

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

PROLITEC INC.,

Plaintiff,

v.

SCENTAIR TECHNOLOGIES, LLC,

Defendant.

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Civil Action No. 20-984-WCB

FILED UNDER SEAL

MEMORANDUM OPINION AND ORDER

In this patent infringement case, the parties have each filed motions for summary judgment. Defendant ScentAir Technologies, LLC, seeks summary judgment of no direct or indirect infringement. Dkt. No. 217 at 1. Plaintiff Prolitec Inc. seeks partial summary judgment that its asserted claims are not indefinite, not obvious, and not anticipated by various ScentAir products. Dkt. No. 218 at 1.

Each party has also moved to exclude certain expert testimony from the opposing party pursuant to *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). ScentAir seeks to exclude testimony from two of Prolitec’s expert witnesses, Marcus Hultmark and Robert Vigil. Dkt. No. 217 at 1–2. Prolitec seeks to exclude testimony from Prolitec’s expert, Timothy Morse, relating to (1) whether the preambles of the asserted claims are limiting, (2) whether the accused products exhibit “channel flow,” and (3) whether the claims are anticipated by the AirQ products. Dkt. No. 218 at 1. I heard oral argument on these motions on December 5, 2023.

I. BACKGROUND

Prolitec alleges that ScentAir infringes six claims across two of Prolitec's patents: dependent claims 17 and 23 of U.S. Patent No. 9,162,004 ("the '004 patent") and dependent claims 15–17 and 22 of U.S. Patent No. 9,745,976 ("the '976 patent"). Prolitec originally alleged that ScentAir infringed various additional claims across four patents but dropped those additional claims following an *inter partes* review ("IPR") proceeding in which the Patent Trial and Appeal Board ("PTAB") found those additional claims unpatentable. *See* Dkt. Nos. 108-3 and 108-5.

In its counterclaim, ScentAir asserts that Prolitec infringes ScentAir's U.S. Patent No. 10,838,388. The court has stayed the proceedings on ScentAir's counterclaim, however, pending an *ex parte* reexamination of ScentAir's patent by the U.S. Patent and Trademark Office. Dkt. No. 212.

A. The Patents in Suit

The '976 patent is a continuation of the '004 patent. Both patents are titled "Removable Cartridge for Liquid Diffusion Device and Cartridge Insert Thereof." The specifications of the two patents are nearly identical, and the patents share the same 10 figures.

Claims 17 and 23 of the '004 patent both depend from claim 9 of that patent. Those claims cover the following subject matter:

9. A cartridge for use with a liquid diffusing device, the cartridge comprising:
a cartridge housing defining an internal housing cavity partially filled with a liquid to be diffused;

a diffusion head positioned within the internal housing cavity, the diffusion head including a venturi device for generating a diffused liquid from the liquid contained in the internal housing cavity; and

an insert positioned downstream of the diffusion head, the insert including an inlet to receive the diffused liquid generated by the venturi device, an outlet zone through which to discharge the diffused liquid toward an external environment, and a tortuous passage extending between the inlet and the outlet zone.

17. The cartridge of claim 9 wherein the tortuous passage follows a non-linear path that assists in preventing liquid from leaking from the cartridge when the cartridge is upended.

23. The cartridge of claim 9 wherein the tortuous passage of the insert is configured to provide a convoluted flow path that retards a flow of the liquid to be diffused through the insert when the cartridge is temporarily held upside-down.

Claims 15–17 and 22 of the '976 patent all depend from independent claim 9 of that patent.

Those claims cover the following subject matter:

9. A cartridge for use with a liquid diffusing device, the cartridge comprising:

a cartridge housing defining an internal housing cavity partially filled with a liquid to be diffused;

a venturi device for generating a diffused liquid from the liquid contained in the internal housing cavity; and

an insert positioned downstream of the venturi device, the insert including an inlet to receive the diffused liquid generated by the venturi device, an outlet zone through which to discharge the diffused liquid toward an external environment, and a tortuous passage extending between the inlet and the outlet zone, the tortuous passage being partially capped by the cartridge housing to enclose a portion of the tortuous passage and to define an aerosol outlet at a remaining uncovered portion.

15. The cartridge of claim 9 wherein the tortuous passage is at least partially defined by a vertical sidewall of the insert.

16. The cartridge of claim 9 wherein the tortuous passage follows a non-linear path that assists in preventing liquid from leaking from the cartridge when the cartridge is upended.

17. The cartridge of claim 9 wherein the insert is provided between the cartridge housing and the venturi device.

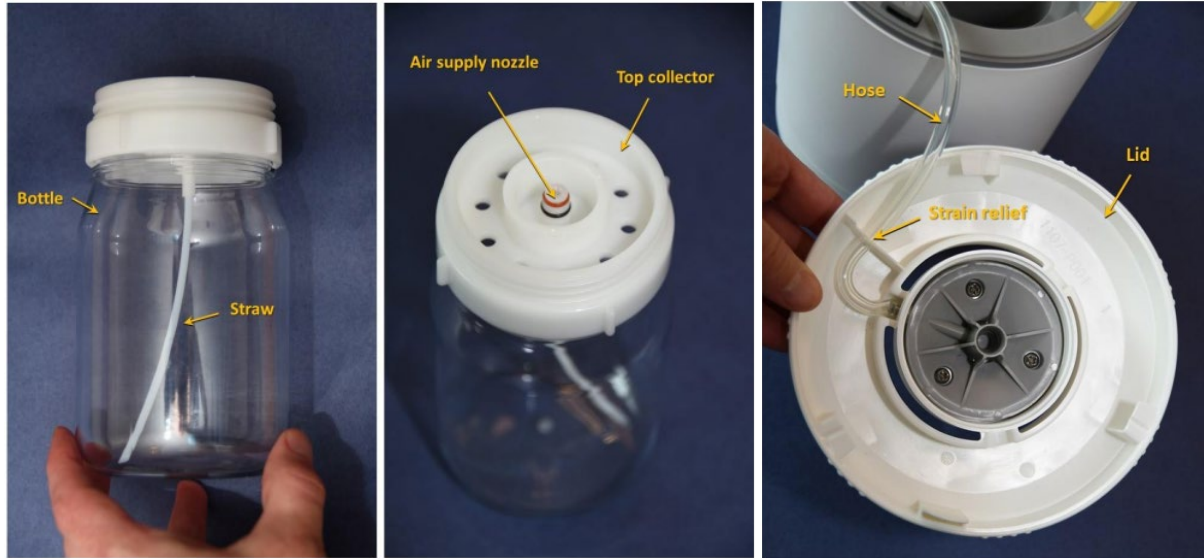
22. The cartridge of claim 9 wherein the tortuous passage of the insert is configured to provide a convoluted flow path that retards a flow of the liquid to be diffused through the insert when the cartridge is temporarily held upside-down.

All six asserted claims share a common preamble, derived from the two independent claims. The preamble recites “[a] cartridge for use with a liquid diffusing device.”

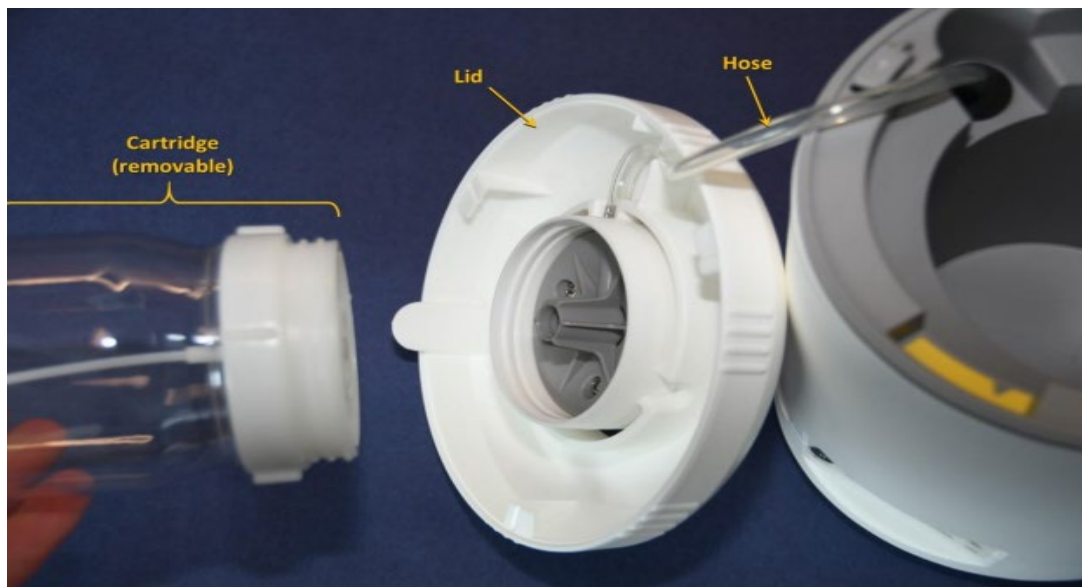
After the conclusion of the IPR proceeding, the court construed three terms or phrases used in the claims: (1) the term “tortuous passage” was construed to mean a “physical channel having repeated twists, bends or turns”; (2) the phrase “assists in preventing the liquid from leaking” was given its plain and ordinary meaning, although the court added that ScentAir would be precluded from arguing that the liquid cannot leak; and (3) the phrase “retards a flow of the liquid” was given its plain and ordinary meaning. Dkt. No. 124.

B. The Accused Products

ScentAir’s “Breeze” product is a liquid scent diffuser, which operates by atomizing liquid fragrance oil and dispersing droplets of the fragrance oil within a target space using a pump and a fan. Dkt. No. 220-10, Ex. 10 at ¶ 30. The product has two principal parts: the dispersing or diffusion device itself (the “Breeze diffusion device”) and a removable fragrance cartridge (the “Breeze cartridge”). *Id.* at ¶ 31. The Breeze cartridge is a disposable bottle that arrives in a separate box from the Breeze diffusion device. *Id.* The Breeze diffusion device includes, among other components, a lid that is connected by a plastic air supply hose to the body of the diffusion device. *Id.* Images of the Breeze cartridge (left and center) and the Breeze device (right) are shown below.



Dkt. No. 220-10, Ex. 10 at ¶¶ 30, 31.



Id. at ¶ 32.

To use the Breeze cartridge with the Breeze diffusion device, the user screws the cartridge into the lid of the device. *See id.* at ¶ 31. Replacing the Breeze cartridge is done in the same way, as demonstrated in the excerpt from the Breeze user manual, set forth below:

REPLACING YOUR FRAGRANCE CARTRIDGE

You should know three things before you begin:

- **Never** pick up or move the device while replacing the fragrance cartridge.
- **Always** keep the device vertically upright.
- **Be Cautious** as the fragrance oil can damage wood surfaces if spilled.

Follow these instructions to replace the fragrance cartridge safely.

1. Remove the device lid.

Turn the lid counterclockwise (to the left) to unlock and remove it.

2. Carefully unscrew the fragrance cartridge from your device lid attached to the underside of the device lid.

3. Set the old fragrance cartridge aside for disposal.

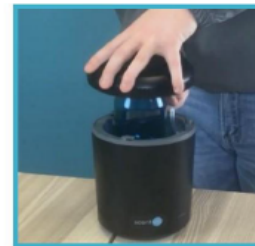
4. Remove the fragrance cartridge from its box.
Set the cartridge on a level surface.

5. Carefully remove the cartridge lid and set it aside for disposal.

6. Screw the fragrance cartridge into the device lid on the underside of the device lid. Be sure to keep the fragrance cartridge level to prevent spilling the fragrance oil.

7. Place and lock device lid onto the device.

Set the device lid so that fragrance cartridge sits in the center of the device. Tighten the lid by turning it clockwise (to the right) until you feel the lid click into a locked position.



Dkt. No. 220-3, Ex. 3 at SCENTAIR_00028286. The insertion of the Breeze cartridge into the body of the of the Breeze diffusion device is depicted below:



Dkt. No. 220-9, Ex. 9 at 25.

