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**UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.**

In the Matter of

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

Investigation No. 337-TA-1368

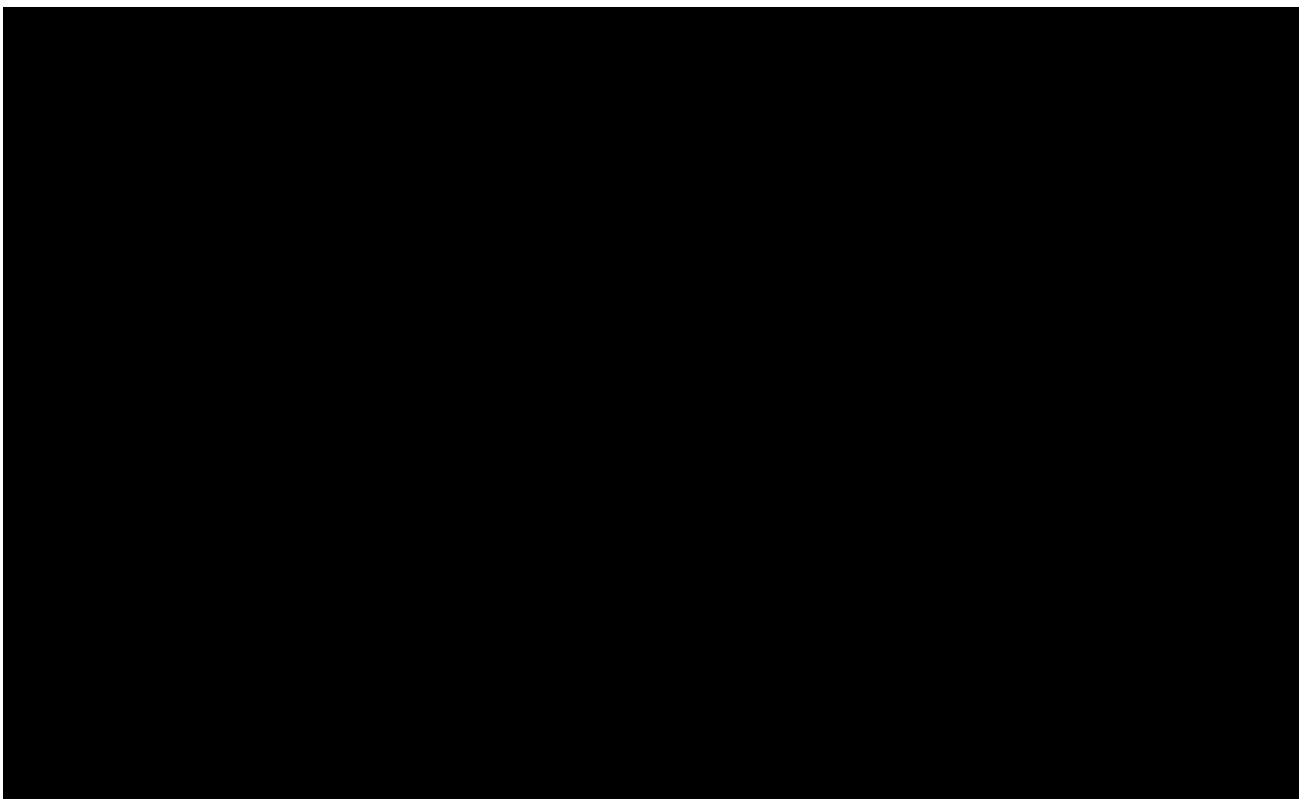
COMMISSION OPINION

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B. '123 Patent Issue #1: Construction of the “pressure sensor” limitations (27[d] and 27[e])

The term “pressure sensor” is recited in limitations 27[d] and 27[e] of asserted claim 27 of the '123 patent:

27[d]: a <u>pressure sensor</u> configured to output sensor readings,
27[e]: wherein a first side of the <u>pressure sensor</u> is exposed to a sealed air flow path and a second side of the <u>pressure sensor</u> is exposed to a device air path open to ambient pressure,

'123 patent, cl. 27 (emphases added).

