

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

CARRUM TECHNOLOGIES, LLC,

Plaintiff,

v.

FORD MOTOR COMPANY,

Defendant.

Civil Action No. 18-1647-RGA

MEMORANDUM OPINION

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November 9, 2023

  
ANDREWS, UNITED STATES DISTRICT JUDGE:

Before me are Plaintiff Carrum’s summary judgment and *Daubert* motions (D.I. 262), Defendant Ford’s motion for summary judgment (D.I. 259) and *Daubert* motion (D.I. 260), Plaintiff’s motion for leave to file a sur-reply in opposition to Defendant’s motion for summary judgment (D.I. 288), and Defendant’s motion to strike a supplemental declaration and evidence related to Plaintiff’s doctrine of equivalents theory (D.I. 291).<sup>1</sup> I have considered the parties’ briefing. (D.I. 261, 263, 273, 275, 284, 285, 292, 293, 294, 296).<sup>2</sup> I heard oral argument on October 17 and 18, 2023 (Hearing Tr.).<sup>3</sup>

For the reasons set forth below, Defendant’s motion for summary judgment is GRANTED IN PART and DISMISSED IN PART. Defendant’s motion to strike is GRANTED. Defendant’s *Daubert* motion, Plaintiff’s summary judgment and *Daubert* motions, and Plaintiff’s motion for leave to file a sur-reply are DISMISSED as moot.

## I. BACKGROUND

Plaintiff owns the 7,512,475 patent (“the ’475 patent”) and the 7,925,416 patent (“the ’416 patent”). The patents disclose “a system and method for enabling a vehicle having adaptive cruise control to reduce its speed in a turn according to the vehicle’s position within the turn as

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<sup>1</sup> Plaintiff filed a motion to seal some exhibits to its summary judgment and *Daubert* motions. (D.I. 268). Plaintiff requested that Defendant have an opportunity to review the exhibits and seek permission to redact certain information. (*Id.*). Defendant filed a declaration in support of its proposed redactions. (D.I. 269). In an oral order, I stated that the declaration was insufficient to justify the extensive proposed redactions. (D.I. 270). I directed Defendant to resubmit with redactions limited to source code by June 9, 2023. (*Id.*). Defendant did not resubmit. The exhibits are thus unsealed in their entirety. Plaintiff’s motion to seal is moot.

<sup>2</sup> Defendant also filed a supplemental letter before oral argument. (D.I. 303). Plaintiff filed a supplemental letter after oral argument. (D.I. 307).

<sup>3</sup> Citations to the transcript of the argument (D.I. 308 & 309) are in the format “Hearing Tr. at \_\_\_\_.” The first page of D.I. 309 corresponds to “Hearing Tr. at 106.”

well as ignoring objects detected during the turn that are not in the vehicle's path.” (’416 patent, Abstract; ’475 patent, Abstract).<sup>4</sup> Plaintiff asserted these patents against Defendant in 2018, accusing certain Ford vehicles of infringement. (D.I. 1).

## II. LEGAL STANDARD

### A. Summary Judgment

“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). The moving party has the initial burden of proving the absence of a genuinely disputed material fact relative to the claims in question. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). Material facts are those “that could affect the outcome” of the proceeding. *Lamont v. New Jersey*, 637 F.3d 177, 181 (3d Cir. 2011). “[A] dispute about a material fact is ‘genuine’ if the evidence is sufficient to permit a reasonable jury to return a verdict for the non-moving party.” *Id.* The burden on the moving party may be discharged by pointing out to the district court that there is an absence of evidence supporting the non-moving party’s case. *Celotex*, 477 U.S. at 323.

The burden then shifts to the non-movant to demonstrate the existence of a genuine issue for trial. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586–87 (1986); *Williams v. Borough of West Chester*, 891 F.2d 458, 460–61 (3d Cir. 1989). A non-moving party asserting that a fact is genuinely disputed must support such an assertion by: “(A) citing to particular parts of materials in the record, including depositions, documents, electronically stored information, affidavits or declarations, stipulations . . . , admissions, interrogatory answers, or

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<sup>4</sup> The ’416 patent is a divisional of the application that led to the ’475 patent. The two patents have identical specifications.

other materials; or (B) showing that the materials cited [by the opposing party] do not establish the absence . . . of a genuine dispute . . .” Fed. R. Civ. P. 56(c)(1). The non-moving party’s evidence “must amount to more than a scintilla, but may amount to less (in the evaluation of the court) than a preponderance.” *Williams*, 891 F.2d at 460–61.