Prolitec’s expert, Dr. Hultmark, testified at his deposition that it is possible to disconnect the air hose from the lid of the diffusion device. Dkt. No 223-6, Ex. F at 220:6–221:13. However, the Breeze user manual instructs that the hose “should not be removed, as it connects the device lid to the pump” located within the body of the diffusion device, Dkt. No. 220-3, Ex. 3 at SCENTAIR_00028271. ScentAir’s expert, Dr. Morse, acknowledged at his deposition that the hose could be disconnected from the lid, but he added that doing so would “probably plastically deform the hose, so you’d probably damage it in some way.” Dkt. No. 223-4, Ex. D at 256:15–257:3.

C. The Prior Art

There are three prior art products relevant to the parties’ motions: the Air Berger ScentBox, the ScentAir ScentDirect, and the ScentAir ScentStream.

Air Berger is a French company that ScentAir acquired in July 2023. *See* Dkt. No. 219-1, Ex. D. Air Berger’s ScentBox product was publicly available before the priority date of both asserted patents. *See* Dkt. No. 219 at 15; Dkt. No. 224 at 18. After purchasing Air Berger, ScentAir began selling its own ScentBox product, which Dr. Morse analyzed in forming his opinions. Dkt. No. 224 at 18. According to ScentAir, there have been no material changes to the ScentBox design since ScentAir’s 2013 acquisition of Air Berger.

The ScentDirect product is the commercial embodiment of U.S. Patent No. 8,881,999 (“Baylock”), which ScentAir owns. *See* Dkt. No. 219 at 18–22; Dkt. No. 224 at 24–26 (not identifying any material differences between Baylock and the ScentDirect product). The ScentStream product is also manufactured by ScentAir and is similar but not identical to the device disclosed in Baylock. *See* Dkt. No. 219 at 24 (describing Baylock and the ScentStream product as “substantially similar”).

II. LEGAL STANDARDS

The court “shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). A material fact is “genuine” if the evidence is such that a reasonable jury could return a verdict for the nonmoving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). With regard to an issue on which the nonmoving party bears the burden of proof at trial, the party seeking summary judgment “bears the initial responsibility of informing the district court of the basis for its motion, and identifying those portions of ‘the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any,’ which it believes demonstrate the absence of a genuine issue of material fact.” *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986) (quoting Fed. R. Civ. P. 56(c) as of 1986). The burden on the moving party in that

situation can be satisfied by “showing,” that is, by “pointing out to the district court—that there is an absence of evidence to support the nonmoving party’s case.” *Id.* at 325. If the moving party carries its burden, the nonmovant must “come forward with specific facts showing that there is a genuine issue for trial.” *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986) (cleaned up).

The admissibility of expert testimony is governed by the Supreme Court’s decision in *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), and its progeny. Under *Daubert* and Federal Rule of Evidence 702, the trial court is assigned the task of ensuring that an expert’s testimony rests on a reliable foundation and is relevant to the task at hand. *Id.* at 597. In particular, the court must determine whether the reasoning or methodology underling the expert’s testimony is scientifically valid and whether the reasoning or methodology can properly be applied to the facts at issue. *Id.* at 593. In *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999), the Court made clear that the *Daubert* framework applies broadly to “scientific, technical, or other specialized knowledge,” and that the rules of evidence require the trial judge to determine “whether the testimony has ‘a reliable basis in the knowledge and experience of [the relevant] discipline.’” *Id.* (quoting *Daubert*, 509 U.S. at 592).

III. SCENTAIR’S MOTIONS

ScentAir moves for summary judgment of no direct infringement and no indirect infringement, and to exclude certain expert testimony at trial. Dkt. No. 217.

A. Direct Infringement

ScentAir argues that the accused Breeze product does not directly infringe the asserted claims either literally or under the doctrine of equivalents. ScentAir’s argument is that the Breeze cartridge does not include all limitations of the asserted claims and that the Breeze cartridge and

the lid of the Breeze diffusion device do not, in combination, constitute a “cartridge,” as that term is used in the claims. There are two main sub-disputes pertinent to this issue: (1) whether the preambles of the asserted claims should be construed as limiting and, if so, (2) whether there is a material dispute of fact regarding infringement by the combination of the Breeze cartridge and the lid of the Breeze diffusion device.

1. Claim Construction Issues

ScentAir argues that in light of the positions the parties have taken on summary judgment, the court is required to conduct further claim construction addressed to the preambles of the asserted claims. Although the parties focus on whether the preamble language is limiting, the most important unresolved question regarding claim construction is what the claim term “cartridge” means—in particular whether the claimed cartridge must be “removable” and what constitutes removability in this context.

Each of the asserted claims contains a preamble that recites “[a] cartridge for use with a liquid diffusing device.” ScentAir argues that the preambles are limiting and that the term “cartridge” in the preambles should be construed to mean a “separate part removable from, and receivable by, a liquid diffusing device.” Dkt No. 220 at 11. In response, Prolitec first contends that ScentAir waived that argument by not raising it in the claim construction proceedings. Dkt. No. 223 at 6. Second, Prolitec argues that the preambles are not limiting. *Id.* at 7.

In support of its claim of waiver, Prolitec argues that ScentAir was on notice prior to claim construction that Prolitec considered the combination of the lid of the Breeze product, together with the Breeze cartridge, to infringe the asserted claims. ScentAir disputes Prolitec’s assertion regarding notice. According to ScentAir, Prolitec’s “vague infringement allegations” were

insufficient to provide notice of Prolitec's position that the combination of the Breeze cartridge and lid was infringing. Dkt. No. 226 at 2.

I agree with ScentAir that Prolitec did not explicitly advance a theory of infringement based on the combination of the Breeze cartridge, funnel, and lid prior to the claim construction proceedings. Because Prolitec had not expressly stated at the time of claim construction that its theory of infringement was that the cartridge-lid combination was the infringing component of the Breeze product, the question whether the preambles are limiting, together with the meaning of the term "cartridge," did not emerge as critical issues at that time. In light of the positions the parties have taken in the briefing on the dispositive motions, that issue is before the court now.

While it is preferable for claim construction disputes to be fully vetted and resolved at the time of formal claim construction proceedings, the court has a duty to resolve fundamental disputes about the meaning of claims even when the disputes arise after claim construction proceedings are concluded. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008); *see also Conoco, Inc. v. Energy & Env't Int'l, L.C.*, 460 F.3d 1349, 1359 (Fed. Cir. 2006) ("[A] district court may engage in claim construction during various phases of litigation, not just in a *Markman* order."); *SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1291 (Fed. Cir. 2005) (claim construction can be revised after preliminary injunction proceedings); *ART+COM Innovationpool GmbH v. Google Inc.*, 155 F. Supp. 3d 489, 507 (D. Del. 2016) (additional claim construction conducted at the summary judgment stage). The dispute over the preambles, and in particular the meaning of the term "cartridge," has now arisen. In light of the parties' current positions on infringement, it is clear that the meaning of that term and whether the preambles of the two independent claims are limiting are of central importance in the resolution of the present motions.

Although a preamble does not ordinarily limit a claim, a preamble is considered limiting if it “describes a fundamental characteristic of the claimed invention that informs one of skill in the art as to the structure required by the claim.” *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1357–58 (Fed. Cir. 2012); *see also Bell Commc’ns Research, Inc. v. Vitalink Commc’ns Corp.*, 55 F.3d 615, 620 (Fed.Cir.1995) (“When the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.”). Similarly, “[w]hen limitations in the body of the claim rely upon and derive antecedent basis from the preamble, . . . the preamble may act as a necessary component of the claimed invention.” *Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003).

In this case, the preambles are clearly limiting. The specifications and the claims both make clear that the asserted claims are directed to a removable cartridge that operates in conjunction with a liquid diffusing device. The ’976 and ’004 Patents are both titled “Removable Cartridge for Liquid Diffusion Device and Cartridge Insert Thereof.” The background sections of both patents describe the need for improved “cartridges and cartridge components,” rather than improved scent diffusion devices more generally. *See* ’004 Patent at 1:42–43; ’976 Patent at 1:42–43. The specifications further explain that their respective disclosures relate “specifically to a removable cartridge for use with a diffusion device,” ’976 Patent at 4:5–6; and that the “cartridges . . . may be used with a diffusion device or system . . . adapted to removably receive” them, ’004 Patent at 4:4–6. Perhaps most compellingly, the detailed descriptions of both patents explain that scent diffusion devices, “which may be adapted to receive embodiments of the cartridges and cartridge components described herein are not shown or described in further detail to avoid

unnecessarily obscuring descriptions of such embodiments.” ’004 Patent at 3:35–39; ’976 Patent at 3:39–43 (same quote).

The specifications teach that the removability of the claimed cartridge is a key feature of the invention. Read in light of the specifications, the preambles of independent claim 9 of the ’004 patent and independent claim 9 of the ’976 patent limit the scope of those claims and the claims that depend from them to a “cartridge” that is removable from the rest of the diffusion device. The preambles are thus limiting.

Both parties agree that if the preambles are limiting, the claimed cartridge must be removable. In its opening brief, ScentAir proposed that the term “cartridge” be construed to mean a “separate part removable from, and receivable by, a liquid diffusing device.” Dkt. No 220 at 11. In its brief, Prolitec proposed that if the court deemed it necessary to construe the term “cartridge,” then that term should be construed to mean a “removable assembly.” Dkt. No. 223 at 12. ScentAir does not oppose the use of “assembly” in the construction, nor does it oppose the omission of “receivable by a liquid diffusion device.” Dkt. No. 226 at 6. Thus, the parties agree that the cartridge is a unit that may consist of multiple components but must be removable as a unit.

The problem with the parties’ proposed constructions is that they do not fully resolve the parties’ dispute. While both parties agree that the claimed cartridge must be removable and that it can consist of an assembly of multiple components, they disagree about what it means for the cartridge to be removable. Prolitec argues that the combination of the cartridge and the lid of the Breeze diffusion device serves as a functional unit that is removable from the body of the device because it is possible to detach that combination from, and reattach it to, the air hose that connects the lid to the body of the device. ScentAir argues that the combination of the cartridge and the lid of the Breeze device does not constitute a removable unit, because the mere possibility that the air

hose can be detached does not overcome the fact that in the Breeze product the lid, the hose, and the body of the device were designed to function as a single unit and not as a set of separable parts.

To address this issue, I requested supplemental briefing on the meaning of “removable” in the parties’ proposed constructions. ScentAir argued that an assembly is removable if it is “designed to be separable from the liquid diffusion device.” Dkt. No. 237 at 1. Prolitec argued that removability means “able to be detached or separated,” regardless of whether the device was designed for that purpose. The core dispute as to the construction of “cartridge” is thus whether, to be a cartridge, an assembly must be “designed to be removed and replaced.” Dkt. No. 237 at 2.

The words of a claim “are generally given their ordinary and customary meaning,” i.e., “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–1313 (Fed. Cir. 2005). The plain and ordinary meaning of a removable “cartridge,” as that term is used in the patents, is an assembly designed to be removable so that it can be replaced with a like assembly. Both the intrinsic and extrinsic evidence favor that construction.

In construing claims, courts “look first to the intrinsic evidence of record.” *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). “[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Phillips*, 415 F.3d at 1313. The specifications of the patents at issue in this case describe cartridges that may be “removed from a host device upon depletion of the liquid and replaced with another like cartridge” as an improvement over refillable reservoirs. ’004 patent, 1:29–36; ’976 patent, 1:30–36; *see also* ’004 patent, 6:35–37; ’976 patent, 6:45–46 (“the cartridge [] may be readily removed and replaced with a like cartridge”). The specifications further state that “the depleted cartridge

may be discarded as an intact unit or collected for refurbishment purposes.” ’004 patent, 6:38–40; ’976 patent, 6:48–50. The specifications thus make clear that the claimed cartridge is a device that can be readily removed, may be discarded, and may be replaced with another like cartridge.

