the phrase “for oral provision to an individual in the airflow,” based on the claim language itself, one of ordinary skill in the art would recognize that this refers to the solution to be provided orally to a user. This is supported by the specification. *See, e.g.*, ’864 patent at 4:52–54 (“The heating element 126 outputs a sufficient amount of heat to vaporize at least a portion of the solution 128, and the user receives the vaporized solution orally.”); 5:23–25 (“[T]he user depresses a button to activate the heating element and draw the vaporized solution from the electronic vaporize 100.”); 6:56–58 (“The heating element 222 acts to vaporize the liquid solution in the absorbent material 204, and the resulting vapor is received by the user.”); *see also* CMX-0003 (Vallee Decl.) at ¶ 35.

JLI has not presented clear and convincing evidence that this claim term renders the claims in which it appears indefinite. This term is construed as having its plain and ordinary meaning, that is, the language of the claims.

#### F. Heating Element

The term “heating element” appears in each asserted independent claim of the ’881 and ’864 patents. Any simplicity regarding how the parties presented their positions on this term ends there. The parties propose:

| Term and Asserted Patent Claims                                                                                                                                  | NJOY’s Construction                                                                                                                                                                                                                 | JLI’s Construction                                                                                                                                                                                                                                                  | Staff’s Construction                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| heating element [is/being] electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium [reservoir] for | <i>Subject to § 112(6)</i><br><br>Function: output heat to vaporize at least a portion of the solution for oral provision to an individual in the airflow (and variations thereof)<br><br>Structure: resistive heating element 222, | <i>Subject to § 112(6)</i><br><br>Function: ’881 patent claims 1, 8, 16: (i) output heat; and (ii) vaporize at least a portion of the solution to be contained in the solution holding medium/solution holding medium reservoir for oral provision to an individual | Considering that the private parties agree that these phrases are subject to 35 U.S.C. § 112, ¶ 6, the Staff will also agree so as to reduce the number of disputes in this investigation.<br><br>’881 patent – claims 1, 8, 16: |

| Term and Asserted Patent Claims                                                                                                                                                                                                                                                                                                                           | NJOY's Construction                                                                                                                              | JLI's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Staff's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>oral provision to an individual in an airflow from the second aperture</p> <p>'881 patent claims 1, 8, and 16</p> <p>heating element being configured to vaporize at least [a/the] portion of the solution [drawn to the heating element] for oral provision to an individual in the airflow</p> <p>'864 patent claims 1, 5, 9, 21, 25, 29, 38, 45</p> | <p>which can be helical in nature</p> <p><i>Alternative construction if not subject to § 112(6)</i> element that heats via resistive heating</p> | <p>in an airflow from the second aperture (which is indefinite).</p> <p>'864 patent claims 1, 5, 9, 38, 45: (i) output heat; and (ii) vaporize at least a portion of the solution held in the solution holding medium for oral provision to an individual in the airflow through the housing from the first aperture to the second aperture (which is indefinite).</p> <p>Structures:<br/>To the extent the claimed functions may be understood, the structures described in the specification as performing the entire claimed functions are each of the following:</p> <p>+ a hollow and conductive center post extending from the claimed first end of the cartridge to the airflow passageway, and made of a conductive material, such as a conductive ceramic or a metallic material; or<br/>+ a helical coil wrapped around the exterior of the airflow passageway or an integrated material as part of the airflow passageway.</p> | <p>Function(s): output heat to vaporize at least a portion of the solution to be contained in the solution holding medium/solution holding medium reservoir for oral provision to an individual in an airflow from the second aperture.</p> <p>Structure(s): heating element 222 as disclosed in FIG. 2 and described at 5:63-6:61, and equivalents thereof.</p> <p>'864 patent – claims 1, 5, 9:</p> <p>Function(s): output heat to vaporize at least a portion of the solution for oral provision to an individual in the airflow.</p> <p>Structure(s): heating element 222 as disclosed in FIG. 2 and described at 5:65-6:63, and equivalents thereof.</p> <p>'864 patent – claims 21, 25, 29, 38, 45:</p> |

