IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

VELOCITY PATENT LLC,)
 	
  Plaintiff,)
 	
 vs.)
 	
 FCA US LLC,)
 	
  Defendant.)
	No. 13 C 8419
	
	Judge Thomas M. Durkin

MEMORANDUM OPINION AND ORDER

Plaintiff Velocity Patent LLC brings this action against Defendant FCA US LLC for its alleged infringement of United States Patent No. 5,954,781 (the "781 patent" or the "patent"). R. 185, Second Am. Compl. FCA (or Fiat Chrysler Automobiles US LLC) advertises, markets, and distributes automobiles under the Chrysler, Ram, Dodge, Jeep, and Fiat brands. *See* R. 195, Ans. to Second Am. Compl., ¶ 4. Velocity's patent uses a processor subsystem and a series of "notification circuits" to notify car drivers of certain driving conditions. Velocity alleges FCA has infringed Claims 1, 17, 18, 19, 28, 33, 34, 42, 59, 60, 64, 69, and 76-79 of the patent.[1] Judge Darrah, the previous judge on this case, issued a claims construction order on September 21, 2016. R. 114.

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[1] Velocity initially alleged infringement of Claims 1, 7, 13, 17-20, 28, 33-34, 40-42, 46, 53, 56, 58, 60, 64, 66, 69, 75-79, and 88. *See* R. 114 at 3. On February 26, 2018, Velocity agreed to reduce the number of asserted claims to those listed above. R. 394 ¶ 30.

Both parties have now moved for partial summary judgment.[2] In its motion for partial summary judgment, FCA makes four arguments. First, it argues that certain features in its vehicles—which provide notifications to drivers of certain driving conditions—do not infringe on Velocity's patent. R. 342. Second, FCA argues that several of Velocity's claims (Claims 69, 76-79) are invalid as improperly broadened claims. R. 349. Third, FCA argues that Claim 28 should be construed as a means-plus-function claim. *Id*. Finally, FCA argues Velocity cannot show that FCA willfully infringed Velocity's patent. R. 342. Velocity brings a summary judgment motion as to an element of damages, arguing that a non-infringing alternative identified by FCA is not an acceptable non-infringing alternative as a matter of law. R. 338. For the following reasons, FCA's motion for summary judgment is granted in part and denied in part. The Court reserves ruling on Velocity's motion until after Daubert motions are decided.

LEGAL STANDARD

Summary judgment must be granted "if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). A genuine issue of material fact exists if "the evidence is such that a reasonable jury could return a verdict for the nonmoving

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[2] All the remaining asserted claims are at issue in FCA's motion for summary judgment as to infringement except that Claims 69, and 76-79 are not at issue as to the Fuel Saver Indicator feature. R. 343 at 32. Claims 28, 69, and 76-79 are also at issue in FCA's motion for summary judgment as to invalidity. R. 350. Claims 17, 60, 69, and 76 are implicated in Velocity's summary judgment motion. R. 356 at 6 n.3. Velocity accuses several FCA features of infringement, but not all those features are discussed in the parties' summary judgment motions.

party." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986); *Intercontinental Great Brands LLC v. Kellogg N. Am. Co.,* 869 F.3d 1336, 1343 (Fed. Cir. 2017). In evaluating summary judgment motions, courts must view the facts and draw reasonable inferences in the light most favorable to the non-moving party. *Scott v. Harris*, 550 U.S. 372, 378 (2007); *Crown Operations Int'l, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1375 (Fed. Cir. 2002). When both parties move for summary judgment, the Court must draw reasonable inferences in Velocity's favor on FCA's motion, and vice-versa on Velocity's motion. The Court may not weigh conflicting evidence and make credibility determinations, *Omnicare, Inc. v. UnitedHealth Grp., Inc.*, 629 F.3d 697, 704 (7th Cir. 2011), and must consider only evidence that can "be presented in a form that would be admissible in evidence." Fed. R. Civ. P. 56(c)(2); *Crown Operations*, 289 F.3d at 1375. The party seeking summary judgment has the initial burden of showing that there is no genuine dispute and that she is entitled to judgment as a matter of law. *Carmichael v. Vill. of Palatine*, 605 F.3d 451, 460 (7th Cir. 2010); *see also Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). If this burden is met, the adverse party must then "set forth specific facts showing that there is a genuine issue for trial." *Anderson*, 477 U.S. at 256; *Crown Operations*, 289 F.3d at 1375.

BACKGROUND[3]

The '781 Patent was issued on September 21, 1999. The patent is entitled "METHOD AND APPARATUS FOR OPTIMIZING VEHICLE OPERATION" and describes a system that "notifies the driver of recommended corrections in vehicle

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[3] The following facts are undisputed unless otherwise noted.

operation and, under certain conditions, automatically initiates selected corrective action." R. 344-1, '781 Pat. at 1:7-10. The patent generally claims several sensors, a memory subsystem, a processor subsystem, and notification circuits.

As shown in the image below, the '781 patent describes a processor subsystem that receives data from sensors and activates various circuits to notify the driver of certain conditions affecting the car. Those circuits include a fuel overinjection notification circuit, an upshift notification circuit, a downshift notification circuit, and a vehicle proximity alarm circuit. Relevant to this opinion, the sensors monitor road speed, engine speed (in rotations per minute or "RPM"), manifold pressure, and throttle position.
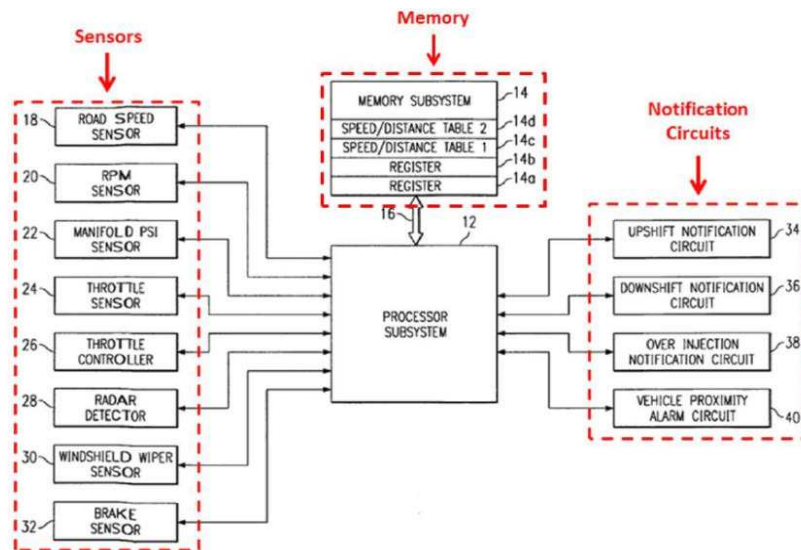
The notification circuits provide warnings to the driver that certain conditions are present. At issue in most of this opinion is the fuel overinjection notification

circuit, represented in box 38 of the above diagram.[4] As the '781 patent explains, the fuel overinjection notification circuit "notif[ies] the driver that, in order to optimize vehicle operation, the amount of fuel being supplied to the engine should be reduced." R. 344-1, '781 Pat. at 12:13-15. This notification essentially tells the driver when the vehicle is and is not being operated in a fuel-efficient manner. *Id*. at 13:41-45. The term "overinjection notification circuit" was construed as: "A circuit that notifies a driver that more fuel is being supplied to the engine than is necessary." R. 114. at 9.

