

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

SIGNAL IP, INC.,

Plaintiff,

v.

FIAT U.S.A., INC., et al.,

Defendants.

Case No. 14-cv-13864

HON. MARK A. GOLDSMITH

OPINION AND ORDER
(1) CONSTRUING DISPUTED CLAIM TERMS; AND (2) DENYING AS MOOT
DEFENDANT FCA US LLC'S MOTION FOR COLLATERAL ESTOPPEL AGAINST
SIGNAL IP ON CERTAIN CLAIM TERMS (Dkt. 38.)

This is a patent infringement case in which Plaintiff Signal IP, Inc. alleges that Defendant FCA US LLC has infringed upon four of its patents.

Pursuant to this Court's standard procedure, the parties were to identify the disputed claim terms within the four patents that they feel are material to the infringement and validity issues in this case. The parties have submitted written briefs explaining their positions on how the disputed claim terms should be construed (Dkts. 32, 39, 41). On August 3, 2016, the Court held oral argument. In this opinion and order, the Court will construe the disputed claim terms identified by the parties, pursuant to Markman v. Westview Instruments, 517 U.S. 370 (1996).

Also before the Court is FCA's motion for collateral estoppel against Signal on certain claim terms (Dkt. 38). The issue is whether Signal should be collaterally estopped from litigating the construction of the claim terms "unlock threshold" and "at a level indicative of an empty seat" in U.S. Patent No. 6,012,007 because the United States District Court for the Central District of California has already construed the terms, in whole or part, in another case involving

Signal. For the reasons explained below, the Court denies as moot FCA's motion for collateral estoppel.

I. PROCEDURAL HISTORY

On or about April 23, 2014, Signal filed 13 similar cases alleging patent infringement in the United States District Court for the Central District of California against most of the major automobile manufacturers, including this case against FCA.¹ In this case against FCA, Signal has asserted four patents involving three different types of technologies: (i) automobile airbag deployment systems, (ii) a radar detection system to detect blind spots while driving, and (iii) a tire pressure monitoring system. The four patents are: (i) U.S. Patent No. 6,012,007, entitled "Occupant Detection Method and Apparatus for Air Bag System" ("007 Patent"); (ii) U.S. Patent No. 5,732,375, entitled "Method of Inhibiting or Allowing Airbag Deployment" ("375 Patent"); (iii) U.S. Patent No. 5,714,927, entitled "Method of Improving Zone of Coverage Response of Automotive Radar" ("927 Patent"); and (iv) U.S. Patent No. 5,463,374, entitled "Method and Apparatus for Pressure Monitoring and for Shared Keyless Entry Control" ("374 Patent").

On October 7, 2014, Judge John A. Kronstadt of the United States District Court for the Central District of California transferred this case to the Eastern District of Michigan (Dkt. 4). This case was originally assigned to Judge Arthur J. Tarnow, but it was reassigned to this Court on January 30, 2015 (Dkt. 17). On April 17, 2015, the United States District Court for the Central District of California issued an order construing thirty six disputed patent claim terms, including some of the claim terms at issue in this case.

¹ On or about December 16, 2014, Chrysler Group LLC changed its name to FCA US LLC. "FCA" stands for "Fiat Chrysler Automobiles."

On May 11, 2016, FCA filed a motion for collateral estoppel against Signal on certain claim terms (Dkt. 38). In the motion, FCA argues that Signal should be estopped from re-litigating the constructions of two disputed claim terms in this case because those claim terms were already construed by Judge Kronstadt in cases involving Signal against other automobile manufacturers. FCA argues that it would be a waste of judicial resources to re-litigate the proper construction of those claim terms in this case. Because FCA's motion involves the construction of disputed patent claim terms, the Court will consider FCA's motion as part of this order on claim construction.

On August 3, 2016, the Court heard oral argument from the parties regarding the proper construction of the disputed claim terms, as well as FCA's motion for collateral estoppel. At oral argument, the parties, working with the Court's special master, were able to come to an agreement on the proper construction for some of the disputed claim limitations.

II. LAW OF CLAIM CONSTRUCTION

Claims of a patent are short and concise statements, expressed with great formality, of the metes and bounds of the patent invention. Each claim is written in the form of a single sentence. Claim construction is the manner in which courts determine the meaning of a disputed term in a claim. "The construction of claims is simply a way of elaborating the normally terse claim language: in order to understand and explain, but not to change, the scope of the claim." Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 1580 (Fed. Cir. 1991), overruled in part on other grounds by Abbott Labs v. Sandoz, Inc., 566 F.3d 1282, 1293 (Fed. Cir. 2009) (en banc). The construction of key terms in patent claims plays a critical role in nearly every patent infringement case. Claim construction is central to both a determination of infringement and

validity of a patent. The judge, not a jury, is to determine the meaning of the disputed claim terms as a matter of law. Markman, 517 U.S. at 372, 391.

A court has two primary goals in construing the disputed claim terms. The first goal is to determine the scope of the patented invention by interpreting the disputed claim terms to the extent needed to resolve the dispute between the parties. The second goal is to provide a construction that will be understood by the jury, which might otherwise misunderstand a claim term in the context of the patent specification and prosecution history of the patent. See, e.g., Power-One, Inc. v. Artesyn Techs., Inc., 599 F.3d 1343, 1348 (Fed. Cir. 2010) (“The terms, as construed by the court, must ensure that the jury fully understands the court’s claim construction rulings and what the patentee covered by the claims.”); U.S. Surgical Corp. v. Ethicon, Inc., 103 F.3d 1554, 1568 (Fed. Cir. 1997) (“Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary, to explain what the patentee covered by the claims, for use in the determination of infringement.”). The Court’s claim construction ruling forms the basis for the ultimate jury instructions, although that is not to say that the Court cannot modify its wording for the jury instructions after ruling on claim construction. See IPPV Enters., LLC v. Echostar Commc’ns Corp., 106 F. Supp. 2d 595, 601 (D. Del. 2000).

The seminal case setting forth the principles for construing disputed claim terms is Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc). According to Phillips, the words of the claim are generally given their “ordinary and customary” meaning, i.e. “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” Id. at 1312-1313. The person of ordinary skill in the art views the claim term in light of the entire intrinsic record, which is the entire claim, the other parts of the patent, and, if

in evidence, the prosecution history of the patent before the United States Patent and Trademark Office (“USPTO”). Id. at 1313-1314. Although a claim must be construed in view of the entire patent, the court should normally not read limitations or features of the exemplary embodiments discussed in the patent specification into the claims. Id. at 1323-1324.