When determining whether a genuine issue of material fact exists, the court must view the evidence in the light most favorable to the non-moving party and draw all reasonable inferences in that party’s favor. *Scott v. Harris*, 550 U.S. 372, 380 (2007); *Wishkin v. Potter*, 476 F.3d 180, 184 (3d Cir. 2007). If the non-moving party fails to make a sufficient showing on an essential element of its case with respect to which it has the burden of proof, the moving party is entitled to judgment as a matter of law. *See Celotex Corp.*, 477 U.S. at 322.

## **B. Claim Construction**

“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (cleaned up). “[T]here is no magic formula or catechism for conducting claim construction.’ Instead, the court is free to attach the appropriate weight to appropriate sources ‘in light of the statutes and policies that inform patent law.’” *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at \*1 (D. Del. Sept. 4, 2013) (alteration in original) (quoting *Phillips*, 415 F.3d at 1324). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). Of these sources, “the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315 (cleaned up). “While claim terms are understood in light of the

specification, a claim construction must not import limitations from the specification into the claims.” *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1354 (Fed. Cir. 2012) (citing *Phillips*, 415 F.3d at 1323).

“[T]he words of a claim ‘are generally given their ordinary and customary meaning.’ . . . [It is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312–13 (citations omitted). “[T]he ‘ordinary meaning’ of a claim term is its meaning to [an] ordinary artisan after reading the entire patent.” *Id.* at 1321. “In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314.

When a court relies solely on the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court’s construction is a determination of law. *See Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015). The court may also make factual findings based on consideration of extrinsic evidence, which “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Phillips*, 415 F.3d at 1317–19 (quoting *Markman*, 52 F.3d at 980). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

### III. DISCUSSION

#### A. The Accused Products

Plaintiff has accused Defendant of infringing the '416 and '475 patents by selling vehicles that use adaptive cruise control (“ACC”) systems in combination with Stop & Go functionality and vehicles that use ACC in combination with Defendant’s Curve Control system. (D.I. 273 at 1–2). ACC “allows a vehicle to maintain not just a set speed, but also a set distance from a leading vehicle.” (D.I. 261 at 4 n.1). The ACC system uses a Long Range Object Sensor (“LROS”) module and a compute module; the compute module houses software. (*Id.* at 6). Stop & Go functionality allows ACC “to slow the vehicle all the way down to a complete stop and resume when [the] leading vehicle does.” (*Id.* at 4).

Defendant defines Curve Control as a part of its electronic stability control system. (*Id.* at 5). The Curve Control system “calculates how much the driver intends the vehicle to turn . . . and compares that to how much the vehicle is actually turning.” (*Id.* at 6). Curve Control then analyzes the error rate to determine whether to take corrective steps, such as applying the brakes. (*Id.*).

Plaintiff contends that Ford vehicles with ACC and Curve Control infringe claim 5 of the '475 patent, while Ford vehicles with ACC and Stop & Go infringe claim 6 of the '416 patent. (D.I. 273 at 1–2). Both are method claims. (*See* '475 patent at 8:32–34; *see also* '416 patent at 8:40–42). Plaintiff also contends that Ford vehicles with ACC and Curve Control infringe the system claims of the '416 patent (claims 10 through 12). (D.I. 273 at 2).

#### B. Defendant’s Motions

The parties dispute the construction of “a controller” and “said controller” in claims 10, 11, and 12 of the '416 patent. (*See* D.I. 261 at 18–19; D.I. 273 at 9–13). They also dispute the

construction of the language “change in . . . vehicle lateral acceleration” in claim 5 of the ’475 patent and claims 6, 10, 11, and 12 of the ’416 patent. (See D.I. 261 at 19–22; D.I. 273 at 13–17). Claim 5 and claim 6 are dependent from claim 1 of their respective patents. (See ’475 patent at 8:32; ’416 patent at 8:40).<sup>5</sup> I now set forth claims 1 and 5 of the ’475 patent and claims 1, 6, and 10 of the ’416 patent to illustrate the disputed terms. The claims state:

1. A method of controlling a vehicle having an adaptive cruise control system capable of controlling a vehicle speed and obtaining a vehicle lateral acceleration, said method comprising the steps of:

measuring a lateral acceleration from a lateral acceleration sensor;

detecting a ***change in a vehicle lateral acceleration*** based on a ***change*** in the measured lateral acceleration;

determining when the vehicle is in a turn based on the detected ***change in the vehicle lateral acceleration***; and

if a vehicle is in a turn, reducing the vehicle speed according to the determination that the vehicle is in the turn and the detected ***change in the vehicle lateral acceleration***.

(’475 patent at 8:7–19 (disputed terms bolded and italicized)).