In its claims construction order, the Court determined that the term "processor subsystem"—used in the patent for describing the various notification circuits—was construed with a "means-plus-function" limitation governed by 35 U.S.C. § 112(f). That statute states that "an element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." The Court held that the claim language states that the processor subsystem "determines" whether to activate a notification circuit. R. 114 at 13. But because the claim does not provide sufficient structure for performing the functions recited in the claims, *i.e.*, determining whether to activate the notification circuit, § 112(f) applied and the claim required an algorithm. *Id*. The Court then

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[4] The vehicle proximity alarm circuit (box 40) is discussed in the damages portion of this opinion.

adopted the following algorithm that describes when to activate the fuel overinjection

notification circuit:

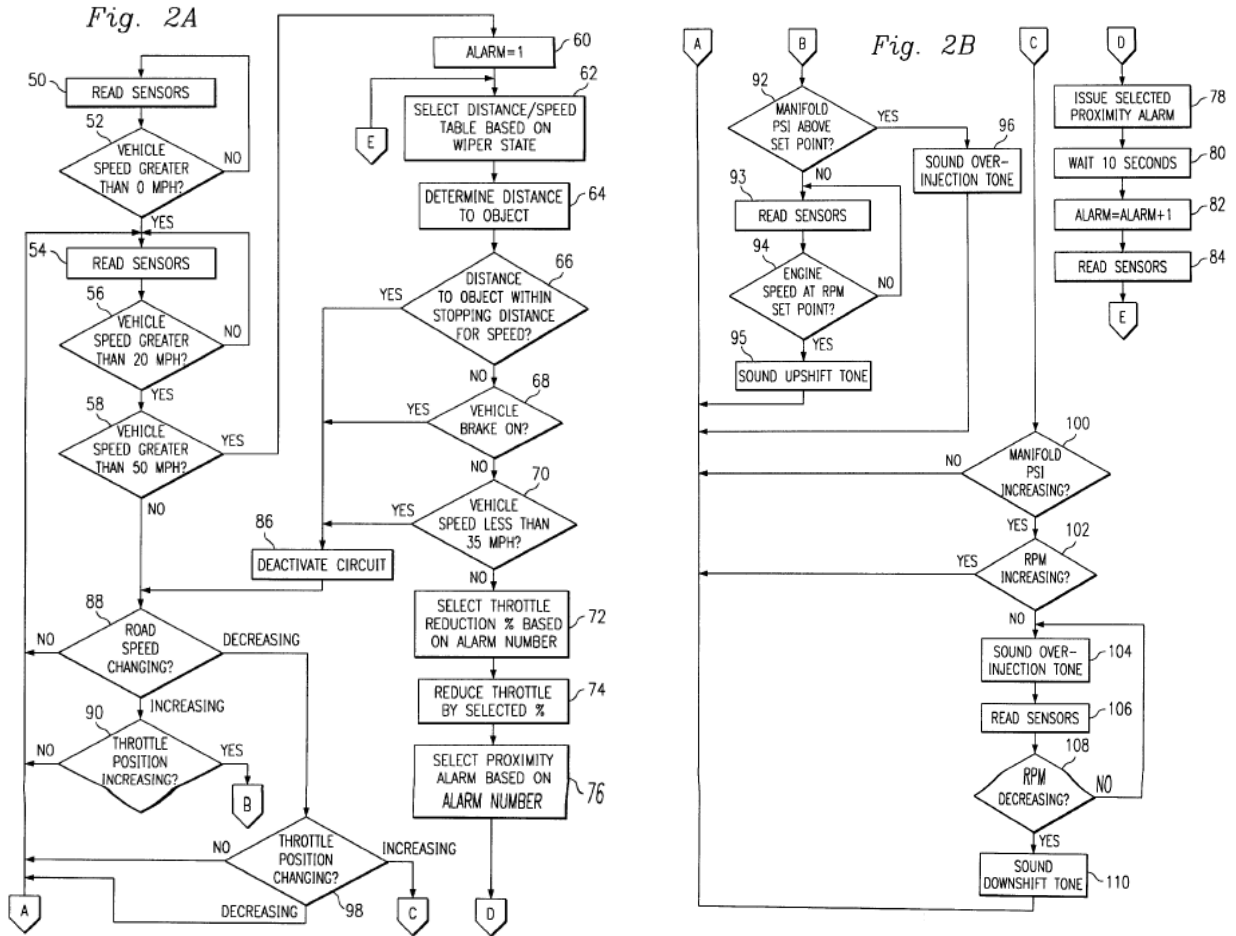> Activating the Fuel Overinjection Notification Circuit When:
>
> 1. Road speed is increasing; and
> 2. Throttle position is increasing; and
> 3. Manifold pressure is above a manifold pressure setpoint;
>
> **Or:**
> 1. Road speed is decreasing; and
> 2. Throttle position is increasing; and
> 3. Manifold pressure is increasing; and
> 4. Engine speed is decreasing.

Id. at 14-17. The Court based its ruling on the algorithm as described in the patent,

R. 344-1, '781 Pat. at 11:13-13:7, and figures 2A and 2B in the patent, *id.* at 4-5.

Figures 2A and 2B are reproduced below:

Fig. 2A

50 — READ SENSORS
52 — VEHICLE SPEED GREATER THAN 0 MPH? — NO / YES
54 — READ SENSORS
56 — VEHICLE SPEED GREATER THAN 20 MPH? — NO / YES
58 — VEHICLE SPEED GREATER THAN 50 MPH? — YES / NO
60 — ALARM=1
62 — SELECT DISTANCE/SPEED TABLE BASED ON WIPER STATE
E
64 — DETERMINE DISTANCE TO OBJECT
66 — DISTANCE TO OBJECT WITHIN STOPPING DISTANCE FOR SPEED? — YES / NO
68 — VEHICLE BRAKE ON? — YES / NO
70 — VEHICLE SPEED LESS THAN 35 MPH? — YES / NO
86 — DEACTIVATE CIRCUIT
72 — SELECT THROTTLE REDUCTION % BASED ON ALARM NUMBER
74 — REDUCE THROTTLE BY SELECTED %
76 — SELECT PROXIMITY ALARM BASED ON ALARM NUMBER
88 — ROAD SPEED CHANGING? — NO / DECREASING / INCREASING
90 — THROTTLE POSITION INCREASING? — NO / YES
B
98 — THROTTLE POSITION CHANGING? — NO / INCREASING / DECREASING
A
C
D

Fig. 2B

A B C D
92 — MANIFOLD PSI ABOVE SET POINT? — YES / NO
96 — SOUND OVER-INJECTION TONE
93 — READ SENSORS
94 — ENGINE SPEED AT RPM SET POINT? — NO / YES
95 — SOUND UPSHIFT TONE
78 — ISSUE SELECTED PROXIMITY ALARM
80 — WAIT 10 SECONDS
82 — ALARM=ALARM+1
84 — READ SENSORS
E
100 — MANIFOLD PSI INCREASING? — NO / YES
102 — RPM INCREASING? — YES / NO
104 — SOUND OVER-INJECTION TONE
106 — READ SENSORS
108 — RPM DECREASING? — NO / YES
110 — SOUND DOWNSHIFT TONE

For clarity, the Court will refer to each step (*i.e.* "road speed is increasing") as a "parameter" of the algorithm. The Court will refer to each scenario (*i.e.*, "road speed is increasing, throttle position is increasing, and manifold pressure is above a manifold pressuring setpoint") as a "condition." Velocity's expert, Christopher Wilson, calls the two conditions the "acceleration" scenario and the "lugging" scenario, respectively. R. 348-1, Expert Report of Christopher Wilson, ¶ 307.[5] The Court adopts those references here.

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[5] Lugging was defined by Wilson as a situation where a driver is "not providing sufficient power to the engine and the engine is getting near to a stall or the engine is not at the margins of being able to provide the power required to meet the needs or

The algorithm describes the "process subsystem" for the various circuits of the patent. The Court compares the patent's algorithm as described by the claims construction order to the infringing products. If the infringing products utilize the patent's algorithm, they infringe the patent. However, if the infringing products do not utilize the patent's algorithm, they do not infringe.

ANALYSIS

The parties' summary judgment motions ask the Court to resolve issues related to infringement, invalidity, construction of claims, and damages. The Court will address each in turn.

I. WHETHER FCA'S PRODUCT FEATURES INFRINGE ON VELOCITY'S PATENT

"To prove literal infringement, a plaintiff must show that the accused device contains each and every limitation of the asserted claims." *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 702 F.3d 1351, 1358 (Fed. Cir. 2012). In infringement cases, the Court first interprets the claims to determine their scope and meaning; then the fact-finder compares the properly construed claims to the allegedly infringing device. *Id.* If any claim is missing from the accused device, there is no literal infringement of that claim as a matter of law. *Id.* "A patentee claiming infringement must present proof that the accused product meets each and every claim limitation." *Forest Laboratories, Inc. v. Abbott Laboratories*, 239 F.3d 1305, 1310 (Fed. Cir. 2001). Summary judgment is appropriate "where the patentee's proof is

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meet the requirements of the driver." R. 345-5, Wilson Dep. at 351:15-22. Drivers may correct lugging by downshifting the vehicle. *Id*. at 355:11-16.

deficient in meeting an essential part of the legal standard for infringement." *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1577 (Fed. Cir. 1989).