1. Final ID

In its technical prong analysis regarding the JAGWAR iteration of the JUUL system and JUUL2 system, the ID resolves the parties’ dispute as to the construction of “pressure sensor.” ID at 112-18. NJOY contended that because limitations 27[d] and 27[e] recite “*a* pressure sensor . . . wherein a first side of *the* pressure sensor is exposed to a sealed air flow path and a second side of *the* pressure sensor is exposed to a device air path open to ambient pressure,” claim 27 “requires a *single* pressure sensor having one side exposed to the sealed air flow path, and another side of the same pressure sensor exposed to ambient pressure.” *Id.* at 112 (quoting RRP HB at 39 (emphases in RRP HB)).²⁴ JLI contended that “there is nothing in the intrinsic evidence that precludes a pressure sensor comprising multiple components that together determine differential pressure” and that NJOY seeks to improperly import limitations into the claim. CIP HB at 71.

²⁴ OUII agreed with NJOY’s proposed construction, arguing that because limitations 27[d] and 27[e] require “different [air flow] exposures to ‘a first side’ and ‘a second side’ of the claimed pressure sensor,” for a device to practice those limitations it must contain “at least one sensor that meets the ‘first side’ and ‘second side’ language of the claims.” *Id.* at 113 (quoting OIP HB at 159).

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The ID frames the crux of the parties’ dispute as “whether the claim’s recitation of ‘a pressure sensor’ and subsequent references to ‘the pressure sensor’ requires a single pressure [sensor] or whether it encompasses one or more pressure sensors.” ID at 113. The ID explains that the indefinite article “a” (as in, “a pressure sensor”) generally means one or more in open-ended claims containing the transitional phrase, “comprising.” *Id.* (citing *Convolve, Inc. v. Compaq Computer Corp.*, 812 F.3d 1313, 1321 (Fed. Cir. 2016)). The ID notes that an exception to that general rule “only arises where the language of the claims themselves, the specification, or the prosecution history necessitate a departure from the rule.” *Id.* (quoting *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342-43 (Fed. Cir. 2008)). The ID also notes that such an exception “may occur when there is a later recitation using an antecedent basis indicator, such as ‘said’ or ‘the.’” *Id.* (citing *Salazar v. AT&T Mobility LLC*, 64 F.4th 1311, 1317 (Fed. Cir. 2023)).

The ID further addresses the Federal Circuit’s holding in *Salazar* in which the Court found that the use of “said” limits the recited element to at least a single structure capable of performing all the recited functions:

In *Salazar*, the claim recited “a microprocessor for generating . . . , said microprocessor creating . . . , a plurality of parameter sets retrieved by said microprocessor . . . , [and] said microprocessor generating” [64 F.4th] at 1314. The Federal Circuit concluded that “it does not suffice to have multiple microprocessors, each able to perform just one of the recited functions [generating, creating, and generating]; the claim language requires at least one microprocessor capable of performing each of the recited functions.” *Id.* at 1318. The court reached a similar conclusion in *Finjan LLC v. SonicWall*, 84 F.4th 963, 975 (Fed. Cir. 2023) (“the plain language of the claims requires at least one of those computers to perform all the functions listed on the claims.”).

Id. at 113-14.

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The ID also addresses the Federal Circuit’s contrary holding in *ABS Global, Inc. v. Cytome/ST, LLC*, 84 F.4th 1034 (Fed. Cir. 2023), in which the Court found that the use of “the” did not limit the recited element to a single structure:

In [*ABS Global*], the [C]ourt considered the meaning of the claimed “the sample stream” which was first introduced in the claim as “a sample stream” and in particular whether the later-recited “the sample stream” required a single sample stream. The [C]ourt first noted that the use of “a” in the open-ended “comprising” claim invoked the “general rule” requiring the phrase “to mean one or more unless the context sufficiently indicates otherwise.” *Id.* at 1040 (internal quotations and citations omitted). The [C]ourt next noted that the specification stated that “[F]or the purposes of the present disclosure, the term ‘a’ or ‘an’ entity refers to one or more of that entity. As such, the terms ‘a’ or ‘an’, ‘one or more’ and ‘at least one’ can be used interchangeably herein,” which “reinforces, rather than negates, the applicability here of the ‘one or more’ general rule concerning ‘a’ or ‘an.’” *Id.* at 1040-41. That disclosure, according to the [C]ourt, “also brings into play the lexicography principle—that, with narrow exceptions, “[w]here the specification instructs as to the meaning of a claim term, ‘the inventor’s lexicography governs.’” *Id.* at 1041 (citations omitted). The specification and prosecution history did not provide “a clear and manifest disavowal” of that meaning and the challenging party had not “shown an operational impossibility or something comparable that requires rejecting the plural-allowing meaning.” *Id.*