5. The method of claim 1 wherein said step of reducing the vehicle speed includes a step of reducing the speed if the vehicle lateral acceleration exceeds a predetermined limit.

(*Id.* at 8:32–34).

1. A method of controlling a vehicle having an adaptive cruise control system capable of obtaining a vehicle lateral acceleration, said method comprising the steps of:

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<sup>5</sup> The Patent Trial and Appeal Board invalidated claim 1 of the ’416 patent and claim 1 of the ’475 patent during inter partes review. (D.I. 261 at 8–9). The Federal Circuit affirmed the PTAB’s Final Written Decision on claim 1 of the ’475 patent. See *BMW of N. Am., LLC v. Carrum Techs., LLC*, 2022 WL 378667 (Fed. Cir. Feb. 8, 2022). The Final Written Decision on claim 1 of the ’416 patent does not appear to have been appealed. See *Carrum Techs., LLC v. Unified Pats., LLC*, 2021 WL 3574209, at \*2 (Fed. Cir. Aug. 13, 2021) (stating that claim 1 was not at issue in the appeal from other aspects of the decision).

determining when the vehicle is in a turn based on a detected ***change in the vehicle lateral acceleration***;

determining a vehicle path during the turn;

detecting an object;

determining whether the object is in the vehicle path during the turn;

reducing the vehicle speed if the object is determined to be in the vehicle path during the turn; and

ignoring the object for braking purposes if the object is determined not to be in the vehicle path during the turn.

('416 patent at 8:7–19 (disputed terms bolded and italicized)).

6. The method of claim 1, wherein said step of reducing the vehicle speed includes a step of reducing the speed when the vehicle lateral acceleration exceeds a predetermined limit.

(*Id.* at 8:40–42).

10. A system for use in controlling a vehicle at a vehicle speed, said system including:

an adaptive cruise control system;

***a controller*** in communication with said adaptive cruise control system and capable of determining when the vehicle is in a turn, ***said controller operative to reduce the vehicle speed according to a vehicle position in the turn***;

at least one lateral acceleration sensor for generating a signal corresponding to a vehicle lateral acceleration, said lateral acceleration sensor in electrical communication with said controller and operative to detect a ***change in the vehicle lateral acceleration***; and

at least one object detection sensor for detecting an object in a vehicle path of the vehicle during the turn, said object detection sensor in electrical communication with said controller, wherein ***said controller includes control logic operative to determine whether the object is in the vehicle path during the turn and ignoring the object for braking purposes when the object is not determined to be in the vehicle path***.

(*Id.* at 8:63–9:15 (disputed terms bolded and italicized)).



## 1. Summary Judgment

### a. Controller

#### i. Literal Infringement

Defendant argues that claims 10, 11, and 12 of the '416 patent require one controller that performs two different functions. (D.I. 261 at 18–19; Hearing Tr. at 47:12–14). Defendant contends that the accused vehicles, however, do not have such “a controller.” (D.I. 261 at 18–19). Defendant argues that Curve Control only corresponds to the first “said controller” limitation, while LROS only corresponds to the second “said controller” limitation. (*Id.* at 18). Defendant also contends that the Federal Circuit rejected Plaintiff’s line of reasoning in *Salazar v. AT&T Mobility LLC*, 64 F.4th 1311 (Fed. Cir. 2023). (*Id.*; *see also* Hearing Tr. at 50:18–20). In *Salazar*, the Federal Circuit held:

We agree with the district court that while the claim term “a microprocessor” does not require there be only one microprocessor, the subsequent limitations referring back to “said microprocessor” require that at least one microprocessor be capable of performing each of the claimed functions.

(D.I. 261 at 19 (citing *Salazar*, 64 F.4th at 1317)). Defendant relies on *Salazar* to argue that Plaintiff cannot show infringement as a matter of law because it cannot identify one controller that performs both “said controller” functions. (*Id.*). At oral argument, Defendant contended that the Federal Circuit’s recent decision in *Finjan LLC v. SonicWall, Inc.*, 2023 WL 6775035 (Fed. Cir. Oct. 13, 2023), further supports its position. (Hearing Tr. at 50:21–51:4).