| Term and Asserted Patent Claims | NJOY's Construction | JLI's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Staff's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |                     | <p>+ Wherein the foregoing center post or helical coil may be made from the following illustrative materials: metallic substance such as nichrome, nickel chromium, gaseous heating element, ceramic, ceramic composite, carbon, carbon hybrid, carbon fiber, polymer, hybrid polymer.</p> <p><i>Alternative construction if not subject to § 112(6), and deemed not indefinite.</i></p> <p>For the '881 patent:<br/>Component configured to: (a) perform heating (i.e. output heat); and (b) vaporize at least a portion of the solution to be contained in the solution holding medium/solution holding medium reservoir for oral provision to an individual in an airflow from the second aperture.</p> <p>For the '864 patent:<br/>Component configured to: (a) perform heating (i.e. output heat); and (b) vaporize at least a portion of the solution/the portion of the solution held in the solution holding medium for oral provision to an individual in the airflow</p> | <p>At this time, these phrases appear to the Staff to be indefinite under 35 U.S.C. § 112. See “the portion of the solution” above. Any forthcoming expert discovery may provide more guidance.</p> <p><i>Alternative construction if not subject to § 112(6) and not indefinite:</i></p> <p>For the '881 patent:</p> <p>Plain and ordinary meaning, <i>e.g.</i>, conductive material that, in response to current, outputs heat to vaporize at least a portion of the solution to be contained in the solution holding medium/solution holding medium reservoir for oral provision to an individual in an airflow from the second aperture.</p> <p>For the '864 patent:</p> <p>Plain and ordinary meaning, <i>e.g.</i>, conductive material that, in response to current, outputs heat</p> |

| Term and Asserted Patent Claims | NJOY's Construction | JLI's Construction                                  | Staff's Construction                                                                               |
|---------------------------------|---------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------|
|                                 |                     | between the first aperture and the second aperture. | to vaporize at least a portion of the solution for oral provision to an individual in the airflow. |

Revised Joint Chart at 4–6.

The crux of the issue is whether the term “heating element” is in means-plus-function format and thus subject to 35 U.S.C. § 112, ¶ 6.<sup>5</sup> All parties contend that the term is subject to § 112, ¶ 6. All parties also contend that it may not be, by offering alternative constructions not under § 112, ¶ 6. I asked for supplemental briefing on this issue, which I received and considered.

The statute states:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6.

The Federal Circuit instructs that section 112, ¶ 6 “offers patent applicants two options: (1) recite, in the claim, a function without reciting structure for performing the function and limit the claims to the structure, materials, or acts disclosed in the specification (or their equivalents), in which case § 112 ¶ 6 applies, or (2) recite both a function and the structure for performing that function in the claim, in which case § 112 ¶ 6 is inapplicable.” *Dyfan, LLC v. Target Corp.*, 28

---

<sup>5</sup> The Leahy-Smith America Invents Act (AIA) redesignated § 112, ¶ 6 as § 112(f). Leahy-Smith America Invents Act, Pub. L. No. 112-29, sec. 4(c), 125 Stat. 284, 296 (2011). I refer to the pre-AIA version because the applications resulting in the ’881 and ’864 patents were filed before September 16, 2012. *See id.* sec. 4(e), 125 Stat. at 297; *see also Media Rights Techs., Inc. v. Cap. One Fin. Corp.*, 800 F.3d 1366, 1371, n.1 (Fed. Cir. 2015).

F.4th 1360, 1365 (Fed. Cir. 2022). The first step in a means-plus-function claim construction analysis is to determine whether the disputed limitation is drafted in means-plus-function format, i.e., “whether it connotes sufficiently definite structure to a person of ordinary skill in the art.” *Id.*, citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349–51 (Fed. Cir. 2015). If the claim limitation does connote sufficiently definite structure, it is not written in means-plus-function format and § 112 ¶ 6 does not apply. *Id.*

The Federal Circuit has acknowledged “the importance of the presence or absence of the word ‘means.’” *Williamson*, 792 F.3d at 1348. “[T]he use of the word ‘means’ in a claim element creates a rebuttable presumption” that section 112, ¶ 6 applies such that the claim is a means-plus-function claim. *Id.* Conversely, “the failure to use the word ‘means’ also creates a rebuttable presumption” that section 112, ¶ 6 does not apply. *Id.* Because each claim recites “heating element” without the word “means,” there is a rebuttable presumption that section 112, ¶ 6 does not apply.

To overcome this presumption, it must be shown, by a preponderance of the evidence, that persons of ordinary skill in the art would not have understood the “heating element” limitations to connote structure in light of the claim as a whole. *Dyfan*, 28 F.4th at 1367. A limitation lacking the term “means” may overcome the presumption against means-plus-function treatment if it is shown that “the claim term fails to ‘recite sufficiently definite structure’ or else recites ‘function without reciting sufficient structure for performing that function.’” *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002), quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000). “To determine whether a claim recites sufficient structure, it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the

structures by their function.” *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1019 (Fed. Cir. 2017).

I turn first to claims 21, 25, and 29 of the ’864 patent because each of them recites that the “heating element” comprises a coil. In particular, claims 21, 25, and 29 recite “a heating element located in the interior of the housing, the heating element including a coil extending transversely to the central longitudinal axis of the housing and transversely to a direction of the airflow such that the airflow passes on both transverse sides of the heating element during use of the electronic vaporizer.” NJOY recognizes that these claims recite that the “heating element includes a ‘coil,’ which is also definite structure.” NJOY Supp. Reply at 1. The term “coil” connotes a sufficiently definite structure that is reasonably well understood in the art. *Watts*, 232 F.3d at 880–881. Because these claims specifically recite structure, they are not written in means-plus-function format. *See* 35 U.S.C. § 112, ¶ 6 (a claim may fall under this section “without the recital of structure”).