To infringe a mean-plus-function claim governed by 35 U.S.C. § 112(f), the accused product must perform the identical function using an identical or equivalent structure as described in the specification. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1345-46 (Fed. Cir 2016). "An accused structure is 'equivalent' to a disclosed structure under this section if the differences between the two are insubstantial." *Id.* A difference is insubstantial if "the assertedly equivalent structure performs the claimed function in substantially the same way to achieve substantially the same result as the corresponding structure described in the specification." *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir. 1999). The Court's analysis requires a determination of whether the "way" the assertedly substitute structure performs the claimed function, and the "result" of that performance, is substantially different from the "way" the claimed function is performed by the "corresponding structure, acts, or materials described in the specification," or its "result." *Id.*

Velocity alleges that three features of various FCA vehicles violate the patent because they incorporate a "fuel overinjection notification circuit." R. 383, Resp. to FCA Statement of Material Facts ("SMF") as to Infringement, ¶ 21. The first, the Fuel Saver Indicator ("FSI") is an indicator intended to inform the driver when he is operating the vehicle in a fuel-efficient manner through an "eco" or a "fuel saver" notification. *Id.* ¶ 22. When the fuel saver indicator is off (*i.e.*, the word "eco" is not displayed), it serves as a notification that more fuel than necessary is being supplied

to the engine. *Id.* For the second infringing feature, Velocity alleges FCA's miles per gallon ("MPG") display infringes the fuel overinjection notification circuit because the driver is notified when more fuel than is necessary is being supplied to the engine by monitoring the instantaneous MPG and noting when it is below the average (or default) MPG, either through the use of changing colors or a MPG number. *Id.* ¶ 23. Finally, the third infringing feature is the Fiat ECO Index display. A lower value on the ECO Index display indicates that the driver is using more fuel than is necessary. *Id.* ¶ 24.

A. Whether the FSI feature performs the identical function using an identical or equivalent structure as described in the patent.

FCA first argues the FSI feature does not infringe because the algorithm for that feature is not the same or equivalent to the patent's fuel overinjection notification circuit algorithm as construed in the claim construction order. FCA argues its algorithms are different and far more complex than the claimed algorithm. R. 343 at 14. The Court finds that the FSI algorithm is neither identical nor equivalent to the claimed algorithm.

1. Velocity cannot show that the FSI algorithm uses the same or an equivalent structure as the patent.

The Court construed the processor subsystem for the fuel overinjection circuit to activate when:

> 1. Road speed is increasing; and
> 2. Throttle position is increasing; and
> 3. Manifold pressure is above a manifold pressure setpoint;
>
> **Or:**
> 1. Road speed is decreasing; and

2. Throttle position is increasing; and
3. Manifold pressure is increasing; and
4. Engine speed is decreasing.

As shown in figures 2A and 2B, and as described in the patent's description, the patent contemplates a system where the system sequentially checks various sensors and determines whether each is true. *See, e.g.,* 344-1, '781 Pat. at 11:31-35 ("If the vehicle speed maintained in the first register 14a is greater than the vehicle speed maintained in the second register 14b, the vehicle is accelerating. *If so,* the method *continues* to step 90 where the processor subsystem 12 determines if the throttle position is increasing. . .) (emphasis added). The system is binary—only if a required condition is true does the system move to the next condition. If all the required conditions are true, then the algorithm activates the notification. The test is also iterative—it will repeatedly loop through the process top to bottom, activating the notification each time the conditions are met. R. 383, Resp. to FCA SMF as to Infringement, ¶ 13 (admitting the system "loops").

The record evidence shows that the FSI algorithm relies on four different conditions—(1) High Efficiency Powertrain; (2) Deceleration Fuel Shutoff; (3) Multi-Displacement System; and (4) instantaneous fuel economy. *See* R. 348-1, Wilson Report, ¶ 311. FSI's algorithm is depicted in the following way:

2. Algorithm Overview:

The feature is enabled by using the cal FSI_ENABLE. Below is the high level algorithm diagram.

FSI Algorithm
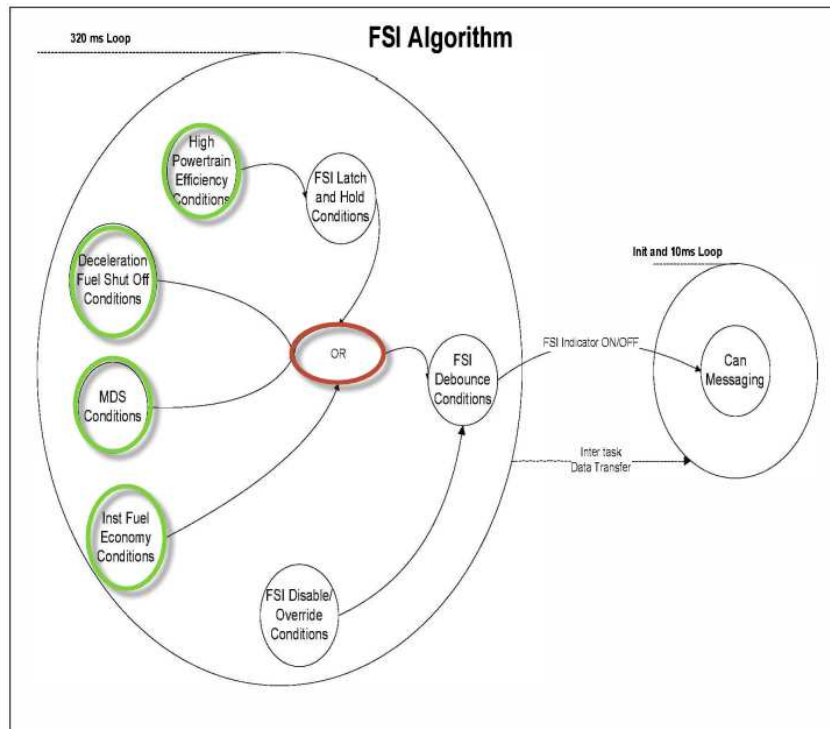
Id. at ¶ 310. The FSI display shows an "eco" notification when the driver is operating the vehicle in a fuel-efficient manner. *See id.* at ¶ 85. If any of the FSI enabling conditions are true (outlined in green in the diagram above), the FSI eco light is enabled, indicating the driver is operating the vehicle in a fuel-efficient manner. For the FSI eco light to be disabled, all the conditions must fail. *Id.* at ¶ 311.

The FSI algorithm also contains disabling conditions where the FSI eco light turns off, regardless if any of the four enabling conditions are true. R. 348-3, Expert Report of Dr. John Martens, at 21 ("[T]he disabling conditions effectively tell the FSI system to ignore the usual algorithmic conditions that are used to turn the FSI light on."); *see also* R. 348-1, Wilson Report at 171 n.7 ("The disabling conditions turn off the FSI light when any of the following series of conditions are true. . ."). The FSI

algorithm also uses a technique named debouncing, which is used to ensure the FSI light stays on or off for a certain period to prevent flickering when the system bounces between conditions. R. 348-3, Martens Report, at 21.

Velocity cannot point to any evidence to show the FSI algorithm uses the same or a similar structure as the patent's algorithm. It agrees that activating the FSI notification (turning off the FSI eco light—indicating the vehicle is *not* being operated in a fuel efficient manner) means that the (1) High Efficiency Powertrain; (2) Deceleration Fuel Shutoff; (3) Multi-Displacement System; and (4) instantaneous fuel economy conditions are *all* false or negative (because if any of the enabling conditions are true, the eco light is enabled). R. 379 at 8. But those four conditions are not the conditions in the patent's algorithm.