In response, Plaintiff argues that Defendant “ignores the black-letter Federal Circuit law holding that ‘a’ means ‘one or more.’” (D.I. 273 at 9). Plaintiff contends that the default meaning of “a controller” is one or more controllers, and that Defendant has failed to show a “clear intent” to depart from this construction. (*Id.* at 9–10; Hearing Tr. at 59:16–22). At oral argument, Plaintiff referenced the specification to argue that the “one or more” construction

applies. (Hearing Tr. at 60:7–12 (“[T]he most instructive thing in the patent is in column 5, lines 2 through 4—this is on the ’416 patent—where it says ‘[c]ontroller 222 may be a portion of a main control unit such as [a] vehicle’s 200 main controller, or controller 222 may be a stand-alone controller.’”) (cleaned up)). To distinguish *Salazar*, Plaintiff argues that the intrinsic evidence in that case imposed structural requirements on the term “said microprocessor,” making it singular. (D.I. 273 at 10–11). Plaintiff contends there is no such evidence here. (*Id.* at 11). At oral argument, Plaintiff also argued that “controller” in the present case requires electrical communication, which is different than the physical connections at issue in *Salazar*. (Hearing Tr. at 60:19–61:25).

Plaintiff filed a supplemental letter after oral argument, contending that the Federal Circuit’s recent opinion in *ABS Global, Inc. v. Cytonome/ST, LLC*, 2023 WL 6885009 (Fed. Cir. Oct. 19, 2023), supports its position. (D.I. 307). In *ABS Global*, the Federal Circuit considered the construction of the language “a fluid focusing region configured to focus the sample stream,” where “the sample stream” referred back to “a sample stream” in a preceding limitation. 2023 WL 6885009, at \*4. The court held that “‘the sample stream’ is not limited to a singular-only sample stream.” *Id.* at \*6. The court relied in part on the specification, which stated, “[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.” *Id.* at \*4 (citation omitted). The court found that this language “brings into play the lexicography principle.” *Id.*

The parties present an issue of claim construction. The parties’ non-infringement dispute rests on the construction of the articles “a” and “said.” I agree with Defendant that the claim language requires that at least one controller be capable of performing each of the “said

controller” limitations. *Salazar* and *Finjan* control here. See *Salazar*, 64 F.4th at 1317; *Finjan*, 2023 WL 6775035, at \*7 (“SonicWall argues that even if the reference to ‘a computer’ may mean ‘one or more computers,’ the subsequent references to ‘the computer’ can only be satisfied by the same ‘one or more computers’ that satisfied the first limitation. We agree with SonicWall.” (citation omitted)). I also note that *Salazar* did not create a new rule, as the Federal Circuit has decided similar claim construction issues in recent years. See *Finjan*, 2023 WL 6775035, at \*8 (citing *Traxcell Techs., LLC v. Nokia Sols. & Networks Oy*, 15 F.4th 1136, 1143–44 (Fed. Cir. 2021)).

*Salazar* and *Finjan* are also consistent with the principle that the article “a” generally means “one or more.” See *Salazar*, 64 F.4th at 1317 (“[T]he claim term ‘a microprocessor’ does not require there be only one microprocessor . . . .”); *Finjan*, 2023 WL 6775035, at \*8 (stating that construing “a” to mean “one or more” is “a separate issue from whether the claims require the same component to perform multiple functions or satisfy multiple limitations of a claim”). Plaintiff’s reliance on *ABS Global* is misplaced because the Federal Circuit addressed a different issue there. Thus, “[e]ven if an infringing system can use ‘one or more [controllers]’, the plain language of the claims requires at least one of those [controllers] to perform all the functions listed in the claims.” *Finjan*, 2023 WL 6775035, at \*8.

Considering my construction and viewing the evidence in the light most favorable to Plaintiff, I find that there is no genuine dispute of material fact on the “controller” issue. Because the claim language requires at least one controller to be able to perform all claimed “controller” functions, Plaintiff cannot, as a matter of law, establish literal infringement.<sup>6</sup>

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<sup>6</sup> Plaintiff concedes that “under Ford’s proposed construction of ‘a controller’/’said controller’ as referring to a single controller that must perform all of the recited functions, the accused products do not literally infringe claims 10–12 of the ’416 patent.” (D.I. 294 at 8).

Defendant’s motion for summary judgment is therefore granted with respect to the “controller” issue. Defendant’s systems do not infringe claims 10, 11, and 12 of the ’416 patent.

**ii. Doctrine of Equivalents**

Plaintiff argues that if I adopt Defendant’s proposed construction, Plaintiff should be permitted to submit a supplemental declaration by Dr. Shaver, who opines that Defendant infringes claims 10, 11, and 12 of the ’416 patent under the doctrine of equivalents (“DOE”). (D.I. 273 at 11–12; *see also* Hearing Tr. at 59:7–10). Plaintiff relies on Dr. Shaver’s supplemental declaration to argue that “distributing functions across multiple controllers performs the same function, in the same way, to achieve the same result, as performing all of these functions on a single controller.” (D.I. 273 at 12). Plaintiff contends that supplemental expert analysis would be sufficient to develop this argument, that the analysis could occur without affecting the trial date, and that Plaintiff would be prejudiced without the declaration because preclusion of the declaration “could be dispositive on infringement.” (*Id.* at 12–13). Plaintiff further argues it was justified in not raising this issue earlier because Defendant did not address “a controller” during claim construction or in its responses to Plaintiff’s interrogatories, because pre-existing law was consistent with Plaintiff’s construction, and because the Federal Circuit did not decide *Salazar* until April 2023. (*Id.* at 13).