I next consider the remainder of the claims with the term “heating element.” NJOY contends that the ’881 and ’864 patent claims “provide *some* structure for the heating element.” NJOY Suppl. Br. at 3. An examination of the claim language supports this.

Claim 1 of the ’881 patent recites:

wherein the housing includes a heating element located in the interior of the housing, wherein the heating element extends transversely across the airflow passageway, wherein the airflow through the passageway passes on both transverse sides of the element

Claim 1 thus recites (1) the physical location (interior of the housing) and orientation (transverse across the airflow passageway) of the heating element and (2) that airflow passes on both sides of the heating element, thus supporting that it is structure. In addition, claim 1 recites that the heating element is “electronically configured to vaporize” solution and is “responsive to electrical power received from the battery through the electrically conductive portions of the cartridge and the power source.” Thus, in addition to reciting the physical location and orientation

of the heating element, claim 1 recites electrical connections of the heating element. These recitations support that the heating element is claimed as structure.

Claim 8 of the '881 patent recites:

a heating element located in the interior of the housing, the heating element being located within and extending transversely across the airflow passageway, the airflow through the passageway passing on both transverse sides of the heating element, both the heating element and the airflow passageway being surrounded by the solution holding medium reservoir, the heating element being electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium reservoir for oral provision to an individual in an airflow from the second aperture responsive to electrical power received from the battery through the electrically conductive portions of the cartridge and the power source

Claim 8 thus recites (1) the physical location (interior of the housing, within the airflow passageway, and surrounded by the solution holding medium reservoir) and orientation (transverse across the airflow passageway) of the heating element, (2) that airflow passes on both sides of the heating element, and (3) that electrically conductive portions of the cartridge and power source are connected to the heating element. These recitations support that the heating element is claimed as structure.

Claim 16 of the '881 patent recites:

a heating element located in the interior of the housing and extending transversely across the airflow passageway, the airflow through the passageway passing on both transverse sides of the heating element, a plane perpendicular to the central longitudinal axis of the housing passing through the heating element and the solution holding medium, the airflow passageway having an interior between the heating element and the second aperture no smaller in cross-sectional area than the cross-sectional area of the first aperture, the heating element being connected to the electrically conductive portion of the first end of the housing, the heating element being electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium for oral provision to an individual in an airflow from the second aperture responsive to electrical power received from the power source through the electrically conductive portion of the cartridge

Claim 16 thus recites (1) the physical location (interior of the housing and within the airflow passageway) and orientation (transverse across the airflow passageway) of the heating

element, and (2) that it is connected to the electrically conductive portion of the first end of the housing. These recitations support that the heating element is claimed as structure.

Claim 1 of the '864 patent recites:

a heating element located in the interior of the housing, the heating element extending transversely to a central longitudinal axis of the housing and being at least partially exposed to the airflow, the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow, the heating element being responsive to electrical power received from the power source

Claim 1 thus recites (1) the physical location (interior of the housing) and orientation (transverse to longitudinal axis) of the heating element; and (2) that it receives power from a power source, supporting that the claimed heating element is claimed as structure.

Claim 5 of the '864 patent recites:

a heating element located in the interior of the housing, the heating element extending transversely to a central longitudinal axis of the housing and being at least partially exposed to the airflow, the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the airflow, the heating element being responsive to electrical power received from the power source

Claim 5 also recites “with only the heating element obstructing a portion of the airflow through the airflow passageway along the central longitudinal axis of the housing.” Claim 5 thus recites (1) the physical location (interior of the housing) and orientation (transverse to longitudinal axis) of the heating element; (2) that the heating element is partially exposed to airflow and physically obstructs the airflow; and (3) that the heating element is responsive to power from a power source. These recitations support that the heating element is claimed as structure.

Claim 9 of the '864 patent recites:

a heating element located in the interior of the housing, the heating element extending transversely to a central longitudinal axis of the housing and being at least partially exposed to the airflow, the heating element being configured to vaporize at least a portion of the solution for oral provision to an individual in the

airflow, the heating element being responsive to electrical power received from the power source

Claim 9 thus recites: (1) the physical location (interior of the housing) and orientation (transverse to longitudinal axis) of the heating element; (2) that the heating element is partially exposed to airflow; and (3) that it receives power from a power source. These recitations support that the heating element is claimed as structure.