At best, Velocity can point to portions of the FSI algorithm as representing analogues of each parameter of the claimed algorithm to argue the two structures are insubstantially different. *See* R. 383, Resp. to FCA SMF as to Infringement, ¶ 33 (explaining how different features and code of the FSI algorithm represent the required parameters in the claimed algorithm). But because the patent's algorithm requires the parameters to be met *together* to activate the fuel overinjection notification circuit, pointing to analogues of each parameter is not enough. Instead, to defeat summary judgment, Velocity needs to show that the parameter's equivalents in FSI's algorithm work *together* to represent an equivalent structure as in the patent. Velocity offers no such comparison, and in more than 550 pages of its expert's report, Velocity never points to any evidence that the *combination* of these

three or four parameters of each condition exist in the FSI algorithm as required by the claims construction order, whether in identical or equivalent form. *See Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 846 F.2d 1369, 1371 (Fed. Cir. 1988) ("In cases of complex inventions, the judgment must take account of situations where the components of the claimed combination are of varying importance or are changed to varying degrees. This is done by viewing the components in combination."); *see also Odetics*, 185 F.3d at 1268 (explaining that to infringe a means-plus-function limitation, the court must look at the overall structure of the claimed function). As an example, Velocity states its expert's report does identify a "specific combination of test results that cause an activation of the FSI, MPG, and Eco Index notifications." R. 383, Resp. to FCA SMF as to Infringement, ¶ 37. But Velocity then fails to cite to a specific section of the report that shows this, instead unhelpfully citing the full report, which comprises over 550 pages, excluding exhibits. "Simply denying a fact that has evidentiary support does not transform it into a disputed issue of fact sufficient to survive a motion for summary judgment." *Uncommon, LLC v. Spigen, Inc.*, 305 F. Supp. 3d 825, 838 (N.D. Ill. 2018). Wilson's report simply does not establish that FCA vehicles employ algorithms that consider all the parameters specified in the claim construction as a single unit. And Wilson provides no evidence that when the parameters' equivalents are all present, the accused notification is given, and when the parameters are not present, that no notification is given. On the other hand, FCA's expert, Martens, specifically points out that absence, and affirmatively states that it does not exist. R. 348-3, Martens Report, at 30 ("In

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analyzing [the FSI] conditions, it is clear that algorithms from the '781 patent are not utilized. For example, among other differences, manifold pressure is not considered in any of the conditions, and none of the conditions depend on whether the vehicle speed is increasing or decreasing. Crucially, the determination of whether to turn the FSI light off (thereby satisfying the fuel overinjection notification claimed by Velocity) is not made on the basis of either of the two conditions identified in the '781 patent."); *see also id*. at 68 ("[I]t is also my opinion that Mr. Wilson's report has not demonstrated that FCA vehicles meet the means-plus-function construction for implementing the algorithms outlined in the '781 patent and Markman decision. . . . Finally, the report does not show that the several conditions specified by the means-plus-function construction of the '781 algorithms (e.g. vehicle speed decreasing, engine speed decreasing, manifold pressure increasing, throttle position increasing) are evaluated by FCA vehicles as a coherent unit in order to generate the specified notification.").

At bottom, Velocity has pointed to no evidence to support an assertion that the FSI algorithm is insubstantially different than the patent's algorithm. A precise citation to a clear statement from Velocity's expert that the combination of the patented algorithm's conditions are present in FSI's algorithm (either in identical or equivalent form) was needed to create a contested issue of material fact. No such statement was made in Wilson's report. "To satisfy the summary judgment standard, a patentee's expert must set forth the factual foundation for his infringement opinion in sufficient detail for the court to be certain that features of the accused product

would support a finding of infringement under the claim construction adopted by the court, with all reasonable inferences drawn in favor of the non-movant." *Intellectual Sci. & Tech., Inc. v. Sony Elecs., Inc.*, 589 F.3d 1179, 1183 (Fed. Cir. 2009). Velocity has not made that showing.

Velocity also argues that the processor subsystem claims are all "comprising" claims, which means they are "open-ended and [do] not exclude additional, unrecited elements or method steps" such as the unidentified "parameters." *Shire Dev., LLC v. Watson Pharm., Inc.*, 848 F.3d 981, 986 (Fed. Cir. 2017); *O2COOL, LLC v. One World Techs., Inc.*, 187 F. Supp. 3d 927, 939 (N.D. Ill. 2016) (for a means-plus-function claim, "[t]he transition 'comprising' creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements"). While that may be true, Velocity fails to produce any evidence to show there is a genuine dispute of fact that the claimed algorithm is used in FSI's algorithms *at all*.[6]

2. The algorithms are not equivalent because they produce substantially different results.

Velocity also fails to show the two algorithms achieve substantially the same results. An infringing algorithm must perform the claimed functions "in substantially

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[6] The parties also briefed arguments regarding whether the FSI algorithm determines if road speed is increasing or decreasing or merely determines whether the FSI algorithm calculates threshold. R. 343 at 15-19; R. 379 at 10-14. The record indicates contested facts exist as to whether the FSI algorithm determines if road speed is increasing or decreasing and whether a threshold analysis is the same as the road speed is increasing/decreasing parameter. However, because the Court finds Velocity has failed to point to any evidence that shows the *combination* of the parameters are reflected in FCA's algorithm to activate the eco light, it need not determine whether each parameter separately is present in the algorithm in identical or equivalent form.

the same way to achieve substantially the same result as the corresponding structure described" in the patent. *Odetics*, 185 F.3d at 1267. FCA argues the FSI algorithm cannot be equivalent because it does not "activate" as required by the claimed algorithm under substantially the same conditions. R. 343 at 19-20.

Specifically, FCA cites testimony by Velocity's expert, Christopher Wilson, that the FSI notification will not necessarily be activated when all the conditions are met:

> Q. We'll start with the first set: Road speed is increasing, throttle position is increasing, manifold pressure is above a manifold pressure setpoint.
> A. Okay.
> Q. When these three things are true, will the FSI light always turn off?
> A. In the Chrysler system, there are other conditions so that when these three things are true, the FSI light will not always be off.
> . . .
> [A]: The FSI light in a Chrysler vehicle, as I understand it, when all of these first conditions [acceleration] or the second conditions [lugging] are met will not always be off.

R. 348-5, Wilson Dep. at 515:6-516:21. *See also id.* at 438:20-439:3 (explaining the FSI light will turn off in more conditions than just aggressive acceleration and lugging).[7]

Instead of pointing to any contradicting facts that show the two algorithms produce substantially the same results,[8] Velocity attempts to explain away its own

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[7] FCA confirmed that the algorithms do not activate and deactivate when the same conditions are present through field testing of the vehicles. R. 348, FCA SMF as to Infringement, ¶¶ 54-58. Velocity has filed a motion to exclude the expert testimony related to this testing. R. 418 at 23-30. The Court need not rely on Martens' testing in its summary judgment determination, and reserves ruling as to whether to exclude his testimony on the testing under Daubert.

[8] Velocity's expert did not drive any FCA vehicles to verify his conclusions. R. 383, Resp. to FCA SMF as to Infringement, ¶ 53 (deemed admitted).

expert's testimony. First, Velocity attributes Wilson's testimony cited above to the debounce timer. That timer prevents the FSI notification light from flickering with changing conditions and annoying the driver. The debouncing timer runs for a certain number of seconds once it is turned on, regardless if the conditions change. R. 379 at 15. But Velocity fails to cite to any facts that indicate the debouncing timer is the reason for the distinction between the two algorithms, or the reason for its expert's testimony that the FSI notification does not activate when the '781 patent algorithm conditions are true. Instead, it cites to two statements of fact that describe the debounce timer generally, and a statement pointing to the testimony of FCA's invalidity expert, a statement that does not relate to its citation. *See* R. 379 at 15 (citing R. 382, Velocity statement of additional facts in support of its opposition ("SOAF"), ¶¶ 73-74, 94). Velocity also attempts to explain its expert's testimony by claiming that the differences between the results amount to abnormal circumstances, and that a reasonable jury would find that in normal operation, the FSI light operates in the exact same way as the '781 patent. R. 379 at 16. But again, Velocity's cited facts do not support that assertion. *See id.* (citing R. 382, Velocity SOAF, ¶¶ 72-75) (discussing the debounce timer and describing the four conditions that comprise the FSI algorithm, none of which match the claimed algorithm). And, in response to one of FCA's statements of facts, Velocity explains that a potential reason for the discrepancies in activation may be based on the disabling conditions used in FSI's algorithm. R. 383, Resp. to FCA SMF as to Infringement, ¶ 49. But the disabling conditions are further indication that the FSI algorithm does not rely on the same

algorithm as in the patent, and instead activates based on a separate set of parameters and conditions.

Second, Velocity argues that even the patent's preferred embodiment would not always activate the notification when all the conditions were met. R. 379 at 20-21. But Velocity provides no support that this failure to activate in certain scenarios is the reason for the difference in results between the claimed algorithm and the FSI features. Further, there is no indication that the FSI algorithm contains the same parameters as the claimed algorithm (*i.e.* not activating below 20mph or above 50mph). Velocity's attempt to explain away its expert's testimony merely introduces additional differences between the two algorithms.