The prosecution history of the patent can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention during the course of prosecution by his statements, making the claim scope narrower than it would otherwise be. However, because the prosecution history is an ongoing negotiation between the patent office and the patent owner, rather than the final product of that negotiation, it often lacks the clarity of the patent itself and is generally less useful for claim construction purposes. Id. at 1317.

In discerning the meaning of claim terms, resorting to dictionaries and treatises also may be helpful. Id. at 1320-1323. However, undue reliance on extrinsic evidence poses the risk that it will be used to change the meaning of claims in derogation of the indisputable public records consisting of the claims, the specification of the patent and the prosecution history, thereby undermining the public notice function of patents. Id. In the end, the construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be the correct construction. Id. at 1316.

It is proper for the Court to construe the disputed claim terms in the context of the infringement or invalidity dispute by viewing the accused device or prior art. Viewing the accused device or prior art allows the Court to construe the claims in the context of the dispute between the parties, not in the abstract. “While a trial court should certainly not prejudge the ultimate infringement analysis by construing claims with an aim to include or exclude an accused

product or process, knowledge of that product or process provides meaningful context for the first step of the infringement analysis, claim construction.” Wilson Sporting Goods Co. v. Hillerich & Bradsby Co., 442 F.3d 1322, 1326-1327 (Fed. Cir. 2006). The Federal Circuit has held that without “the vital contextual knowledge of the accused products,” a court’s claim construction decision “takes on the attributes of something akin to an advisory opinion.” Lava Trading, Inc. v. Sonic Trading Mgmt., LLC, 445 F.3d 1348, 1350 (Fed. Cir. 2006).

III. CLAIM CONSTRUCTION ANALYSIS FOR THE DISPUTED CLAIM TERMS

In their briefs, the parties have requested that the Court construe eight claim terms from four patents. The Court will address each disputed claim term in the following sections and note where the parties have resolved their dispute regarding certain terms.

A. Airbag Deployment System Patent: ‘375 Patent

1. Background on the ‘375 Patent

The USPTO issued the ‘375 Patent on March 24, 1998 to Delco Electronics Corporation, which, according to publicly available information, was owned by General Motors Corporation at that time and later spun off by General Motors Corporation into Delphi Corporation.

The ‘375 Patent is directed to a method of inhibiting or allowing deployment of an airbag for a passenger seat of an automobile based on whether readings from sensors located in or on the passenger seat indicate that the seat is occupied by an adult or a small child. The ‘375 Patent explains that it is desirable to not deploy the airbag for a passenger seat if the seat is unoccupied or occupied by a child. Moreover, research has shown that an airbag should not be deployed if an infant carrier is facing rearward on a passenger seat. The ‘375 Patent teaches an improved design for determining whether an adult or child is sitting in the passenger seat, or whether an infant or child carrier located on the passenger seat is facing rearward, and then deciding whether

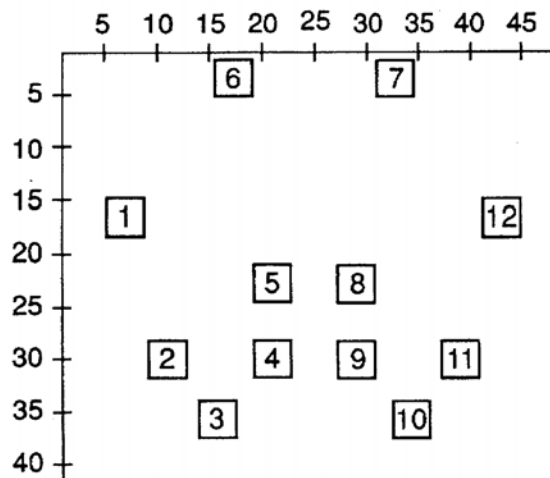
to deploy the airbag based on the determination of who is located on the passenger seat. For example, in the “Summary of the Invention” section, the ‘375 Patent states:

It is therefore an object of the invention to detect a comprehensive range of vehicle seat occupants including infant seats for a determination of whether an airbag deployment should be permitted. Another object in such a system is to determine whether an infant seat is facing the front or rear.

‘375 Pat. at col. 1:44-49 (Dkt. 33-3).

The ‘375 Patent teaches that locating sensors on the passenger seat in a symmetrical way along the seat centerline can gather sufficient pressure and pressure distribution information to allow determinations of the occupant type and infant seat position. More specifically, a computer is programmed to obtain pressure readings from each sensor, to sum the readings from all the pressure sensors, and determine the patterns of pressure distribution by evaluating groups of sensors. Based on this information, the computer can determine whether the occupant is an adult or a child, whether an infant carrier is present and whether the infant carrier is facing forward or rearward, and then decide whether or not to deploy the airbag. Reproduced below is Figure 2 of the ‘375 Patent which shows the layout of the sensors on a passenger seat according to an embodiment of the patented invention.

FIG - 2



The '375 Patent states a microprocessor reads each sensor four times, and the values are then averaged and bias corrected. The microprocessor then essentially compares the sensor readings to a table stored in the computer's memory which correlates the readings from the sensors to whether an infant carrier is present on the seat and the direction that the infant carrier is facing. The Summary of the Invention section of the '375 Patent, reproduced below, describes the processes performed by the microprocessor in more detail:

Total force [summed from all the sensors] is sufficient for proper detection of adults in the seat, but the pattern recognition provides improved detection of small children and infant seats. To detect infant seats, all patterns of sensor loading which correspond to the imprints of various seats are stored in a table and the detected sensor pattern is compared to the table entries. Front and rear facing seats are discriminated on the basis of total force and the loading of sensors in the front of the seat.

The pattern recognition for detecting children is made possible by applying fuzzy logic concepts to the pressure readings for each sensor in the array and assigning a load rating to each sensor. Pattern recognition is also enhanced by sampling several pairs of sensors, applying leveling technique to them, and computing a measure for the area of the seat covered by each pair. For all measures calculated within the algorithm, a contribution is made to an overall fuzzy rating which is used to handle marginal cases.

'375 Pat. at col. 2:4-21. The overall method of the invention is shown in Figure 3 of the '375 Patent, which is reproduced below.