Claim 38 of the '864 patent recites:

a heating element located in the interior of the housing, the heating element extending transversely to the central longitudinal axis of the housing and being at least partially exposed to the airflow such that the airflow entering through the first aperture will separate and then pass on both transverse sides of the heating element and then continue along an airflow path co-axial with the central longitudinal axis of the housing toward the second aperture during use of the electronic vaporizer, the heating element being configured to vaporize at least the portion of the solution for oral provision to an individual in the airflow, the heating element being responsive to electrical power received from the power source

Claim 38 thus recites: (1) the physical location (interior of the housing) and orientation (transverse to longitudinal axis) of the heating element; (2) that the heating element is partially exposed to airflow; and (3) that the heating element receives power from a power source. These recitations support that the heating element is claimed as structure.

Claim 45 of the '864 patent recites:

a heating element located in the interior of the housing, the heating element extending transversely to the central longitudinal axis of the housing and being at least partially exposed to the airflow such that the airflow entering through the first aperture will separate and then pass on both transverse sides of the heating element and then continue along an airflow path co-axial with the central longitudinal axis of the housing toward the second aperture during use of the electronic vaporizer, the heating element being configured to vaporize at least the portion of the solution for oral provision to an individual in the airflow, the heating element being responsive to electrical power received from the power source

Claim 45 also recites “with only the heating element obstructing a portion of the airflow through the airflow passageway along the central longitudinal axis of the housing.” Claim 45 thus

recites: (1) the physical location (interior of the housing) and orientation (transverse to longitudinal axis) of the heating element; (2) that the heating element is partially exposed to airflow, that air flows on transverse sides of it, and that it obstructs a portion of the airflow passageway; and (3) that it receives power from a power source. These recitations support that the heating element is claimed as structure.

The language of each of claims 1, 8, and 16 of the '881 patent and claims 1, 5, 9, 38, and 45 of the '864 patent supports that "heating element" in each of those claims refers to structure.

The specification states that:

[a] heating element 126 resides in the interior of the housing 120. The heating element 126 may be or include any suitable technology for outputting heat, including resistive heating, laser-based heating, flame, etc. It is to be understood that other technologies can be utilized other than heat to vaporize a liquid solution, including but not limited to ultrasonic technologies, ultraviolet technologies, chemical technologies, etc. Therefore, another state-changing apparatus may be substituted for the heating element 126.

'881 patent at 3:63–4:4; *see also* JLI Suppl. Br. at 5. JLI contends that this disclosure with respect to heating element 126 demonstrates that the claimed heating element is described so generically that it should be interpreted under §112, ¶ 6. *Id.* In the embodiment shown in Fig. 1, however, the heating element 126 is not shown as disposed within the airflow passageway 134. Such disposition is required in each of the claims reciting a heating element. The embodiment depicted and described with respect to Fig. 2 has the heating element 222 within the airflow, as recited in each of claims 1, 8, and 16 of the '881 patent and claims 1, 5, 9, 38, and 45 of the '864 patent. As to the embodiment shown in Fig. 2, the specification states that:

The cartridge 200 further comprises a heating element 222 that is coupled to the electrical isolator 220 and the conductive element 216 in the interior of the housing 202 by way of conductive lines 224 and 226. The heating element 222 can comprise wicking material that draws the liquid solution from the absorbent material 204 towards the heating element 222. When the cartridge 200 is coupled to a power source, the conductive element 216 is electrically coupled to a negative

terminal of the power source and the center post 218 (and thus the electrical isolator 220) is electrically coupled to a positive terminal of the power source. When a user draws a breath by way of the airflow passageway 214, a circuit is closed, thereby providing current to the heating element 222.

\* \* \*

While the heating element 222 is shown as residing solely in the airflow passageway 214, it is to be understood that various other configurations of the heating element 222 with respect to the airflow passageway are contemplated.

'864 patent at 6:43–67. In disclosing that the heating element is connected to conductive lines 224 and 226, forms part of a circuit to which current is provided, and is physically located within the airflow passageway 214, the specification supports that the heating element is disclosed as structure. The language of the claims and the disclosure related to the claims support that the claimed “heating element” refers to structure. In addition, JLI has recognized that Fig. 2 represents heating element 222 as a resistor. JLI Br. at 14, n.9.

The prosecution history also supports that the “heating element” is the name for structure. During prosecution of application serial no. 12/843,917, from which both the '881 and '864 patents issued, the Examiner issued an Office Action on July 16, 2013, rejecting claims based on U.S. Patent Publication No. 2009/0272379 of Thorens, stating that Thorens disclose the claimed “heating element” in paragraph 44. RMX-0010 (07/16/2013 OA) at 3. There, Thorens discloses a heating coil 209. RMX-0017 ('379 publication) at ¶ 44. The Examiner’s discussion of the prior art during prosecution and the prior art itself support that the claimed “heating element” identifies structure.