Defendant replies that Plaintiff asserted its DOE theory too late. (D.I. 284 at 5–6; Hearing Tr. at 52:10–12). Defendant argues that Plaintiff did not disclose its DOE theory in its contentions or in expert reports. (D.I. 284 at 5–6). To support its position, Defendant cites to the Magistrate Judge, who stated that Plaintiff did not disclose a literal infringement theory of “two controllers” in its contentions. (*Id.* at 6 (citing D.I. 272 at 11)). Defendant argues that Plaintiff’s

disclosure of its “two controllers” DOE theory is not timely either. (*See id.*)<sup>7</sup> Defendant further calls Plaintiff’s DOE theory meritless, arguing that the doctrines of vitiation and prosecution history estoppel bar application of the DOE. (*Id.* at 6–7).<sup>8</sup>

Plaintiff contends that the supplemental declaration would not cause prejudice to Defendant. (D.I. 273 at 12). In its opposition to Defendant’s motion to strike, Plaintiff argues that its DOE theory was “properly preserved in its infringement contentions.” (D.I. 294 at 3–4).

Those contentions state:

To the extent Ford’s Accused Products do not literally meet this element of the claim, each of the Ford Accused Products meet this limitation under the doctrine of equivalents because any difference between the Ford Accused Products controllers and communication network and this claim limitation are insubstantial and/or perform substantially the same function, in substantially the same way, to achieve substantially the same result. . . .

(*Id.* at 4 (citing D.I. 292-4 at B75–77)). Plaintiff notes that this portion of its contentions relates to the first “said controller” limitation in claim 10 of the ’416 patent. (*Id.* at 5). Plaintiff admits that its opening and reply expert reports “did not expressly advance” a DOE theory (*id.* at 6) but contends that those reports “include all facts and evidence underlying” its DOE theory (*id.* at 5). Plaintiff argues that *Salazar* “instigated” the current claim construction dispute. (*Id.* at 6). At oral argument, Plaintiff also argued that Defendant never raised a two-controller theory of non-infringement in response to Plaintiff’s interrogatories. (Hearing Tr. at 62:19–24).

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<sup>7</sup> Defendant separately moves to strike Plaintiff’s supplemental declaration and any opinions and evidence related to Plaintiff’s DOE theory. (*See* D.I. 291).

<sup>8</sup> Plaintiff consequently filed a motion for leave to file a sur-reply, requesting to address vitiation and prosecution history estoppel because Defendant first raised these arguments in its reply brief. (*See* D.I. 288).

First, I agree with Defendant that Plaintiff did not raise its DOE theory in its infringement contentions. The cited portions of the contentions do not meaningfully assert a DOE theory because they are mere boilerplate allegations. *See Sonos, Inc. v. D&M Holdings Inc.*, 2017 WL 5633204, at \*1 (D. Del. Nov. 21, 2017) (stating that boilerplate allegations of infringement under the DOE are insufficient). Besides, the cited portion of the contentions relates to only one limitation of claim 10 of the '416 patent (D.I. 292-4 at B75–77); it does not suggest that under the DOE, Defendant could infringe by having two different controllers meet both “said controller” limitations.

Second, I think Plaintiff’s DOE theory and related expert declaration are untimely. When considering a summary judgment motion, I may refuse to consider expert reports submitted after the deadline for expert reports. *See Dow Chem. Can. Inc. v. HRD Corp.*, 909 F. Supp. 2d 340, 343 (D. Del. 2012) (citing *Mosaid Techs. Inc. v. Samsung Elecs. Co.*, 362 F. Supp. 2d 526, 544 (D.N.J. 2005)), *aff’d on other grounds*, 587 F. App’x 741 (3d Cir. 2014). Here, Plaintiff advances a DOE theory for the first time in its opposition to Defendant’s summary judgment motion. Defendant was never given the opportunity to confront Dr. Shaver on his new DOE opinion, and it would be prejudicial to allow Plaintiff to now rely on that opinion. Plaintiff has introduced its DOE theory too late.

I therefore grant Defendant’s motion to strike Plaintiff’s supplemental declaration and related evidence on the DOE. I dismiss as moot Plaintiff’s motion for leave to file a sur-reply on vitiation and prosecution history estoppel.