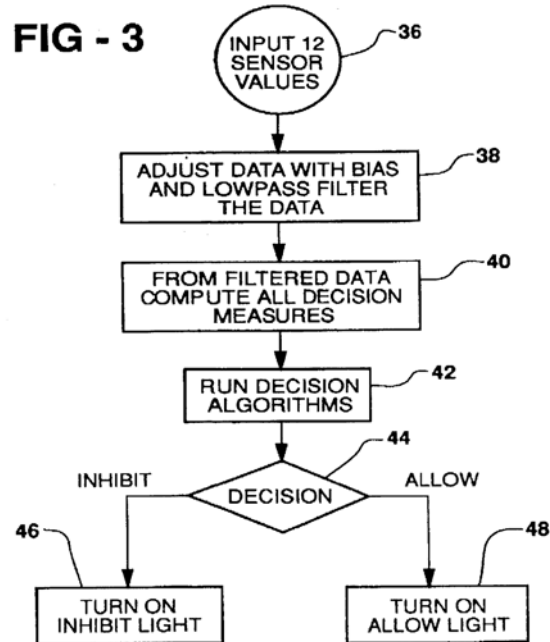
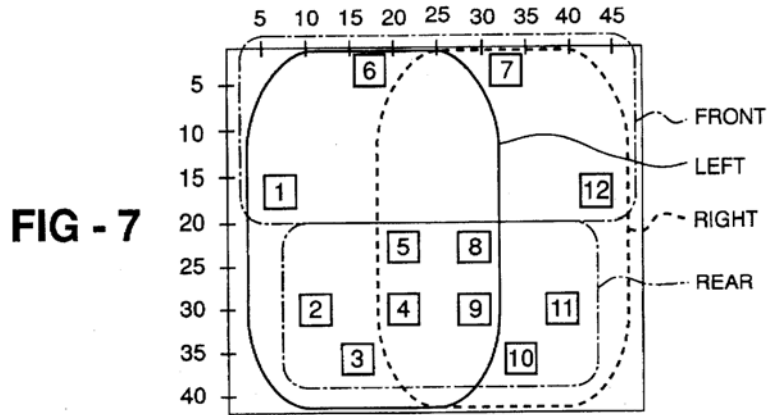


Figure 7 of the '375 Patent, reproduced below, shows how localized areas are checked for force or weight concentrations. The sensors are divided into overlapping front, left, right and rear areas, and the algorithm used by the computer determines whether all of the pressure is concentrated in particular groups of sensors. The microprocessor then compares the readings of the sensors to the table stored in the computer's memory which determines whether the sensor readings correlate with rails of an infant carrier and whether the infant carrier is facing forward or rearward. The computer then determines whether or not to allow the airbag to deploy.



Signal has alleged that FCA has infringed Claim 11 of the '375 Patent. The parties request that the Court construe two claim terms in Claim 11: (i) “on the passenger seat” and (ii) “load rating.” Below the Court will address the proper construction of these claim terms.

2. “on the passenger seat”

Disputed Term	Signal’s Proposed Construction	FCA’s Proposed Construction	Court’s Construction
“on the passenger seat”	Plain and ordinary meaning	Located in or on the bottom cushion of the seat	The Court reserves the right to address this claim construction at summary judgment or trial, if necessary.

FCA requests that the Court construe the term “on the passenger seat” in Claim 11 of the '375 Patent.

Claim 11 of the '375 Patent is reproduced below with the disputed claim term underlined:

11. A method of airbag control in a vehicle having an array of force sensors on the passenger seat coupled to a controller for determining whether to allow airbag deployment based on sensed force and force distribution comprising the steps of:

measuring the force sensed by each sensor;

calculating the total force of the sensor array;

allowing deployment if the total force is above a total threshold force;

assigning a load rating to each sensor based on its measured force, said load ratings being limited to maximum value;

summing the assigned load ratings for all the sensors to derive a total load rating; and

allowing deployment if the total load rating is above a predefined total load threshold, whereby deployment is allowed if the sensed forces are distributed over the passenger seat, even if the total force is less than the total threshold force.

‘375 Pat. at col. 7 (emphasis added).

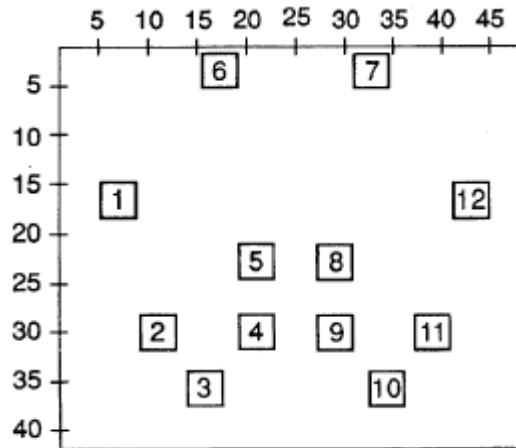
Claim 11 states that the patented system has “an array of force sensors on the passenger seat.” Thus, the term “on the passenger seat” refers to the location of the sensors. The readings from the sensors are used “for determining whether to allow airbag deployment based on sensed force and force distribution” over the passenger seat. ‘375 Pat. at col. 7:3-4.

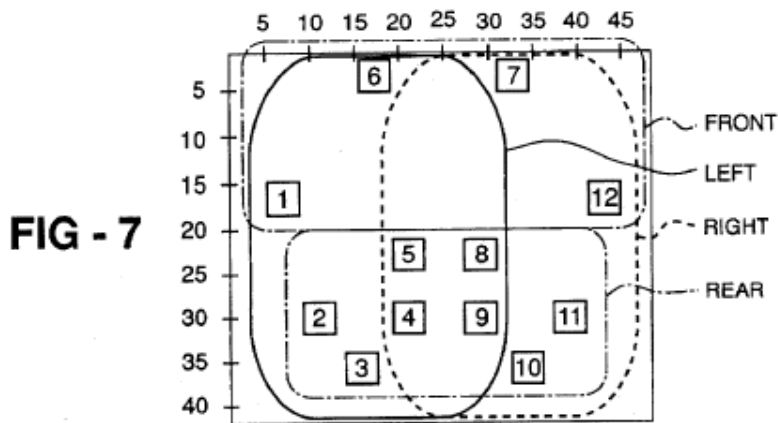
Signal argues that the claim language “sensors on the passenger seat” is clear and understandable, and therefore does not need to be construed. Signal argues that FCA’s construction improperly imports example embodiments of the invention from the written description section of the patent into the claims, specifically, by proposing a claim construction that requires the sensors be “located in or on the bottom of the cushion of the seat.” Signal argues that FCA’s proposed construction “violates the fundamental canon of claim construction . . . that limitations from the specification may not be read into the claims.” Pl. Br. at 14 (Dkt. 32) (quoting Sjolund v. Musland, 847 F.2d 1573, 1581 (Fed. Cir. 1988)).