Prior art cited during prosecution, which is part of the intrinsic record, supports that a “heating element,” in the context of vaporizer devices when the applications leading to the '881 and '864 patents were filed, was understood to connote structure. *Phillips*, 415 F.3d at 1317 (“The prosecution history, which we have designated as part of the ‘intrinsic evidence,’ consists of the

complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.”).

Prior art cited during prosecution of the '881 patent supports that the term “heating element” was known in the art as a term connoting structure. For example, U.S. Patent Publication No. 2005/0016550, titled “Electronic Cigarette,” and published in 2005, discloses smoking simulators “in which a heating element and solid flavor generating medium are provided” and in which “electrical energy is supplied from the power supply to the heating element to heat the flavor generating medium which in turn generates flavor components.” Complaint App’x D at ’550 publication (EDIS Doc. ID 802901) at ¶¶ 6, 7. U.S. Patent Publication No. 2006/0196518, titled “Flameless Electronic Atomizing Article,” and published in 1996, discloses an electric heating element within a vaporization nozzle, which “may be made of wires of nickel chromium alloy, iron chromium aluminum alloy, stainless steel, gold, platinum, tungsten molybdenum alloy, etc., and may be in the shape of straight line, single spiral, double spiral, cluster or spiral cluster.” *Id.* at ’518 publication at ¶ 20. U.S. Patent Publication No. 2008/0092912, titled “Tobacco-Containing Smoking Article,” and published in 2008, discloses a heating element, which it indicates is “available as Ruyan Atomizing Electronic Cigarette from Ruyan SBT Technology and Development Co., Ltd.” and which is “arranged to have current pass therethrough (and hence provide heat) in response to a signal provided by a puff-actuated controller that regulates current through one or more of the heating elements in response to signals” from a sensor. *Id.* at ’912 publication at ¶¶ 82, 85.

Prior art cited during prosecution of the '864 patent shows that the term “heating element” was known in the art as a term connoting structure. For example, U.S. Patent No. 2,057,353, titled “Vaporizing Unit for Therapeutic Apparatus,” and issued in 1936, discloses a “vaporizing vessel”

comprising “a hollow glass container adapted to hold a liquid medicament *x* and provided with an electrically-operated heating means comprising two electrical conductors 1 and 2 and a filament or heating element 3 combined in such a way that when said conductors are energized by an electric current, the filament 3 will become heated.” Complaint App’x B at ’353 patent at 1:18–28 (EDIS Doc. ID 803123). U.S. Patent No. 3,200,819, titled “Smokeless Non-tobacco Cigarette,” which issued in 1965, discloses that an object of its invention is to provide a smokeless non-tobacco cigarette in which provision is made for “circulating the fluid around the heating element in a turbulent manner to suitably raise the temperature of the inhalent mixture, with the purpose that the temperature of the flavored air may approximate that of cigarette smoke.” *Id.* at ’819 patent at 1:23–29. U.S. Patent No. 4,947,874, titled “Smoking Articles Utilizing Electrical Energy,” and issued in 1990, addresses prior art heating elements (*see* columns 1–3) and discloses resistance heating element 18. U.S. Patent No. 5,144,962, titled “Flavor-Delivery Article,” and issued in 1992, discloses a “heating element” 14, which in a preferred embodiment “is a resistive wire coil (such as tungsten, tantalum, or an alloy of nickel, chromium, and iron . . . disposed within an insulating tube which typically may be paper, foil, carbon, plastic, or glass” and which alternatively “may be formed with graphite or ceramics, and can be formed with a protective sheath of these materials.” *Id.* at ’962 patent at 4:4–16. U.S. Patent No. 5,249,586, titled “Electrical Smoking,” and issued in 1993, discloses a set of reusable heating elements to which an electrical connection is made. *Id.*

Prior art cited during prosecution of both the ’881 and ’864 patents supports that the term “heating element” was understood in the art of vaporizer devices to connote structure.

The intrinsic evidence thus supports that the term “heating element” denotes structure. *Skky*, 859 F.3d at 1019. While the term covers a broad class of structures, the evidence supports

that it has “a sufficiently definite meaning as the name for structure.” *Kyocera Senco Industrial Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1380 (Fed. Cir. 2022); and *Williamson*, 792 F.3d at 1348. Moreover, while the Federal Circuit has indicated that the term “element” may be a nonce term, the intrinsic evidence here supports that in the context of vaporizer devices, that is not the case for the term “heating element.” *Williamson*, 792 F.3d at 1350 (“Generic terms such as ‘mechanism,’ ‘element,’ ‘device,’ and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word ‘means’ because they ‘typically do not connote sufficiently definite structure’ and therefore may invoke § 112, para. 6.”). Instead, the term “heating element” in the claims and specification denotes structure, is used in common parlance in the vaporizer device art, and has a sufficiently definite meaning as the name for structure.

