
IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF UTAH

ESIP SERIES 1, LLC, a Utah Limited
Liability Company, and ESIP SERIES 2, LLC
a Utah Limited Liability Company,

Plaintiffs,

v.

DOTERRA INTERNATIONAL, LLC, a Utah
Limited Liability Company, PUZHEN LIFE
USA, LLC, a New York Limited Liability
Company, PUZHEN, LLC, a New York
Limited Liability Company, and DOE
COMPANIES 1-9,

Defendants.

**MEMORANDUM DECISION AND
ORDER GRANTING DEFENDANTS'
MOTION FOR SUMMARY JUDGMENT**

Case No. 2:15-cv-00779-RJS

Chief District Judge Robert J. Shelby

Chief Magistrate Judge Dustin B. Pead

Plaintiffs, ESIP Series 1, LLC and ESIP Series 2, LLC (collectively, Plaintiff) brought this patent infringement action against Defendants doTerra International, LLC; Puzhen Life USA, LLC; Puzhen, LLC; and Doe Companies 1-9 (collectively, Defendants). Plaintiff alleges Defendants' device, called the Cloud Diffuser, infringes on claims 1, 2, and 14 of Plaintiff's U.S. Patent No. 7,878,418 ('418 Patent) for improved diffusion of essential oils.¹

¹ Dkt. 9 (Second Am. Compl.) ¶¶ 47-55. Plaintiff originally filed this action in 2015, complaining Defendants infringed on the '418 Patent. Dkt. 5 (Amended Complaint against doTerra and Puzhen, LLC) and Dkt. 9 (Second Amended Complaint against Puzhen Life USA, LLC and Puzhen, LLC). In 2016, Plaintiff filed another suit in this District against Defendants, Case No. 2:16-cv-01011, concerning both the '418 Patent and another patent, U.S. Patent No. 9,415,130. *See* Dkt. 2 in Case No. 2:16-cv-01011 (Complaint). The 2016 case was consolidated into this one for all purposes, with the Complaint in the 2016 case operating as the governing Complaint. *See* Dkt. 43, Order Consolidating Cases. In June 2020, the parties stipulated to dismiss with prejudice all claims and counterclaims relating to Patent No. 9,415,130, following the Federal Circuit's decision in *ESIP Series 2, LLC v. Puzhen Life USA, LLC*, 958 F.3d 1378 (Fed. Cir. 2020), cert. denied, 141 S. Ct. 557, 208 L. Ed. 2d 178 (2020).

On April 29, 2021, the court issued its Order Construing Claims under the '418 Patent.² Now before the court is Defendants' Motion for Summary Judgment.³ After considering the parties' arguments in conjunction with the court's construction of the disputed claim language, the court GRANTS Defendants' Motion for Summary Judgment.

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STATEMENT OF UNDISPUTED MATERIAL FACTS

1. The court has adopted the following claim language construction:⁴

- “aperture spaced therefrom” means “aperture arranged so the nearest point of the aperture from the nozzle is” (all asserted claims)
- “the atomizer being connected directly to a reservoir and to a pump” means “the atomizer is connected directly to a reservoir and the atomizer is connected to a pump” (claims 1 and 2)
- “a pump anchoring the atomizer to a supporting surface” means “a pump firmly securing the atomizer to a supporting surface” (claims 1 and 2)
- “the atomizer being anchored by the pump” means “the atomizer being firmly secured by the pump” (claim 14)

² Dkt. 104 (Memorandum Decision and Order Construing Claims).

³ Dkt. 85 (Defendants' Joint Motion for Summary Judgment), *see also* Dkts. 90 (Plaintiff's Response) and 93 (Defendants' Joint Reply). Plaintiff requested oral argument on Defendants' Motion. Dkt. 106. The court declines this request, finding argument unnecessary in view of the court's recent claim construction rulings and the parties' thorough briefing. *See also* DUCivR 7-1(f).

⁴ Dkt. 104 at 30-31 (listing decisions as to each stipulated and disputed claim construction).

- “comparatively smaller droplets” means “droplets having a diameter of from about 1 micron to about 5 microns” (claims 1 and 14)
- “comparatively larger droplets” means “droplets having a diameter greater than about 5 microns” (claims 1 and 14)
- “duty cycle” means “the fractional time of operation compared to the total elapsed time” (claims 1 and 2)
- “integrated with the pump” means “not separate from the pump” (claim 14)

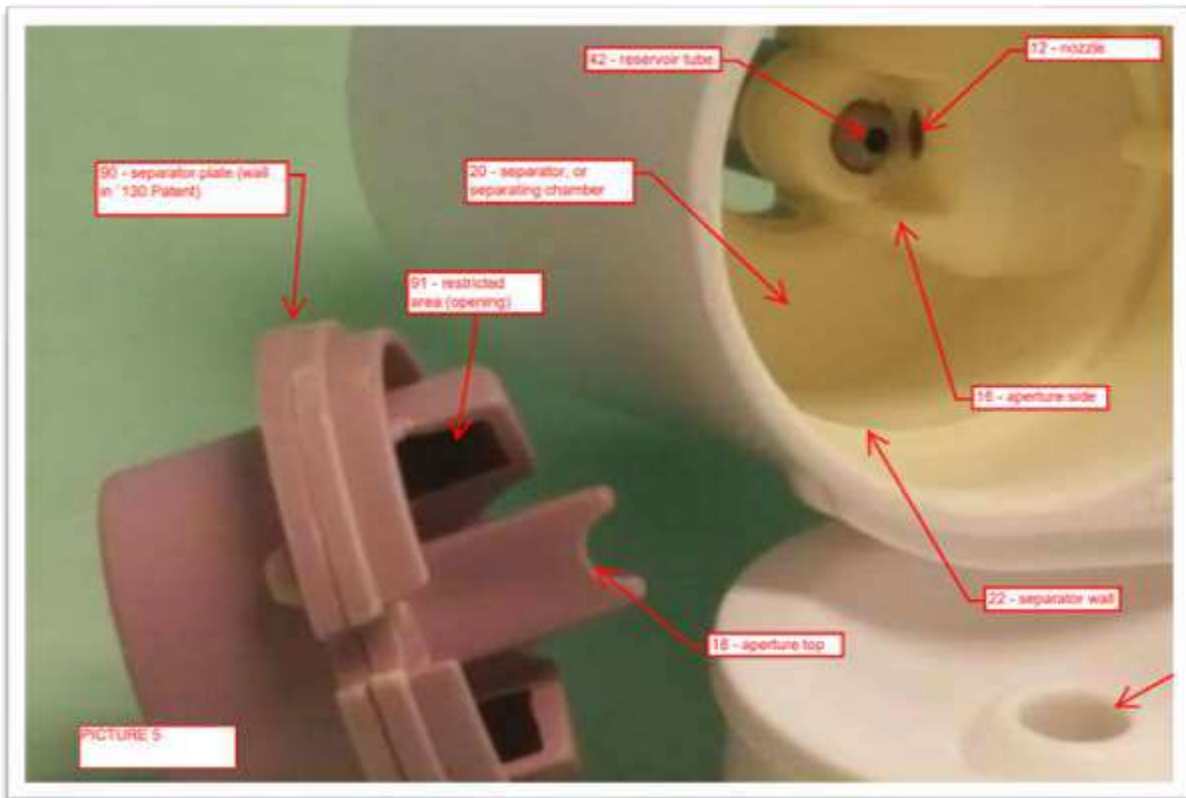
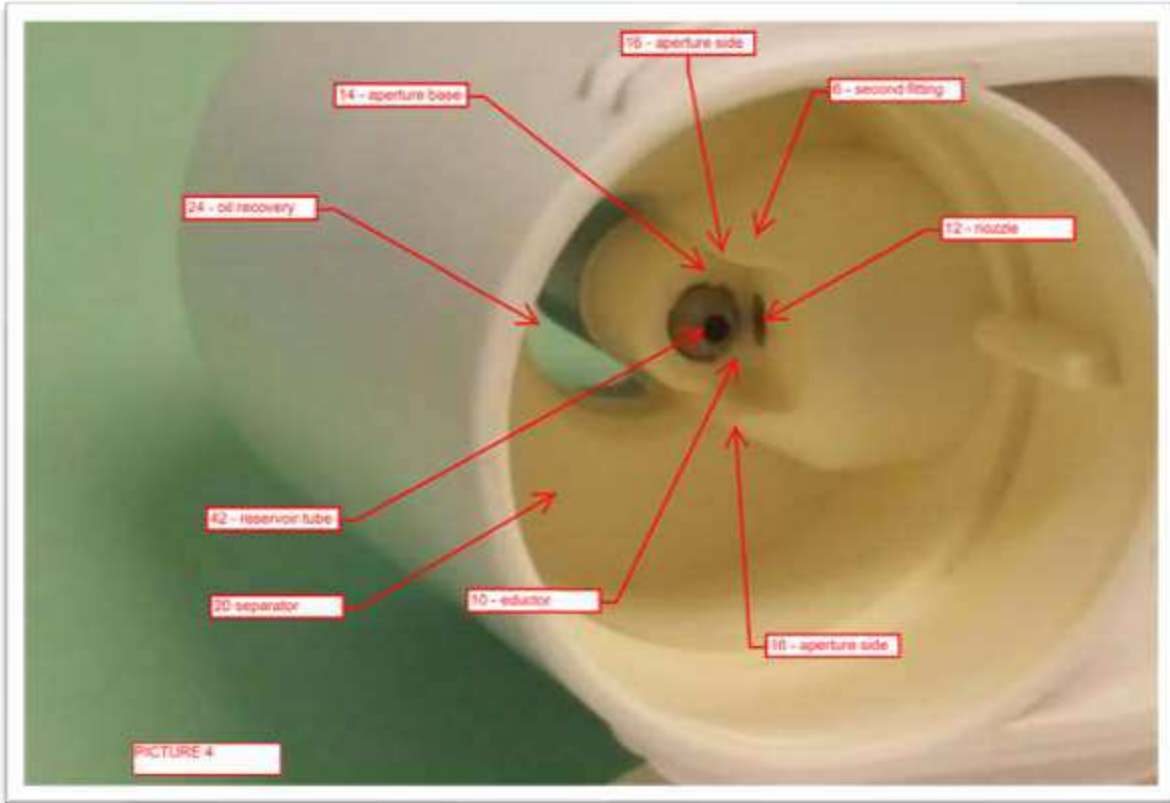
APERTURE AND NOZZLE