FCA argues that “on the passenger seat” should be construed to mean “located in or on the bottom cushion of the seat.” FCA argues that it is not importing limitations from the written description section of the patent into the claims. Rather, FCA states that its proposed

construction just makes clear that the sensors are located in or on the seat cushion itself and not, for example, in the seat rails on the floor of the car. FCA correctly points out that the specification repeatedly and consistently refers to the sensors being located either “in” or “on” the seat and no other location is disclosed. For example, the “Abstract” section of the ‘375 Patent states “sensors on a vehicle passenger seat” The “Summary of the Invention” section of the ‘375 Patent states “A dozen sensors, judicially [sic] located in the seat. . . .” Id. at col 1:59. Likewise, the “Description of the Invention” section of the ‘375 Patent states “The mounting arrangement of sensors 28 on a bottom bucket seat cushion is shown in Figure 2” and “It will thus be seen that airbag deployment can be allowed or inhibited by a pattern of resistive sensors embedded in a seat cushion. . . .” Id. at cols. 3:21-22 and 5:31-37. FCA also notes that the relevant figures of the ‘375 Patent show the sensors in or on the seat cushion. Specifically, Figures 2 and 7, reproduced below, show the sensors distributed in or on the bottom cushion of the passenger seat.

FIG - 2





At oral argument, Signal stated that the construction of this claim limitation is not material to the outcome of this case (i.e., not material to the infringement or invalidity issues in this case). 8/3/2016 Hr’g Tr. at 7 (Dkt. 53). Signal stated it opposed FCA’s proposed construction simply because it may have collateral estoppel or otherwise be limiting in future cases against unknown defendants.

On the other hand, at oral argument, FCA stated that the construction of this claim limitation is material to the outcome of this case. *Id.* at 8. FCA stated that the accused infringing FCA vehicles have sensors on the frame or rails that support the vehicle seat. FCA stated: “The dispute is whether the term [is] broad enough to capture the supporting frame for the seat, sensors in the supporting frame for the seat or whether they’re limited to the seat part which is the cushion in our view. . . .” *Id.* at 9. However, the parties did not submit evidence of the accused seats so that the Court can understand the context of the infringement dispute and give a construction that is fully tailored to the issues involved in the case.

At this point in the case, given the disagreement between the parties as to the materiality of this claim limitation and also due to the fact that parties have not briefed the Court as to context of the claim construction dispute to the ultimate infringement or invalidity issues in the case, the Court will exercise its discretion and wait to construe this claim limitation, if needed,

until summary judgment motions are filed or until trial. As stated earlier, without “the vital knowledge of the accused products,” a court’s claim construction decision “takes on the attributes of something akin to an advisory opinion.” Lava Trading, 445 F.3d at 1350. To the extent that nuanced constructions are proper and relevant to the infringement or invalidity arguments, the Court can re-address its claim construction at summary judgment or trial, if necessary. At summary judgment or trial, the Court can also determine whether the dispute is one of claim construction for a district court judge to resolve or whether the dispute is really a dispute of infringement to be decided by a jury.

3. “load rating”

Disputed Term	Signal’s Proposed Construction	FCA’s Proposed Construction	Court’s Construction
“load rating”	Plain and ordinary meaning, or “a measure of whether the sensor is detecting some load”	A measure of whether the sensor is detecting some load, which is different than the claimed ‘force,’ and is used for pattern recognition purposes.	The load rating a measure of whether the sensor is detecting some load and is used for pattern recognition purposes.

FCA requests that the Court construe the term “load rating” in Claim 11 of the ‘375 Patent.

Claim 11 of the ‘375 Patent is reproduced below with the disputed claim term underlined:

11. A method of airbag control in a vehicle having an array of force sensors on the passenger seat coupled to a controller for determining whether to allow airbag deployment based on sensed force and force distribution comprising the steps of:

measuring the force sensed by each sensor;

calculating the total force of the sensor array;

allowing deployment if the total force is above a total threshold force;

assigning a load rating to each sensor based on its measured force, said load ratings being limited to [a] maximum value;

summing the assigned load ratings for all the sensors to derive a total load rating; and

allowing deployment if the total load rating is above a predefined total load threshold, whereby deployment is allowed if the sensed forces are distributed over the passenger seat, even if the total force is less than the total threshold force.

‘375 Pat. at col. 7 (emphasis added).

The parties dispute whether the claim term “load rating” can be the same as the separately recited “force” value measured from each sensor. Signal argues it can; FCA argues that the plain language of the claim dictates that it cannot. Signal also disputes whether “load rating” must be used for “pattern recognition purposes,” despite what appears to be a clear statement that it is used for such purposes in the written description section of the patent.

Claim 11 includes both the terms “force” and “load rating.” Claim 11 states that the patented system “[measure[s] the force sensed by each sensor;” then “calculat[es] the total force of the sensor array;” and then “allows deployment [of the airbag] if the total force is above a total threshold force. . . .” Claim 11 ‘375 Pat. at col. 7:6-10. Even if the total force is below the total force threshold required for deployment of the airbag, the system will assign a load rating to each sensor based on its measured force, said load ratings being limited to [a] maximum value;” then the computer/controller will “sum[] the assigned load ratings for all the sensors to derive a total load rating; and then allow[] deployment [of the airbag] if the total load rating is above a predefined total load threshold. . . .” Id. at col. 7:11-17.

Signal argues that the claim term “load rating” does not need to be construed and should be left to its plain and ordinary meaning or be construed to mean “a measure of whether the sensor is detecting some load.” Pl. Br. at 14.

FCA argues that this claim term should be construed to mean “a measure of whether the sensor is detecting some load, which is different than the claimed ‘force,’ and is used for pattern recognition purposes.” Def. Br. at 13 (Dkt. 39).

Both parties point out that the “Description of the Invention” section of the ‘375 Patent gives a full or partial explicit definition or explanation of the term “load rating.” It states: “The load rating a measure of whether the sensor is detecting some load and is used for pattern recognition purposes.” ‘375 Pat. at col. 4:2-4.

FCA also points out that the prosecution history evidences that “load rating” and “force” have different meanings. To overcome the prior art during prosecution, the patent owner amended Claim 11, explaining that “Claim 11 has been re-written in independent format, and recites a method of airbag control in which deployment is allowed based on total force above a threshold or a total load rating above a threshold.” File Wrapper for ‘375 Patent, Ex. 10 pg. 2 of FCA’s resp. br. (emphasis added); see also Ex. 10 pgs. 3-4 (distinguishing force from load rating to overcome prior art).

As explained below, the Court finds that the term “load rating” should be construed to mean “a measure of whether the sensor is detecting some load and is used for pattern recognition purposes.” The Court reserves the right to modify or add to this claim construction as the

litigation issues become more clear or as needed to fully explain the concept of a load rating to the jury.²

Both parties agree that the patent owner acted as its own lexicographer when it stated that “[t]he load rating is a measure of whether the sensor is detecting some load and is used for pattern recognition purposes.” ‘375 Pat. at col. 4:2-4. By submitting the definition directly into the written description section of the patent the patent owner acted as his own “lexicographer.” CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002) (holding that to be a lexicographer a patentee must “clearly set forth a definition of the disputed claim term” other than its plain and ordinary meaning). At this point in the case, the Court will adopt the exact language set forth in the written description of the ‘375 Patent.