In the 1368 Investigation, which involves JLI patents asserted against NJOY, JLI argued that the claim term “heating element” was not in means-plus-function format. 337-TA-1368, Joint Claim Construction Chart at 3 (EDIS Doc. ID 808018). JLI argued that heating elements are disclosed in many of the references NJOY cited in its invalidity contentions, stating:

The term is used in, for example, U.S. Patent No. 8,156,944 (*see, e.g., id.* at claim 1 (“a heating element provided at the wall of the cylinder”)); U.S. Patent No. 8,794,231 (*see, e.g., id.* at claim 1 (“at least one heating element for heating the second end of the capillary wick”)); U.S. Patent No. 9,427,022 (*see, e.g., id.* at claim 1 (“the heating portion including a heating element for heating the selected substance within the receptacle to a desired temperature sufficient to vaporize the active ingredient of the selected substance for inhalation by a user”)); U.S. Patent Appl. Pub. No. 2009/0255534 (*see, e.g., id.* at claim 1 (“a heating element that makes electrical contact with a power source in the inhalation device when the sealed cartridge is inserted into the inhalation device”)); and U.S. Patent No. 11,229,239 (*see, e.g., id.* at 8:27–28 (“In use, when a user draws on the article 100, the heating element 134 is activated . . . .”)).

JLI 1368 Opening Claim Construction Br. at 28 (EDIS Doc. ID 808809). According to JLI, “[t]he frequent use of the term “heating element” in Respondents’ asserted prior art shows that the term

was used by persons of skill to designate structure.” *Id.* I addressed this prior art in the 1368

Investigation claim construction order, stating that:

The ’231 patent, based on a priority document filed in 2008, states that its replaceable mouthpiece “contains at least one heating element” which may be a “electrically resistive material” and may “take any suitable form” including a heating blade, a casing or substrate, a disk heater with heating needles or rods, a metallic etched foil insulated between two layers of an inert material or a coil of wire surrounding a capillary wick. RMX-0016, ’231 patent at 2:10–3:31. The ’022 patent, based on an application filed in May 2013, states that its heating portion includes a heating element, “such as a nichrome wire or coil, bulb heater, metal screen heater, flat or thin film heater, ceramic heater, polyimide heater, aluminum heater, LED heater, radiative heater, or other heating element suitable for sufficiently heating the substance to be vaporized within the receptacle so as to vaporize the selected substance for inhalation by a user, or various combinations thereof.” RMX-0017, ’022 patent at 2:43–50. The ’534 publication, filed in April 2009, states that the heating element is at least one nickel chromium wire. RMX-0018, ’534 publication at ¶ 27. The ’239 patent, filed in July 2013, states that various embodiments of materials configured to produce heat when electrical current is applied therethrough may be employed to form the resistive heating element. RMX-0019, ’239 patent at 7:12–15.

These documents support that at the time the provisional application from which both the ’722 and ’981 patents claim priority, the term “heating element” was well-known and used in the vaporizer device art and had a sufficiently definite meaning as the name for structure. As NJOY notes, these documents support that there is a range of structures that may be a “heating element.” NJOY Reply at 19. Nonetheless, the term “heating element” was clearly known and was used by those of skill in the art to connote a class of structures.

Order No. 19 at 36–37 (EDIS Doc. ID 816377).

At the claim construction hearing in this investigation, I asked for supplemental briefing on whether “heating element was known structure in the art” and for the parties to address the prior art cited on page 28 of JLI’s opening claim construction brief. Tr. at 257:24–258:6; CMX-0013 at 28. The parties did so and I have considered that briefing.

The Staff contends that “the parties in this investigation agree that the claim term ‘heating element’ . . . is subject to 35 U.S.C. § 112, ¶ 6” and that JLI’s identification of prior art in the 1368 Investigation “does not dictate finding that the claimed ‘heating element’ of the Asserted Patents

should not be subject to 35 U.S.C. § 112, ¶ 6.” Staff Suppl. Br. at 2. On the Staff’s latter point, I agree. The prior art identified by JLI does not dictate whether the “heating element” in the ’881 and ’864 patent claims is construed under § 112, ¶ 6. It does support, however, as does the prior art cited during prosecution of the ’881 and ’864 patents, that the term “heating element” was known to connote structure at the time of the inventions of the ’881 and ’864 patents. As to the Staff’s first point, while the parties have each proposed constructions of “heating element” under § 112, ¶ 6, they have not agreed on those constructions. In addition, each of the parties apparently also believes that “heating element” may not fall within § 112, ¶ 6 because they each have proposed constructions outside of § 112, ¶ 6.