To construe claims, courts also look to extrinsic evidence, including dictionaries. *See Phillips*, 415 F.3d at 1317–18. The pertinent dictionary definition of “cartridge” is “a usually replaceable or refillable case containing loose material and designed to permit ready insertion into a larger mechanism, apparatus, or installation,” such as a filter cartridge or a cartridge of compressed gas. *Webster’s Third New International Dictionary* 345 (2002 ed.). That definition is consistent with the specification’s use of the term “cartridge” to mean an assembly that is readily removable and replaceable with a similar assembly.

To be sure, removability and replaceability are terms of degree. Virtually “anything can be removed if one is willing to destroy the device to remove it.” *Neonatal Prod. Grp., Inc. v. Shields*, No. 13-2601, 2016 WL 1746788, at *9 (D. Kan. May 3, 2016). Likewise, nearly anything can be replaced if enough resources are invested in replacing it. There is no indication in the patents how readily removable or easily replaceable a cartridge must be. Removability and replaceability are therefore best understood in relation to the design intent. An assembly is removable and replaceable if it is designed for that purpose.

Prolitec argues that, because all the asserted claims are apparatus claims, the claim terms should not be defined by reference to their intended use. Dkt. No. 236 at 4 (citing *Paragon Sols., LLC v. Timex Corp.*, 566 F.3d 1075, 1090 (Fed. Cir. 2009) (“Apparatus claims cover what a device is, not what a device does.”)). Prolitec argues, therefore, that the court’s claim construction should not depend on “how a manufacturer recommends the device to be used.” Dkt. No. 236 at 4. However, framing the construction of “cartridge” by reference to how a device is designed is

distinct from how a manufacturer recommends the device to be used. It is not improper to construe an apparatus claim by reference to the manner in which it is designed to operate. *See e.g., W. View Research, LLC v. BMW of N. Am., LLC*, No. CV 18-211, 2019 WL 1047479, at *4 (D. Del. Mar. 5, 2019) (construing “mobile computerized electronic apparatus” to mean “a computerized apparatus which is designed to be portable, or is affixed to or part of another object designed to be readily movable”); *Intuitive Surgical, Inc. v. Auris Health, Inc.*, 549 F. Supp. 3d 362, 369 (D. Del. 2021) (construing “‘end effector’ to mean ‘device at the end of an instrument used in surgery designed to interact with the environment’”); *Neonatal Prod. Grp., Inc. v. Shields*, 276 F. Supp. 3d 1120, 1130 (D. Kan. 2017) (construing “removable reservoir” to mean “a liquid-holding receptacle designed to be removed”).

“Cartridge,” as that term is used in the asserted claims, is therefore properly construed to mean an “assembly designed to be removable and replaceable with a like assembly.”

2. Literal Infringement by the Cartridge-Lid Functional Unit

Prolitec contends that, regardless of how the court construes the preambles of the asserted claims, a fact issue remains as to whether the combination of the Breeze cartridge and the lid of the Breeze diffusion device constitutes a “cartridge” within the meaning of the claims. At the core of that dispute is whether the cartridge and lid are a functional unit that is “removable and replaceable,” as contemplated by the claims as construed.

The parties do not dispute that screwing the Breeze cartridge into the lid of the Breeze device creates a cartridge-lid assembly that is connected to the body of the Breeze diffusion device by a plastic air hose. *See* Dkt. No. 223 at 14; Dkt. No. 220 at 17. Prolitec contends that the combination of the cartridge and the lid constitutes a functional assembly that is removable and replaceable and therefore infringes the asserted claims. *See* Dkt. No. 223 at 14 (“The accused

components . . . are, as a unit, removable and replaceable”). As ScentAir notes, however, “only the Breeze Cartridge is *designed* for removal and replacement.” Dkt. No. 220 at 16 (emphasis added). The lid of the Breeze diffusion device is not designed for removal and replacement when the cartridge is replaced. No reasonable jury could find otherwise.

Prolitec argues that the Breeze cartridge and the lid of the Breeze diffusion device together constitute a removable cartridge within the meaning of the claims. According to Prolitec, that is because the lid can be disconnected from the body of the diffusion device lid by cutting the air hose or pulling the air hose loose from lid. If that is done, Prolitec argues, the Breeze cartridge can be screwed into the lid, and the two components together will constitute a cartridge that satisfies all the limitations of the asserted claims. In particular, Prolitec contends that the combined unit will consist of a diffusion head including (1) a venturi device for generating a diffused liquid, (2) an insert downstream of the diffusion head including (3) an inlet to receive the diffused liquid generated by the venturi device, (4) an outlet zone through which to discharge the diffused liquid, and (5) a tortuous passage between the inlet and outlet zone. *See* ’004 patent, claim 9; ’976 patent, claim 9.

The problem with Prolitec’s theory of infringement is that the Breeze product is not designed to function in the way Prolitec describes, and as a result the cartridge-lid assembly does not infringe the claims as construed. The Breeze user manual expressly instructs the user to “NEVER” disconnect the lid of the Breeze diffusion device from the body of the diffusion device. Dkt. No. 220-3, Ex. 3 at 28271 (all caps in original). The user manual further instructs that the hose connecting the device lid to the greater body “should not be removed.” *Id.* at 28269. Those directives indicate that the cartridge and the lid do not constitute a functional unit that is designed to be removable from the body of the diffusion device and replaced. *See Neonatal*, 276 F. Supp.

3d at 1143–44 (granting summary judgment of non-infringement where the claims required a component to be “removable,” but the user manual instructed against performing actions necessary to remove the component).

The record makes clear that it is the Breeze cartridge without the lid—not the cartridge-lid combination—that is designed for replacement and removal. *See* Dkt. No. 220, Ex 3 at 28286. The Breeze cartridge is designed to be installed by screwing it into the lid, which remains attached to the device by the plastic air hose, and to be replaced by unscrewing the spent cartridge from the lid and screwing a fresh cartridge into the lid in its place, as described in the portion of the Breeze user manual set forth below:

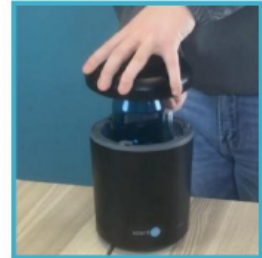
REPLACING YOUR FRAGRANCE CARTRIDGE

You should know three things before you begin:

- **Never** pick up or move the device while replacing the fragrance cartridge.
- **Always** keep the device vertically upright.
- **Be Cautious** as the fragrance oil can damage wood surfaces if spilled.

Follow these instructions to replace the fragrance cartridge safely.

- 1. Remove the device lid.**
Turn the lid counterclockwise (to the left) to unlock and remove it.
- 2. Carefully unscrew the fragrance cartridge from your device lid** attached to the underside of the device lid.
- 3. Set the old fragrance cartridge aside for disposal.**
- 4. Remove the fragrance cartridge from its box.**
Set the cartridge on a level surface.
- 5. Carefully remove the cartridge lid and set it aside for disposal.**
- 6. Screw the fragrance cartridge into the device lid on the underside of the device lid.** Be sure to keep the fragrance cartridge level to prevent spilling the fragrance oil.
- 7. Place and lock device lid onto the device.**
Set the device lid so that fragrance cartridge sits in the center of the device. Tighten the lid by turning it clockwise (to the right) until you feel the lid click into a locked position.



Id.

The Breeze cartridge is designed to be disposed of following removal. The cartridge-lid combination, by contrast, is not designed to be disposed of, as doing so would unnecessarily require replacement of the lid. In light of the instructions in the user manual, no reasonable juror could view the cartridge-lid combination as a functional unit designed to be removable and replaceable. Removing and replacing the cartridge by itself is not only the indicated mode of replacing the spent fragrance agents, but it is also easier to do and is less wasteful.

Because a reasonable jury could not conclude that the cartridge-lid combination is an assembly designed to be removable and replaceable by a like assembly, Prolitec's theory of literal infringement necessarily fails. Specifically, the third limitation of both independent claim 9 of the '004 patent and independent claim 9 of the '976 patent is not satisfied, because that limitation requires that the cartridge contain "an insert" that includes "a tortuous passage extending between the inlet and outlet zone." Because Prolitec's theory is that the tortuous passage in the Breeze product is a passage created by the mating of the cartridge and the lid, the Breeze cartridge by itself does not have the alleged tortuous passage identified by Prolitec. The Breeze cartridge therefore does not literally infringe claim 9 of the '004 patent or claim 9 of the '976 patent. For the same reason, the Breeze cartridge does not literally infringe the additional limitations found in dependent claims 17 and 23 of the '004 patent and dependent claims 15, 16, and 22 of the '976 patent, all of which require that the cartridge contain a tortuous passage. ScentAir is therefore entitled to summary judgment of no literal infringement.

3. Infringement Under the Doctrine of Equivalents

Prolitec argues that even if the accused product does not literally satisfy the "cartridge" limitation recited in the preamble, ScentAir can be found liable for infringement under the doctrine of equivalents. Dkt. No. 223 at 17. ScentAir responds that it is entitled to summary judgment of no infringement under the doctrine of equivalents.

ScentAir argues, first, that treating the accused cartridge-lid combination as equivalent to the claimed cartridge would vitiate the cartridge limitation found in the preamble. Dkt. No. 220 at 20. Second, ScentAir argues that Prolitec's equivalence theory fails as a matter of law because it relies on the asserted equivalence of the accused device to the invention as a whole instead of looking to whether particular features of the accused device are equivalent to specific claim

limitations. *Id.* at 22. Third, ScentAir contends that Prolitec has failed to set forth a hypothetical claim that would support its doctrine of equivalents theory without ensnaring the prior art. *Id.* at 23.

Contrary to ScentAir's contention, Prolitec's doctrine of equivalents argument does not vitiate the requirement that the accused device contain a cartridge that is removable. There is no question that the accused Breeze product features a removable cartridge. The problem is that the removable cartridge in the Breeze product does not by itself contain (1) "a tortuous passage extending between the inlet and the outlet zone," as required by the independent claims in both asserted patents, or (2) the tortuous passage required by the additional limitations in five of the six asserted dependent claims. That is because the Breeze cartridge does not, by itself, define a tortuous passage. But ScentAir has not shown that the Breeze product as a whole lacks any of the components required by the asserted claims or fails to perform any of the functions required by those claims. Instead, ScentAir contends that those structures are not found in, and those functions are not performed by, the removable cartridge in the Breeze product. Instead, there are factual issues as to whether those structures and functions are found, at least in part, in components of the Breeze product that are not removable. Whether those structures and functions are equivalent to the structures and functions set forth in the asserted claims presents a factual question under the doctrine of equivalents.

ScentAir also argues that Prolitec's doctrine of equivalents theory fails as a legal matter because Dr. Hultmark focused on the "invention as a whole" and on independent claim 9 rather than on the asserted dependent claims. Dkt. No. 220 at 22. ScentAir's claim is unsupported by the record. Dr. Hultmark provided a limitation-by-limitation analysis of infringement. *See* Dkt. No. 220-9, Ex. 9 at ¶¶ 54-117. His analysis included references to both the asserted dependent

claims, *id.* at ¶¶ 70-85, 109-116, and the preambles of the independent claims, *id.* at ¶ 57, in the context of literal infringement. And his literal infringement analysis was incorporated into his doctrine of equivalents analysis. *See id.* at ¶¶ 86-87. As such, Dr. Hultmark’s opinion was properly directed to the limitations of the asserted claims.

Finally, ScentAir is not entitled to summary judgment of noninfringement based on the doctrine of ensnarement, which is based on the Federal Circuit decision in *Wilson Sporting Goods Co. v. David Geoffrey & Assocs.*, 904 F.2d 677 (Fed. Cir. 1990). A patentee asserting the doctrine of equivalents has no obligation to construct a hypothetical claim that would read on the asserted equivalent but not on the prior art. *See Jang*, 872 F.3d at 1285 n.4 (“The hypothetical claim analysis is not the only method in which a district court can assess whether a doctrine of equivalents theory ensnares the prior art.”); *Conroy v. Reebok Int’l, Ltd.*, 14 F.3d 1570, 1576–77 (Fed. Cir. 1994) (“While the hypothetical claim analysis is a useful methodology because the clear step-by-step process facilitates appellate review, nothing in *Wilson* mandates its use as the only means for determining the extent to which the prior art restricts the scope of equivalency that the party alleging equivalency under the doctrine of equivalents can assert.”).