The Court’s construction differs slightly from the construction proposed by either party. The Court did not adopt FCA’s proposed language that the “load rating be different from the claimed ‘force.’” While the language of the claim requires that the load rating be “based on” the “measured force,” the language of the claim does not require that the values be different numbers. It may be possible that some systems could be designed where the load rating and force are the same value in some scenarios, although the “units” may be different. For example, the written description section of the ‘375 Patent gives an example embodiment of the invention within the scope of the ‘375 Patent. It states “if a load is below a base value d, which may be four, the rating is zero and if it is above the base value it is the difference between the base load and the measured load up to a limit value of, say four.” ‘375 Pat. at col. 4:6-8; see also Claim 12 at col. 7:21-27. In this embodiment, the load rating and the force would be the same — not different —

² In their written briefs, the parties did not explain why this claim term needs to be construed in light of the infringement or invalidity issues in the case. Lava Trading, 445 F.3d at 1350 (holding that a court should construe a claim term in the context of the infringement or invalidity dispute).

if either “d” or the force has a zero value. Requiring the load rating to be “different from” the force, at least numerically, may be therefore inconsistent with the embodiment in the written description.

The Court also rejects Signal’s proposed construction at this time to the extent that it removes the language “for the purposes of pattern recognition” from the definition set forth by the patent owner in the written description section of the patent. This language makes clear that the load rating “is used for pattern recognition purposes.” Quoting from Marrin v. Griffin, 599 F.3d 1290, 1294 (Fed. Cir. 2010), Signal argues claim language such as this “merely states the purpose or intended use of an invention is generally not treated as limiting the scope of the claim.” Signal argues that “[h]ere, the purpose is recited in the specification, so there is even less of a reason to limit the claim in this manner.” Pl. Br. at 16.

Marrin v. Griffin is distinguishable from this case. Marrin addressed whether claim language in the preamble of a claim should be interpreted to be a claim limitation. The Federal Circuit noted that language from the preamble is normally not construed as a claim limitation, especially language from the preamble of an apparatus claim that merely states the use or intended purpose of the invention. Id. Moreover, the patent owner in Marrin expressly stated in the prosecution history that the disputed language in the preamble was not a requirement of the claim. Id. In contrast, the present case does not involve language in the preamble, but rather language in the written description section of the patent expressly defining a claim term located in the body of the claim and describing its purpose. In Marrin, the Federal Circuit noted that statements of purpose or intended use are generally not treated as claim limitations for apparatus claims which normally set forth structure. The claim at issue here, Claim 11, is a method claim.

At the very least, the purpose of the claim term “load rating” will assist the jury in understanding the disputed claim term “load rating.”

4. “Whereby deployment is allowed if the sensed forces are distributed over the passenger seat, even if the total force is less than the total threshold force” in Claim 11

Disputed Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction	Court’s Construction
“whereby deployment is allowed if the sensed forces are distributed over the passenger seat, even if the total force is less than the total threshold force”	Plain and ordinary meaning. Alternately, the phrase “the sensed forces are distributed over the passenger seat” may be construed as “the sensed forces are distributed over the sensors, such that each sensor bears some force”	Defendant adopts Signal’s alternate proposed construction	This claim limitation is no longer disputed.

Before claim construction briefing, the parties disputed the proper construction of the claim language “whereby deployment is allowed if the sensed forces are distributed over the passenger seat, even if the total force is less than the total threshold force” in Claim 11 of the ‘375 Patent. In its opening brief, Signal proposed an alternate construction. Specifically, Signal proposed that the claim language “the sensed forces are distributed over the passenger seat” may be construed as “the sensed forces are distributed over the sensors, such that each sensor bears some force.”

In its response brief, FCA states that it agrees with Signal’s alternate construction of “distributed over the passenger seat” to mean “such that each sensor bears some force.” Def. Br. at 15-16.

In reply brief (Dkt. 41), Signal did not further argue this claim limitation. Accordingly, this claim limitation is no longer at issue.

B. Airbag Deployment Patent: the '007 Patent

The '007 Patent, which is entitled "Occupant Detection Method and Apparatus for Air Bag System," was filed on June 3, 1997 and issued to Delphi Technologies Inc. on January 4, 2000. The '007 patent is a continuation-in-part ("CIP") of the '375 Patent, which means that the '007 patents builds off invention taught in the '375 Patent and adds additional new subject matter to the invention taught in the '375 Patent.

The '007 Patent describes a system "to discriminate in [an airbag deployment] system between large and small seat occupants for a determination of whether an airbag deployment should be permitted" and to "maintain reliable operation in spite of dynamic variations in sensed pressures" such as when the person is moving around or bouncing. '007 Pat. col. 1:52-57 (Dkt. 33-2). It is an object of the invention to "disable the airbag when a small person occupies the seat or when the seat is empty." *Id.* at col. 1:28-30. The system includes a microprocessor that is programmed to calculate a "relative weight parameter" and make airbag deployment decisions by comparing that parameter to three thresholds: a "first threshold," a "lock threshold," and an "unlock threshold." Signal has asserted Claim 17 of the '007 Patent.

In Claim 17, the system will deploy the airbag when the total measured weight on the passenger seat is above a "first threshold"; if the total measured force is above a measured "lock threshold" for a sufficient time, the system will set a "lock flag" to "lock" the deployment decision, until the total measured force drops below an "unlock" threshold for a time, at which time the flag is cleared. The idea behind the patent is that the airbag deployment system will do a better job of accounting for moving or bouncing passengers and not immediately assume that

no one in the passenger seat just because the weight sensed by seat sensors is low for a short period of time.

1. “relevant weight parameter” in Claim 17 of the ‘007 Patent

Although the parties originally disputed the construction and definiteness of the claim term “relevant weight parameter,” FCA states in its response brief that this claim term is no longer disputed. Accordingly, the Court will not address this claim limitation.

2. “at a level indicative of an empty seat” in Claim 17 of the ‘007 Patent

Disputed Term	Signal’s Proposed Construction	FCA’s Proposed Construction	Court’s Construction
“at a level indicative of an empty seat” in Claim 17	“A force/pressure measurement corresponding to an empty seat classification” Alternatively, plain and ordinary meaning. Reply brief at 2.	A force/pressure measurement of zero or substantially zero weight on the seat	No construction is needed at this time because the claim term is not material to the outcome of the case.

The parties request that the Court construe the claim language “at a level indicative of an empty seat” in Claim 17 of the ‘007 Patent.