Finally, Velocity argues that FCA has conceded that the FSI light will turn off at least some of the time when the acceleration and lugging tests are met, meaning that the product infringes at least some of the time. R. 379 at 20. Velocity cites to *Broadcom Corp. v. Emulex Corp.,* 732 F.3d 1325, 1333 (Fed. Cir. 2013) and *Sanders Brine Shrimp Co. v. Bonneville Artemia Int'l, Inc.*, 970 F. Supp. 892, 904 (D. Utah 1997) in support of its argument that products that infringe some of the time are sufficient for a finding of infringement. But Velocity gets ahead of itself. To show infringement some of the time, Velocity first must show infringement at any time, which it has not done. As explained above, Velocity cannot point to any set of facts to support infringement, unlike the plaintiffs in *Broadcom*, who had pointed to sufficient evidence that the accused device met all other claim limitations, 732 F.3d at 1331; or in *Sanders Brine*, where the court found that simply because the accused

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product occasionally failed by getting "stuck," did not transform it from an infringing device to a non-infringing one, 970 F. Supp. at 907 n.26. Here, Velocity does not point to evidence that supports infringement at any time, because it fails to show that the accused algorithm relies on the same or equivalent parameters in the same way as the claimed algorithm defined by the Court's claim construction order. Simply because the two algorithms sometimes reach consistent results does not mean the FSI product infringes on the patent without evidence that the same or an equivalent structure is in fact used.

<p style="text-align:center">* * *</p>

FCA has met its burden to show that no reasonable trier of fact could find that FCA's FSI feature infringes on Velocity's patent because it does not use the same or an equivalent algorithm as required by the means-plus-function test. Specifically, FCA has produced uncontested evidence that indicates the FSI algorithm does not use the same parameters in the same way as used by the claimed algorithm. FCA has also shown that the FSI algorithm activates when the claimed conditions are not met and fails to activate when the conditions are met. As a result, they cannot be equivalent. *See Odetics*, 185 F.3d at 1267 (an equivalent must perform the claimed function in substantially the same way to achieve substantially the same result as the corresponding structure described in the specification). No reasonable jury could find that the FSI algorithm contains the same or an equivalent structure as the patent's algorithm. FCA's summary judgment motion as to the FSI feature is granted.

B. Whether the MPG feature performs the identical function using an identical or equivalent structure as described in the patent.

FCA makes similar arguments regarding the MPG feature. R. 343 at 12-23. However, FCA has failed to meet its burden in presenting sufficient uncontested facts to show there is no genuine dispute of fact as to whether the MPG algorithm is the same or an equivalent algorithm as in the patent. For example, unlike the FSI algorithm, where FCA pointed to the FSI algorithm itself, FCA fails to point to an algorithm for the MPG feature that shows that it does not track the patented algorithm. The Court acknowledges that FCA pointed to evidence indicating the MPG feature in FCA's products produces different results than the patented algorithm, but without evidence as to the algorithm itself, the Court cannot decide that the MPG feature does not infringe. Accordingly, FCA's motion on this basis is denied.

C. Whether the MPG feature meets the claimed fuel overinjection notification circuit.

FCA also argues that there is no genuine dispute of material fact that the MPG feature does not infringe the fuel overinjection notification circuit. The Court previously denied summary judgment on this issue, holding that whether the MPG display issues notifications that inform the driver that more fuel is being provided to the engine than necessary is a contested question of material fact. R. 116 at 8-9. FCA claims that all contested issues of material fact existing at the time of that opinion have since been resolved. R. 343 at 25. Here, as in the previous motion, FCA argues that the MPG display merely provides information as to the instantaneous miles per gallon rate and does not notify the driver that more fuel than necessary is being supplied to the engine. *See* R. 116 at 8; R. 343 at 26-27.

The Court construed the fuel overinjection notification circuit as "a circuit that notifies a driver that more fuel is being supplied to the engine than is necessary." R. 114 at 9. How much fuel is necessary to complete a particular task affects the efficiency of a vehicle. *Id*. FCA argues that the MPG display only displays the current rate and average rate of fuel consumption and provides no notification that the rate of fuel consumption is more than what is "necessary." But Velocity disputes those statements, noting that the MPG displays change colors to notify the driver that fuel economy is reduced. *See* R. 383, Resp. to FCA SMF as to Infringement, ¶ 23. FCA also cites to Velocity's expert that the display provides a notification that "something has changed" and that the fuel consumption was more or less efficient than it was recently:

> And if you see deviations above or below that average fuel economy, then in my mind that is certainly a notification that something has changed and your driving is less efficient or more efficient than it was recently. And given the conditions, you're presumably using more fuel than necessary if the fuel economy has dropped.

See 348-5, Wilson Dep. 424:20-425:14. *See also id*. 425:15-426:8 (testifying that the driver uses context after reading the display to understand whether she is using more fuel than necessary). Efficiency is based on how much of something is necessary to complete a particular task (R. 114 at 9), and Wilson explains that is what the MPG display shows, by showing a difference between the instantaneous fuel efficiency and the average fuel efficiency. *See* R. 348-1, Wilson Report, at ¶¶ 284-289. Whether the MPG display issues notifications that inform the driver that more fuel is being provided to the engine than necessary is thus a contested question of fact. FCA's summary judgment motion on that basis is denied.

D. Whether the MPG and ECO Index displays infringe if Velocity cannot prove both conditions of the required algorithm.

Finally, the Court must address whether the two sets of conditions (the acceleration and the lugging conditions) in the claims construction order must both be infringed to find infringement of the claimed algorithm. FCA argues the claimed algorithm is infringed only if the infringing algorithm contains *both* the acceleration and the lugging conditions in its code. R. 343 at 23-25. Because Velocity does not assert that the MPG and ECO Index algorithms include both, FCA contends Velocity cannot show infringement. *Id.* Velocity, on the other hand, argues that the two sets of conditions are two disjunctive algorithms, and meeting one is sufficient to infringe. R. 379 at 21-24. The Court agrees with Velocity.

While the claims construction order states that the "algorithm includes" the two sets of conditions, it is clear from the patent that the two conditions are different aspects of the patent, either of which may be infringed. The Summary of the Invention lists the acceleration test as "one aspect," and the lugging test, as a "further aspect," which the processor subsystem "may" perform. R. 344-1, '781 Pat. at 2:9-36. Other "aspects" of the patent include various notification circuit algorithms. *Id.* at 2-3. The Court cannot read "further aspect" as it relates to the lugging scenario differently than it can read "further aspect" as to the remaining circuits. To do so (adopting FCA's approach) would require a product to meet all the aspects of the patent to infringe. Further, the written description of the patent discloses the acceleration and lugging tests as two separate claims, each reciting a separate invention. *Id.* at 14:13-47; *Jones v. Hardy*, 727 F.2d 1524, 1528 (Fed. Cir. 1984) ("[E]ach claim must be considered as

defining a separate invention.") (citing 35 U.S.C. § 282); *see also Honeywell Int'l Inc.*

v. Hamilton Sundstrand Corp., 370 F.3d 1131, 1148 (Fed. Cir. 2004) ("Each claim

defines a separate invention, whether or not written in independent form; and its

validity stands or falls separately."). The written description therefore describes a

fuel overinjection notification circuit based on the acceleration test in Claim 2 and,

separately, a fuel overinjection notification circuit based on the lugging test in Claim

4. Finally, the claim construction order's use of the word "or" indicates the algorithm

is infringed if the accused product contains either the first or the second set of

conditions. *See SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1199 (Fed. Cir. 2013)

("The disjunctive 'or' plainly designates that a series describes alternatives.").

FCA's motion requests a summary judgment finding of non-infringement of the

MPG and ECO Index features because of Velocity's failure to present evidence of

infringement as to both conditions. This motion is denied, as proof of *both* the

acceleration and lugging conditions is not required.[9]

II. WHETHER REEXAMINED CLAIMS 69, 76-79 ARE INVALID AS IMPROPERLY BROADENED

Patent owners and third-parties may request a reexamination of a patent

while the patent is still enforceable. 35 U.S.C. § 302. But a patentee is not permitted

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[9] FCA also argues that Velocity cannot present evidence of infringement as to the ECO Index because Velocity's expert was "unable to complete his analysis." R. 343 at 25. Velocity notes its inability was based on FCA's failure to produce requested discovery. R. 379 at 24. In its reply brief, FCA represents that the parties are negotiating a possible stipulation in lieu of completing discovery. R. 393 at 15. In light of that representation, the Court denies FCA's motion without prejudice on that basis.

to enlarge the scope of a patent claim during reexamination. 35 U.S.C. § 305. Improperly broadened reexamination claims are invalid as a matter of law. *See Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1583-84 (Fed. Cir. 1995). The Federal Circuit has "strictly interpreted § 305 to prohibit any broadening amendments," such that a "reexamined claim cannot be broader in any respect, even if it is narrowed in other respects." *Senju Pharm. Co., Ltd. v. Apotex Inc.,* 746 F.3d 1344, 1352 (Fed. Cir. 2014). Under the broadening inquiry, a court must: "analyze the scope of the claim prior to reexamination and compare it with the scope of the claim subsequent to reexamination." *Creo Prods., Inc. v. Presstek, Inc.*, 305 F.3d 1337, 1344 (Fed. Cir. 2002).