The [C]ourt next considered a dependent claim, reciting that “the focusing fluid be introduced into the flow channel symmetrically with respect to a centerline of the sample stream,” which the [U.S. Patent Trial and Appeal Board] PTAB relied on in concluding that a plural-allowing construction would be inconsistent with the language of that dependent claim. *Id.* (internal quotations and highlighting removed). The language of the dependent claim, according to the Federal Circuit did “not support rejection of the doubly presumed plural-allowing meaning of ‘a sample stream’” because the language “a centerline” “presumptively covers one or more centerlines of one or more sample streams.” *Id.* The [C]ourt thus reversed the PTAB’s construction and held “that ‘the sample stream’ is not limited to a singular-only sample stream.” *Id.*

Id. at 114-15.

Although limitations 27[d] and 27[e] do not recite the term “comprising,” the ID finds that claim 27 “is written in the open-ended ‘comprising’ format so the general rule at least

initially applies that ‘a pressure sensor’ may encompass one or more sensors.” *Id.* at 115 (citing *Convolve*, 812 F.3d at 1321; *ABS Global*, 84 F.4th at 1040). The ID notes the specification’s disclosure that “as used herein, the singular forms ‘a,’ ‘an,’ and ‘the’ are intended to include the plural forms as well, unless the context clearly indicates otherwise” (*id.* (quoting ’123 patent, 45:41-43)) and finds that this disclosure “brings into play the lexicography principle—that, with narrow exceptions, where the specification instructs as to the meaning of a claim term, the inventor’s lexicography governs” (*id.* (quoting *ABS Global*, 84 F.4th at 1041) (internal quotations and brackets omitted)).

The ID identifies several other portions of the specification as relevant to the construction of “pressure sensor.” *Id.* at 115-17. The ID notes that the specification discloses that “the pressure sensors described herein” may be:

any differential pressure sensor, such as MEMS, capacitive pressures sensors (*e.g.*, including a capacitive membrane), or any force collector type pressure sensors that use a transducer to measure pressure or pressure differences (*e.g.*, diaphragm, piston, etc.), piezoresistive, electromagnetic, piezoelectric, optical, potentiometric, resonant (including MEMS), etc. Differential pressure sensors may measure the distance between two pressures, one connected on different sides of the sensor. This includes pressure sensors in which one side is open/connected to ambient atmosphere (pressure).

Id. at 115 (quoting ’123 patent, 4:49-60). The ID credits testimony from NJOY’s expert, Mr. Joseph McAlexander, who, when asked about the above disclosure, testified that “[t]his part of the patent describes the pressure sensor as a differential pressure sensor and it can be any type of differential pressure sensor.” *Id.* at 116 (Tr. (McAlexander) at 944:4-12). The ID finds that, “[c]onsistent with that testimony, the patent states that ‘any pressure sensor that can distinguish positive and negative pressure may be used.’” *Id.* (quoting ’123 patent, 42:8-9). The ID notes that the specification further discloses that:

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a pressure sensor may comprise an electrically conductive diaphragm held in close proximity to a conductive static plate, forming an air capacitor, with both conductors connected to pins or pads on a circuit (*e.g.*, PCB) opposite the static plate side of the sensor. FIGS. 24A-24D illustrate one example of a pressure sensor **2509** that is a capacitive pressure sensor. In this example, the diaphragm **2404** (shown in FIG. 24D) is mounted to a rigid thin wall tube (case **2403**) that is a close fit within the outer conductive case **2407** of the sensor **2509** such that air cannot flow through the sensor **2509** around the diaphragm. Holes **2411** in the static plate on one side of a gasket and holes **2413** in the PCB **2401** on the opposite side of the diaphragm allow pressure differences between the two sides of the sensor **2509** to be seen by the diaphragm, which deflects with a pressure difference across it.