#### **b. Change in a Vehicle Lateral Acceleration**

Defendant argues it does not infringe the asserted claims of the '416 and '475 patents as a matter of law because the accused vehicles act based on a “magnitude” in lateral acceleration,

while the asserted claims recite a “change” in lateral acceleration. (D.I. 261 at 20). Defendant’s expert opined:

In my opinion, [Plaintiff’s expert’s] construction of ‘detecting a change’ is fundamentally different than the plain meaning of ‘detecting a change,’ because, rather than discovering the existence, presence, or the fact of a change in the measured vehicle lateral acceleration, [Plaintiff’s expert’s] construction is concerned with absolute differences between the measured vehicle lateral [acceleration] and the predetermined threshold (i.e., less than, equal to, or greater than). It would appear that [Plaintiff’s expert] creates this new claim construction for the sole purpose of arguing that Ford’s Curve Control detects a change in the measured vehicle lateral acceleration. Moreover, [Plaintiff’s expert’s] proposed claim construction of the claim term ‘detecting a change’ is plainly incorrect wherever [Plaintiff’s expert] attempts to conflate detecting a change with comparing a value to a predetermined threshold . . . .

(D.I. 274-7 ¶¶ 226–28 (footnote omitted)). Defendant contends that its accused ACC system uses magnitude in a formula to determine whether to limit acceleration. (D.I. 261 at 20).

Defendant argues that the formula calculates the lateral acceleration at a particular instant; it “cannot reflect a change.” (*Id.* at 20–21). At oral argument, Defendant contended that “change” refers to a comparison over time; Defendant also referred to the rate of change. (Hearing Tr. at 74:23–75:4; *see also id.* at 76:21–77:5).

Defendant similarly argues that Curve Control uses magnitude. (D.I. 261 at 21). Defendant contends that the Curve Control system first compares the expected yaw rate to the actual yaw rate. (*Id.*). If the two values do not match, Defendant argues that the system then checks whether the lateral acceleration is above a certain threshold. (*Id.*). Defendant contends these steps do not involve determining a “change” because the system’s “single check to see if the magnitude of lateral acceleration exceeds the threshold” occurs “regardless of how or whether lateral acceleration is changing.” (*Id.* at 22). Defendant argues that during prosecution, the patentee distinguished its invention from the prior art by representing that its invention

slowed a vehicle down based on a change in—not the magnitude of—lateral acceleration. (*Id.* at 19).

In response, Plaintiff argues there is a factual dispute as to whether Defendant’s accused vehicles reduce speed based on a “change” in lateral acceleration. (D.I. 273 at 13). For systems with ACC and Curve Control, Plaintiff argues that comparing a value to a threshold is one way of detecting a change. (*Id.* at 16). Use of a threshold, Plaintiff contends, allows the system to determine “whether there has been a change from below the threshold to above the threshold.” (*Id.*).

For systems with ACC and Stop & Go, Plaintiff’s expert opined, “Comparing a lateral acceleration value to a predetermined threshold is a method of ‘detecting a change in a vehicle lateral acceleration.’” (*Id.* at 14 (citing D.I. 274-1 ¶ 163)). Plaintiff contends Defendant’s technical expert agreed that “movement of a value from below a threshold to above a threshold is a ‘change’ in that value.” (*Id.* at 14–15 (citing D.I. 274-5 at 112:11–113:14)). Plaintiff thus argues that a “change” is not a rate of change. (*Id.* at 15). To support its position, Plaintiff points out that other claims in the ’475 patent, such as claim 2, recite “measuring a rate of change,” but claim 5 does not. (*Id.*). At oral argument, Plaintiff also argued that claim 5 of the ’475 patent is narrower than claim 1 because going over a predetermined limit is just one way of “detecting a change.” (Hearing Tr. at 84:2–12).

Defendant replies that its expert’s opinion is consistent with its position. (D.I. 284 at 9). Although a vehicle may experience change during use, Defendant argues that the vehicle’s software does not use a “change” to control the vehicle. (*Id.* at 8–9). At oral argument, Defendant also argued that claim 5 of the ’475 patent requires detecting both a change and a



magnitude, while claim 1 only recites detecting a change in lateral acceleration. (Hearing Tr. at 84:24–85:9).

The parties present an issue of claim construction. The parties’ non-infringement dispute depends on the construction of the claim term “change.” To construe the term, I turn to the claim language, specification, and prosecution history. I also address the parties’ expert reports.