At issue here are several claims added during reexamination proceedings. During those proceedings, on October 21, 2014, the patent examiner rejected Claims 31 and 32 over prior art and confirmed validity of various other challenged claims.[10] On November 3, 2014 and November 10, 2014, Velocity submitted proposed amended and new claims, including (as relevant here) narrowed Claims 31 and 32 and new Claims 69 and 76-79. On December 10, 2014, before the Patent Office provided a response to the amendments, Velocity disclaimed Claims 31 and 32 and added additional claims. On April 27, 2015, the examiner issued a "Notice of Intent to Issue an Ex Parte Reexamination Certificate," which included an acknowledgement of Velocity's statutory disclaimer of Claims 31-32 and an indication that new Claims 33-

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[10] The following facts are undisputed unless otherwise noted. *See* R. 375, Resp. to FCA SMF as to Invalidity; R. 394, Resp. to Velocity SOAF.

59, 85-111, and 113-15 were patentable. The parties do not dispute that the new claims at issue (Claims 69 and 76-79) are broader than Claims 1-30: Claims 1-30 include a "processor subsystem determining . . . when to activate said fuel overinjection notification circuit," limitation, while Claims 69 and 76-79 merely recite that the processor system is "coupled to" the fuel overinjection notification circuit. R. 375, Resp. to FCA SMF as to Invalidity, ¶¶ 15-16 (admitted).

Velocity argues that the reexamination claims are not invalid under § 305 because they have the same scope as disclaimed Claims 31 and 32. Velocity argues that because it filed narrowing amendments of Claims 31 and 32 with the same scope as the claims at issue now before it disclaimed Claims 31 and 32, the new claims did not enlarge the scope of the patent. R. 370 at 6-7. FCA, on the other hand, argues that Velocity cannot rely on Claims 31 and 32 to assert that its new reexamination claims are not broader, because disclaimed claims are to be treated "as though [they] never existed in the patent." R. 350 at 8 (citing *Guinn v. Kopf*, 96 F.3d 1419, 1422 (Fed. Cir. 1996) ("A statutory disclaimer under 35 U.S.C. § 253 has the effect of canceling the claims from the patent and the patent is viewed as though the disclaimed claims had never existed in the patent."); *Genetics Institute, LLC v. Novartis Vaccines and Diagnostics, Inc.*, 655 F.3d 1291, 1299 (Fed. Cir. 2011); *In re Yamazaki*, 702 F.3d 1327, 1332 (Fed. Cir. 2012)). The question for the Court to decide is whether claims disclaimed after broader claims were filed, but before the patent examiner issued a reexamination certificate, may be relied upon in the § 305 broadening analysis.

The Federal Circuit addressed a nearly identical issue in *Vectra Fitness Inc. v. TNWK Corp.*, 162 F.3d 1379 (Fed. Cir. 1998). There, the patentee disclaimed the patent-in-suit's broadest claims. *Id.* at 1381. Claims were subsequently reissued that the parties agreed "were broader than the claims remaining after the [] disclaimer, but narrower than the disclaimed claims." *Id.* at 1383. The court held that "by filing a disclaimer, [the patent owner] effectively modified the original patent to exclude the disclaimed claims." *Id.* Because the disclaimer "effectively eliminated those claims from the original patent," the Federal Circuit held that "according to the plain language of the statutes and pertinent case law" the disclaimed claims could not be considered in the broadening analysis and found the new claims invalid as improperly broader than the patent's existing claims. *Id.* at 1383-84.

Although *Vectra* dealt with reissued claims, the Federal Circuit has held that the sections governing reissue and reexamination are analogous, other than the time-period when claims can be broadened. *Quantum*, 65 F.3d at 1583 n.7 ("[T]he only difference between the prohibitions against broadening in section 251 and section 305 is that *reissued* patent claims cannot be broadened more than two years after issuance of the original patent, whereas claims in a *reexamined* patent can never be broadened.") (emphasis in original). Accordingly, the only relevant difference between *Vectra* and this case is that in *Vectra* the disclaimer was made *before* the amended claims were filed, while here, the disclaimer was made *after* the amended claims were filed but before they were approved by the examiner through a reexamination certificate. This is not a meaningful distinction. Well-established law states that

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disclaimed claims are treated as though they never existed. *Vectra*, 162 F.3d at 1383. It would make little sense to allow a patentee to seek to amend claims that broaden the scope of the original patent based on invalid broad claims while the claims are still in the original patent, and then disclaim those broad claims on which the amendments are based. The public is entitled to rely on the public record of patents to plan their future conduct in as certain an environment as possible. *See Vitronics Corp. v. Conceptronic, Inc.,* 90 F.3d 1576, 1583 (Fed. Cir. 1996). Disclaimed claims must be treated as though they never existed to fulfill that purpose, regardless of whether a patentee decides to disclaim invalid claims immediately or wait until it amends and adds new claims.[11] In any event, the examiner did not issue the reexamination certificate adding the new claims until five months after the disclaimer. The broad amended claims were only pending at the time of the disclaimer because reexamined claims are not officially part of the patent until the certificate is issued. 37 C.F.R. § 1.530(k) ("Amendments not effective until certificate. Although the Office actions will treat proposed amendments as though they have been entered, the proposed amendments will not be effective until the reexamination certificate is issued and published.") *see also Biomet Orthopedics, LLC v. Puget Bioventures, LLC,*

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[11] Velocity argues it will be prejudiced if the claims are held to be invalid, because it would have selected alternative claims to assert when Velocity and FCA agreed to reduce the number of claims to litigate. R. 370 at 5. But Velocity points to no other claims that it would have asserted in place of these claims. Further, Velocity was aware of FCA's assertion of invalidity since July 2017, well before the parties narrowed the scope of this litigation in February 2018. *See* R. 394, Resp. to Velocity SOAF, ¶ 8 (FCA admits that it identified its invalidity argument based on 35 U.S.C. § 305 in July 2017). Velocity's conclusory assertions of prejudice are insufficient to change the decision of the Court.

640 F. App'x 868, 870 (Fed. Cir. 2016). As a result, the issue here is identical to *Vectra*.

FCA's motion for summary judgment finding Claims 69 and 76-79 invalid is granted.

III. WHETHER CLAIM 28 SHOULD BE CONSTRUED WITH THE SAME MEANS-PLUS-FUNCTION CONSTRUCTION AS OTHER CLAIMS WITH SIMILAR LANGUAGE

In the claim construction order, the Court analyzed and construed the "processor subsystem . . . said processor subsystem determining" limitation recited in, *inter alia*, claims 1, 17 and 60, and found it to be a means-plus-function term. R. 114 at 31-34. Claim 28 recites the same "processor subsystem . . . said processor subsystem determining" limitation but it was not included in the list of claims that included that language. FCA now asks the Court to find that Claim 28 has the same means-plus-function structure as Claims 1, 17, and 60. Claims 1, 17, and 60 compare to Claim 28 as follows:

Means-plus-function claims	Claim 28
Claim 1 "said processor subsystem determining, based upon data received from said plurality of sensors, when to activate said fuel overinjection circuit and when to activate said upshift notification circuit"	"said processor subsystem determining whether to activate said fuel overinjection notification sensor based upon data received from said road speed sensor, said throttle position sensor and said manifold pressure sensor."
Claim 17 "said processor subsystem determining, based upon data received from said radar detector, said at least one sensor and said memory subsystem, when to activate said vehicle proximity alarm circuit, when to activate said fuel overinjection circuit and when to activate said upshift notification circuit"	
Claim 60	

"said processor subsystem determines whether to activate said fuel overinjection circuit based upon at least the data received from said road speed sensor"	