2. In its Infringement Contentions,⁵ Plaintiff identifies various surfaces of the accused Cloud Diffuser as combining to define the “aperture” recited in claims 1, 2, and 14 of the ’418 Patent. Plaintiff labels them as the “aperture top” [18], “aperture sides” [16], and “aperture base” [14] as depicted below.⁶ When fully assembled, the purported aperture top fits between the aperture sides such that the arch of the aperture top rests above the reservoir tube [42] and in front of the nozzle [12].⁷

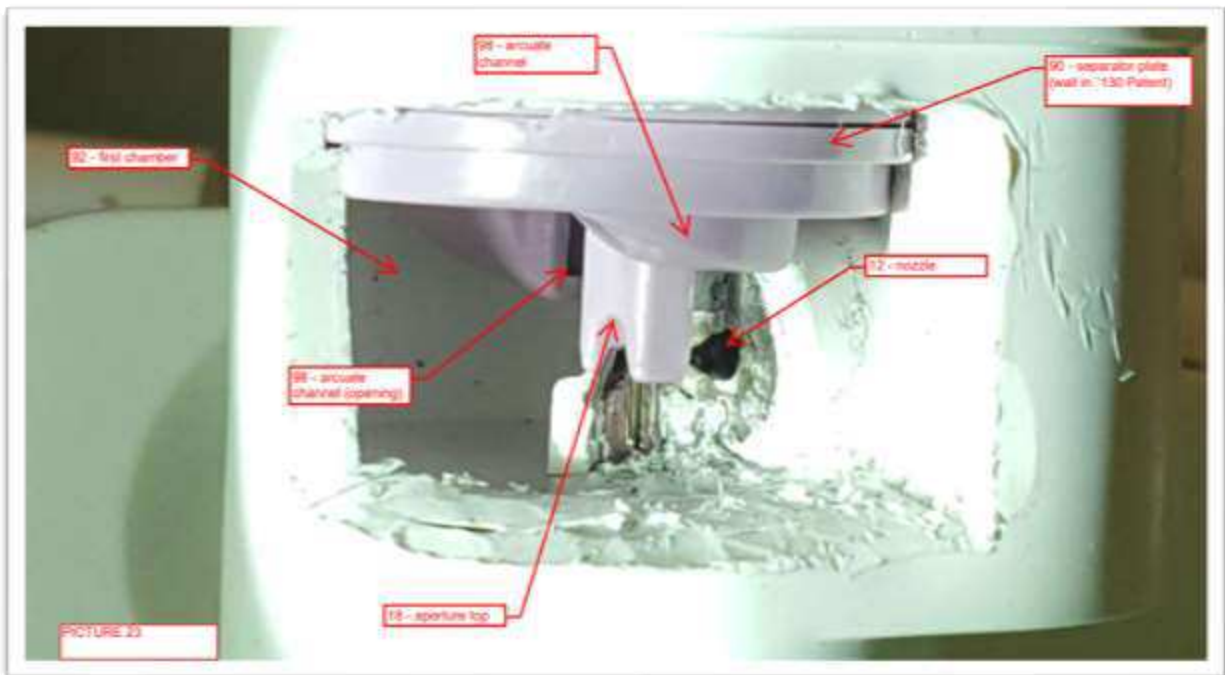
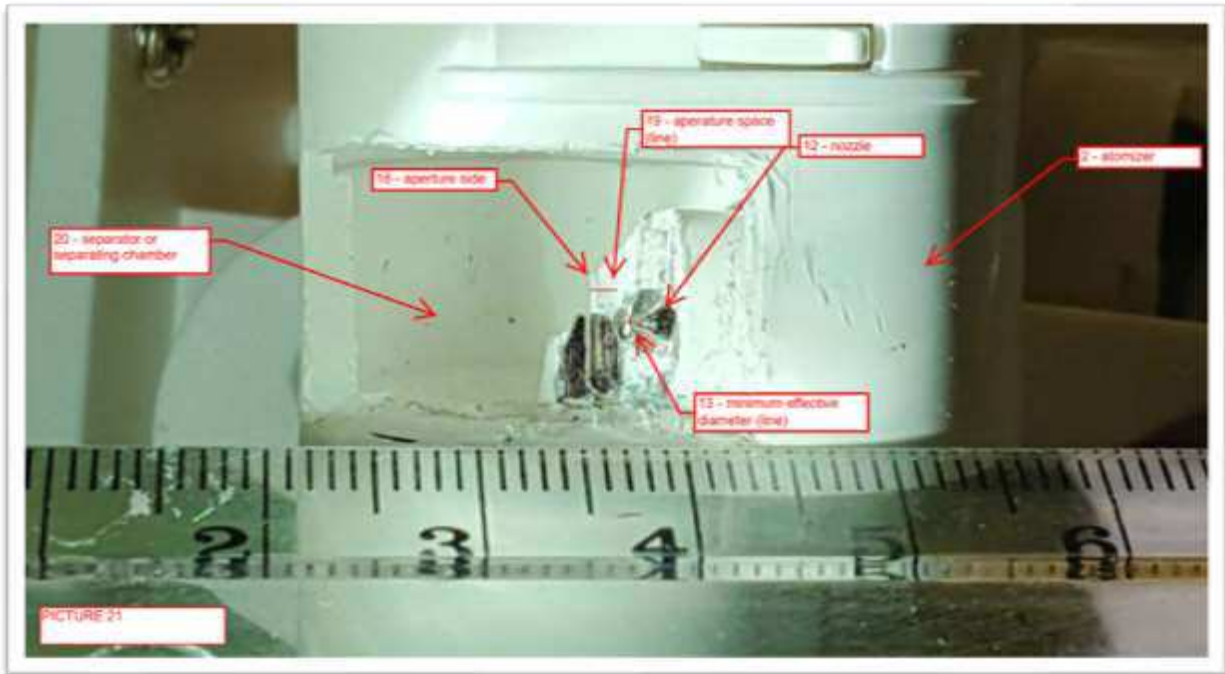
⁵ Dkt. 84-1 (Plaintiff’s Final Infringement Contentions) (attached as Defendants’ Appendix (“DA”) to Motion for Claim Construction).

⁶ *Id.* at DA26-27 (Plaintiff’s Final Infringement Contentions, Exh. A, Pictures 4-5).

⁷ *Id.*



3. In its Infringement Contentions, Plaintiff uses a hollowed-out Cloud Diffuser with a ruler as a reference point to identify the effective nozzle diameter and the distance to the aperture, as depicted below.⁸



⁸ See Dkt. 84-1 at DA43, DA45.

4. Plaintiff alleges that the Cloud Diffuser satisfies the claim limitation requiring the “aperture” to be spaced from the nozzle “a distance of from about one to about 10 times the minimum effective diameter of the nozzle” based on the distance between “the exit of the nozzle to the exit of the aperture.”⁹

5. Plaintiff’s Infringement Contentions are essentially devoid of any actual, specific dimensions as to the diameter of the Cloud Diffuser Nozzle or the spacing between the nozzle and the aperture. All pictures in Plaintiff’s Infringement Contentions fail to provide any dimensions.¹⁰ The table at the outset of the document states that the nozzle-to-aperture spacing is “4-6 times the minimum effective diameter,”¹¹ however Plaintiff does not provide a numerical dimension of the nozzle diameter to calculate the actual measurement.

6. Plaintiff contends the space between the nozzle and the *exit* of the aperture satisfies the “one to about 10 times the minimum effective diameter of the nozzle” claim limitation.¹² However, nozzle-to-exit spacing is irrelevant due to the court’s construction of the claim language, which provides that the required measurement extends from the nozzle to the entrance of the aperture.¹³ Plaintiff offers no infringement contention based upon the space between the nozzle and the entrance of the aperture.¹⁴

⁹ *Id.* at DA103 (Meet and Confer Email) (“With respect to the aperture in the eductor configuration, the measurement in question is from the exit of the nozzle to the exit of the aperture.”).