The plain meaning of the noun “change” is “the act, process, or result of changing,” where the verb “to change” means “to become different” or “to make different in some particular.”<sup>9</sup> Put in the context of the patents, “change” indicates that the system detects that a particular lateral acceleration value has become different than a previous lateral acceleration value.

That plain meaning is apparent in the claim language. Step two of the method of asserted claim 1 of the ’475 patent is, “detecting a change in a vehicle lateral acceleration based on a change in the measured lateral acceleration.” (’475 patent at 8:13–14). It is hard to read that step to require anything other than the measured lateral acceleration being greater (or lesser) than it was previously, thereby causing a “change” in measured lateral acceleration.

Plaintiff’s comparison of the claims at issue to other claims—essentially a claim differentiation argument—is unpersuasive. Plaintiff, for example, cites to claim 2 of the ’475 patent, which recites “measuring a rate of change in the vehicle yaw rate.” (*Id.* at 8:20–24). Plaintiff argues that this shows the patentee intended “change” and “rate of change” to mean different things. I agree that “change” and “rate of change” mean two different things. Ultimately, though, that point is unpersuasive. Just because “change” and “rate of change” have

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<sup>9</sup> See *change*, Merriam-Webster Dictionary, <https://www.merriam-webster.com/dictionary/change> (last visited Nov. 7, 2023).

different meanings does nothing to help Plaintiff's argument that "change" is a broad enough concept to include "a value being above a predetermined limit."

I am also unpersuaded by Plaintiff's contention that the language "exceeds a predetermined limit" in claim 5 of the '475 patent refers to a type of "change" first recited in claim 1. I find that "change" in claim 1 is different than the lateral acceleration "exceed[ing] a predetermined limit" in claim 5. The method claim language indicates that the recited steps occur in order. First, a sensor measures the lateral acceleration. Second, if the value of the measured lateral acceleration changes, the system detects that change. Third, the system uses the detected change in lateral acceleration to determine whether the vehicle is in a turn. Fourth, in claim 1, if a vehicle is in a turn, the system reduces the vehicle speed based on two inputs: the vehicle being in a turn and the detected change in lateral acceleration. (*See id.* at 8:7–19). Claim 5 adds a third input—whether the lateral acceleration exceeds a predetermined limit. (*See id.* at 8:32–34). The steps of "detecting a change" and "reducing the speed if the vehicle lateral acceleration exceeds a predetermined limit" thus refer to different steps. I conclude that there is no basis for finding that "the vehicle lateral acceleration exceeds a predetermined limit" in step four of claim 5 refers to a type of "change."

The specifications of the '475 and '416 patents are consistent with this construction. In the '475 patent's specification, the section on lateral acceleration largely focuses on figure 5, which shows time on the x-axis and lateral acceleration on the y-axis. (*See id.* at fig.5; *id.* at 5:41–67). One curve in the figure depicts a vehicle's turn; another curve depicts the vehicle's lateral acceleration during that turn. (*Id.* at 5:46–47). The specification states:

[T]he following characteristics of a vehicle's lateral acceleration in a turn may be derived: 1) in the entry of a turn, the lateral acceleration of a vehicle is likely to rapidly increase from zero (0) Gs over time; 2) in the middle of a turn, the lateral acceleration of a vehicle is likely to show a constant increase before reaching a

maximum value; and 3) in the exit of a turn, the lateral acceleration of a vehicle is likely to remain steady for a short period of time before decreasing. These characteristics may be used to program controller 222 both to deduce when a vehicle is in a turning situation and to determine at what position the vehicle is in within the turn.

(*Id.* at 5:57–67; *see also* '416 patent at 5:57–67). The claim language, in turn, recites “determining when the vehicle is in a turn based on the detected change in the vehicle lateral acceleration.” ('475 patent at 8:15–16; '416 patent at 8:15–16). The specification thus indicates that the “change” used to determine whether a vehicle is in a turn involves comparing a particular lateral acceleration value to a previous lateral acceleration value.

The prosecution history is less helpful than the claim language and specification. As Defendant noted, the patentee stated that “a change in a variable is not at all the same thing as the magnitude of a variable.” (D.I. 266-3 at 89 of 201). The patentee made this statement as part of an argument that the invention differed from a prior art reference, which disclosed that “a lateral acceleration imposed on a vehicle body . . . is detected . . . a correction is made on the calculated value of the target vehicular velocity according to a detected value (magnitude) of the lateral acceleration (lateral G).” (*Id.* at 88–89 of 201). These statements suggest that the patentee viewed magnitude and change as two different concepts. Plaintiff agrees with Defendant “that the prosecution history emphasized a difference between the ‘magnitude’ of lateral acceleration and a ‘change’ in lateral acceleration.” (*See* D.I. 273 at 16). Plaintiff, however, calls this part of the prosecution history irrelevant because Plaintiff’s infringement case is “not based merely on an observed value of the magnitude of lateral acceleration.” (*Id.*). I think the prosecution history does not rise to the level of “clear and unmistakable” disclaimer. *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325–26 (Fed. Cir. 2003). The prosecution history also does not resolve the claim construction issue because Plaintiff, rather than merely arguing that