Claim 17 of the ‘007 Patent is reproduced below with the disputed claim language underlined:

17. In a vehicle restraint system having a controller for deploying air bags, means for inhibiting and allowing deployment according to whether a seat is occupied by a person of at least a minimum weight comprising:

seat sensors responding to the weight of an occupant to produce sensor outputs;

a microprocessor coupled to the sensor outputs and programmed to inhibit and allow deployment according to sensor response and particularly programmed to

determine measures represented by individual sensor outputs and calculate from the sensor outputs a relative weight parameter,

establish a first threshold of the relative weight parameter,

allow deployment when the relative weight parameter is above the first threshold,

establish a lock threshold above the first threshold,

set a lock flag when the relative weight parameter is above the lock threshold and deployment has been allowed for a given time,

establish an unlock threshold at a level indicative of an empty seat,

clear the flag when the relative weight parameter is below the unlock threshold for a time, and

allow deployment while the lock flag is set.

'007 Pat. at col. 17 (emphasis added).

The disputed claim language “at a level indicative of an empty seat” is directed to the principle that the airbag deployment system will establish an unlock threshold at a weight sensor reading indicative of an empty seat. The parties agree that the claim language does not require that the seat actually not have something on the seat; rather, the claim language means that the weight reading from the sensors is so low that it does not correspond to a person or child being on the seat. With a basic understanding of the '007, the claim language is quite clear.

In the parties written briefs, and in FCA's motion for collateral estoppel, the dispute between the parties on this claim term related to whether the Court must give collateral effect to Judge Kronstadt's prior art claim construction decision involving Signal and other automotive companies. In that decision, the California court construed the term “at a level indicative of an empty seat” to mean “a force/pressure measurement of zero or substantially zero weight on the seat.” Claim Constr. Order at 65-67, Ex. E to Pl. Br. (Dkt. 33-4). The California court

ultimately granted Defendants Mazda and Kia summary judgment of non-infringement based on the court’s claim construction decision. Before the California court issued a final formal judgment, Signal settled with Mazda and Kia. Accordingly, no appeal took place.

At oral argument, the parties agreed that the construction of this claim limitation is not material to the outcome of this case (i.e., not material to the infringement or invalidity issues). For example, at oral argument, FCA’s counsel stated: “I personally don’t think that there’s much dispute between the parties. The Court has asked how this matters? I don’t think this one matters.” 8/3/2016 Hr’g Tr. at 44. Because the parties do not believe that the construction of this claim limitation is material to the outcome of this case, the Court will not construe this claim limitation at this time and will deny as moot Defendant’s motion for collateral estoppel as to this term.

3. “seat sensors” in Claim 17 of the ‘007 Patent

Disputed Term	Signal’s Proposed Construction	FCA’s Proposed Construction	Court’s Construction
“seat sensors” in Claim 17	Plain and ordinary meaning	“Sensors located in or on the bottom cushion of the seat”; however, at oral argument FCA stated that this term is likely not material to the outcome of the case	No construction needed at this time because the claim term is not material to the outcome of the case.

FCA requests that the Court construe the claim term “seat sensors” in Claim 17 of the ‘007 Patent.

Claim 17 of the ‘007 Patent is reproduced below with the disputed claim language underlined:

17. In a vehicle restraint system having a controller for deploying air bags, means for inhibiting and allowing deployment according

to whether a seat is occupied by a person of at least a minimum weight comprising:

seat sensors responding to the weight of an occupant to produce sensor outputs;

a microprocessor coupled to the sensor outputs and programmed to inhibit and allow deployment according to sensor response and particularly programmed to

determine measures represented by individual sensor outputs and calculate from the sensor outputs a relative weight parameter,

establish a first threshold of the relative weight parameter,

allow deployment when the relative weight parameter is above the first threshold,

establish a lock threshold above the first threshold,

set a lock flag when the relative weight parameter is above the lock threshold and deployment has been allowed for a given time,

establish an unlock threshold at a level indicative of an empty seat,

clear the flag when the relative weight parameter is below the unlock threshold for a time, and

allow deployment while the lock flag is set.

'007 Pat. at col. 17 (emphasis added).

Signal argues that the claim term “seat sensors” does not need to be construed and should be given its plain and ordinary meaning.

FCA argues that the claim term “seat sensors” should be construed to mean “sensors located in or on the bottom cushion of the seat.” FCA states that it wants to make clear that the sensors are located on the bottom cushion of the seat and not in the seat subassembly or the on the floor of the vehicle. FCA points out that the '007 Patent consistently refers to the seat sensors as being located “in” or “on” the seat. For example, in the Field of the Invention section

of the patent, the patent states that “This invention relates to an occupant restraint system using an occupant detection device and particularly to an airbag system having seat pressure detectors in the seat.” ‘007 Pat. col. 1:10-12.

Similar to the arguments made with respect to the claim limitation “on the passenger seat” in Claim 11 of the ‘375 Patent, at oral argument, FCA made particular arguments concerning whether the claim limitation “seat sensor” is broad enough to capture the accused FCA vehicle seats which apparently have sensors on a seat frame or rail. However, the parties did not submit evidence of the accused seats in their briefs so that the Court can understand the context of the infringement dispute and give a construction that is fully relevant to the issues involved in the case.

At this point in the case, due to the fact that parties have not briefed the Court as to context of the claim construction dispute on the ultimate infringement or invalidity issues in the case, the Court will exercise its discretion and wait to construe this claim limitation, if needed, until summary judgment motions are filed or until trial. To the extent that nuanced constructions are proper and relevant to the particular infringement or invalidity arguments being made, the Court can re-address its claim construction at summary judgment or trial. Lava Trading, 445 F.3d at 1350. At summary judgment or trial, the Court can also determine whether the dispute is one of claim construction for a district court judge to resolve or whether the dispute is really a dispute of infringement to be decided by a jury.

4. “unlock threshold” in Claim 17 of the ‘007 Patent

Disputed Term	Signal’s Proposed Construction	FCA’s Proposed Construction	Court’s Construction
“unlock threshold”			No longer disputed. The parties have agreed upon a construction

In their briefs, the parties request that the Court construe the claim language “unlock threshold” in Claim 17 of the ‘007 Patent.

Claim 17 of the ‘007 Patent is reproduced below with the disputed claim language underlined:

17. In a vehicle restraint system having a controller for deploying air bags, means for inhibiting and allowing deployment according to whether a seat is occupied by a person of at least a minimum weight comprising:

seat sensors responding to the weight of an occupant to produce sensor outputs;

a microprocessor coupled to the sensor outputs and programmed to inhibit and allow deployment according to sensor response and particularly programmed to

determine measures represented by individual sensor outputs and calculate from the sensor outputs a relative weight parameter,

establish a first threshold of the relative weight parameter,

allow deployment when the relative weight parameter is above the first threshold,

establish a lock threshold above the first threshold,

set a lock flag when the relative weight parameter is above the lock threshold and deployment has been allowed for a given time,

establish an unlock threshold at a level indicative of an empty seat,

clear the flag when the relative weight parameter is below the unlock threshold for a time, and

allow deployment while the lock flag is set.