When a claim term lacks the word "means," 35 U.S.C. § 112(f) is presumed to not apply unless "the challenger demonstrates that the claim term fails to 'recite sufficiently definite structure' or else recites 'function without reciting sufficient structure for performing that function.'" *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (quoting *Watts v. XL Sys., Inc.*, 232 F.3d 877, 880 (Fed. Cir. 2000)). The standard for whether the means-plus-function limitation applies is "whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Williamson*, 792 F.3d at 1349. However, the presumption against application of § 112(f) may also be overcome if the claim recites "function without reciting sufficient structure for performing that function." *Williamson*, 792 F.3d at 1349. In its claims construction order, the Court found that the claim language that the processor subsystem "determines" whether to activate a notification circuit implies that the processor subsystem must compare data to determine whether to activate a notification circuit, which requires additional programming of the processor. R. 114 at 13. As a result, the Court held because the patent calls for a processor to perform more than a general function, and the claims do not provide sufficient structure for performing those functions, an algorithm is required. *Id.*

Those same reasons apply to Claim 28. Like the other claims, Claim 28 recites a "processor subsystem determining whether to activate [a] fuel overinjection

notification [circuit]." As with the other claims, Claim 28 recites that the determination by the processor subsystem is "based upon data received from" a number of claimed sensors. In Claim 28, the applicable sensors are the road speed sensor, the throttle position sensor, and the manifold pressure sensor. Although the claim explains which sensors to draw data from, it does not provide a structure of how to determine that data so that a processor may perform general functions such as processing, receiving, or storing. As a result, an algorithm is required as in Claims 1, 17, and 60. Accordingly, the Court adopts the following construction for Claim 28:

"Processor" Subsystem	Claims	Construction
"a processor subsystem . . . said processor subsystem determining whether to activate said fuel overinjection notification sensor based upon data received from said road speed sensor, said throttle position sensor and said manifold pressure sensor."	28	**Function:** determines whether to activate said fuel overinjection notification circuit based upon the data received from said road speed sensor, said throttle position sensor, and said manifold pressure sensor **Corresponding Structure:** a microprocessor programmed to perform the algorithm described at 11:13-13:7 and Figs. 2A-2B. Specifically, the algorithm includes: Activating the Fuel Overinjection Notification Circuit When: 1. Road speed is increasing; and 2. Throttle position is increasing; and 3. Manifold pressure is above a manifold pressure set point; *Or* 1. Road speed is decreasing; and 2. Throttle position is increasing; and 3. Manifold pressure is increasing; and 4. Engine speed is decreasing.

Velocity opposes construing Claim 28 in this way, arguing Claim 28 is not properly construed as a means-plus-function claim and that it would be prejudiced by the change.

First, Velocity argues Claim 28 is unique because it recites specific data that must be used to determine whether to activate the notification circuit, while the remaining claims provide for different combinations of different data. R. 370 at 15. Specifically, it argues Claims 1, 17, and 60 leave open the possibility that the processor's determinations may be based on more than one of the recited sensors. In contrast, Velocity argues, Claim 28 specifies that the determination is based on the three recited sensors. Velocity points to no evidence or case law to support its position that this distinction warrants a different construction. Further, Claim 28 does not specify how to interpret that data, regardless of whether it is based on three specific sensors or some combination of three sensors. At bottom, the processor subsystem must still compare data, but the claim does not describe how to compare that data. Accordingly, the processor subsystem cannot perform general functions, requires additional programming to process the data, and as a result, requires a construction based on an algorithm.

Second, the Court is not convinced that Velocity is prejudiced by the construction of Claim 28 with a means-plus-function limitation. Velocity was aware of FCA's position since at least December 4, 2017 and took discovery on both structures. R. 394, Resp. to Velocity SOAF, ¶ 51 (admitted); R. 375, Velocity Resp. to FCA SMF as to Invalidity, ¶ 26 (admitted in relevant part). The cases on which it

relies to argue the Court should decline FCA's proposed construction are not analogous. For example, in *Bettcher Indus. v. Bunzl USA, Inc.*, 661 F.3d 629 (Fed. Cir. 2011), the district court denied defendant's request for a new claim construction shortly before trial, holding that the defendant "waived any argument as to other terms not addressed in this court's Markman Order." *Id.* at 636. The Federal Circuit ruled that "the district court did not abuse its discretion in holding that [defendant] could not add new claim construction theories on the eve of trial" and more than a year after Markman. *Id.* at 640-41. Similarly*,* in *DSM Desotech, Inc. v. 3D Systems Corp.*, 2012 WL 5463803 (N.D. Ill. Nov. 7, 2012), the defendant asked the court to amend its claim construction order to include in the claim terms an additional limitation, "effectively asking [the court] to reopen and reexamine its Claim Construction Order." *Id.* at *6.

Here, however, FCA is not asking the Court to construe additional terms as in *Bettcher* or to add new limitations in the terms already construed as in *DMS*. Instead, "processor subsystem . . . said processor subsystem determining" has already been construed and FCA merely asks the Court to adopt that construction in an additional claim. Regardless, the Court is not barred from amending its claims construction order as the case evolves. *Pressure Prod. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1316 (Fed. Cir. 2010) ("As this court has recognized, district courts may engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves."). And, amending claims construction to clarify whether Claim 28, which resembles

other claims, should be construed in the same way as those claims, will prevent the jury from construing Claim 28 in any manner it chooses. *See id.* (noting it is up to the court, not the jury, to resolve disputes regarding the scope of claims and identifying the potential for a jury to define terms on its own). Construing Claim 28 as a means-plus-function claim does not add new limitations nor change the construction of any other claim. Rather, it simply adds Claim 28 to the other claims already construed as means-plus-function claims.

For this reason, the Court is not persuaded by Velocity's conclusory arguments that it would have "selected different claims," approached claims construction differently, asked for reconsideration of the claims construction order, or made different strategic decisions. R. 370 at 13-15. Claim 28 is just one of many means-plus-function claims which incorporate similar "processor subsystem . . . said processor subsystem determining" language. Velocity chose not to proceed as it suggests on any of the remaining claims incorporating that language. As a result, its assertions of prejudice now as to Claim 28 are insufficient to construe Claim 28 differently than the remaining means-plus-function claims.

Finally, and perhaps most importantly, giving Claim 28 a different construction would be improper. The same terms should be construed consistently throughout the same patent. *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1159 (Fed. Cir. 1997) ("[W]e are obliged to construe the [asserted term] consistently

throughout the claims."). FCA's motion to construe Claim 28 as a means-plus-function claim is granted.[12]

IV.   DAMAGES

A. Whether FCA willfully infringed the patent.

Courts may award enhanced damages under the Patent Act if the infringing conduct was "willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate." *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1932 (2016). Enhanced damages are generally reserved for egregious cases of culpable behavior. *Id*. In *Halo,* the Supreme Court explained that despite the availability of enhanced damages, they need not follow a finding of egregious misconduct. "As with any exercise of discretion," the Court noted "courts should continue to take into account the particular circumstances of each case in deciding whether to award damages, and in what amount." *Id*. at 1933. "Determining willfulness is a highly fact-based endeavor." *Erfindergemeinschaft UroPep GbR v. Eli Lilly & Co.*, 2017 WL 841147, at *9 (E.D. Tex. Mar. 3, 2017). In particular, it turns on the subjective belief of the accused infringer, measured at the time of the challenged conduct. *Halo*, 136 S. Ct. at 1933 ("The subjective willfulness of a patent infringer, intentional or knowing, may warrant enhanced damages, without regard to whether his infringement was objectively reckless."). Knowledge remains a key factor in determining willfulness and is not sufficient on its own. *See id.*

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[12] Because the Court finds Claim 28 requires a means-plus-function construction, it need not address FCA's alternative argument that Claim 28 is invalid because of prior art. R. 350 at 12.