To the contrary, hypothetical claim analysis is “an optional way of evaluating whether prior art limits the application of the doctrine of equivalents. It is simply a way of expressing the well-established principle ‘that a patentee should not be able to obtain, under the doctrine of equivalents, coverage which he could not lawfully have obtained from the PTO by literal claims.’” *Int’l Visual Corp. v. Crown Metal Mfg. Co.*, 991 F.2d 768, 772 (Fed. Cir. 1993) (citing *Wilson*, 904 F.2d at 684–85)). Thus, hypothetical claim analysis can be a useful tool for patent owners to rebut an ensnarement argument, but patent owners are not obligated to use it.

In its reply brief, ScentAir argues that, even if not in the form of a hypothetical claim analysis, Prolitec must still offer “*some* analysis” and evidence to rebut ensnarement. Dkt. No. 226 at 9-10 (emphasis in original). That argument misapplies the summary judgment standard. As the party seeking summary judgment, ScentAir “bears the initial responsibility of informing the district court of the basis for its motion, and identifying” the evidence “which it believes demonstrate the absence of a genuine issue of material fact.” *Celotex*, 477 U.S. at 323; *see also Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co.*, 204 F.3d 1360, 1365 (Fed. Cir. 2000); *Streamfeeder, LLC v. Sure-Feed Sys., Inc.*, 175 F.3d 974, 983 (Fed. Cir. 1999); *Nat’l Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1192 (Fed. Cir. 1996). Prolitec has made a *prima facie* showing of equivalence by pointing out that the Breeze product contains all the features of the asserted claims, although some of those features are found in the lid rather than in the removable cartridge. In its motion for summary judgment, ScentAir has not identified any prior art that would be ensnared by construing the asserted claims to include a device in which the removable cartridge contains fewer than all the claimed functions, and in which those functions are performed by a different component of the device. ScentAir’s sole record citation in support of its argument is to Dr. Hultmark’s deposition, in which Dr. Hultmark admitted that he did not “construct a hypothetical claim that would literally cover the ScentAir Breeze device.” Dkt. No. 220 at 23 (citing Dkt. No. 220-8, Ex. 8 at 269:11-19). As such, ScentAir has not met its burden of production by identifying prior art that would be captured by a claim in which one or more of the claimed features are housed in a portion of the device other than the removable cartridge. ScentAir’s motion for summary judgment of no direct infringement under the doctrine of equivalents is therefore denied.

B. Indirect Infringement

ScentAir next moves for summary judgment of no indirect infringement under sections 271(b), (c), and (f) of the Patent Act. In support of its motion, ScentAir argues that Prolitec has failed to allege that ScentAir indirectly infringes and has not established any facts supporting indirect infringement. The record contradicts ScentAir's position. Prolitec broadly pleaded infringement under 35 U.S.C. § 271. *See* Dkt. No. 164 at ¶¶ 26, 33. And in its infringement contentions, Prolitec specifically asserted induced infringement, contributory infringement, and infringement under section 271(f) as among the varieties of section 271 liability that it was asserting against ScentAir. *See* Dkt. No. 220-5, Ex. 5 at 1; *id.*; Dkt. No. 220-6, Ex. 6 at 1–2.

The facts of record are sufficient to withstand summary judgment on the allegations of indirect infringement. ScentAir has been aware of the asserted patents since at least July 24, 2020, when this litigation was initiated. Prolitec has pointed to evidence that ScentAir sells Breeze cartridges for use with the Breeze product, *see* Dkt. No. 223-3, Ex. C at 69:15–18, thereby inducing infringement if the Breeze product itself is found to infringe under the doctrine of equivalents. As such, Prolitec has satisfied its burden under section 271(b). Prolitec has also offered evidence that ScentAir sells Breeze cartridges in the United States, thereby satisfying section 271(c). And there is sufficient evidence in the record to establish infringement under section 271(f), because Prolitec has pointed to evidence that ScentAir manufactures the various Breeze components in the United States, *see id.* at 71:22–74:18, and sells them to customers outside the United States, *see id.* at 74:10–11. In addition, and more to the point with regard to section 271(f) liability, Prolitec has called the court's attention to evidence that ScentAir assembled many of its refill bottles in Europe

and then distributed them overseas. *See* Deposition of Logan Andres Tr. 160:6–161:2 (May 10, 2023).¹ ScentAir’s motion for summary judgment of no indirect infringement is therefore denied.

C. Exclusion of Expert Testimony

ScentAir moves to exclude certain testimony from Prolitec’s expert witnesses, Dr. Hultmark and Dr. Vigil.

1. Dr. Hultmark’s Opinions on Invalidity

ScentAir argues that Dr. Hultmark’s testimony regarding invalidity amounts to nothing more than an attack on the sufficiency of the evidence offered by ScentAir’s technical expert, Dr. Morse, which “usurp[ed] the jury’s factfinding role.” Dkt. No. 220 at 25-26. Specifically, ScentAir highlights Dr. Hultmark’s lack of any independent analysis, beyond simply criticizing Dr. Morse’s analysis. For that reason, ScentAir asks that the court exclude the portions of Dr. Hultmark’s testimony that are based on the 93 paragraphs of his report addressed to Dr. Morse’s analysis. *Id.* at 26.

ScentAir’s exclusion request is not supported by the sole case on which ScentAir relies, *523 IP LLC v. CureMD.Com*, 48 F. Supp. 3d 600, 634 (S.D.N.Y. 2014). In that case, the court disapproved of testimony that “usurp[ed] the fact-finding function of the jury.” 48 F. Supp. 3d at 635. The *523 IP* case, however, does not support ScentAir’s request, for three reasons. First, the court in *523 IP* did not exclude any specific portions of the contested testimony. *Id.* at 636 (“In accordance with these findings, the Bilal Hashmat declaration and the Kamal Hashmat depositions

¹ The cited testimony from Logan Andres was not included in the materials submitted with the parties’ summary judgment motions but was called to the court’s attention during the argument on the summary judgment motions and was submitted to the court thereafter. Although the failure to include that evidence in the summary judgment materials submitted with the briefs could justify refusing to consider it in deciding whether to grant summary judgment, the court has exercised its discretion to allow Prolitec to offer that evidence. Because the evidence was part of a deposition, ScentAir was aware of it and had an opportunity to address it at the summary judgment argument.

are not precluded.”); *id.* at 636 n.33 (“Should these documents ever have occasion to come before a jury, the Court will address specific redactions at that time.”). Second, *523 IP* dealt with lay witness testimony, which is governed by Federal Rule of Evidence 701. Because Dr. Hultmark is an expert witness, his testimony is governed by Rule 702, which is considerably more permissive regarding opinion testimony. Third, the statements addressed in *523 IP* evaluated the “sufficiency of the evidence.” 48 F. Supp. 3d at 635. The portions of Dr. Hultmark’s report to which ScentAir takes exception are not directed to the sufficiency of the evidence, but are directed to the methodology used by ScentAir’s expert, which is a permissible subject of expert testimony.

Contrary to the implication of ScentAir’s argument, an expert’s opinion “is not objectionable just because it embraces an ultimate issue.” Fed. R. Evid. 704(a). In particular, expert testimony that criticizes the methodology used by another expert is routinely admitted at trial. *See, e.g., Marmo v. Tyson Fresh Meats, Inc.*, 457 F.3d 748, 759 (8th Cir. 2006); *Murray v. Toyota Distributors, Inc.*, 664 F.2d 1377, 1380 (9th Cir. 1982); *Align Tech., Inc. v. 3Shape A/S*, No. 17-1646, 2020 WL 4926164, at *4 (D. Del. Aug. 14, 2020); *Carter v. Johnson & Johnson*, No. 2:20-cv-1232, 2022 WL 4700575, at *3 (D. Nev. Sept. 29, 2022); *Middleton v. Morgan*, No. 3:17cv346, 2019 WL 10630840, at *3 (N.D. Fla. Nov. 1, 2019) (“There is nothing improper about one expert criticizing the methodology used by another expert.”); *Navelski v. Int’l Paper Co.*, 244 F. Supp. 3d 1275, 1302–03 (N.D. Fla. 2017); *DeWit v. UPS Ground Freight, Inc.*, No. 1:16cv36, 2017 WL 11672840, at *2 (N.D. Fla. June 29, 2017); *1st Source Bank v. First Resource Fed. Credit Union*, 167 F.R.D. 61, 65 (N.D. Ind. 1996). The *523 IP* case is therefore inapplicable to the facts of this case, and Dr. Hultmark’s testimony is not inadmissible based on that authority.

ScentAir next argues that Dr. Hultmark’s testimony should be excluded because his visual inspection of prior art systems did not provide a sufficient basis for him to offer an opinion on

whether those systems anticipate the claimed invention. The paragraphs of Dr. Hultmark’s report that ScentAir seeks to exclude, however, are directed to schematics, engineering drawings, and computer-aided design renderings of the prior art devices. *See, e.g.*, Dkt. No. 220-9, Ex. 9 at ¶¶ 124, 129, 141, 149. ScentAir has not shown that those resources are insufficient as a basis for evaluating the prior art systems. Because Dr. Hultmark’s analysis is potentially helpful to the jury, it is admissible under Federal Rule of Evidence 702.

2. Dr. Hultmark’s Testing Configuration 1

ScentAir moves to exclude Dr. Hultmark’s opinions relating to “Testing Configuration 1” of the Breeze product. For that test, Dr. Hultmark filled the Breeze cartridge 45 percent full and turned the entire Breeze product, including the cartridge, on its side. Dkt. No. 220 at 27. In that configuration, Dr. Hultmark reported, the Breeze cartridge did not leak. The purpose of that test, according to Prolitec, was to show that the prevention of leakage was attributable to the tortuous passage in the Breeze product. Dkt. No. 223 at 23. ScentAir raises several objections to Dr. Hultmark’s testimony about Testing Configuration 1.

First, ScentAir argues that Dr. Hultmark evaluated only a preferred embodiment in the specification and not anything required by the asserted claims. Dkt. No. 27. Because infringement “does not compare the accused product with a preferred embodiment described in the specification,” *Schreiber Foods, Inc. v. Beatrice Cheese, Inc.*, 31 F. App’x 727, 731–32 (Fed. Cir. 2002), ScentAir argues that Testing Configuration 1 does not speak directly to the issue the jury must resolve. As such, ScentAir argues, Dr. Hultmark’s testimony about that test fails the requirement of Rule 702 that the expert testimony must “help the trier of fact to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702.

Courts have sometimes excluded expert testimony comparing the accused product to a preferred embodiment rather than the claims on the ground that the testimony would not be helpful to the jury and could be confusing. *See, e.g., Network-1 Techs., Inc. v. Alcatel-Lucent USA, Inc.*, No. 6:11-CV-492, 2017 WL 4020589, at *4–5 (E.D. Tex. Sept. 12, 2017); *Not Dead Yet Mfg., Inc. v. Pride Sols., LLC*, 222 F. Supp. 3d 657, 664 (N.D. Ill. 2016). On other occasions, however, courts have admitted expert testimony regarding preferred embodiments when the courts have found the evidence helpful to educate the jury about the teachings of the patent. *See, e.g., EMC Corp. v. Pure Storage, Inc.*, No. 13-1985, 2016 WL 775742, at *4 (D. Del. Feb. 25, 2016); *SSL Servs., LLC v. Citrix Sys., Inc.*, 940 F. Supp. 2d 480, 492 (E.D. Tex. 2013) (denying motion for judgment as a matter of law; ruling that a defense expert’s “testimony regarding the preferred embodiments amounted to nothing more than an effort to educate the jury about the teachings of the . . . patent”), *aff’d*, 769 F.3d 1073 (Fed. Cir. 2014). The legitimacy of using preferred embodiments to educate the jury about a patent’s teaching was likewise recognized in *Network-1*, 2017 WL 4020589, at *3. The fact that Testing Configuration 1 was directed to a preferred embodiment therefore does not by itself render that evidence inadmissible.