Id. (quoting '123 patent, 42:9-25). Lastly, the ID notes that the specification states that “[a]lthough the examples described herein refer to a capacitive pressure sensor having a capacitive membrane (*e.g.*, an electret microphone), any other differential pressure sensor may be used instead with the methods and apparatuses described herein, including controlling the baseline during a putative blow and/or draw through the mouthpiece.” *Id.* (quoting '123 patent, 42:1-7).

The ID finds that the specification “does not instruct that the pressure sensor must be a single component and instead supports that multiple pressure sensors can be used, including ‘pressure sensors in which one side is open/connected to ambient atmosphere (pressure)’ and ‘any other differential pressure sensor.’” *Id.* (quoting '123 patent, 4:58-60, 41:58, 42:3-4). The ID also finds that the specification “supports that a single capacitive pressure sensor may be used.” *Id.* (citing '123 patent, 42:9-24). The ID further finds that the specification’s “broad disclosure” of “any pressure sensor that can distinguish positive and negative pressure may be used,” and its disclosure that “a” and “an” are intended to be plural do not provide “a clear and manifest disavowal” of the meaning of “a pressure sensor” as limited to a single pressure sensor. *Id.* at 116-17 (citing '123 patent, 42:8-9, 45:41-43; *ABS Global*, 84 F.4th at 1041).

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According to the ID, the “question thus becomes whether the later references to ‘the pressure sensor’ in the claim means that the claim is limited to a single pressure sensor.” *Id.* at 117. The ID notes that while both NJOY and OUII asserted that the claim requires at least one pressure sensor having “one [first] side exposed to the sealed air path, and another [second] side of the same pressure sensor exposed to ambient pressure,” JLI contended that the claim language “is not so restricted because the claim does not require ‘diametrically opposing sides’ or ‘any particular configuration of the first and second sides other than that they must be exposed to a sealed airflow path and a device airpath open to ambient, respectively.’” *Id.* (quoting RRP HB at 39; OIP HB at 159; CIP HB at 75).

The ID finds that “JLI is correct that the claim is not specific as to the relationship of the first and second sides to each other.” *Id.* The ID further finds:

The claim ***does not require that the first side is opposite to the second side or otherwise a part of the same structure.*** In reciting a first side and a second side, the claim does not restrict the physical structure of the pressure sensor so that it must be a single sensor. Instead, the claim recites that a first side is exposed to a sealed airflow path and a second side is exposed to ambient pressure. This distinguishes instances in which the Federal Circuit has concluded that when a claim recites multiple functions performed by the same claim component, a single component must perform those operations. *Salazar*, 64 F.4th at 1318 (“it does not suffice to have multiple microprocessors, each able to perform just one of the recited functions [generating, creating, and generating]; the claim language requires at least one microprocessor capable of performing each of the recited functions.”) and *Finjan*, 84 F.4th at 975 (“the plain language of the claims requires at least one of those computers to perform all the functions listed on the claims.”) Instead, as in *ABS Global*, the recitation of a first side of the pressure sensor and a second side of a pressure sensor does “not support rejection of the doubly presumed plural-allowing meaning” of “a pressure sensor” because the language “a first side” and “a second side” presumptively covers a first side of one or more pressure sensors and a second side of one or more pressure sensors particularly where, as here, the specification specifically states that “a” can mean one or more. *ABS Global*, 84 F.4th at 1041.

Id. at 117-18 (brackets in ID) (emphasis added).

2. Analysis

The Commission determined to review the ID’s construction of the “pressure sensor” limitations 27[d] and 27[e] of claim 27 of the ’123 patent, which allows for the limitations to be literally practiced by a configuration that has two pressure sensors, each pressure sensor having only one exposed side. *See* 89 Fed. Reg. at 89042. On review, the Commission has determined to modify the ID’s construction and construe those limitations as requiring at least one “pressure sensor” that has both “a first side . . . exposed to a sealed air flow path” and “a second side . . . exposed to a device air path open to ambient pressure.”

a. Claim Language

Limitations 27[d] and 27[e] recite: “***a pressure sensor*** configured to output sensor readings, wherein ***a first side of the pressure sensor*** is exposed to a sealed air flow path and ***a second side of the pressure sensor*** is exposed to a device air path open to ambient pressure.” ’123 patent, cl. 27 (emphases added). The parties do not dispute that the term “a” pressure sensor may mean “one or more” pressure sensors. *See* RPet. at 13; *see Baldwin*, 512 F.3d at 1342-43). The claim language, however, further defines the “pressure sensor” element with subsequently recited structure: it must have both the recited “first side . . . exposed to a sealed air flow path” ***and*** “second side . . . exposed to a device air path open to ambient pressure.” ’123 patent, cl. 27.