¹⁰ However, Plaintiff does provide a ruler for reference, placed in Pictures 21-22. *See id.* at DA43-44.

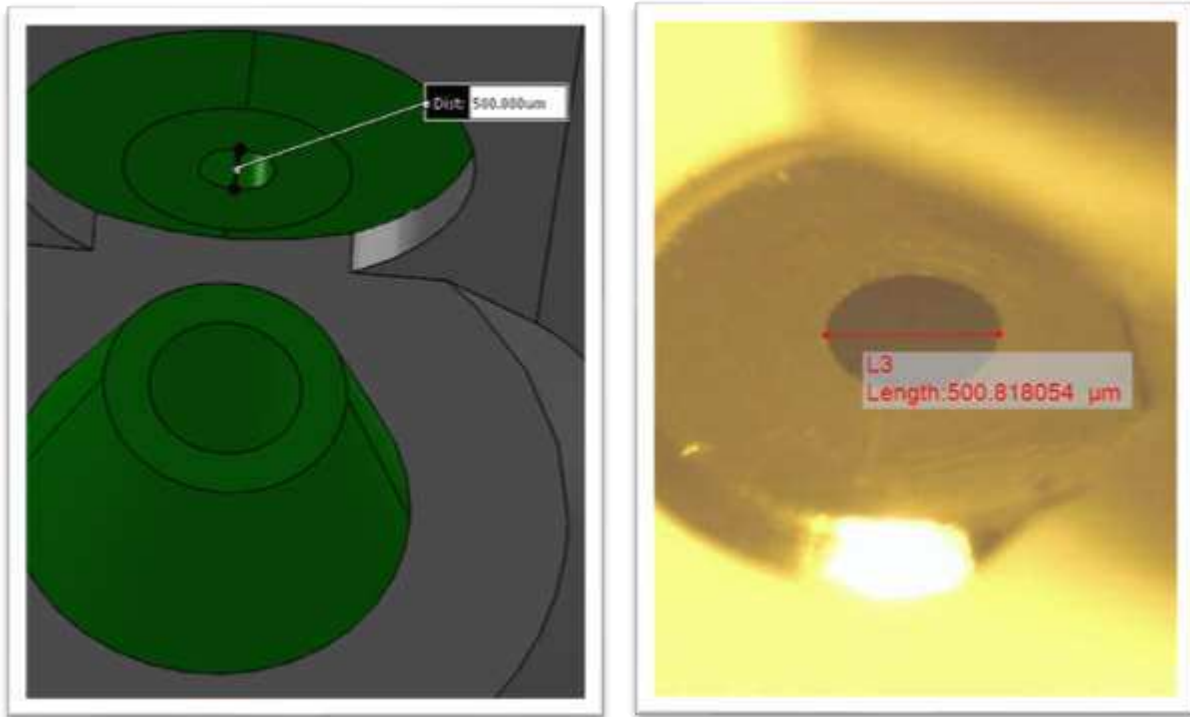
¹¹ *See id.* at DA4 (“The nozzle has a minimum effective diameter 13 for discharging the flow 34 therethrough an into an aperture (defined by 14, 16 and 18) spaced a distance 19 therefrom of about 4-6 times the minimum effective diameter”) (citing Pictures 4, 5, and 21).

¹² *Id.* at DA4-5.

¹³ *See* Dkt. 104 at 30.

¹⁴ *See* Dkt. 84-1 at DA4, DA10, DA43; *see also* Dkt. 86-2, Exh. B ¶¶ 55-66 (Declaration of Dr. J. Clair Batty in Support of Plaintiff’s Opening Cross-Motion for Claim Construction) (“Batty Declaration”).

7. As shown in the following images depicting measurements from the Cloud Diffuser 3D CAD file and from a Cloud Diffuser product using a calibrated microscope, the effective minimum diameter of the nozzle in the Cloud Diffuser is approximately 500 μm .¹⁵

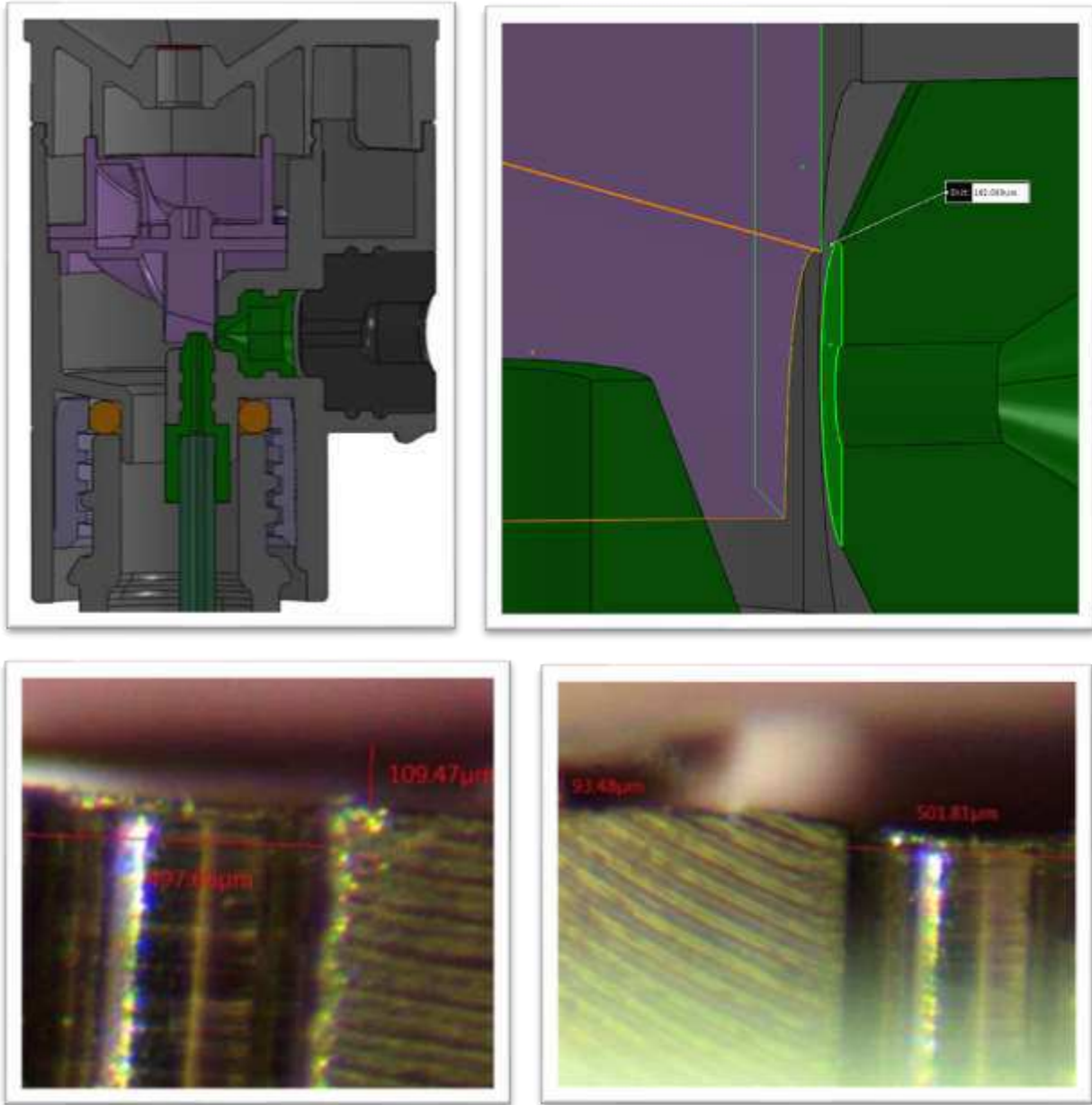


8. In the Cloud Diffuser, the distance between the nozzle and the structure Plaintiff calls the “aperture” is between 93 μm and 109 μm .¹⁶ The images below show the distance between the “aperture top” and the nozzle.¹⁷

¹⁵ See Dkt. 84-1 at DA157-158 (Declaration of Fred Smith in Support of Non-Infringement) (“Smith Declaration”) ¶¶ 62-63. A “ μm ” (or micrometer) is one millionth of a meter or one thousandth of a millimeter. Dkt. 85 at 9 (Defendants’ Motion for Summary Judgment).

¹⁶ The 3D CAD model revealed a space of 102 μm . See Dkt. 84-1 at DA160-162 ¶ 66. The calibrated microscope revealed 93 μm on one side of the nozzle opening, and 109 μm on the other. See *id.*

¹⁷ See *id.* at DA160-163 ¶ 66 (explaining the measurement from the CAD file) (“The ‘aperture top’ is formed from a fork shaped piece that extends down from the purple insert. As can be seen in the drawings below, the distance from the nozzle to the start of the purple ‘aperture top’ is only 102 μm .”); ¶ 67 (explaining the measurements taken from the calibrated microscope) (“Actual measurements show the distance from the nozzle to the ‘aperture top’ to be 93 μm to 109 μm , certainly nowhere close to the 500 μm required to be one nozzle diameter away.”).