‘007 Pat. at col. 17 (emphasis added).

At oral argument, the parties had a meet and confer with the Court’s special master and agreed upon a construction for this claim limitation. This claim limitation is no longer disputed.

8/3/2016 Hr’g Tr. at 5. FCA’s motion for collateral estoppel as to this claim term is denied as moot.

C. Blind Spot Monitoring: the ‘927 Patent

1. “if the alert signal was active for the threshold time, sustaining the alert signal for the variable sustain time” in Claim 1 of the ‘927 Patent

Disputed Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction	Court’s Construction
“if the alert signal was active for the threshold time, sustaining the alert signal for the variable sustain time”			No longer disputed. The parties have agreed upon a construction

As to the claim limitation “if the alert signal was active for the threshold time, sustaining the alert signal for the variable sustain time” in Claim 1 of the ‘927 patent, at oral argument, the parties had a meet and confer with the Court’s special master and agreed upon a construction for this claim limitation. This claim limitation is no longer disputed. 8/3/2016 Hr’g Tr. at 5.

D. Tire Pressure Monitoring and Remote Keyless Entry: the ‘374 Patent

The USPTO issued the ‘374 Patent on October 31, 1995. It discloses a method and apparatus for combining tire pressure monitoring and keyless entry control using common hardware. In other words, the ‘374 Patent describes having a single computer or controller in the vehicle for controlling key fob functions and monitoring tire pressure from the tires on the vehicle.

The ‘374 Patent also teaches a system of using magnetic switches to inform the vehicle of the location of specific tires when the tires are rotated.

1. “A combined keyless entry and low tire pressure warning system for a vehicle having electric door locks and a warning display comprising” in Claim 3

Disputed Term	Signal’s Proposed Construction	FCA’s Proposed Construction	Court’s Construction
<p>“A combined keyless entry and low tire pressure warning system for a vehicle having electric door locks and a warning display comprising”</p> <p>The parties dispute whether the above preamble of Claim 3 is a claim limitation</p>			<p>The parties agreed at oral argument that the preamble of Claim 3 is generally a claim limitation.</p>

In their briefs, the parties disputed whether the preamble of Claim 3 of the ‘374 Patent is a claim limitation.

Claim 3 of the ‘374 Patent is reproduced below:

A combined keyless entry and low tire pressure warning system for a vehicle having electric door locks and a warning display comprising:

a set of remote transmitters comprising radio frequency tire transmitters one mounted in each tire for transmitting data messages including modulated data and an identification code;

a radio frequency keyless entry transmitter for transmitting lock operation commands;

a radio receiver mounted on the vehicle for receiving data messages from the tire transmitters and lock operation commands from the keyless entry transmitter;

a processor coupled with the receiver, the electric door locks and the warning display for controlling the locks and the display according to transmitted commands and messages;

a controller coupled with each tire transmitter having a pressure

detector for providing pressure data to the tire transmitter, an identification code for transmission with the pressure data, and a switch activated by a vehicle user for transmitting a sign-up message including the identification code for that tire location, the receiver unit including means for storing identification codes from the transmitted sign-up messages for comparison with subsequently transmitted data messages to differentiate data transmitted from various tire locations. (Emphasis added.)

'374 Pat. at col. 7 (Dkt. 33-5) (emphasis added).

A patent claim has three sections: (i) a preamble, (ii) a transition word or phrase, and (iii) a body of the claim. The preamble is the language of the claim before the transition word or phrase. In Claim 3 of the '374 Patent, the transition word is the word “comprising,” which has been underlined above. Accordingly, the preamble of Claim 3 is the following language: “A combined keyless entry and low pressure warning system for a vehicle having electric door locks and a warning display. . . .” '374 Pat. at col. 7:2-4.

Generally, a preamble that just states an intended purpose for the claimed invention does not limit the scope of a claim and patent attorneys do not intend for preambles to limit the scope of the claims. Patent attorneys often use preambles to set forth an intended use or purpose of the claimed invention to make a terse patent claim more understandable. However, sometimes patent attorneys do intend that the preamble be a claim limitation.

Prior to oral argument, the parties disputed whether the preamble of Claim 3 of the '374 Patent is a claim limitation. However, at oral argument, the parties had a meet and confer with the Court's special master and agreed that is a claim limitation. This claim limitation is no longer disputed. 8/3/2016 Hr'g Tr. at 6.

**2. “A switch activated by a vehicle user for transmitting a sign-up message”
in Claim 3**

Disputed Terms	Plaintiff's Proposed Construction	Defendant's Proposed	Court's Construction
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		Construction	
“A switch activated by a vehicle user for transmitting a sign-up message”	Plain and ordinary meaning	“A magnetic switch activated with a magnet by a vehicle user to cause a sign-up message to be sent to the receiver.”	The term “switch” means a “magnetic switch”

FCA requests that the Court construe the following claim language in Claim 3 of the ‘374 Patent “a switch activated by a vehicle user for transmitting a sign-up message. . . .”

Claim 3 of the ‘374 Patent is reproduced below with the disputed claim language underlined:

A combined keyless entry and low tire pressure warning system for a vehicle having electric door locks and a warning display comprising:

a set of remote transmitters comprising radio frequency tire transmitters one mounted in each tire for transmitting data messages including modulated data and an identification code;

a radio frequency keyless entry transmitter for transmitting lock operation commands;

a radio receiver mounted on the vehicle for receiving data messages from the tire transmitters and lock operation commands from the keyless entry transmitter;

a processor coupled with the receiver, the electric door locks and the warning display for controlling the locks and the display according to transmitted commands and messages;

a controller coupled with each tire transmitter having a pressure detector for providing pressure data to the tire transmitter, an identification code for transmission with the pressure data, and a switch activated by a vehicle user for transmitting a sign-up message including the identification code for that tire location, the receiver unit including means for storing identification codes from the transmitted sign-up messages for comparison with subsequently transmitted data messages to differentiate data transmitted from various tire locations.

‘374 Pat. at col. 7 (emphasis added).

The issue before the Court is whether this disputed claim term should be limited to a “magnetic” switch based on a disclaimer in the prosecution of the ‘374 Patent.

Signal argues that the claim language should be given its plain and ordinary meaning and that the claim language does not specify that the switch must be a magnetic switch. Signal also argues that prosecution history relied upon by FCA does not amount to a clear disclaimer of broader claim scope as required by the Federal Circuit case law.