Second, ScentAir argues that filling the bottle only 45 percent full guarantees that it will not leak, making the test unhelpful. Dr. Hultmark explained, however, that he chose the 45 percent level based on language in the specification describing an embodiment in which the “volume of liquid supplied with the cartridge will not rise above the central axis A of the cartridge.” Dkt. No. 223-6, Ex. F at 194:17–20. He explained that his choice was also consistent with the volume of oil in the Breeze cartridge as sold. *Id.* at 193:13–25.

ScentAir’s third and most telling objection is that Dr. Hultmark did not also test a device similar to the Breeze cartridge but lacking a tortuous passage, in order to determine whether that

device would leak when filled 45 percent full of fragrance oil and placed on its side. *See* Dkt. No. 220 at 28 (citing *FURminator, Inc. v. Kim Laube & Co.*, 758 F. Supp. 2d 797, 808 (E.D. Mo. 2010)). Given that there was no control for Dr. Hultmark’s test, the fact that the Breeze product did not leak under those conditions does not show that it was the tortuous passage in the Breeze cartridge that was responsible for the absence of leakage. Because Prolitec has failed to provide a satisfactory answer to this flaw in Testing Configuration 1, I find that the evidence regarding that test would not be helpful to the jury, and the evidence will therefore be excluded.

3. Apportionment Analysis by Prolitec’s Experts

ScentAir seeks to exclude the testimony of Prolitec’s experts, Dr. Hultmark and Dr. Vigil, addressed to the apportionment of reasonable royalty damages, i.e., to their assessment of the value attributable to the inventions recited in the asserted claims, but not including the contribution of conventional features found in the prior art. ScentAir argues that Prolitec’s experts improperly included the value of scent diffusion generally in their analysis, rather than limiting their analysis to the incremental value contributed by the dependent claims, which recite features of the tortuous passage and the placement of the insert between the cartridge housing and the venturi device.

It is well settled that when claims recite both conventional and unconventional elements, “the court must determine how to account for the relative value of the patentee’s invention in comparison to the value of the conventional elements recited in the claim, standing alone.” *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324, 1338 (Fed. Cir. 2015); *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1226, 1233 (Fed. Cir. 2014) (“When the accused infringing products have both patented and unpatented features, measuring the value requires a determination of the value added by such features. . . . In other words, the patent holder should only be compensated for the approximate incremental benefit derived from his invention.”); *see also VLSI Tech. LLC v.*

Intel Corp., No. 2022-1906, slip op. 20 (Fed. Cir. Dec. 4, 2023) (“The value of what was taken—the value of the use of the patented technology—measures the royalty.”) (cleaned up); *Omega Patents, LLC v. CalAmp Corp.*, 13 F.4th 1361, 1376 (Fed. Cir. 2021) (“[A] patentee must take care to seek only those damages attributable to the infringing features.”); *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1348 (Fed. Cir. 2018) (“[T]he patent owner must apportion or separate the damages between patented and unpatented features of a multicomponent product.”).

Because independent claim 9 of the ’004 patent and independent claim 9 of the ’976 patent have been held invalid, the inventions recited in those claims are in the public domain. That means that the damages stemming from infringement of the dependent claims are confined to the value added by those claims, excluding the value associated with the invalidated claims, i.e., “the incremental value that the patented invention adds to the end product.” *Ericsson*, 773 F.3d at 1226.

In *Garretson v. Clark*, 111 U.S. 120 (1884), the Supreme Court made the same point with respect to a patent on an improvement to a product that itself was in the public domain. The Court explained:

When a patent is for an improvement, and not for an entirely new machine or contrivance, the patentee must show in what particulars his improvement has added to the usefulness of the machine or contrivance. He must separate its results distinctly from those of the other parts, so that the benefits derived from it may be distinctly seen and appreciated.

Id. at 121.

By direct analogy, because the cartridge recited in the two invalidated independent claims is in the public domain, Prolitec can base its claim of damages only on the value contributed by the novel features set forth in the asserted dependent claims. ScentAir contends that the testimony of Drs. Hultmark and Vigil on apportionment must be excluded because the calculation of damages

based on their testimony rests in part on the independent claims and is not limited to the incremental value contributed by the dependent claims. For that reason, ScentAir moves to exclude both experts' testimony on apportionment.

a. Dr. Hultmark

ScentAir argues that Dr. Hultmark's apportionment analysis fails to produce a reasonable estimate of the incremental value contributed by the features recited in the asserted claims. Dkt. No. 220 at 28–34. In particular, ScentAir argues that Dr. Hultmark's report improperly focuses on whether various components of the Breeze product contribute to scent diffusion functionality generally, rather than assessing the incremental value provided by the novel features recited in the asserted claims. Dkt. No. 220 at 29. Importantly, the relevance of Dr. Hultmark's analysis depends on the admissibility of Dr. Vigil's evidence on apportionment, so the opinions of the two experts must be viewed in tandem.

Dr. Hultmark's apportionment analysis begins by addressing which of the three main Breeze components—the Breeze refill, the Breeze device, and the Breeze remote WiFi/cloud management control system—are “covered by one or more of the asserted claims,” and to what extent the asserted claims “correspond to or drive the functionality of those components.” Dkt. No. 220–9, Ex. 9 at ¶¶ 118, 121. It is not immediately apparent what Dr. Hultmark means by the terms “are covered by,” “correspond to,” and “drive the functionality of,” and he does not define those terms. It is also unclear what he means by “infringing components.”² From context, it appears that he means a component is “infringing” if it is “covered” by the asserted claims, *see id.*,

² The use of the term “infringing” is potentially misleading when used to refer to components and functions found in claim 9 of the '004 patent and claim 9 of the '976 patent. Because those claims have been invalidated, ScentAir and others are free to practice those claims except, for example, to the extent that they are practiced in conjunction with the dependent claims of the '004 and '976 patents, which have not been invalidated.

Ex. 9 at ¶ 121, and that a component is “covered” by an asserted claim, or “corresponds” to that claim if the claim recites that component as a limitation of the claim. By the phrase “drive the functionality of the components,” Dr. Hultmark’s report appears to mean that the recited components contribute to or are responsible for the functionality of the asserted claims.

Dr. Hultmark’s report first addresses which of the three “top level” components in the remote-control system used with the Breeze product relate to the asserted claims. His report concludes that two of the three “top level” components of the Breeze product contribute to scent diffusion functionality: the Breeze device and the Breeze cartridge (which Dr. Hultmark calls the “Breeze Refill”). *Id.* at ¶119. Dr. Hultmark acknowledges that the remote Wi-Fi/Cloud management control system is not covered by any of the asserted claims, as none of the claims relates to the remote control system. *Id.* at ¶ 120.

Dr. Hultmark’s report then proceeds through the claims, component by component, and assigns weights to each component. The report assigns weights to the various components depending on the “extent, if any, the components of them are infringing in the sense that they are covered by the Asserted Claims.” *Id.* at ¶121. The report further states that Dr. Hultmark “considered the extent the Asserted Claims corresponded to or drove their functionality,” that is, “whether the component contributed to the function of the Asserted Product in any way apart from its role in the Asserted Claims, and if so, to what extent.” *Id.*

After analyzing each component of the Breeze product, Dr. Hultmark’s report concludes that 19 percent of the functionality of the Breeze device portion of the product “corresponds to or is driven by” the asserted claims, and that 75 percent of the functionality of the Breeze cartridge (or “Breeze Refill”) “corresponds to or is driven by” the asserted claims. *Id.* at ¶ 175. Weighting

those contributions equally, his report averages the two values and calculates that “47% of the scent diffusion function of the Accused Device corresponds to the Asserted Claims.” *Id.*

ScentAir objects to Dr. Hultmark’s apportionment analysis principally on the ground that it does not focus on the incremental value created by the purportedly novel combination of features recited in the asserted claims. While it is “not the case that the value of all conventional elements must be subtracted from the value of the patented invention as a whole when assessing damages,” *AstraZeneca*, 782 F.3d at 1339, the core question for purposes of damages apportionment is “how much new value is created by the novel combination, beyond the value conferred by the conventional elements alone,” *id.* As ScentAir points out, Dr. Hultmark’s analysis does not differentiate between the conventional elements and the novel features of the patented invention. That is because Dr. Hultmark’s references to features of the Breeze product that are “infringing” or “covered by one or more of the asserted claims” include features that are found in the invalidated independent claims and not exclusively in the asserted dependent claims. As such, his report fails to evaluate how much *new* value is created by the novel combinations found in the asserted claims.

ScentAir also criticizes Dr. Hultmark’s assignment of equal weights to each of the “top level” Breeze components he analyzed. Dkt. No. 220 at 32. Dr. Hultmark determined that the Breeze device and Breeze Refill “are each necessary but not sufficient for the Accused Product to perform its scent diffusion function.” Dkt. No. 220-9, Ex. 9 at ¶ 175. In addition, he explained that he gave equal weight to various components because he was “aware of no reason to conclude that any one of these components or component categories contributes more or less to the overall scent diffusion function of the Accused Product than any other.” *Id.* at ¶¶ 140, 165, 172.

Prolitec responds that Dr. Hultmark’s analysis is offered only for the limited purposes of determining (1) the extent to which “the components of the accused product are covered by the

Asserted Claims” and (2) the extent to which “the functionality of those components is driven by those claims.” Dkt. No. 223 at 32. Prolitec does not contend that Dr. Hultmark’s analysis suggests that the asserted claims contribute 47 percent of the value of the Breeze product. To reach an estimate of the reasonable royalty, Prolitec relies on Dr. Vigil’s report, which incorporates Dr. Hultmark’s analysis and adds his own assessment of the portion of that 47 percent that reflects the incremental value contributed by the asserted patents.

Considering the purportedly limited purpose of his analysis, Dr. Hultmark did not err by failing to address the incremental value contributed by the components recited in the asserted claims. Dr. Hultmark merely identified the components that correspond to the asserted claims. It is Dr. Vigil who allegedly took the further step of assessing the value contributed by the patented features of those components. ScentAir’s complaint therefore lies mainly with how Dr. Vigil used Dr. Hultmark’s analysis, not with Dr. Hultmark’s analysis itself.

b. Dr. Vigil

ScentAir seeks to exclude Dr. Vigil’s reasonable royalty analysis on reliability grounds and for lacking quantitative support. Dr. Vigil began his apportionment discussion by relying on Dr. Hultmark’s conclusion that 47 percent of the scent diffusion functionality of the Breeze product is attributable to the asserted claims. Dr. Vigil described his role as determining the value that the scent diffusion functionality alone contributed to the Breeze product. To do so, he analyzed ScentAir’s marketing materials, from which he concluded that scent diffusion accounts for between 76 and 82 percent of the value of the Breeze. Dkt. No. 220 at 37.