DUTY CYCLE


9. The term “duty cycle” from claims 1 and 2 of the ’418 Patent means “the fractional time of operation compared to the total elapsed time.”¹⁸ This can be represented by the following fraction: Duty Cycle = [time of operation] / [total elapsed time].

¹⁸ *Id.* at DA103.

10. The Cloud Diffuser controls and the user manual displayed below depict three settings available to users: (1) on/off and diffusion intensity adjustment, (2) timer, and (3) diffusion interval. The timer provides the user the option to set the run time for either 1, 2, 3, 4, 5, or 6 hours. The diffusion interval setting allows the user to choose between three intervals: 1 minute, 5 minutes, and 10 minutes.¹⁹



Setup



On/Off and diffusion adjustment knob:

1. Turn On/Off dial clockwise, diffuser will turn on to default setting. Default setting is 1 hr diffuser time with 1 minute intervals. Increase diffusion strength by continuing to turn dial until desired intensity is reached.
2. To decrease intensity turn dial counter clockwise. To turn off diffuser, turn dial counter clockwise until it clicks.

Timer:
Default run time of the diffuser is 1hr. For longer run time, turn knob to the 2hr, 3hr, 4hr, 5hr, or 6hr run times.

Diffusion Interval:
Adjust the length of diffusion intervals by turning the dial to the desired time. Interval settings are 1min, 5min, and 10min. Selecting the 5min interval will set diffuser to mist for 5min and rest for 5min.

¹⁹ See *id.* at DA23.

11. Selecting the 5 minute interval setting means that the diffuser diffuses oil for 5 minutes, then rests for 5.²⁰ The 1 minute and 10 minute settings operate the same: 1 minute of operation and 1 minute of rest, or 10 minutes of operation and 10 minutes of rest, respectively.²¹ Each of these interval settings repeats until the device has operated for the amount of time selected by the user—either 1, 2, 3, 4, 5, or 6 hours.²²

12. No matter what settings a user selects for the Cloud Diffuser, the ratio of operation time compared to the total elapsed time will always be 1/2.²³

13. There is no evidence of any person using a Cloud Diffuser in a manner that “selectively control[s] . . . the duty cycle of the pump” as required in claims 1 and 2.

ATOMIZER AND PUMP

14. Based on Plaintiff’s Infringement Contentions, the “atomizer” recited in the asserted claims of the ’418 Patent is satisfied by a removable plastic chamber in the Cloud Diffuser depicted below.²⁴

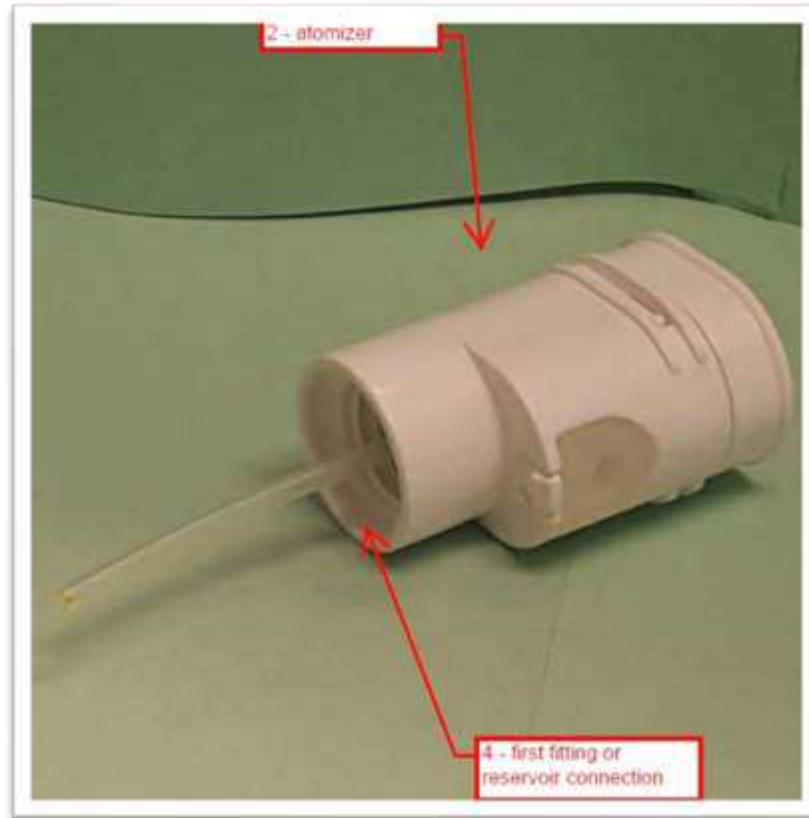
²⁰ Dkt. 84-1 at DA23.

²¹ *See id.* at DA154 ¶ 57.

²² *Id.* at DA118; DA164-165 ¶ 70.

²³ *Id.* at DA164-165 ¶¶ 70-71.

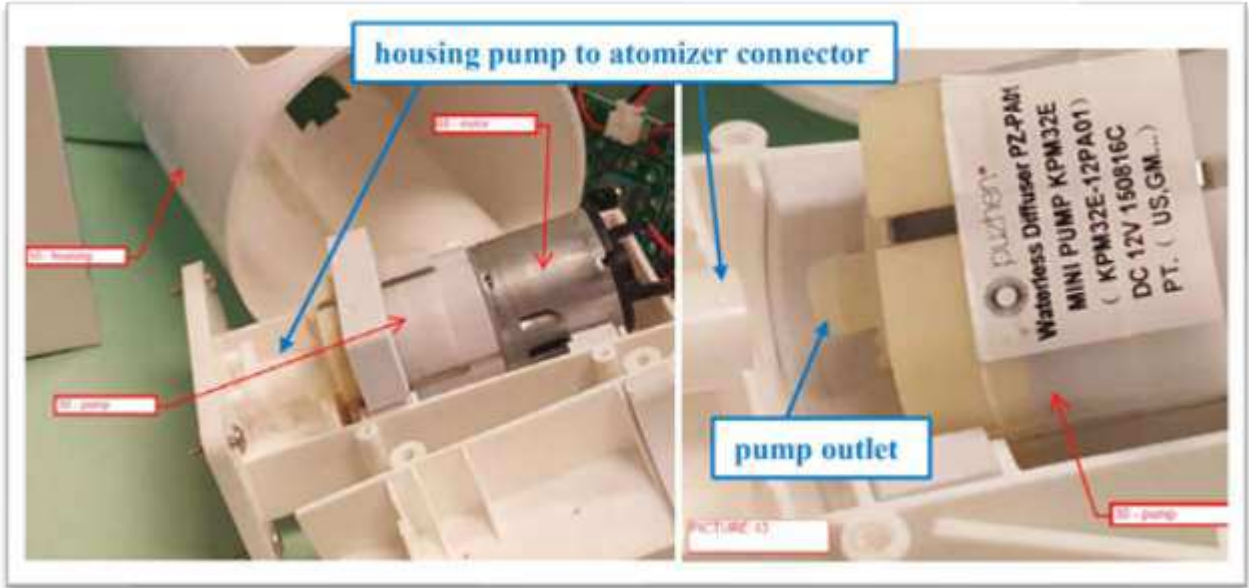
²⁴ *Id.* at DA24.



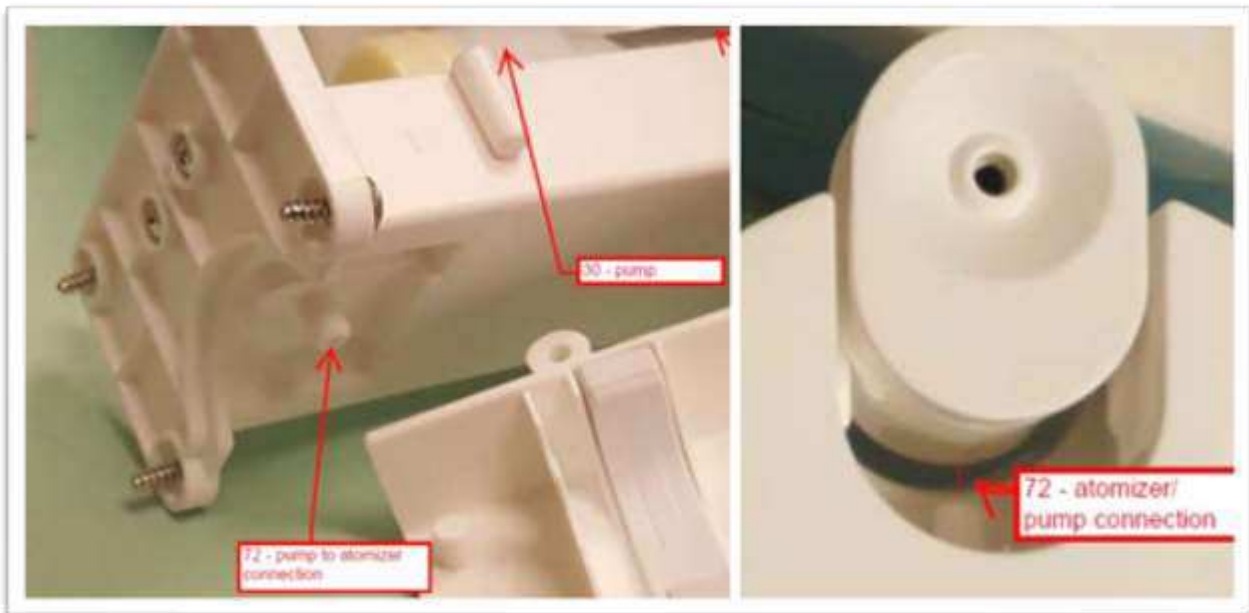
15. The Cloud Diffuser’s pump (shown below) is located inside the housing and has an outlet that connects to a conduit within the housing structure, which Plaintiff calls the “pump to atomizer connection” piece.²⁵ This piece of the housing lies between the pump outlet and the inlet to the atomizer.²⁶

²⁵ *Id.* at DA28; DA33-35.