“magnitude” itself is a type of “change,” construes “change” to include determining whether the “magnitude” of lateral acceleration exceeds a predetermined limit. I nevertheless think the prosecution history is consistent with my construction because the prosecution history supports distinguishing “change” from “magnitude.”

Plaintiff’s reliance on expert reports is unpersuasive as well. First, Plaintiff’s contentions about Defendant’s technical expert are misplaced. Defendant’s expert opined that if the value of the lateral acceleration is below a threshold at time 1 and above that threshold at time 2, then the value “must have changed.” (D.I. 273 at 14–15 (citing D.I. 274-5 at 112:11–113:14)). Plaintiff argues that the expert’s testimony supports construing “change” to include checking whether the lateral acceleration is above a threshold. This testimony, however, does not contradict Defendant’s position. Defendant’s expert merely opined that the lateral acceleration, from the perspective of a human observer, “has changed” from time 1 to time 2 if the lateral acceleration value is different at time 2 than at time 1. It does not follow that the computer determining that the lateral acceleration is above a threshold is the same as the computer detecting a change. In other words, an outside observer’s conclusion that something has changed is different than the claimed system taking action based on a change in lateral acceleration.

Second, Plaintiff’s references to its own expert report are inconsistent with the claim language and specification. Plaintiff’s expert opined, “Comparing a lateral acceleration value to a predetermined threshold is a method of ‘detecting a change in a vehicle lateral acceleration.’” (D.I. 274-1 ¶ 163). The intrinsic evidence of the ’416 and ’475 patents, however, indicates otherwise. An expert report, on its own, is insufficient to construe “change” as including comparing “magnitude” to a predetermined limit. See *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996) (“[E]xtrinsic evidence in general, and expert testimony in

particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language.”); *Phillips*, 415 F.3d at 1318 (“[A] court should discount any expert testimony ‘that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.’” (citation omitted)).

In light of the intrinsic evidence, I reject Plaintiff’s proposed construction. I reject Defendant’s proposed construction to the extent that it limits “change” to a rate of change. I construe “change in a vehicle lateral acceleration” as “a vehicle lateral acceleration that is different than a previous vehicle lateral acceleration.” Given my construction and viewing the evidence in the light most favorable to Plaintiff, I find that there is no genuine dispute of material fact on the “change” issue. (*See, e.g.*, D.I. 261 at 22 (stating that the system in Defendant’s accused vehicles “does a single check to see if the magnitude of lateral acceleration exceeds the threshold”); *see also* Hearing Tr. at 78:19–23 (“[T]he control loop, it’s always asking the same question in Ford’s case. Are you above the limit? If you’re above the limit, it enacts control. That’s a magnitude system because the only question it ever cares about is: Are you past my limit?”)). The computers in Defendant’s vehicles do not use a formula that compares one lateral acceleration value with another. They do not measure, detect, or use change in the values. None of the accused products meet the second, third, and fourth steps of claim 5 of the ’475 patent and none of them meet the first step of claim 6 of the ’416 patent. I therefore grant summary judgment on non-infringement for the term “change in a vehicle lateral acceleration.”

### **c. Remaining Summary Judgment Arguments**

Having granted summary judgment on the “controller” and “change in a vehicle lateral acceleration” issues, I do not need to reach Defendant’s remaining arguments.

## **2. *Daubert* Motion**

In light of my disposition, I also do not need to reach the arguments in Defendant's motion to exclude expert testimony.

### **C. Plaintiff's Motions**

Having granted summary judgment on non-infringement, I do not need to reach the arguments in Plaintiff's motions for summary judgment and to exclude expert testimony.

## **IV. CONCLUSION**

For the foregoing reasons, Defendant's motion for summary judgment (D.I. 259) is GRANTED IN PART, and Defendant's motion to strike (D.I. 291) is GRANTED. Plaintiff's summary judgment and *Daubert* motions (D.I. 262), Defendant's *Daubert* motion (D.I. 260), and Plaintiff's motion for leave to file a sur-reply (D.I. 288) are DISMISSED as moot. Plaintiff's motion to seal (D.I. 268) is also DISMISSED as moot.

An appropriate order will issue.