ScentAir argues that Dr. Vigil failed to adequately consider several features that ScentAir argues are important to the Breeze product’s commercial success, including its easy-change cartridge, the ScentAir brand, visual aesthetics, brand goodwill, customer relationships and

loyalty, fragrance quality and selection, reputation for safety, self-serviceability, and wall mountability. Dkt. No. 220 at 36-37. Dr. Vigil lumped all those features into an “other features” category in his royalty analysis, and he concluded that those “other features” cannot account for more than 9 to 12 percent of the value of the Breeze product. *Id.* at 37. Based on ScentAir’s marketing materials, Dr. Vigil concluded that the WiFi/Cloud functionality, to which he assigned 9 to 12 percent of the value of the Breeze, is far more important than all of the features that are part of the ‘other’ category, combined.” Dkt. No. 223-7, Ex. G at ¶ 45; *see also id.* at ¶¶ 41–45; Dkt. No. 220-9, Ex. I at ¶¶ 60–71. He explained that a company’s marketing materials provide relevant information as to what features the company believes are important to consumers, making them reliable indicia of relative importance. *Id.*

ScentAir’s argument on this issue is a challenge to Dr. Vigil’s conclusions, not his methodology. *See* Dkt. No. 220 at 39 (“The inherent unreliability of Dr. Vigil’s methodologies is obvious when one considers Dr. Vigil’s ultimate conclusion that ScentAir would have paid a 29 percent premium for a minor improvement to preexisting scent diffusion device technology. . . .”). The use of marketing materials as a metric for valuation has been approved by this court and others. *See Teles AG Informationstechnologien v. Quintum Techs., LLC*, Nos. 06-197 et al., 2009 WL 3648458, at *4 (D. Del. Oct. 30, 2009) (marketing materials “communicate the beneficial aspects of the innovation to the purchasing public, which shows how defendants value the patented feature”); *Izumi Prods. Co. v. Koninklijke Philips Elecs N.V.*, 315 F. Supp. 2d 589, 614 (D. Del. 2004) (“If the infringer’s materials emphasize the value of the patented feature, then such emphasis serves as evidence that the feature is responsible for the customer demand.”); *Imagenetix, Inc. v. Robinson Pharma, Inc.*, No. 8:15-cv-599, 2018 WL 5880798, at *8 (C.D. Cal. June 12, 2018) (plaintiff’s evidence included defendant’s own marketing materials to show the value of the

patented features); *Cornell Research Found. v. Hewlett-Packard Co.*, No. 5:01-CV-1974, 2007 WL 4349135, at *63 (N.D.N.Y. Jan. 31, 2007) (“One potentially reliable indicator of [the importance of the accused circuitry to the products] is the degree to which HP’s marketing efforts have centered upon the out-of-order feature of the PA-8000 processors.”); *see also Japan Cash Mach. Co. v. MEI, Inc.*, No. 2:05-cv-1433, 2009 WL 10316043, at * 25 (D. Nev. Sept. 18, 2009) (“A patentee can present evidence of marketing, advertising, or other materials related to the patentee’s products that tout the value of the patented features.”). Dr. Vigil’s opinion will therefore not be excluded on that ground.

ScentAir’s more substantial contention is that Dr. Vigil’s opinion should be excluded because it applies quantitative apportionment percentages that are based on features of the asserted patents that contribute to scent diffusion generally, and are not limited to the value of the novel combination of features set forth in the six asserted claims. Dkt. No. 220 at 38. Dr. Vigil’s report focuses on the features that contribute to scent diffusion by incorporating Dr. Hultmark’s apportionment analysis, but it does not take the further step of determining what benefits stem from the novel elements of the particular claims that are in dispute as opposed to features of the independent claims that have been invalidated. Dr. Hultmark’s analysis is relevant to show the extent to which “the components of the accused product are covered by the Asserted Claims” and the extent to which “the functionality of those components is driven by those claims.” Dkt. No. 223 at 32. But, as noted, Dr. Hultmark’s report does not speak to the critical issue of what value is created by the novel combination of features found only in the dependent claims, as opposed to conventional features of scent diffusion, including those found in the invalidated independent claims.

Dr. Vigil addressed that issue in his deposition, in which he offered the opinion that the entire value of the Breeze product's scent diffusion functionality is attributable to the asserted dependent claims, because the inventions of the dependent claims are what transform the Breeze into a commercially viable product. He stated that "it's not clear that you'd have any value associated with scent diffusion if you didn't have the leak prevention/leak minimization benefit . . . and it's not clear that customers would have bought any of these products if [they] didn't also have the leak prevention/leak minimization benefit." Dkt. No. 220, Ex. 22 at 149:10–17. That opinion followed the same reasoning that the Federal Circuit employed in *AstraZeneca*. See 782 F.3d at 1339. That is, the value of one feature can include the value of another if the first feature is necessary to make the second feature commercially viable. That was the case with the capsule coating at issue in *AstraZeneca*, which made the encapsulated drug bioavailable. In that unusual setting, the value added by the capsule included the value added by the drug.

Apart from the question whether the marginal improvement in leak prevention was critical to customers purchasing a scent diffusion device, and thus drove the whole value of the scent diffusion functionality in the Breeze product, the problem with Dr. Vigil's opinion is that the "whole value" line of reasoning was advanced only in his deposition. Nowhere in his reports did Dr. Vigil clearly state that the entire value of the Breeze's scent diffusion functionality is attributable to the novel contents of the asserted dependent claims, i.e., a tortuous passage that assists in preventing leakage ('004 patent, claim 17; '976 patent, claim 16), retards the flow of liquid when the cartridge is held upside-down ('004 patent, claim 23; '976 patent, claim 22), is partially defined by a vertical sidewall of the insert ('976 patent, claim 15), or a cartridge in which the insert is provided between the cartridge housing and the venturi device ('976 patent, claim 17).

Dr. Vigil stated in his reply report that “the benefits related to scent diffusion that come from the Asserted Patents are . . . unarguably, the most important drivers of demand for the accused Breeze product.” Dkt. No. 223, Ex. 7 at ¶32. In support, Dr. Vigil cited his own opening report, in which he explained the factual bases underlying that conclusion. *Id.* (citing Dkt. No. 220, Ex. 21 at ¶¶ 105–115). Nowhere in either of his reports, however, did Dr. Vigil explain what portion of the Breeze’s value is attributable to the novel combination. *See e.g.*, Dkt. No. 220, Ex. 21 at ¶ 107 (adopting Dr. Hultmark’s conclusion that 47 percent of the scent diffusion function corresponds to the *asserted patents*—not to the novel aspects of the claims).

Federal Rule of Civil Procedure 26(a)(2)(B)(i) requires that an expert’s report contain “a complete statement of all opinions the witness will express and the basis and reasons for them.” Because Dr. Vigil’s “whole value” opinion was not advanced in his reports, it is inadmissible.

Dr. Vigil’s reliance on Dr. Hultmark’s 47 percent apportionment is inappropriate absent some additional finding relating that apportionment to the value of the novel combination of features found only in the six asserted claims at issue in this case, rather than the features found in the two independent claims, which have been found unpatentable. That error infects Dr. Vigil’s conclusion that an appropriate reasonable royalty would be between \$2.9 million and \$3.4 million. As a result, the court will exclude the portion of Dr. Vigil’s testimony based on paragraphs 73–81 of his opening report, which rely on Dr. Hultmark’s analysis to calculate the dollar value of a reasonable royalty. The joint methodology of Drs. Hultmark and Vigil has been shown to be invalid for failure to address the critical step of determining the incremental value contributed by the asserted claims to the Breeze product. *See Daubert*, 509 U.S. at 595. Without reference to Dr. Vigil’s apportionment testimony, Dr. Hultmark’s testimony based on his apportionment analysis, found at paragraphs 118–175 of his opening report, Dkt. No. 220-9, Ex. I, and paragraphs 57–73

of his reply report, Dkt. No. 220-15, Ex. O, is not relevant and would be likely to confuse the jury, so it will be excluded under Federal Rule of Evidence 403. The remainder of Dr. Hultmark and Dr. Vigil's opinions will not be excluded. ScentAir's *Daubert* motion is therefore granted in part and denied in part.

IV. PROLITEC'S MOTIONS

Prolitec moves for partial summary judgment that the claims are not indefinite, not obvious, not anticipated by the Air Berger ScentBox product, and not anticipated by the ScentDirect or ScentStream products, Dkt. No. 218. In addition, Prolitec moves to exclude various portions of the testimony of ScentAir's technical expert, Dr. Morse. *Id.*

A. Indefiniteness

ScentAir alleges that three phrases in the asserted claims are indefinite: "retards a flow of the liquid" ('004 patent claim 23; '976 patent, claim 22), "assists in preventing liquid from leaking" ('004 patent, claim 17; '976 patent, claim 16), and "tortuous passage" (all asserted claims). Prolitec disagrees and moves for summary judgment that those limitations are not indefinite.

"[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." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). "Indefiniteness, as a subset of claim construction is a question of law." *In re Packard*, 751 F.3d 1307, 1313 (Fed. Cir. 2014); *see also IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1380 (Fed. Cir. 2005). To the extent that the court's determination of indefiniteness is based on underlying facts, any fact critical to a holding on indefiniteness "must be proven by the challenger by clear and convincing evidence." *Cox Commc'ns, Inc. v. Sprint Commc'n Co.*, 838 F.3d 1224, 1228 (Fed. Cir. 2016). As such, claims of indefiniteness are

appropriately resolved as part of claim construction or on summary judgment when no material underlying facts are in dispute.³

1. “Retards a Flow”

Claim 23 of the '004 patent and claim 22 of the '976 patent recite a tortuous passage “configured to provide a convoluted flow path that retards a flow of the liquid to be diffused” ScentAir argues that “retards a flow” has no common industry definition and requires a person of skill to speculate about its meaning. Dkt. No. 224 at 3. According to ScentAir, a person of ordinary skill in the art would not know what “retards” means and what metric should be used to measure whether flow has been “retarded.” *Id.* ScentAir argues, therefore, that claim 23 of the '004 patent and claim 22 of the '976 patent are invalid as indefinite. Prolitec takes the position that there is no evidence to support ScentAir’s indefiniteness argument and that Prolitec should be granted summary judgment of no indefiniteness.

A tortuous passage “retards a flow” through a channel if the tortuous passage decreases the flow rate relative to the flow rate through a comparison channel, i.e., if the tortuous passage reduces the volume of liquid that passes in a given time period through a similar channel lacking a tortuous passage.⁴ ScentAir’s own expert, Dr. Morse, concluded as much when he evaluated the claims’

³ In its answering brief, ScentAir notes that it has not moved for summary judgment on indefiniteness, but states that the court could enter summary judgment of indefiniteness on its own. Dkt. No. 224 at 3. ScentAir argues that “[v]iewing the underlying facts and all reasonable inferences therefrom in the light most favorable to ScentAir, the evidence confirms that all of the asserted claims are indefinite.” *Id.* at 2. That misstates the burden applicable to ScentAir’s request. To grant summary judgment of indefiniteness in ScentAir’s favor the court would need to view all facts and inferences in favor of Prolitec—not ScentAir. Moreover, on the merits the court would have to find that the facts supporting indefiniteness have been proved by clear and convincing evidence. *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). Because no such showing has been made, the court declines ScentAir’s invitation to rule Prolitec’s claims indefinite.

⁴ ScentAir contends that the patents do not indicate anything about the structure of the comparison channel. The obvious choice for a non-tortuous comparison channel would be a

validity under 35 U.S.C. §§ 102 and 103. *See* Dkt. No. 219-1, Ex. A at ¶ 63 (comparing the cartridge of a prior art device to “a cartridge that lacks the identified tortuous passage” to determine whether the tortuous passage of the prior art device “retards a flow”). And the PTAB adopted the same interpretation, evaluating whether, because of a prior art reference’s tortuous passage, “liquid would take more time to leak” than if the tortuous passage were not present. IPR2021-00021, Paper 22 (Final Written Decision, p. 50. The fact that both ScentAir’s expert and the PTAB were able to apply the “retards a flow” limitation to the prior art suggests that the phrase is not indefinite. *See Sonix Tech. Co. v. Publications Int’l, Ltd.*, 844 F.3d 1370, 1379–80 (Fed. Cir. 2017).

The crux of ScentAir’s argument to the contrary is that a person of ordinary skill in the art would not know what comparison reference to use to determine whether flow is retarded. Dkt. No. 224 at 5. According to ScentAir, the correct comparison reference is a cartridge with a tortuous passage that does not retard the flow, rather than a cartridge lacking a tortuous passage altogether. ScentAir’s argument does not advance its cause, however, because the use of either of those references yields the same result. That is, the flow rate of liquid through a tortuous passage that does not retard flow is, by definition, the same as the rate of flow through a non-tortuous passage.