The ID finds that the term “a” (meaning “one or more”) suggests that the “the language ‘a first side’ and ‘a second side’ presumptively covers a first side of one or more pressure sensors and a second side of [a different] one or more pressure sensors.” ID at 118 (citing *ABS Global*, 84 F.4th at 1041). However, the term “a” merely allows for the existence of multiple “pressure sensors” in the claimed “device body,” at least one of which must have the recited first and second exposed sides.

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The Federal Circuit’s decisions in *Varma* and *Salazar* directly support this understanding of the claim language. In *Varma*, the Court reversed the PTAB’s finding that the limitation “a statistical analysis request corresponding to two or more selected investments” could be satisfied even if two statistical analysis requests were required to analyze the “two or more selected investments.” *Varma*, 816 F.3d at 1362. The Court held:

[H]ere the question is not whether there can be more than one request in a claim-covered system: there can. Rather, the question is *whether “a” can serve to negate what is required by the language following “a”*: a “request” (a singular term) that “correspond[s]” to “two or more selected investments.” It cannot. For a dog owner to have “a dog that rolls over and fetches sticks,” it does not suffice that he have two dogs, each able to perform just one of the tasks. In the present case, no matter how many requests there may be, no matter the variety of the requests the system may receive, the system must be adapted to receive a request that itself corresponds to at least two investments.

Id. at 1362-63.

In *Salazar*, the Federal Circuit considered claims reciting “a microprocessor” and subsequent functional limitations referring back to “said microprocessor.” 64 F.4th at 1313. The district court construed the limitation to mean “one or more microprocessors, at least one of which is configured to perform the generating, creating, retrieving, and generating functions.” *Id.* at 1314. On appeal, Mr. Salazar argued that the claims should cover systems in which the claimed functions were distributed across multiple microprocessors. *Id.* at 1315. The Court affirmed the district court’s construction, holding:

Mr. Salazar would have us read the phrase “one or more” in the district court’s claim construction to mean “any one of the one or more” when referring to the later-recited functions. Appellant’s Br. 35. We decline to do so. Although Mr. Salazar insists that the phrase “said microprocessor” “simply reinvokes th[e] non-singular meaning,” *id.* at 22 (quoting [*Baldwin*, 512 F.3d at 1342]), the claim’s use of “said” does not negate what is required by the language that follows “said”: a “microprocessor” that “generat[es],” “creat[es],” and “retriev[es].” As we stated in *Varma*, “[f]or a dog owner to have ‘a dog that rolls over and fetches sticks,’ it does not suffice that he have two dogs, each able to perform just one of the

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tasks.” 816 F.3d at 1363. Here, it does not suffice to have multiple microprocessors, each able to perform just one of the recited functions; the claim language requires at least one microprocessor capable of performing each of the recited functions.

Id. at 1318. In so affirming, the Court further addressed its holding in *Varma*, explaining that:

[*Varma*] dealt with claim language that introduces a claim element using an indefinite article and further defines the element with subsequently recited functionality. While this structure may allow for more than a single instance of the claim element, it may nonetheless require that a single instance of the element be capable of performing all the recited functionality.

Id. at 1317 (citing *Varma*, 816 F.3d at 1362-63).

The Commission finds that *Varma* and *Salazar* are directly on point and compel modifying the ID’s construction.²⁵ We are unpersuaded by JLI’s argument that those cases are distinguishable because they applied to claimed steps (*Varma*) and claimed functionality (*Salazar*), whereas the claim language here is structural. CPResp. at 10. Notably, the Federal Circuit in *Sonos, Inc. v. ITC*, Nos. 22-1421, 22-1573, 2024 WL 1507605 (Apr. 8, 2024), recently applied that same rationale in affirming the Commission’s construction of the structural limitation “at least ***a second message containing*** network configuration parameters, wherein the network configuration parameters comprise ***an identifier . . . and security key for the secure WLAN***” as requiring at least one single “second message” containing both the claimed “identifier” and the claimed “security key.” 2024 WL 1507605, at *2-4.