²⁶ *Id.*




16. The pump of the Cloud Diffuser is separate from and does not connect directly to the atomizer. Instead, the pump indirectly connects to the atomizer via the pump-to-atomizer connector piece of the housing.



17. Unlike the preferred embodiment of the '418 Patent, the alleged atomizer of the Cloud Diffuser sits within the footprint of the housing of the Cloud Diffuser.

18. The weights of various components (seen in the picture below and to the right) of the Cloud Diffuser are as indicated in the chart below and to the left.²⁷

Component	Weight (g)	% of Total Weight
Elbow Connector	1.3	0.27%
Control Buttons	10.82	2.25%
Pump	22.15	4.61%
Diffuser	22.16	4.61%
Control Board	23.98	4.99%
Bottle	28.31	5.89%
Motor/pump Housing	40.08	8.34%
Base	47.5	9.88%
Motor	70.78	14.72%
Housing	93.02	19.35%
Base Weight	120.59	25.09%
Total	480.69	100.00%



19. The Cloud Diffuser has a 120-gram metal insert in the base of the diffuser housing.

LEGAL STANDARDS

Under Rule 56 of the Federal Rules of Civil Procedure, a “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.”²⁸ “If there is a real dispute about a material fact or factual inference, summary judgment is inappropriate[.]”²⁹ In considering a motion for

²⁷ *Id.* at DA175-176 ¶ 88.

²⁸ Fed. R. Civ. P. 56.

²⁹ *Meyers v. Brooks Shoe, Inc.*, 912 F.2d 1459, 1461 (Fed. Cir. 1990).

summary judgment, courts view the evidence in the light most favorable to the non-moving party and draw reasonable inferences in their favor.³⁰

Patent infringement analysis generally involves two steps: (1) “determining the meaning and scope of the patent claims asserted to be infringed” (claim construction), and (2) “comparing the properly construed claims to the device accused of infringing” to see whether that device contains all the limitations in the claimed invention.³¹ In this case, the issue before the court involves the second step.

To prove infringement under a particular claim, a patentee must show that an accused product or method meets every claim limitation recited in the properly construed claim either literally or under the doctrine of equivalents.³² Failure to present such proof warrants summary judgment of non-infringement.³³ Thus, summary judgment of non-infringement under a particular claim is proper if no reasonable jury could find that every limitation in the claim is found in the accused device.³⁴ As explained below, no reasonable jury could find that Defendants’ Cloud Diffuser infringes all claim limitations in claims 1, 2, or 14 of the ’418 Patent.³⁵

³⁰ See *AB Chance, Co. v. RTE Corp.*, 854 F.2d 1307, 1310-11 (Fed. Cir. 1988) (citing *United States v. Diebold, Inc.*, 369 U.S. 654, 655 (1962)).

³¹ *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), aff’d, 517 U.S. 370 (1996); see also *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1365 (Fed. Cir. 2002); *Johnson Worldwide Assocs. v. Zebco Corp.*, 175 F.3d 985, 988 (Fed. Cir. 1999).

³² See *Pfizer, Inc. v. Teva Pharms., USA, Inc.*, 429 F.3d 1364, 1376 (Fed. Cir. 2005).

³³ *Celotex Corp. v. Catrett*, 477 U.S. 317, 325 (1986).

³⁴ *PC Connector Solutions, LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1364 (Fed. Cir. 2005); see also *Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998) (“Thus, a literal infringement issue is properly decided upon summary judgment when . . . no reasonable jury could find that every limitation recited in the properly construed claim either is or is not found in the accused device.”).

³⁵ Plaintiff only makes one doctrine of equivalents argument in their response to Defendants’ Motion, specifically under the “aperture spaced therefrom” section. See Dkt. 90 at 10-13. This doctrine will be further discussed under that section.

DISCUSSION

Defendants seek summary judgment of non-infringement with respect to all asserted claims (claims 1, 2, and 14 of the '418 Patent) on five independent bases: (1) the Cloud Diffuser's nozzle-to-aperture distance is smaller than the requisite spacing, (2) the Cloud Diffuser does not allow the user to "selectively control[]" the "duty cycle," as required by the '418 Patent, (3) the Cloud Diffuser's atomizer is not directly connected to the pump, (4) the Cloud Diffuser's pump does not "anchor" the atomizer," and (5) the accused atomizer is not, as the '418 Patent requires, "integrated with the pump."³⁶ Plaintiff disputes each of these contentions, instead arguing that Defendants' Cloud Diffuser satisfies all the limitations in claims 1, 2, and 14. The court addresses below each of Defendants' assertions in turn.

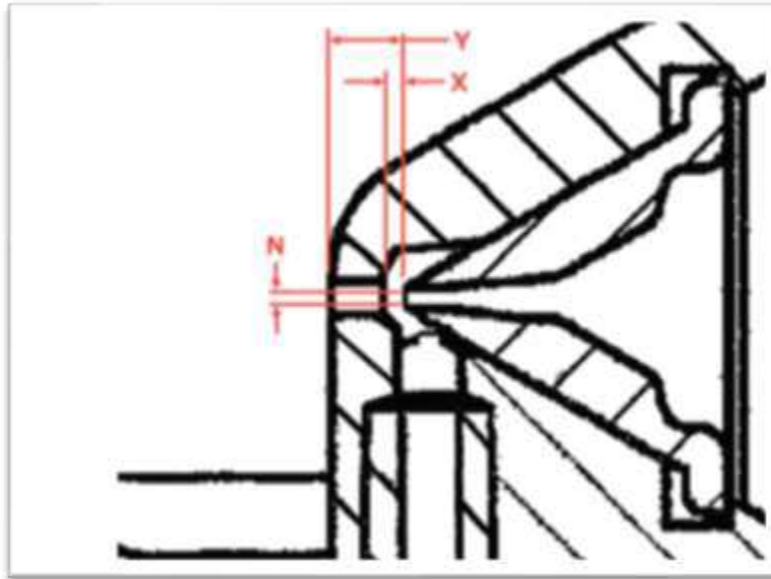
I. Aperture "Spaced Therefrom"

Claims 1 and 14 of the '418 Patent recite a specifically required distance between the nozzle and an aperture: "the eductor comprises a nozzle having a minimum effective diameter discharging the flow therethrough and into an aperture spaced therefrom a distance of from one to about 10 times the minimum effective diameter" of that nozzle.³⁷ This "one to about 10 times" the diameter distance measures from the nozzle to the nearest point of the aperture, represented by the smaller distance "X" in Figure A below.³⁸ For the Cloud Diffuser to infringe upon this claim limitation, the distance between the nozzle and the nearest part of the aperture must fall within one to about 10 times the minimum effective diameter of that nozzle (diameter depicted below as the distance "N").

³⁶ See Dkt. 85 at 15-26.

³⁷ '418 Patent at 11:51-55, 14:33-36.

³⁸ Dkt. 84 at 8 (Defendants' Cross Motion for Claim Construction).

Figure A

Since the minimum effective diameter of the Cloud Diffuser nozzle is approximately 500 μm , the device infringes this claim limitation if its nozzle discharges airflow into an aperture spaced from the nozzle a minimum distance of about 500 μm and 5,000 μm .³⁹ Using a calibrated microscope, in addition to reviewing the CAD file, Defendants' expert Fred Smith⁴⁰ found that

³⁹ Dkt. 84 at DA158 ¶ 63 (CAD file showing 500 μm and the physical measurement showing 500.8 μm).

⁴⁰ Plaintiff asks the court to disregard the entire Smith Declaration because Smith allegedly failed to list or declare several items in his report, including every patent and website he reviewed in preparing his declaration, documents discussed at his deposition, and declaration testimony in an Inter Partes Review proceeding. *See* Dkt. 90 at 6-7. Plaintiff cites to one case which fails to discuss Rule 16 compliance, and fails to exclude such testimony. *See id.* at 7; *see also TypeRight Keyboard Corp. v. Microsoft Corp.*, 374 F.3d 1151, 1157-59 (Fed. Cir. 2004) (reversing summary judgment due to evidence contradicting the factual testimony of a percipient witness). Plaintiff also fails to recite the standard for exclusion of expert testimony for non-compliance with Rule 26, which requires the court to weigh several factors, none of which Plaintiff attempts to prove with any evidence. *See Woodworker's Supply, Inc. v. Principal Mut. Life Ins. Co.*, 170 F.3d 985, 993 (10th Cir. 1999) (listing factors). In response, Defendants explain that "Mr. Smith's declaration/report cites numerous resources and facts that he relied on in forming his opinions," and Smith did not cite others "because [he] did not feel they were germane to his opinions." Dkt. 93 at 2. Here, the minimal evidence provided by Plaintiff fails to show that Smith's omissions go beyond a harmless technicality, or justify disregarding Smith's entire declaration. *See Jacobsen v. Deseret Book Co.*, 287 F.3d 936, 952-53 (10th Cir. 2002) ("Rule 37(c) permits a district court to refuse to strike expert reports and allow expert testimony even when the expert report violates Rule 26(a) if the violation is justified or harmless.").

the distance at issue in the Cloud Diffuser measured roughly 100 μm .⁴¹ That distance is not about, approximately, or remotely close (relatively speaking) to the lower end of the required range: 500 μm . Plaintiff provides no evidence to the contrary.