FCA on the other hand argues that the patent owner made clear statements during the prosecution history of the ‘374 Patent which limit the scope of Claim 3 to magnetic switches.

The prosecution history (also called the “file wrapper”) of a patent is the complete public record of the proceedings before the USPTO. The prosecution history is the record of the attempt by the patentee to explain the language in the patent application and obtain a patent. The public is entitled to rely on the statements made in the prosecution history as to the meaning of claim language. Because the prosecution history is an ongoing negotiation between the USPTO and the patentee, rather than the final product of the negotiation, it often not as clear as would be desired. Phillips, 415 F.3d at 1317. Nonetheless, the prosecution history can often provide insight into the meaning of claim language and whether the inventor limited the invention in the course of prosecution of the patent, making the claim scope narrower than it would be otherwise be. Id. In practice, the prosecution history of a patent frequently becomes relevant where, during the prosecution of the patent, the patentee sets forth a definition or explanation as to what the claim is to cover in response to an official rejection by the USPTO. Such a definition or explanation may be accompanied by a narrowing amendment to the claims of the patent application. Where the patentee gives such a definition or explanation, the definition or

explanation limits the scope of the claim, preventing the patentee from later recapturing what was previously surrendered.

In addition to using the prosecution history to interpret ambiguous claim terms, the prosecution history of a patent is also relevant where a patentee disclaims or disavows during prosecution otherwise clear claim language which would normally have a broader meaning. In Omega Engineering Inc. v. Raytek Corp., 334 F.3d 1314 (Fed. Cir. 2003), the Federal Circuit stated that it would refer to such narrowing statements in the prosecution history as the “doctrine of prosecution disclaimer.” Pursuant to the doctrine of prosecution disclaimer, where a patentee unequivocally disavows a broader plain and ordinary meaning of claim language during prosecution to a narrower meaning to obtain the patent, a court should construe the claim language to have the narrower meaning. The Federal Circuit has held that prosecution statements that are vague or ambiguous do not qualify as a disavowal of claim scope, and has required the alleged disavowing statements to be both clear and deliberate. Id.

FCA relies on two prosecution history events in arguing that the doctrine of prosecution disclaimer applies to the “switch” claim term in this case. FCA states that in a recent Inter Partes Review (“IPR”) proceeding in the USPTO, Signal argued for the patentability of Claim 3 over the prior art based on the “switch” being a “magnetic switch.” Prosecution History, Ex. 12 to Def. Br., at 1, 5, 19 (Dkt. 39-12). Repeatedly, Signal argued that the prior art combination did not have a magnetic switch as in Claim 3, which did not contain language requiring the switch be magnetic. FCA points to the following three statements by Signal:

In particular, claim 3 is patentable over the combined teachings of Schuermann and Mock, and Schuermann, Mock and Wilson, because even if one were to combine the teachings of these references, that combination would not include the magnetic switch as recited in claim 3. . . . Claim 3 is also patentable over the combined teachings of Mock, Steele, and Williams because in such

a combination a magnetic switch is not required when an integrated controller is used.

Id. at 1 (emphasis added). The above statements was made right up front

With no need for a sign-up process there is no need for a magnetic switch for use in such a process. Accordingly, even if one were to combine the teachings of Schuermann and Mock, that combination would not include the magnetic switch as recited in claim 3; hence, claim 3 is not obvious in view Schuermann and Mock.

Id. at 15 (emphasis added).

Furthermore, even if one were to combine the teachings of Mock and Steele (with or with-out those of Williams), one learns that the magnetic switch is not required when an integrated controller is used. That is, Mock discusses the magnetic switch used in conjunction with the sign-up process only in connection with the use of the external, portable interrogation unit.

Id. at 19 (emphasis added).

Likewise, in a footnote, FCA argues that during the original prosecution of the patent application, the patentee amended the claim to include, inter alia, the claim language a “switch activated by the vehicle user,” and explained that “[Claim 3 and other claims] are additionally directed to the Applicants’ magnetic sign-up feature.” Ex. 11 to Def. Br. at 3 (Dkt. 39-13) (emphasis added). Moreover, FCA points out that the patentee further stated “Applicants have amended [Claim 3] to clearly provide that the magnetic switches in the sign-up procedure are activated by the operator of the vehicle.” Id. at 4 (emphasis added).)

In response to FCA’s citation to statements in the prosecution, Signal argues that Judge Kronstadt has already addressed this claim construction issue and rejected FCA’s argument. FCA counters that the statements in the recent IPR were made after Judge Kronstadt’s decision and, therefore, Judge Kronstadt did not consider the strong statements that rise to the level of a clear disavowal of broader claim language. In addition, FCA argues that Judge Kronstadt

misapplied the doctrine of claim differentiation in deciding not to limit Claim 3 to magnetic switches.

After considering the prosecution history, the Court finds that the statements in the prosecution history, particularly during the recent IPR proceeding are unmistakable statements disavowing the plain and ordinary meaning of the word “switch” to mean “magnetic switch.” For example, directly up front in the “Introduction” of its patent owner’s response brief to in the IPR proceeding, Signal stated: “In particular, claim 3 is patentable over the combined teachings of Schuermann and Mock, and Schuermann, Mock and Wilson, because if one were able to combine the teachings of these references, that combination would not include the magnetic switch of claim 3.” Prosecution History at 1. Likewise, Signal stated: “Accordingly, even if one were to combine the teachings of Schuermann and Mock, that combination would not include the magnetic switch as recited in claim 3; hence, claim 3 is not obvious in view Schuermann and Mock.” *Id.* at 15 (emphasis added). Signal made these statements in the IPR proceeding to distinguish Claim 3 from the prior art systems. Such statements rise to the level of prosecution disclaimer because they are clear and deliberate statements disavowing the plain and ordinary meaning of broader claim language. These statements were statements made in a brief dated January 11, 2016, which was after Judge Kronstadt’s claim construction ruling of April 17, 2015. Therefore, the Court agrees with FCA that Judge Kronstadt did not have Signal’s statements from the IPR proceeding when he construed this claim limitation.

IV. CONCLUSION

The Court construes the disputed claim terms as set forth above. The Court reserves the right to modify its claim constructions as the infringement and validity issues of the asserted

patents become known. The Court denies as moot FCA's motion for collateral estoppel (Dkt. 38).

SO ORDERED.

Dated: September 20, 2016
Detroit, Michigan

s/Mark A. Goldsmith
MARK A. GOLDSMITH
United States District Judge

CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was served upon counsel of record and any unrepresented parties via the Court's ECF System to their respective email or First Class U.S. mail addresses disclosed on the Notice of Electronic Filing on September 20, 2016.

s/Karri Sandusky
Case Manager