ScentAir also argues that “there are many ways to determine speed or rates of movement” in fluid mechanics, including “volumetric flow rate, mass flow rate, mass flux, average flow velocity, maximum flow velocity, boundary layer velocity, time before leaking begins, rate of leaking, or time to empty.” Dkt. No. 224 at 10. For that reason, ScentAir argues, a person of ordinary skill in the art would not know which metric to use to determine if the flow has been retarded. *Id.*; *see also Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1345 (Fed. Cir.

straight passage from inlet to outlet, with a cross-sectional area equivalent to that of the accused tortuous passage.

2015) (claims are indefinite if a person of ordinary skill would not know which measurement to use for molecular weight, and the three potential choices yielded different results). “Flow” refers to “the movement of fluid, such as through pipes or a machine. . . .” *Oxford Dictionary of Mechanical Engineering* 219 (2d ed. 2019). As such, a person of ordinary skill in the art would not understand “retards a flow” to refer to time before leaking begins, the rate of leaking, or the time to empty, as none of those metrics directly measures flow. Similarly, a person of ordinary skill in the art would not understand “retards a flow” to refer to any measure of flow velocity, as the tortuous passage is intended to reduce the amount and rate of leakage, factors that do not necessarily depend on flow velocity. The only plausible meaning for “retards a flow” is to decrease the flow rate.

Flow rate can be expressed in terms of either mass or volume of fluid flowing through a channel per unit time. *Oxford Dictionary of Mechanical Engineering* 220 (2d ed. 2019); *see also* Christopher Morris, ed., *Academic Press Dictionary of Science and Technology* 853 (1992) (defining “flow rate” as “[a] quantity that measures the amount of fluid flowing across a specified unit area in a unit amount of time; it is customary to specify the amount of fluid by mass or volume.”). There is no indication in the patents that some other method of measurement was intended. And ScentAir offers no evidence to suggest that the choice of mass flow rate rather than volumetric flow rate would yield different results. *See* Dkt. No. 224-3, Ex. 3 at ¶¶ 19–22 (discussing potential differences in results if considering the time to leak and the rate at which the liquid leaks; further discussing differences between the time before leaking and the volumetric flow rate; not suggesting differences between volumetric flow rate and mass flow rate). Mass flow rate and volumetric flow rate differ only by a factor of density. Unless the liquid’s density were to vary because of the tortuous passage, mass flow rate and volumetric flow rate are necessarily

proportional, making it impossible to “retard a flow of [one] liquid” without retarding the flow of the other. As such, ScentAir has failed to meet its burden under *Celotex* of demonstrating a genuine issue of material fact for trial. 477 U.S. at 325.

Because a person of ordinary skill in the art would understand the meaning of “retards a flow” in claim 23 of the ’004 patent and claim 22 of the ’976 patent, Prolitec’s motion for summary judgment of no indefiniteness is granted.

2. Assists in Preventing Liquid from Leaking

Claim 17 of the ’004 patent and claim 16 of the ’976 patent recite a cartridge in which “the tortuous passage follows a non-linear path that assists in preventing liquid from leaking” The parties raise essentially the same arguments as with respect to “retards a flow.” ScentAir argues that this limitation is indefinite because a person of ordinary skill in the art would not know what metric to use to assess whether a passage assists in preventing leaking, would not know which reference to compare a cartridge against, and would not understand “what degree of leakage does not fall within the scope” of the claims. Dkt. No. 224 at 12 (quoting Dkt. No. 224-2, Ex. 2 at ¶ 52). Prolitec challenges those assertions, arguing that ScentAir’s position is not supported by any evidence and that summary judgment of no indefiniteness should be granted in Prolitec’s favor.

The “assists in preventing” limitation is discussed in both specifications, which explain that the tortuous passage “assists in preventing liquid from leaking” by minimizing leakage if the cartridge is upended. ’004 patent, 10:49–66; ’976 patent, 11:1–20. The passage “slow[s] the progression of liquid within the cartridge” (time to leak) and is configured so that the volume of liquid will not rise above the central axis of the cartridge, to ensure that “at least a portion of the tortuous passage will be located above the fluid level” (amount of leakage). *Id.* Considering the specification, a person of ordinary skill in the art would understand “assists in preventing liquid

from leaking” to mean decreasing the time to leakage and/or the total amount of leakage. Thus, there is no ambiguity regarding the metrics by which to measure leak prevention.

There is likewise no meaningful ambiguity as to which reference a person of skill should use to determine whether the “assists in preventing” limitation is satisfied. As explained above, the appropriate comparison reference is a cartridge without a tortuous passage. Any argument that a person of ordinary skill in the art might understand the claim in reference to a tortuous passage that does not “assist in preventing liquid from leaking” is unavailing. The time to leak for a tortuous passage that does not assist in preventing liquid from leaking is the same as the time to leak for a non-tortuous passage. The same is true for the total amount of leakage. Thus, it is immaterial which reference an ordinary artisan uses, for the same reason it is immaterial which reference an ordinary artisan uses with respect to the “retards a flow” limitation.

The only new argument ScentAir raises with respect to this phrase is that a person of ordinary skill in the art would not know how much leakage is acceptable under the claims. Dkt. No. 224 at 12 (“The question is: How should a POSA determine how much liquid can leak such that it still falls within the claim limitation versus how much liquid can leak such that it *does not* fall within the claim limitation?”). Contrary to ScentAir’s framing of the issue, the claim does not speak to the absolute amount of leakage; rather, it speaks to the relative amount of leakage between a given cartridge and a reference cartridge having no tortuous passage. The claim is satisfied by a cartridge whose tortuous passage decreases the time to leakage or the total amount of leakage relative to an otherwise identical cartridge without a tortuous passage. Viewed in light of the specification, the limitation informs a person of ordinary skill in the art as to the scope of the invention and therefore is not indefinite. *See Nautilus*, 572 U.S. at 901.

Because the burden of proving indefiniteness is on ScentAir, and because Prolitec has demonstrated the lack of evidence to support ScentAir's position, summary judgment is granted to Prolitec on this issue. *Celotex*, 477 U.S. at 325.

3. Tortuous Passage

ScentAir argues that the term “tortuous passage” is indefinite because a person of ordinary skill in the art would not know how to determine whether a passage had sufficient “bends or turns” to satisfy the court’s claim construction. Dkt. No. 224 at 14. ScentAir bases this argument on Dr. Hultmark’s testimony that there are two main methods for determining whether a channel has bends or turns: examining whether the centroid changes along the length of the passage and examining whether the normal vector to the surface changes along the length of the passage. *Id.* at 14-15. In geometries in which the channel widens or contracts along the length of the passage, the normal vector to the surface will vary while the centroid remains linear. *See e.g., id.* at 15. Thus, the two methods Dr. Hultmark endorses can yield different results. ScentAir argues that the centroid approach is the correct one. *Id.* at 17 (“[A] single channel with varying cross-sectional dimensions is not a channel with twists bends or turns as required by the Court’s construction”; “The number of twists, bends, or turns make a passage tortuous—not varying cross-sectional dimensions.”). Prolitec argues that the normal vector approach is the correct one. *See* Dkt. No. 225 at 10 (citing Dkt. No. 224-5, Ex. 5 at 92:8–17; 95:16–17). Prolitec further argues that ScentAir has waived this argument by failing to include it in its invalidity contentions or expert reports. *Id.* (citing *Pharmacyclics LLC v. Cipla Ltd.*, No. CV 18-192, 2020 WL 6581643, at *2 (D. Del. Nov. 10, 2020).

The specifications explain in detail what a tortuous passage is. The term “tortuous passage” appears 94 times in the '004 patent and 95 times in the '976 patent. Both patents list various

configurations the tortuous passage may embody. '004 patent, col. 10, ll. 30–48; '976 patent, col. 10, ll. 48–67. Among these potential configurations, the specifications explain that tortuous passages “may” feature a widening and narrowing cross-sectional area. *Id.* Although many characteristics are optional, non-linearity is not. “Irrespective of particular configuration, the tortuous passage follows a non-linear path.” '004 patent, col. 10, ll. 49–50; '976 patent, col. 11, ll. 1–2. A passage may widen and narrow but remain linear; mere widening and narrowing of a passage do not render it non-linear. As such, only Dr. Hultmark’s centroid method yields results that are consistent with the patents’ specifications.

This understanding is confirmed by the parties’ respective positions at claim construction. The court construed “tortuous passage” to mean a “physical channel having repeated twists, bends, or turns.” The “twists, bends, or turns” language comes from ScentAir’s proposed construction, in which ScentAir argued that “a tortuous passage *must* have turns but may also have varying cross sectional dimensions.” Dkt. No. 107 at 8 (emphasis in original). In other words, ScentAir’s understanding of its proposed construction was that turns do not include variations in cross-sectional dimensions; the construction thus would not include a linear channel that expanded and contracted along its length. In its reply, Prolitec amended its construction to incorporate the “twists, bends, or turns” language and did not contest ScentAir’s use of “turns” as not including cross-sectional variations. *See id.* at 2; *see also id.* at 9–10. In doing so, Prolitec implicitly agreed that a “tortuous passage,” as construed, requires something more than mere variation in cross-sectional dimensions.

Both the specifications and the parties’ claim construction positions suggest a definite meaning for “tortuous passage.” I therefore grant summary judgment of no indefiniteness with respect to the term “tortuous passage.”

B. Obviousness

Prolitec moves for partial summary judgment that the asserted claims are not obvious under 35 U.S.C. § 103. ScentAir does not oppose Prolitec's motion, *see* Dkt. No. 224 at 18, so partial summary judgment is granted on this issue in Prolitec's favor.

C. Air Berger Products as Prior Art

Prolitec next moves for summary judgment that the ScentBox product sold by Air Berger is not prior art to the asserted patents. Prolitec argues that the product that was inspected and relied on by Dr. Morse was not the same as the Air Berger product that was on the market in 2011. Dkt. No. 219 at 15.

ScentAir admits that Dr. Morse analyzed a ScentAir ScentBox, rather than an Air Berger ScentBox. *See* Dkt. No. 224 at 18. ScentAir contends, however, that the ScentAir ScentBox is materially identical to the earlier version of the ScentBox manufactured by Air Berger beginning in 2011. Dkt. No. 224 at 18. As such, Dr. Morse's analysis is equally applicable to the Air Berger product that predates the asserted patents. In support of that position, ScentAir points to a declaration by Mr. Andres, a ScentAir employee, stating that there have been no material changes to the ScentBox design since ScentAir acquired Air Berger in 2013. Dkt. No. 224 at 18 (citing Dkt. No. 224-10, Ex. 10 at ¶¶ 4–14).

The Air Berger ScentBox, released in 2011, is clearly prior art. Whether ScentAir can establish that the ScentBox product that Dr. Morse examined was materially identical to the one sold by Air Berger prior to the 2014 priority date of the asserted patents is ultimately a question of proof for trial. Prolitec argues that Mr. Andres's testimony cannot cure the deficiency in Dr. Morse's analysis because Mr. Andres did not join ScentAir until February 2018, Dkt. No. 219 at 17 (citing Dkt. No. 219-1, Ex. E at 16:9–11), and he therefore lacks personal knowledge as to what

products were on sale prior to that date. But that argument misapplies the standard at summary judgment. It is not necessary for the non-moving party to produce evidence in a form that would be admissible at trial to avoid summary judgment. *Celotex*, 477 U.S. at 324. It is therefore irrelevant whether ScentAir can “show that the product Dr. Morse did inspect was itself prior art” through the testimony of its trial witnesses. Dkt. No. 219 at 17. There is a material dispute of fact as to whether the ScentBox product Dr. Morse examined was materially identical to the one sold by AirBerger prior to 2014, which is sufficient to overcome Prolitec’s motion for summary judgment.