Rather, Plaintiff argues that “the Cloud Diffuser would still infringe this limitation under ‘the doctrine of equivalents.’”⁴² Under this doctrine, infringement is established if “the accused device performs substantially the same overall function in substantially the same way to achieve substantially the same overall result as the element of the patented device[.]”⁴³ Where the differences between the claim limitation and the accused device are insubstantial, equivalence exists.⁴⁴ Still, the “doctrine of equivalents cannot be used to erase ‘meaningful structural and functional limitations of the claim on which the public is entitled to rely in avoiding infringement.’”⁴⁵

Here, Plaintiff asserts that the “Cloud Diffuser’s eductor configuration works in the same way as the claimed eductor, passing a flow of air through a cavity to produce a momentum transfer,” and “produces the same result . . . drawing liquid from a reservoir and partially atomizing that liquid.”⁴⁶ However, Plaintiff fails to explain how the doctrine of equivalents bridges the sizable gap between the specific measurement required by the actual claim language and the Cloud Diffuser’s measurements. The largest measurement in evidence of the Cloud

⁴¹ *Id.* at DA160-164 ¶¶ 66-68. The CAD file revealed a space of 102.080 μm . Using a calibrated microscope, Smith’s physical measurements showed a space of 109 μm when measured from one edge of the nozzle opening and 93 μm from the other edge of the nozzle opening. *See id.*

⁴² Dkt. 90 at 10-11 (citing *Carroll Touch, Inc. v. Electro Mechanical Sys. Inc.*, 3 F.3d 404, 407 (Fed. Cir. 1993); *Wolverine World Wide, Inc. v. Nike, Inc.*, 38 F.3d 1192, 1196 (Fed. Cir. 1994) (citations omitted)).

⁴³ *See Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1160 (Fed. Cir. 1998); *Utah Med. Prod., Inc. v. Clinical Innovations Assocs., Inc.*, 79 F. Supp. 2d 1290, 1298 (D. Utah 1999), *aff’d*, 251 F.3d 171 (Fed. Cir. 2000); *see also Carroll Touch* at 407.

⁴⁴ *See Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 36-40, 117 S. Ct. 1040.

⁴⁵ *Conopco, Inc. v. May Dep’t Stores Co.*, 46 F.3d 1556, 1562 (Fed. Cir. 1994).

⁴⁶ Dkt. 90 at 12-13, citing Exh. B, Batty Non-Infringement Resp. ¶¶ 61-65.

Diffuser's nozzle-to-aperture spacing is only 109 μm , which is 21.8% or about 1/5 of the required distance. Taking 109 μm as a rough equivalent of 500 μm would not only be inconsistent with the plain meaning of the claims, it would undermine the public notice function of the patent system.⁴⁷ If a distance as small as 109 μm was intended to be covered by the '418 Patent, Plaintiff could have attempted to claim a different spatial range. However, it did not. At bottom, no reasonable jury could view 109 μm as an equivalent of 500 μm .

But even if 109 μm could reasonably be considered a substantial equivalent of 500 μm , the doctrine of equivalents is unavailable to Plaintiff here because it failed to assert the doctrine in its final infringement contentions.⁴⁸ Under the court's Local Patent Rules, a plaintiff's initial and final infringement contentions must state "whether each element of each asserted claim is claimed to be present . . . under the doctrine of equivalents" and must "include an explanation of each function, way, and result that is alleged to be equivalent and why any differences are not substantial."⁴⁹ Final contentions may be modified "only by order of the court upon a showing of good cause and absence of unfair prejudice to opposing parties."⁵⁰ Plaintiff here failed to assert a doctrine of equivalents contention respecting the nozzle-to-aperture spacing in its final infringement contentions.⁵¹

⁴⁷ See *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 909 (2014) ("[A] patent must be precise enough to afford clear notice of what is claimed, thereby 'appris[ing] the public of what is still open to them.'" (quoting *Markman v. Westview Instruments, Inc.*, 517 U. S., 370, 373 (1996))).

⁴⁸ See Dkt. 84 at DA4, DA10.

⁴⁹ ULPR 2.3(d), 3.1.

⁵⁰ ULPR 3.4.

⁵¹ Despite already having notice on May 10, 2017, after Defendants' pointed out Plaintiff's improper attempt to reserve a right to assert the doctrine of equivalents based on Defendants' non-infringement contentions, Plaintiff served its Final Infringement Contentions five months later with no changes, asserting only literal infringement with respect to the "aperture spaced therefrom." See Dkt. 84 at DA4, DA10; see *Petter Invs., Inc. v. Hydro Eng'g, Inc.*, 2015 U.S. Dist. LEXIS 86896, at *8 (D. Utah June 30, 2015) ("Plaintiff waived the issue of infringement under the Doctrine of Equivalents when it failed to assert it in its infringement contentions.").

Because no reasonable jury could find that a nozzle-to-aperture distance of 109 μm falls between about 500 μm to 5,000 μm , summary judgment of non-infringement of claims 1 and 14 must be awarded to Defendants.

II. Selective Control of Duty Cycle

Claim 1 states that the device “atomiz[es] the liquid into droplets . . . simultaneously limiting net outflow of the liquid and decreasing mean droplet size by selectively controlling by a user the duty cycle of the pump.”⁵² Claim 2 states: “[t]he method of claim 1, further comprising controlling the duty cycle by controlling the ratio of the duration of the operation to the duration of the delay plus the duration of operation.”⁵³

In reference to these claims, the parties stipulate that “duty cycle” means “the fractional time of operation compared to the total elapsed time.”⁵⁴ “[T]ime of operation” refers to the period in which the pump pushes a flow of air through the atomizer to diffuse a mist of oil, and “total elapsed time” is the combination of the time of operation and the non-operation time.⁵⁵ This ratio can be expressed as follows: [time of operation] / [total elapsed time = time of operation + rest time].⁵⁶ Thus, the issue here is whether the Cloud Diffuser is designed for users to selectively control the ratio of the fractional time of operation compared to the total elapsed time.

⁵² '418 Patent at 11:62-12:3.

⁵³ *Id.* at 12:4-7.

⁵⁴ See Dkt. 84 at DA103; *see also* '418 Patent at 2:43-51.

⁵⁵ '418 Patent at 2:43-51; *see also id.*, Abstract.

⁵⁶ Dkt. 84 at DA164-165 ¶ 70.

Figure B

The Cloud Diffuser has three settings: (1) on/off and diffusion intensity adjustment (top control), (2) timer (middle), and (3) diffusion interval (bottom). The timer gives users the option to set the total run time for either 1, 2, 3, 4, 5, or 6 hours, as described in the user manual. The diffusion interval setting allows the user to choose between three intervals: 1, 5, and 10 minutes.⁵⁷ Selecting the 5-minute interval means that the diffuser diffuses oil for 5 minutes, then rests for 5.⁵⁸ The 1 and 10 minute settings operate the same. Every combination of timer setting (*i.e.*, the total elapsed time) and interval setting results in the same fractional time of operation

⁵⁷ See *id.* at DA23.

⁵⁸ *Id.*

compared to total time: 1/2.⁵⁹ Each of these interval settings repeat until the accused product has operated for the amount of time selected by the user—either 1, 2, 3, 4, 5, or 6 hours.⁶⁰

	Total Selected Time of Operation ⁶¹					
	1 Hour mist/total	2 Hours mist/total	3 Hours mist/total	4 Hours mist/total	5 Hours mist/total	6 Hours mist/total
1/1 Interval	30/60	60/120	90/180	120/240	150/300	180/360
5/5 Interval	30/60	60/120	90/180	120/240	150/300	180/360
10/10 Interval	30/60	60/120	90/180	120/240	150/300	180/360

Notwithstanding this, Plaintiff maintains the Cloud Diffuser’s operational time can be selectively controlled by “adjust[ing] the total operational time[,]” thus controlling “one aspect . . . of the Cloud Diffuser’s duty cycle.”⁶² However, adjusting the total operational time does not change the ratio between the operational time and the total elapsed time; it remains 1/2.⁶³

Plaintiff also attempts to draw a distinction between “controlling” a duty cycle and “changing” a duty cycle.⁶⁴ But the court finds no meaningful distinction between these terms as they pertain to the claim language. The duty cycle is not the size of one side of the ratio, or even the overall magnitude of the ratio, the duty cycle is the ratio itself: “the fractional time of operation compared to the total elapsed time.”⁶⁵ To selectively control this ratio is to change it.