Based on the language of the claims, the disclosure in the specification, and the other intrinsic evidence, I conclude that “heating element” in the ’881 and ’864 patent claims is not subject to § 112, ¶ 6. Because the parties have not fully explained their disagreement (if any) with respect to how this term should be construed outside of § 112, ¶ 6 (although all agree that it can appropriately be so construed) I will address that issue later if necessary after it is addressed by the parties.

**G. Solution Holding Medium Adapted to Hold a Solution**

The parties propose:

| <b>Claim Term and Patent Claims</b>                                                                                                               | <b>NJOY’s Construction</b>                                                                                                                               | <b>JLI’s Construction</b>                                                                                                                                                       | <b>Staff’s Construction</b>                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| solution holding medium adapted to hold a solution<br><br>’881 patent, claims 1 and 16<br><br>’864 patent, claims 1, 5, 9, 21, 25, 29, 38, and 45 | <i>Subject to § 112(6):</i><br><br>Function: holding a solution<br><br>Structure: an absorbent material, capsule, or reservoir, or a combination thereof | <i>Subject to § 112(6):</i><br><br>Function: hold a (liquid, gelatin, frozen or solid) solution.<br>Structures: The structures described in the specification as performing the | Considering that the Staff has agreed with the private parties that the “heating element” phrases are subject to 35 U.S.C. § 112, ¶ 6, the Staff submits that this phrase is also subject |

| Claim Term and Patent Claims | NJOY's Construction                                                                                                                                                                                                                           | JLI's Construction                                                                                                                                                                                                                                                                                                                                                                                                                    | Staff's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              | <p><i>Alternative construction if not subject to § 112(6):</i></p> <p>a location, container, or mechanism to hold the solution, including but not limited to at least one of an absorbent material, a chamber, a reservoir, or a capsule.</p> | <p>entire claimed function are (i) absorbent material such as cotton, wool, polyester, a batting material; (ii) one or more capsules as described and configured in '881 patent 7:25–49 and '864 patent 7:27–51; or (iii) one or more pellets as described and configured in '881 patent 7:25–49 and '864 patent 7:27–51.</p> <p><i>Alternative construction if not subject to § 112(6):</i></p> <p>Means for holding a solution.</p> | <p>to 35 U.S.C. § 112, ¶ 6.</p> <p>Function(s): hold a solution.</p> <p>Structure(s): absorbent material (such as cotton, wool, polyester, batting material), capsule, pellet, and reservoir as described at '881 patent, 4:5–9, 5:49–52, and 7:25–49 and '864 patent, 4:7–11, 5:51–54, and 7:27–51, and equivalents thereof.</p> <p><i>Alternative construction if not subject to § 112(6):</i></p> <p>Plain and ordinary meaning, e.g., a location, container, or mechanism to hold the solution.</p> |

Revised Joint Chart at 7.

The parties propose both that the term is subject to section 112, ¶ 6 and that it is not. Because the term does not recite “means,” there is a rebuttable presumption that section 112, ¶ 6 does not apply. *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1097 (Fed. Cir. 2014). The presumption that § 112, ¶ 6 does not apply is not overcome here.

Turning first to the claim language, claim 1 of the '881 patent recites that the “housing includes a solution holding medium adapted to hold a solution in the interior of the housing” that

the “the solution holding medium surrounds the airflow passageway and the heating element in the interior of the housing and intermediate of the first end and the second end” and that “the heating element is electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium for oral provision to an individual.” The claim thus requires that the solution holding medium hold a solution and surround the airflow passageway and heating element, supporting that the solution holding medium is recited as structure. In particular, the fact that the claim recites that the solution holding medium holds solution supports that it is structure. Indeed, only a structure can hold a solution. The claim language and its context thus support that the “solution holding medium” is structure. The other claims reciting “solution holding medium” also recite that it is adapted to hold solution. For the same reasons, I conclude that the language of these claims supports that the “solution holding medium” recites structure.

The specification discloses that “the solution can be suspended in an absorbent material, capsule, or reservoir, wherein such devices may act as the holding medium for the solution 128.” ’881 patent at 4:6–9. This lexicography, stating that “holding medium” is a type of device, supports that § 112, ¶ 6 does not apply. *Kyocera*, 22 F.4th at 1380–81, *citing MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1342 (Fed. Cir. 2019) (lexicography can avoid application of § 112, ¶ 6).

Based on the intrinsic evidence, I conclude that “solution holding medium” is not subject to § 112, ¶ 6. I also agree with the Staff that “solution holding medium” should be construed to have its plain and ordinary meaning, that is, a location, container, or mechanism to hold the solution.