²⁵ The Commission notes that *Finjan*, which follows the reasoning of *Salazar*, also supports modifying the ID’s construction. In *Finjan*, the Federal Circuit affirmed the district court’s construction of a claim reciting “a computer” to perform one step and “the computer” to perform other steps. 84 F.4th at 975. The Court held that even if “a computer” covered one or more computers, the same one or more computers nonetheless had to perform all the steps, rejecting *Finjan*’s assertion that performance of the steps could be distributed across different computers. *Id.*

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The Commission disagrees with the ID’s reliance on *ABS Global*. *Id.* at 118. In *ABS Global*, the Federal Circuit rejected the PTAB’s “singular-only” construction of the term “a sample stream.” *ABS Global*, 84 F.4th at 1042. Specifically, the Court in *ABS Global* held:

The specific claim language at issue is “a fluid focusing region configured to focus the sample stream.” The use of the definite article, “the,” means that the phrase “the sample stream” refers back to earlier language as an antecedent. The antecedent language is “a sample stream” in the preceding limitation, and it is the singular-only or plural-allowing meaning of that limitation which is determinative. The reference-back “the” language takes its meaning from the meaning of the antecedent, so if “a sample stream” has a plural-allowing meaning, so does the reference-back “the sample stream” phrase. *See, e.g., [Salazar, 64 F.4th at 1315]; Lite-Netics, LLC v. Nu Tsai Capital LLC*, 60 F.4th 1335, 1346 (Fed. Cir. 2023); [*Baldwin*, 512 F.3d at 1342-43].

ABS Global, 84 F.4th at 1040; *see id.* at 1041. In reversing the PTAB’s claim construction, the Court disagreed with the PTAB that “a plural-allowing scope of ‘a sample stream’ would be inconsistent with [dependent] claim 2’s requirement that the focusing fluid be ‘introduced into the flow channel symmetrically with respect to a centerline of the sample stream.’” *Id.* at 1041 (emphases in *ABS Global*) (citation omitted). The Court explained that:

The Board at one point stated: “[T]he claim [*i.e.*, claim 2] refers to the centerline of the sample stream, and not simply the center of the device.” [citation omitted] To the extent that the Board, in referring to “the centerline,” suggested that there can be only one centerline, that suggestion relies on a departure from the language of claim 2, which refers to “a centerline.” That language is itself presumptively plural-allowing for the reasons already discussed regarding “a sample stream.” It presumptively covers one or more centerlines of one or more sample streams.

Id. (rejecting the PTAB’s “core reasoning” that “a centerline of the sample stream” must “lie in the sample fluid” which “would not be true of a centerline (understood as a singular) of a pair of streams or a split stream with a gap in the middle filled by focusing fluid, where the centerline ran through the focusing fluid”).

Thus, the issue in *Salazar* regarding whether it “suffice[s] to have multiple [components], each able to perform just one of the recited functions”—which is the core of the dispute here—did not arise in *ABS Global* and, thus, the Federal Circuit did not address it in that decision. *Salazar*, 64 F.4th at 1318; *see Varma*, 816 F.3d at 1362-63 (similarly addressing whether it suffices to have multiple “requests,” each “corresponding to” only one of the recited “two or more selected investments”). Instead, the question in *ABS Global* is inapposite here: whether “*a centerline* of the sample stream” recited in the dependent claim covered “separate centerlines for separate streams” and/or “a single centerline for a pair of streams.” *ABS Global*, 84 F.4th at 1041-42 (emphasis in *ABS Global*). Thus, *ABS Global* does not support departing from the rationale expressed in *Salazar* or *Varma*.