⁵⁹ See Dkt. 84 at DA164-165 ¶¶ 70-71 (basing this assertion on the Cloud Diffuser User Manual).

⁶⁰ See *id.* at DA118; 164-165 ¶ 70.

⁶¹ Dkt. 85 (Defendants’ Motion for Summary Judgment) at 20.

⁶² Dkt. 90 at 14-15.

⁶³ See Dkt. 84 at DA6-7.

⁶⁴ See Dkt. 90 at 13.

⁶⁵ Dkt. 85 at 6 (“‘duty cycle’ means ‘the fractional time of operation compared to the total elapsed time’”).

Finally, Plaintiff argues the duty cycle may be selectively controlled via a specific series of steps: “[i]f a user initially sets an interval time of 3 minutes, but then adjusts the interval time during the ‘rest’ cycle, the rest cycle is shortened because the Cloud Diffuser starts diffusing again[.]”⁶⁶ In this hypothetical scenario, it follows that the normal 1/2 ratio would change because the total elapsed time would be less than the normal (2x) operation time. Plaintiff attempts to prove the existence of this function by pointing to the Cloud Diffuser User Manual, two instructional YouTube videos, and its expert’s testimony.⁶⁷ Plaintiff suggests that, in addition to the videos and expert testimony, “[t]he Cloud Diffuser’s User Manual is circumstantial evidence that it functions as described therein, including that the duration of the total operational time can be controlled and the interval time can be controlled.”⁶⁸ However, as stated above, adjusting the total operational time or the interval time does not change the ratio between the operational time and the total elapsed time.

And Plaintiff has failed to provide any admissible, competent evidence showing that a user has carried out these steps or that the sequence actually produces a mid-cycle restart.⁶⁹

⁶⁶ Dkt 90 at 14-15.

⁶⁷ See *id.* at 16. Plaintiff also cites to a case where a court relied on circumstantial evidence to find infringement. *Id.*, citing *Alco Standard Corp. v. Tennessee Valley Auth.*, 808 F.2d 1490, 1501-03 (Fed. Cir. 1986). However, Plaintiff’s circumstantial evidence is essentially non-existent, especially when compared to the evidence presented in *Alco*: “[plaintiff] presented highly credible evidence, from two separate [] sources” both showing that the accused device used “the same method and apparatus ... to ultrasonically inspect TVA’s rotors” as claimed in the Patent. *Alco* at 1501. Here, none of Plaintiff’s evidence shows that the Cloud Diffuser is designed to allow the user to selectively control the duty cycle.

⁶⁸ See Dkt. 90 at 16.

⁶⁹ Courts generally require evidence of direct infringement. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1317 (Fed. Cir. 2009); *Embrex, Inc. v. Serv. Eng’g Corp.*, 216 F.3d 1343, 1352 (Fed. Cir. 2000) (“[A]s a matter of law, an offer to sell a device cannot infringe a method patent without evidence of the device’s actual use to carry out the method.”); *State Farm Auto Ins. Cos. v. Christensen*, 2020 U.S. Dist. LEXIS 61183, at *3 (D. Utah Apr. 6, 2020); *Ricoh Co., Ltd. v. Quanta Comput. Inc.*, 550 F.3d 1325, 1341 (Fed. Cir. 2008) (“a finding of inducement requires a threshold finding of direct infringement—either a finding of specific instances of direct infringement or a finding that the accused products necessarily infringe.”); *Cross Med. Prods. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1312 (Fed. Cir. 2005) (“In order to succeed on a claim of contributory infringement” the plaintiff must prove “an act of direct infringement”)....

Neither YouTube video shows a user adjusting the interval or runtime settings during the rest period.⁷⁰ No part of the Cloud Diffuser User Manual refers to controlling the duty cycle ratio.⁷¹ Dr. Batty's Declaration entirely fails to refer to this hypothetical sequence.⁷² Plaintiff also offers no proof of the specific intent required by Defendants to induce infringement.⁷³ Therefore, even when considering the evidence in the light most favorable to Plaintiff, no reasonable jury could find that the Cloud Diffuser satisfies the "duty cycle" limitations of claims 1 and 2 in the '418 Patent. On this independent ground, the court must grant summary judgment of non-infringement of claims 1 and 2.

III. Atomizer "Connected Directly" to Pump

Claim 1 requires that the atomizer be "connected directly to a reservoir and to a pump."⁷⁴ In its Claim Construction Order, the court concluded this claim requires only a direct connection between the atomizer and the reservoir; it does not also require a direct connection between the atomizer and the pump.⁷⁵ In the Cloud Diffuser, the connection between the atomizer and the pump is not a direct connection because the pump outlet attaches to an L-shaped conduit within

⁷⁰ See Dkt. 90 at 15 n.10.

⁷¹ See *id.* at 16; *E-Pass Techs., Inc. v. 3Com Corp.*, 473 F.3d 1213, 1222-23 (Fed. Cir. 2007) (affirming summary judgment of non-infringement where no direct infringement by a customer was established and the defendant's product manual did not teach customers to perform the method steps in the order required to infringe); *ACCO Brands, Inc. v. ABA Locks Mfr. Co.*, 501 F.3d 1307, 1313 (Fed. Cir. 2007) (reversing finding of induced infringement of method claim for the same reasons).

⁷² See Dkt. 86-2, Exh. B ¶¶ 99-102.

⁷³ See *DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1306 (Fed. Cir. 2006) ("The 'mere knowledge of possible infringement by others does not amount to inducement; specific intent and action to induce infringement must be proven.'").

⁷⁴ '418 Patent at 11:46-67.

⁷⁵ Dkt. 104 at 30.

the housing, which in turn connects to the atomizer.⁷⁶ Defendants admitted this in their Motion.⁷⁷ Thus, specific to this claim limitation in claim 1, regarding the type of connection between the atomizer and the pump, Defendants are not entitled to summary judgment of non-infringement.⁷⁸

IV. Pump Anchoring the Atomizer

Claims 1 and 2 require “a pump anchoring the atomizer to a supporting surface.”⁷⁹ Claim 14 requires “the atomizer be[] anchored by the pump.”⁸⁰ The court has determined that these limitations require that the pump *firmly secures* the atomizer to a supporting surface.⁸¹ Securing the device to a supporting surface is simply to prevent the device from tipping over.⁸² To illustrate, the preferred embodiment depicts a pump (red) located inside the housing of the device (grey). Hanging outside the footprint of the housing is the atomizer (blue). The size, weight, and/or location of the pump, sitting inside the housing, anchors or firmly secures the atomizer so its force does not allow the device to tip over. The question here is whether the accused Cloud Diffuser’s pump anchors or “firmly secures” the atomizer to a supporting surface, thus preventing the device from tipping over.

⁷⁶ See Dkt. 84 at DA172-173 ¶¶ 83.

⁷⁷ Dkt. 85 at 22 (“Because the intermediary ‘pump to atomizer connection’ piece is located within the housing and is separate from both the atomizer and the pump, any connection between the pump and the atomizer of the accused Cloud Diffuser is, at best, indirect.”).

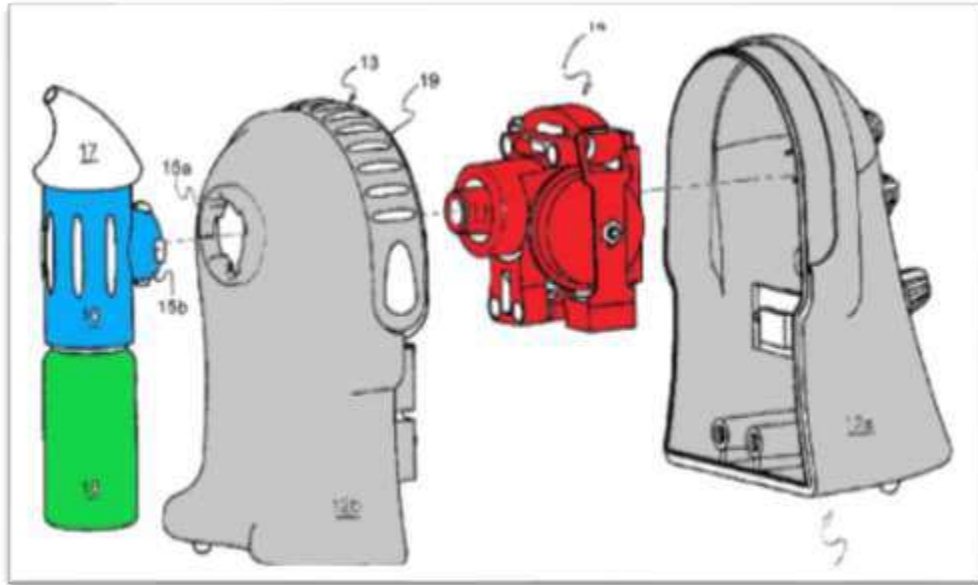
⁷⁸ *But see Pfizer*, 429 F. 3d at 1376 (holding that a patentee’s failure to show that an accused product meets every claim limitation recited in a properly construed claim results in summary judgment of non-infringement).