#### **H. Solution Holding Medium Reservoir Adapted to Hold a Solution**

The parties propose:

| Claim Term and Patent Claim                                                                     | NJOY's Construction                                                                                                                                                                                                                                                                                                                                                                   | JLI's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Staff's Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>solution holding medium reservoir adapted to hold a solution</p> <p>'881 patent, claim 8</p> | <p><i>Subject to § 112(6):</i></p> <p>Function: holding a solution</p> <p>Structure: a reservoir that may additionally include an absorbent material, capsule, or reservoir, or a combination thereof</p> <p><i>Alternative construction if not subject to § 112(6):</i></p> <p>a reservoir to hold the solution, that may additionally include an absorbent material or capsule.</p> | <p><i>Subject to § 112(6):</i></p> <p>Function: hold a (liquid or gelatin) solution.</p> <p>Structures: The structures described in the specification as performing the entire claimed function are (i) absorbent material such as cotton, wool, polyester, a batting material; (ii) one or more capsules as described and configured in '881 patent 7:25-49 and '864 patent 7:27-51; or (iii) one or more pellets as described and configured in '881 patent 7:25-49 and '864 patent 7:27-51.</p> <p><i>Alternative construction if not subject to § 112(6):</i></p> <p>Part of an apparatus in which liquid solution is held.</p> | <p>Considering that the Staff has agreed with the private parties that the “heating element” phrases are subject to 35 U.S.C. § 112, ¶ 6, the Staff submits that this phrase is also subject to 35 U.S.C. § 112, ¶ 6.</p> <p>Function(s): hold a solution.</p> <p>Structure(s): reservoir as described at '881 patent, 4:5-9, and equivalents thereof.</p> <p><i>Alternative construction if not subject to § 112(6):</i></p> <p>Plain and ordinary meaning, e.g., a reservoir to hold the solution.</p> |

Revised Joint Chart at 7–8.

The parties contend that this term is subject to § 112, ¶ 6 and also contend that it may not be. There is a presumption that § 112, ¶ 6 does not apply because claim does not recite “means.”

*Robert Bosch*, 769 F.3d at 1097. The presumption that § 112, ¶ 6 does not apply is not overcome here.

Claim 8 recites “a housing having an interior and a solution holding medium reservoir adapted to hold a solution” and “both the heating element and the airflow passageway being surrounded by the solution holding medium reservoir, the heating element being electrically configured to vaporize at least a portion of the solution to be contained in the solution holding medium reservoir for oral provision to an individual.” The word reservoir in the claim connotes structure and is not a nonce term. In addition, the claim recites the location of the reservoir (in the housing) and that a portion of the solution within the reservoir is vaporized, supporting that the reservoir is claimed as structure.

This is confirmed by the specification, which discloses that the reservoir is a device, stating that “the solution can be suspended in an absorbent material, capsule, or reservoir, wherein such devices may act as the holding medium for the solution 128.” ’881 patent at 4:6–9. This lexicography, stating that the reservoir is a device, supports that § 112, ¶ 6 does not apply. *Kyocera*, 22 F.4th at 1380–81, *citing MTD Prods.*, 933 F.3d at 1342 (lexicography can avoid application of § 112, ¶ 6).

I reject JLI’s argument that the term “reservoir” is functional. Tr. at 291:1–6; JLI Reply at 26; and RMX-0012 at ¶¶ 120–126. To determine whether § 112, ¶ 6 “applies to a claim limitation, we ask ‘whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.’” *Kyocera*, 22 F.4th at 1380, *quoting Williamson*, 792 F.3d at 1348. A claim term recites sufficient structure “if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their

function.” *Skky*, 859 F.3d at 1019. I agree with NJOY that “reservoir” is a structural, not functional term, connoting a class of structures within the context of vaporizer devices. NJOY Reply at 23–25. JLI itself recognizes that a “solution holding medium reservoir” may be “[p]art of an apparatus in which liquid solution is held.” Revised Joint Chart at 8.

In arguing that “solution holding medium reservoir” may properly be construed as not falling within § 112, ¶ 6, NJOY contends that the term means “a reservoir to hold the solution, that may additionally include an absorbent material or capsule.” Nothing in the claim language requires that an absorbent material or capsule be part of the claimed reservoir. And the specification identifies absorbent material and capsules as distinct from a reservoir. ’881 patent at 4:6–9. In addition, being written in “comprising” format, a structure covered by claim 8 may include additional elements, such as an absorbent material or capsule, not specifically identified in the claim. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 812 (Fed. Cir. 1999) (“[T]he signal ‘comprising’ accommodates additional variables, provided that all the elements stated in the claim are present.”). I therefore do not adopt NJOY’s proposed construction that the reservoir “may additionally include an absorbent material or capsule.”

The claim term “solution holding medium reservoir adapted to hold a solution” is not subject to 35 U.S.C. § 112(6) and is construed as having its plain and ordinary meaning, which, consistent with the Staff’s proposal, is a reservoir to hold the solution.

**SO ORDERED.**



Doris Johnson Hines  
Administrative Law Judge