D. IPR Estoppel

Prolitec argues that ScentAir is estopped from asserting anticipation by the ScentDirect and ScentStream products because those products are materially identical to the Baylock patent, which ScentAir could have raised in its IPR challenge. ScentAir argues that the ScentStream is materially different from Baylock and that IPR estoppel is inapplicable to both products because IPR estoppel does not extend to device art, even if the device is materially identical to a patent or printed publication that could have been asserted.

“When IPR proceedings result in a final written decision, 35 U.S.C. § 315(e)(2) precludes petitioners from raising invalidity grounds in a civil action that they raised or reasonably could have raised during that inter partes review.” *California Inst. of Tech. v. Broadcom Ltd.*, 25 F.4th 976, 989 (Fed. Cir. 2022) (cleaned up). IPR estoppel “applies not just to claims and grounds asserted in the petition and instituted for consideration by the Board, but to all grounds not stated in the petition but which could reasonably have been asserted against the claims included in the petition.” *Id.* at 991. Specifically, “[a] prior art reference not raised in the IPR proceeding is subject to the statutory bar of 35 U.S.C. § 315(e)(2) if (1) the IPR petitioner actually knew of the

reference or (2) a skilled searcher conducting a diligent search reasonably could have been expected to discover the reference.” *IOENGINE, LLC v. PayPal Holdings, Inc.*, 607 F. Supp. 3d 464, 509 (D. Del. 2022).

“In general, IPR estoppel does not apply to device art, because ‘a petitioner cannot use an IPR to challenge the validity of a patent claim . . . based on prior art products or systems.’” *IOENGINE*, 607 F. Supp. 3d at 511 (quoting *Medline Indus., Inc. v. C.R. Bard, Inc.*, No. 17 C 7216, 2020 WL 5512132, at *3 (N.D. Ill. Sept. 14, 2020)). There is a split among district courts, however, as to whether IPR estoppel extends to device art that is entirely cumulative of, i.e., materially identical to, prior art in the form of patents or printed publications that were or could have been raised in an IPR. *Compare Wasica Fin. GmbH v. Schrader Int'l, Inc.*, 432 F. Supp. 3d 448, 454–55 (D. Del. 2020) (holding that IPR estoppel applies to such device art); *Boston Sci. Corp. v. Cook Grp. Inc.*, 653 F. Supp. 3d 541, 593–94 (S.D. Ind. 2023) (same); and *Oil-Dri Corp. of Am. v. Nestlé Purina Petcare Co.*, No. 15 C 1067, 2019 WL 861394, at *10 (N.D. Ill. Feb. 22, 2019), *with EIS, Inc. v. IntiHealth Ger GmbH*, No. 19-1227, 2023 WL 6797905, at *5–6 (D. Del. Aug. 30, 2023) (rejecting the reasoning in *Wasica* and holding that IPR estoppel does not apply to such device art); *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, No. 17-1612, 2022 WL 2643517, at *2 (D. Del. July 8, 2022) (same); *Singular Computing LLC v. Google LLC*, No. 19-12551, 2023 WL 2839282 (D. Mass. Apr. 6, 2023) (same); and *Willis Elec. Co. v. Polygroup Macau Ltd.*, 649 F. Supp. 3d 780, 813–15 (D. Minn. 2023) (same).

Courts that have found IPR estoppel applicable in such situations have noted the importance of preventing defendants from “simply swapping labels for what is otherwise a patent or printed publication invalidity ground in order to ‘cloak’ its prior art ground and ‘skirt’ estoppel. *Cal. Inst. of Tech. v. Broadcom Ltd.*, No. CV 16-3714, 2019 WL 8192255, at *7 (C.D. Cal. Aug.

9, 2019), *aff'd*, 25 F.4th 976 (Fed. Cir. 2022); *see also Biscotti Inc. v. Microsoft Corp.*, No. 2:13-CV-01015, 2017 WL 2526231, at *8 (E.D. Tex. May 11, 2017). Courts that have declined to apply IPR estoppel have emphasized the statutory language of section 315(e)(2), which they interpret to mean “the ‘specific pieces of prior art’ that are ‘the basis or bases on which a petitioner challenges a claim.’” *Chemours*, 2022 WL 2643517, at *1 (quoting *Medline*, 2020 WL 5512132, at *3).

The core question animating the disagreement between courts is the meaning of the term “ground,” as used in section 315, which extends estoppel to “any ground that the petitioner raised or reasonably could have raised during that inter partes review.” 35 U.S.C. § 315(e)(2). There are two plausible ways of interpreting “grounds” in the IPR context. One interpretation is that “grounds” refers to the underlying legal arguments, which incorporate patents, printed publications, and cumulative device art. The other is that “grounds” are the particular patents and printed publications on which invalidity arguments are based, and that the supporting affidavits, declarations, and the like are evidence, not “grounds.” ScentAir’s anticipation arguments would be estopped under the first theory, but not the second.

The weight of authority favors the second theory, treating “grounds” as the specific pieces of prior art that are the bases on which a petitioner challenges a claim. *Medline*, 2020 WL 5512132, at *3; *Chemours*, 2022 WL 2643517, at *1; *Pavo Sols. LLC v. Kingston Tech. Co.*, No. 8:14-cv-01352, 2020 WL 1049911, at *2 (C.D. Cal. Feb. 18, 2020) (citation omitted); *Clearlamp, LLC v. LKQ Corp.*, No. 12 C 2533, 2016 WL 4734389, at *8 (N.D. Ill. Mar. 18, 2016); *see also Solutran, Inc. v. U.S. Bancorp & Elavon, Inc.*, No. 13-cv-02637, 2018 WL 1276999, at *4 (D. Minn. Mar. 12, 2018) (defining “ground” in another estoppel provision as “a discrete claim of invalidity based upon a prior art or a combination of prior art”).

The second theory is consistent with the way the term “grounds” is used in a related context in section 312, which states that an IPR petition must be based on “the grounds . . . and the evidence that supports the grounds for the challenge to each claim,” thus distinguishing between “grounds” and the evidence supporting those grounds.

The second theory is also consistent with the way the term “grounds” has been used by the Federal Circuit in the IPR context—to mean a legal argument based on a specific combination of references. *See e.g., Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1335 (Fed. Cir. 2020) (“The Board instituted inter partes review on three grounds of unpatentability: (1) anticipation in view of SMIL 1.0; (2) obviousness over SMIL 1.0; and (3) obviousness over SMIL 1.0 in combination with Hua.”); *Nike, Inc. v. Adidas AG*, 955 F.3d 45, 53 (Fed. Cir. 2020) (calling a teaching by a specific reference an “unpatentability ground”); *Shaw Indus. Grp., Inc. v. Automated Creel Sys., Inc.*, 817 F.3d 1293, 1298 (Fed. Cir. 2016) (using “grounds” to refer to the legal argument and specific combination of references on which it was based; further discussing IPR estoppel and section 315(e)).

For these reasons, I will follow the *Chemours* line of cases and hold that IPR estoppel does not apply to device art, even when that device art is cumulative of patents and printed publications that were or could have been asserted in a prior IPR. Accordingly, ScentAir is not estopped from asserting the ScentDirect and ScentStream products as prior art.

E. Opinions of Dr. Morse

Prolitec moves under Fed. R. Evid. 702 to exclude Dr. Morse’s testimony on several issues. First, Prolitec argues that because the preambles had not previously been construed as limiting, Dr. Morse should not be allowed to testify that the accused product does not infringe because it is not a “cartridge” as required by the preambles of claim 9 of the ’004 patent and claim 9 of the ’976

patent. Because the court has now ruled that the preambles are limiting, Dr. Morse's testimony on that issue will not be excluded.

Second, Prolitec argues that the court should exclude Dr. Morse's opinion that the Breeze product lacks a "tortuous passage" because the physical channel does not exhibit "channel flow," and Dr. Morse's testimony would contradict the court's claim construction. *See Exergen Corp. v. Wal-Mart Stores, Inc.*, 575 F.3d 1312, 1321 (Fed. Cir. 2009); *Treehouse Avatar LLC v. Valve Corp.*, 54 F.4th 907, 714 (Fed. Cir. 2022). In response, ScentAir argues that Dr. Morse's opinions on channel flow will "assist the jury in determining whether 'the accused device falls within the scope of the Court's claim construction,'" and therefore should not be excluded. Dkt. No. 224 at 35 (quoting *EMC Corp. v. Pure Storage, Inc.*, 154 F. Supp. 3d 81, 110 (D. Del. 2016)).

A tortuous passage, as construed, must be a physical channel; however, nothing about the claim construction precludes analysis of the flow of fluid through the structure. The specific opinion that Prolitec takes issue with is that a physical channel must exhibit "channel flow," meaning that "the physical boundaries of the channel serve to guide or direct the movement of the flow such that the bulk movement of the fluid is in a direction perpendicular to the channel cross section" Dkt. No. 219-1, Ex. I at ¶ 50. Dr. Morse further states that the "physical channel" requires "a well-defined mapping between the flow direction and the physical channel walls," *id.*, something that Prolitec contends "is nowhere to be found in the Court's construction." Dkt. No. 219 at 33.

Because the term "tortuous passage" was construed to mean a "physical channel with twists, bends, or turns," it is proper for Dr. Morse to state his opinion about what makes something a "physical channel." Prolitec's disagreement with Dr. Morse's application of the construed claims

is relevant to the weight of his testimony, but not to its admissibility under Fed. R. Evid. 702. His opinion on that subject will therefore not be excluded.

Finally, Prolitec moves to exclude Dr. Morse’s opinion that the AirQ device anticipates the asserted patents. Prolitec argues that Dr. Morse did not inspect an actual AirQ product, and that the images he did inspect did not show the internal device components in sufficient detail.

A jury is well equipped to understand that poor inputs compromise the weight of evidence. “Faced with a proffer of expert scientific testimony . . . the trial judge must determine at the outset, pursuant to [Federal Rules of Evidence] 104(a), whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.” *Daubert*, 509 U.S. at 592. Dr. Morse’s opinion relates to his own expertise in the field and is designed to assist the jury in mapping claim terms onto prior art devices. “The inquiry envisioned by Rule 702 is . . . a flexible one. Its overarching subject is the scientific validity and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission.” *Id.* at 594–95. The problems raised by Prolitec speak to the quality of inputs Dr. Morse considered—not the principles and methodology he applied. *See id.* Accordingly, Dr. Morse’s opinions regarding anticipation by AirQ will not be excluded.

V. CONCLUSION


- ScentAir’s motion for further claim construction is GRANTED. The preambles of claim 9 of the ’004 patent and claim 9 of the ’976 patent are construed as limiting, and the term “cartridge” is construed to mean “an assembly designed to be removable and replaceable with a like assembly.”

- ScentAir’s motion for summary judgment of no direct infringement is GRANTED with respect to literal infringement and DENIED with respect to infringement under the doctrine of equivalents.
- ScentAir’s motion for summary judgment of no indirect infringement is DENIED.
- ScentAir’s motions to exclude testimony of Drs. Hultmark and Vigil are GRANTED IN PART and DENIED IN PART.
- Prolitec’s motion for summary judgment of no indefiniteness is GRANTED.
- Prolitec’s motion for summary judgment of nonobviousness is GRANTED.
- Prolitec’s motion for summary judgment that Air Berger is not prior art is DENIED.
- Prolitec’s motion to preclude ScentAir from asserting the ScentStream and ScentDirect devices as prior art is DENIED.
- Prolitec’s motion to exclude various opinions of Dr. Morse is DENIED.

In an abundance of caution, this order has been filed under seal because the parties’ briefs and exhibits pertaining to the present motions were filed under seal. *See* Dkt. Nos. 219, 220, 223, 224, 225. Within three business days of the issuance of this order, the parties are directed to advise the court by letter whether they wish any portions of the order to remain under seal. Any request that portions of the order should remain under seal must be supported by a particularized showing of need to limit public access to those portions of the order.

IT IS SO ORDERED.

SIGNED this 13th day of December, 2023.



WILLIAM C. BRYSON
UNITED STATES CIRCUIT JUDGE