⁷⁹ Dkt. 104 at 30-31.

⁸⁰ ’418 Patent at 14:20-23.

⁸¹ Dkt. 104 at 30-31.

⁸² ’418 Patent at 6:44-47.

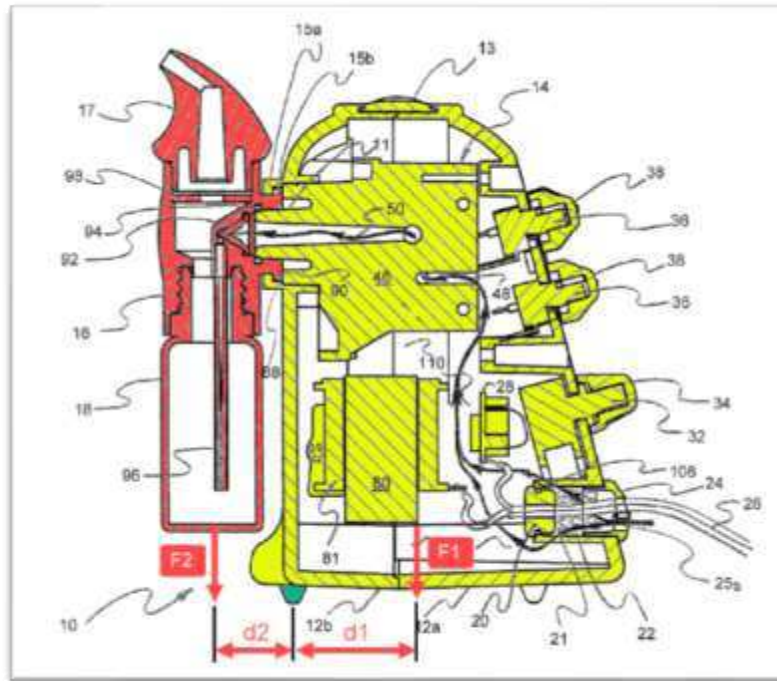
Figure C

In their Motion, Defendants describe the two forces at play and illustrate these forces in the figure below: (1) the “overturning moment” is “the force created by the weight of the atomizer and reservoir [F1] multiplied by the distance from their center of gravity to the foot of the base [d1],”⁸³ and (2) the “resisting moment” is “the force generated by the weight of the housing and its contents [F2] multiplied by the distance from their center of gravity to the base foot [d2].”⁸⁴ Defendants explain that to allow the device to be firmly secured to the support surface, the resisting moment should be greater than or equal to the overturning moment.⁸⁵ The court agrees with this characterization.

⁸³ While “overturning moment” and “resisting moment” are not phrases taken directly from the ’418 Patent, they accurately depict the function of the anchoring required by the ’418 Patent in that they describe how the device is firmly secured to a supporting surface so that it does not tip.

⁸⁴ See Dkt. 84 at DA147-149, 172-173, 175-176, ¶¶ 46-47, 83, 88. Plaintiff does not assert infringement of this claim limitation through the doctrine of equivalents. See *id.* at DA9.

⁸⁵ *Id.*

Figure D

Comparing the claim language to the accused device, it is impossible to say that the Cloud Diffuser's pump makes any kind of meaningful contribution to the "resisting moment" or anchoring force described above. First, the Cloud Diffuser's pump represents 4.61% (22.15 grams) of the device's total weight.⁸⁶ In contrast, a metal base weight inserted into the base provides over 25% of the weight, the housing provides 19% of the weight, and the motor provides 15%.⁸⁷ Second, the pump is located high up inside the housing.⁸⁸ To say that the pump "firmly secures" the atomizer would be a giant leap in logic akin to claiming the Statue of Liberty is anchored by its crown. The bulk of the resisting or anchoring force in the Cloud Diffuser is achieved by components other than the pump. As discussed in the court's Claim

⁸⁶ See Dkt. 84 at DA175-176 ¶ 88.

⁸⁷ See *id.*.

⁸⁸ See *id.*

Construction Order, it is not enough that the pump provide *some* anchoring stability to the Cloud Diffuser.⁸⁹

Plaintiff argues that “the context of claim 1 clarifies that it is not just the pump 14 component that anchors the atomizer, it is the connection between the atomizer and the pump system in its housing that provides the anchoring.”⁹⁰ Plaintiff also maintains that the “pump” in claim 1 “refers to the pump system that provides other structures and functions in claim 1, such as ‘an electronic controller to control’ operation of the pump, and the ability ‘to pressurize ambient air.’”⁹¹

However, looking to the language of claim 1, outside of the pump itself, which is placed directly before “anchoring,” no other item described in the relevant phrase could possibly produce the described “anchoring.” The two other items preceding the word pump are “the atomizer” and “a reservoir,” both which combine to make the very force (“overturning moment” or tipping force) that the pump is counterbalancing. At a minimum, claim 1 requires the pump to be at least one item that does a substantial amount or even the bulk of the securing of the atomizer. In other words, while other components might contribute some amount of additional anchoring to the atomizer, the pump itself must achieve the firmly secured state that will resist movement or tipping during operation. “To anchor” or “to firmly secure” something requires that much. This is also supported by the deposition testimony provided by Plaintiff’s own expert, Dr.

⁸⁹ Dkt. 104 at 27; *see also* Dkt. 84 (Defendants’ Cross Motion for Claim Construction) at 19-20 (discussing disclosure-dedication doctrine as it relates to Plaintiff’s specification disclosure of multiple components providing anchoring of the atomizer, but claiming only that the pump anchor the atomizer).

⁹⁰ Dkt. 90 at 20. Of course, for the pump to anchor the atomizer, the pump would need to be connected to the pump in some way. If the pump was not connected to the atomizer, the pump’s force would do nothing to support or secure the atomizer. But that does not necessarily mean the pump-to-atomizer connection is an item that “firmly secures the atomizer to a supporting surface.” It would be more accurate to say that the connection between the atomizer and the pump allows the pump to anchor the atomizer.

⁹¹ *Id.*

Batty. When asked, in reference to claims 1 and 14, whether the pump anchors the atomizer, he testified, “It’s a major contributor.”⁹²

Here, the Cloud Diffuser’s pump represents 4.61% of the device’s total weight (compared to 59% represented by the base, the housing, and the motor) and the pump is located up high inside the housing. As Dr. Batty stated: “common sense says if [the pump represents] only 5 percent, then the anchoring function contributed by the pump is correspondingly small,” and such a small contribution “would probably not be adequate.”⁹³ The court concludes that no reasonable jury could find that the Cloud Diffuser’s pump “anchors” or “firmly secures” the atomizer to a supporting surface.⁹⁴

V. Atomizer & Pump Integration

Claim 14 requires the atomizer to be “integrated with the pump[.]”⁹⁵ The parties have stipulated that “integrated with the pump” means “not separate from the pump.”⁹⁶ Despite this stipulation, ambiguity remains as to whether “integrated” requires a direct, uninterrupted connection or whether it merely requires that they move as a single unit. However, having already found that the accused device does not meet all claim limitations within claim 14,⁹⁷ the

⁹² See Dkt. 84 at DA327, DA334.

⁹³ See *id.* at DA334, 336 (objection omitted).

⁹⁴ See *id.* at DA175-176 ¶ 88.

⁹⁵ ’418 Patent at 14:20.

⁹⁶ Dkt. 84 at DA115.

⁹⁷ See *supra* at 16-20 (concluding that the Cloud Diffuser does not meet the claim limitation in claim 14, requiring the aperture to be spaced one to 10 times the diameter of the nozzle); see also *supra* at 25-29 (concluding that the Cloud Diffuser does not meet the claim limitation in claim 14 requiring the pump to anchor the atomizer).

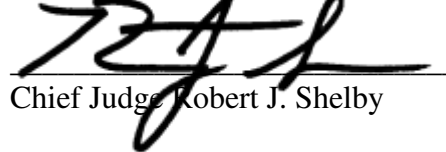
court finds it unnecessary to resolve the issue of whether the Cloud Diffuser meets this particular claim limitation.⁹⁸

CONCLUSION

Having concluded that no reasonable jury could find that Defendants' Cloud Diffuser meets all claim limitations within claims 1, 2, and 14, and thus that the accused device fails to infringe upon these asserted claims, the court therefore GRANTS Defendants' Motion for Summary Judgment of non-infringement of claims 1, 2, and 14 of the '418 Patent.

SO ORDERED this 27th day of July, 2021 .

BY THE COURT:



Chief Judge Robert J. Shelby

⁹⁸ See *Pfizer*, 429 F. 3d at 1376 (holding that a patentee's failure to show that an accused product meets every claim limitation recited in a properly construed claim results in summary judgment of non-infringement); see also *PC Connector Solutions, LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1364 (Fed. Cir. 2005) ("Summary judgment on the issue of infringement is proper when no reasonable jury could find that every limitation recited in a properly construed claim either is or is not found in the accused device either literally or under the doctrine of equivalents."); *PC Connector*, 406 F.3d at 1364; see also *Bai*, 160 F.3d at 1353 ("[I]nfringement issue is properly decided upon summary judgment when . . . no reasonable jury could find that every limitation recited in the properly construed claim either is or is not found in the accused device.).