("[C]ulpability is generally measured against the knowledge of the actor at the time of the challenged conduct."); *see also id.* ("[A] person is reckless if he acts *'knowing or having reason to know* of facts which would lead a reasonable man to realize' his actions are unreasonably risky.") (emphasis in original) (quoting *Safeco Ins. Co. of Am. v. Burr,* 551 U.S. 47, 69 (2007)); *Continental Circuits LLC v. Intel Corp.,* 2017 WL 679116, at *11 (D. Ariz. Feb. 21, 2017) (after *Halo,* "awareness of the patent and continued use of the infringing product despite 'an objectively high likelihood' of infringement or 'reckless disregard' of that risk no longer compel a finding of willfulness"). Accordingly, the Court must determine whether there is a genuine dispute of material fact as to what knowledge FCA had of the patent and its infringement and whether FCA's subjective intent in continuing to infringe falls within the class of "egregious cases typified by willful misconduct" warranting enhanced damages under *Halo.* 136 S. Ct. at 1934.[13]

Velocity points to FCA's investigation of the infringement and its response to allegations of infringement after the lawsuit was filed to argue there is at least a question of fact as to whether FCA's conduct was willful. R. 379 at 30-31. Specifically, Velocity argues (1) FCA failed to start collecting source code until February of 2017, did not timely investigate if relevant source code was in its possession, and made no

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[13] There is no dispute that FCA first learned of the '781 patent when the suit was filed. R. 383, Resp. to FCA SMF, ¶ 66 (admitted). The Court need not distinguish between FCA's conduct before the lawsuit and after the lawsuit at this stage in the proceedings (nor do the parties ask it to), but it notes that, on the evidence presented in the motion, no reasonable jury could find that FCA willfully infringed the patent before it knew of its existence.

effort to determine if the accused features infringed on the patent; (2) FCA does not have a formal process for assessing infringement; and (3) FCA's defenses are not based on good faith assessments of the case. Velocity also argues that FCA expanded its infringing activities without performing a good faith investigation of the merits at "the time of the challenged conduct" and failed to implement the allegedly non-infringing alternatives FCA claims were available and easy to implement. *Id.* FCA disputes many of the statements of fact on which Velocity relies in support of its arguments. *See* R. 394, Resp. to Velocity SOAF, ¶¶ 9-17, 19, 21, 22.

Based on the record, the Court concludes that contested issues of material fact exist which preclude summary judgment. A reasonable jury could find that FCA's subjective intent was to infringe the patent in bad faith. The existence of disputed evidence that FCA continued to infringe after being sued and made no effort to ensure it was not infringing could support a finding of willfulness. Accordingly, summary judgment is denied as to willfulness.

B. Whether FCA had non-infringing alternatives available.

Finally, Velocity's summary judgment motion discusses non-infringing alternatives related to a different notification circuit—the "proximity alarm circuit." The proximity alarm circuit issues alarms if the vehicle is too close to another object. That circuit requires the vehicle brake to be off (the driver is not pressing the brake pedal) to activate (the "brake activation check"). R. 114 at 15 (describing the means-plus-function algorithm). Non-infringing alternatives are part of a reasonable royalty analysis. *See Grain Processing Corp. v. Am. Maize-Prod. Co.*, 185 F.3d 1341, 1352

(Fed. Cir. 1999). The Federal Circuit has implicitly recognized that the absence of existing non-infringing alternatives does not preclude a reduction in the reasonable royalty awarded to patentees. While "[t]here was . . . no available and acceptable non-infringing alternative to which [the defendant] could have switched at the time of the hypothetical negotiation," the fact that there was a possibility that the defendant "could have come up with one" was sufficient to justify the district court's reduction of a blended royalty rate. *Mars, Inc. v. Coin Acceptors, Inc.*, 527 F.3d 1359, 1373 (Fed. Cir. 2008). When an alleged alternative is not on the market during the accounting period,[14] the burden shifts to the alleged infringer to show that the substitute was "available" based on alternative actions the alleged infringer reasonably could have taken. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1331 (Fed. Cir. 2009). Accordingly, FCA has the burden to show that its non-infringing alternatives were available and acceptable.[15]

Velocity argues that FCA's use of two features, (1) Adaptive Cruise Control ("ACC") and (2) Forward Collision Warning ("FCW"), infringe on the proximity alarm notification circuit. R. 356 at 4.[16] ACC is like traditional cruise control (where the

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[14] The parties do not explicitly discuss whether any non-infringing alternatives were available on the market. But it does not appear that one existed—FCA notes that its expert *developed* a non-infringing alternative "that would be available . . . during the *hypothetical* negotiation." R. 367 at 5 (emphasis added).

[15] Velocity concedes that it brings its summary judgment motion only as to acceptability, and not availability. R. 400 at 5 ("Velocity moved only on the acceptability requirement, and elected not to challenge the availability requirement now, on summary judgment.").

[16] These facts are undisputed except where otherwise noted and are based on Velocity's Statement of Undisputed Material Facts, R. 357; FCA's Response to

vehicle maintains a set speed) but also modulates the vehicle's speed based on the speed of a vehicle in front of it (*i.e.*, it will slow down if the vehicle ahead is traveling at a slower speed and gets too close). R. 401, Reply to FCA's Counter-Statement of Facts, ¶¶ 44-45. When the ACC system determines that it cannot decrease the vehicle speed quickly enough in relation to a slower moving vehicle in front of it, the system will issue a notification to the driver in the form of a "takeover request," for the driver to take control of the vehicle. *Id.* ¶ 47. FCW also issues notifications to the driver. *Id.* ¶ 49. FCW detects objects ahead of the vehicle and, when the system determines that the object causes risk of a front-end collision, it issues a notification to warn the driver of that possible collision. *Id.* Both features are deactivated when the driver depresses the brake pedal. *Id.* ¶¶ 46, 50.

During expert discovery, FCA's expert witness, Dr. John Martens, opined that a non-infringing alternative could be available for the ACC and FCW systems. Specifically, the alternative would remove the "brake activation check" required by the algorithm by removing cancellation of the "takeover" request in the ACC feature or the collision notifications in the FCW feature when the brake pedal was depressed. *Id.* ¶ 55. FCA asserts that the allegedly infringing features themselves (such as cruise control) would still be deactivated, but the notifications alerting the driver would not turn off until the vehicle reached a distance that did not trigger the proximity alarm circuit. R. 367 at 5-6.

Velocity's Statement of Undisputed Material Facts and Counter-Statement of Material Facts, R. 368; and Velocity's Reply to FCA's Counter-Statement of Material Facts, R. 401.

Velocity first argues that the proposed non-infringing alternative is not acceptable because the alternative would change the characteristics of the features by annoying the driver and creating safety concerns. But Velocity does not point to any undisputed facts that indicate the non-infringing alternative would not be commercially acceptable. Indeed, FCA disputed most of Velocity's statements of facts and presented evidence that removing the "brake activation check" would be commercially acceptable. *See* R. 368, Resp. to Velocity SMF, ¶¶ 26-30. Specifically, Dr. Martens opined that doing so would mean the algorithm would no longer meet the "vehicle brake is off" limitation which was allegedly causing the infringement. R. 358-1, Martens Report, at 71. FCA also presented evidence that removing the brake activation check is not an important characteristic of its features. R. 368, Resp. to Velocity SMF, ¶¶ 32-34, 37-38. Further, alternatives need not be "effectively identical" in performance to be acceptable. *Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, 2012 WL 3686736, at *4 (W.D. Pa. Aug. 24, 2012).

Second, Velocity argues FCA has not presented any evidence that the cost of the alternative is acceptable. R. 356 at 11. FCA's expert Dr. Martens explained that the non-infringing alternative would involve a simple software change by removing the brake activation check. R. 358-1, Martens Report, at 71. Velocity criticizes the expert's report as conclusory and argues that he failed to provide an exact number for the cost of the alternative. But Velocity fails to provide any support as to why an exact number is required to determine how costly a non-infringing alternative would be. The Federal Circuit in *Mars* reduced the reasonable royalty rate based only on

the fact that there was a possibility that the defendant "could have come up with" a non-infringing alternative. *Mars*, 527 F.3d at 1373.

The Court is inclined to deny Velocity's motion on this basis. However, Velocity has moved to exclude Dr. Martens' testimony about whether the non-infringing alternative would be commercially acceptable, R. 418 at 32, which represents some of FCA's evidence responding to Velocity's summary judgment motion. As a result, the Court reserves ruling on this issue until the parties' Daubert motions are resolved.

CONCLUSION

For the foregoing reasons, the Court grants in part and denies in part FCA's request for summary judgment, R. 342 and R. 349, as follows:

1) FCA's motion is granted as to infringement of the Fuel Saver Indicator feature but denied as to infringement of the MPG display and the Fiat ECO Index display;

2) FCA's motion as to invalidity of Claims 69 and 76-79 is granted;

3) FCA's motion requesting Claim 28 be construed as a means-plus-function claim is granted;

4) FCA's motion regarding willfulness is denied.

The Court reserves ruling on Velocity's summary judgment motion, R. 338, until after it hears expert testimony under Daubert.

ENTERED:

Dated: August 7, 2018

Thomas M Durkin

Honorable Thomas M. Durkin
United States District Judge