Accordingly, the claim language supports modifying the ID’s construction of the “pressure sensor” limitations.

b. Specification

The Commission finds that the specification also supports construing the “pressure sensor” limitations as requiring at least one “pressure sensor” that has both “a first side . . . exposed to a sealed air flow path” and “a second side . . . exposed to a device air path open to ambient pressure.” For example, Figure 25 of the ’123 patent, depicted below and described at 42:32-39, illustrates pressure sensor **2509** (highlighted **green**) having two sides that correspond to the claimed “first side” and “second side”:

Air flow restriction between the device’s nominal air inlet **2505** and the pressure sensor **2509** along the sealed air path **2520** creates a pressure that the static plate side [*i.e.*, the claimed “first side”] of the pressure [sensor **2509**] registers” [(highlighted **orange** and labeled as “Negative Gauge Pressure During Draw”)]; the “PCB side **2511** [*i.e.*, the claimed “second side”] of the pressure sensor **2509** [(highlighted **light blue** and labeled as “0 Gauge Pressure on PCB Side of Seal”)] stays at an external reference (*e.g.*, 0 gauge) pressure during a draw or blow as the PCB side

of the pressure sensor **2509** is not part of the sealed air path **2520** and is not sealed from ambient air.

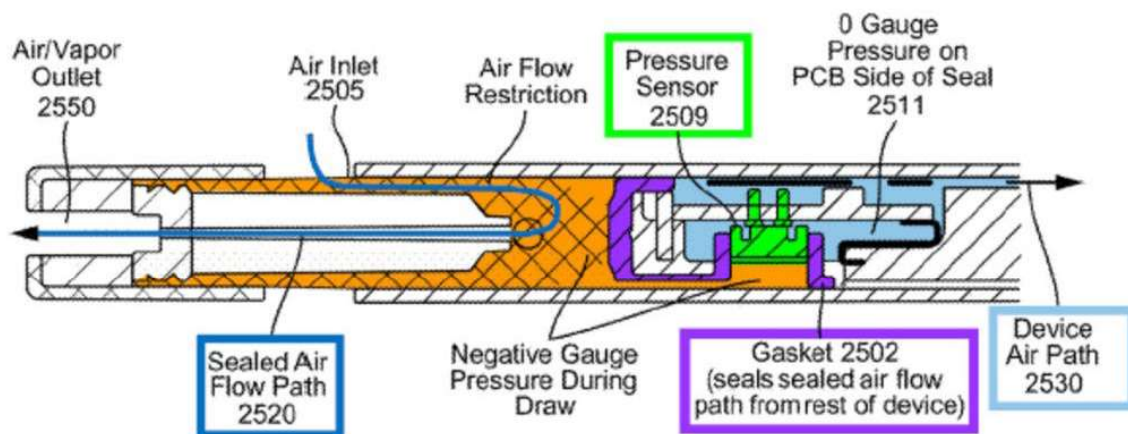


FIG. 25

'123 patent, 42:32-39, Fig. 25 (annotated). The specification does not expressly disclose that the claimed “first side of the pressure sensor” and “second side of the pressure sensor” may be located on separate pressure sensors.

In support of its construction, the ID relies on disclosures that (i) “pressure sensors in which one side is open/connected to ambient atmosphere (pressure)” may be used, (ii) “any other differential pressure sensor” may be used, (iii) a “capacitive pressure sensor” may be used, and (iv) “any pressure sensor that can distinguish positive and negative pressure may be used.” ID at 116-17 (quoting '123 patent, 4:58-60, 41:58, 42:3-4, 42:8-9, 42:9-24). None of these disclosures amount to the type of express disclosure that the Federal Circuit has relied on to depart from the rationale expressed in *Varma* and *Salazar*. See *01 Communique Laboratory, Inc. v. LogMeIn, Inc.*, 687 F.3d 1292, 1297 (Fed. Cir. 2012) (finding that the claim term “a locator server computer” encompassed multiple servers and the recited functions for the “location facility”

software could be distributed among them (*i.e.*, among “more than one computer”) based on an express disclosure in the specification that “such facilities can be sub-divided into separate facilities” which, the Court held, “support a construction that the location facility may be distributed among multiple physical computers”).

c. Conclusion

Accordingly, the Commission has determined to modify the ID’s construction of the “pressure sensor” limitations and construe those limitations as requiring at least one “pressure sensor” that has both “a first side . . . exposed to a sealed air flow path” and “a second side . . . exposed to a device air path open to ambient pressure.” The Commission, however, adopts the ID’s construction insofar as it finds that the “claim does not require that the first side is opposite to the second side.” ID at 117. Although the embodiment depicted in Figure 25 of the ’123 patent, shown above, illustrates the two sensing sides of pressure sensor **2509** as located opposite each other, it is improper to read a limitation from the written description into the claims. *Phillips*, 415 F.3d at 1320.

