IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

VEHICLE IP, LLC,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civ. No. 10-503-SLR
	)	
WERNER ENTERPRISES, INC.,	)	
	)	
Defendant.	)	

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MEMORANDUM OPINION

Dated: September 9, 2013
Wilmington, Delaware

ROBINSON, District Judge

I. INTRODUCTION

Plaintiff Vehicle IP, LLC ("VIP") filed this patent infringement suit against defendant Werner Enterprises, Inc. ("Werner") on June 9, 2010, alleging infringement of U.S. Patent No. 5,694,322 ("the '322 patent").[1] The '322 patent relates to a method and apparatus for determining taxes on vehicles traveling through taxing jurisdictions. Twelve dependent claims are at issue: claims 7, 29, 30, 34, 38, 51, 130, 135, 140, 141, 174, and 175 (the "asserted claims"). (*See* D.I. 107, ex. 2 at 3)

Currently before the court are claim construction and various summary judgment motions. VIP has moved for partial summary judgment of infringement of claims 29 and 34 (D.I. 112), and Werner has moved for summary judgment of non-infringement of all asserted claims (D.I. 105). Regarding validity, Werner has moved for summary judgment of invalidity of all asserted claims (D.I. 108), while VIP has moved for partial summary judgment that certain systems and methods are not prior art (D.I. 114). A *Markman* hearing and oral argument were held on August 1, 2013. The court has jurisdiction over these matters pursuant to 28 U.S.C. § 1338.

II. BACKGROUND

A. The Parties

Plaintiff VIP is a Delaware limited liability corporation with its principal place of business in Memphis, Tennessee. (D.I. 78 at ¶ 1) It is wholly-owned by Vehicle Safety

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[1]The original complaint also accused Wal-Mart Stores, Inc. and Wal-Mart Transportation, LLC (collectively, "Wal-Mart") of infringing the '322 patent, as well as a continuation of that patent, U.S. Patent No. 5,970,481. (D.I. 1; D.I. 18) Wal-Mart has since licensed VIP's technology. (D.I. 76)

& Compliance, LLC, which is a transportation technology company. (*Id.*)

Defendant Werner is a Nebraska corporation with its principal place of business in Omaha, Nebraska. (*Id.* at ¶ 2) It is a trucking and logistics provider that operates over 7000 tractor-trailers nationwide. (D.I. 105 at 1; D.I. 113 at 17; D.I. 117, ex. 9 at 24:4-5)

B. Technology Overview

Many users of mobile positioning technology, particularly those operating commercial vehicles, must determine the tax owed to taxing regions through which their vehicles travel. ('322 patent, col. 1:18-21) For example, the International Fuel Tax Agreement ("IFTA") was formed by several states to address the problem caused by differences in the amount of fuel tax charged by various states when drivers of long-haul trucks purchase fuel in one state and consume a significant portion in a different state. (D.I. 105 at 2; D.I. 113 at 3-4) Under IFTA, trucking companies are required to file quarterly reports that indicate the fuel taxes owed to or refunds due from each taxing jurisdiction. (D.I. 105 at 2; D.I. 113 at 4) The taxes are then allocated among the jurisdictions where the fuel was consumed. (D.I. 113 at 4) Almost every state and Canadian province has implemented IFTA. (D.I. 105 at 2; D.I. 113 at 4)

Previously, the determination of tax was done by hand, "based upon manual reporting and charting of vehicle positions, or recreation of the miles traveled in taxing regions after a trip." ('322 patent, 1:21-24) Such manual reporting had the drawbacks of being time-consuming and often inaccurate. (*Id.*, col. 1:24-29) As a result, there arose a need in the mid-1990s for a system that allowed users of mobile positioning

systems, particularly those operating commercial vehicles, to achieve an accurate determination of tax assessed by taxing regions. (*Id.*, col. 1:30-33)

C. The '322 Patent

The '322 patent is titled "Method and Apparatus for Determining Tax of a Vehicle" and lists three inventors: Kenneth R. Westerlage, William C. Kennedy, III, and William L. Hoag. It was filed on May 9, 1995 and issued on December 2, 1997 to HighwayMaster Communications, Inc. ("HighwayMaster"). VIP later acquired the '322 patent by assignment. (D.I. 78 at ¶ 7)

The '322 patent has been through two reexaminations at the U.S. Patent and Trademark Office ("PTO"). The result of the first reexamination was a reexamination certificate issued Sept. 13, 2011 that confirmed the patentability of original claims 1-45 and added new claims 46-186. The second reexamination is currently pending. The PTO has issued final rejections of, *inter alia*, independent claims 1, 27, and 37, from which all of the asserted claims depend.[2] (*See* D.I. 107, ex. 3) Four original and thirty new claims from the first reexamination – including all of the asserted claims – stand confirmed as patentable. VIP has appealed the PTO's final action on the second reexamination, and a hearing on appeal was held on May 2, 2013. The asserted claims were confirmed in the second reexamination and are currently presumed valid.

D. The Claimed Invention

The asserted claims of the '322 patent recite systems and methods that allow for

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[2]As a result of the second reexamination, claims 1-6, 8-16, 18-33, 35-43, 45-46, 49-50, 53-64, 67-68, 71-72, 75-86, 89-91, 94, 96-97, 100-111, 113, 115-29, 132, 134-36, 138-39, 142-73, 176-84, 187-204, and 221-25 currently stand finally rejected. (D.I. 107, ex. 3)

the automatic determination of taxes that taxing regions may charge based on activity relating to the distance or roads traveled. The invention improves the prior art by reducing human error and increasing accuracy. (*Id.*, col. 1:38-42, 1:64-67, 2:13-16) Other advantages of certain embodiments include the determination of tax on the vehicle or at a remote location, and the consolidation of tax determinations for billing information. (*Id.*, col. 1:67-2:13) Some embodiments also require the determination of distance traveled in order to determine the tax. (*Id.*, col. 1:44-55)

As shown in figure 1 of the '322 patent, reproduced below, the inventive system includes a vehicle equipped with a "mobile unit" (22), a "communications link" (40), and a "dispatch" (30). (*Id.*, col. 2:64-66, fig. 1)

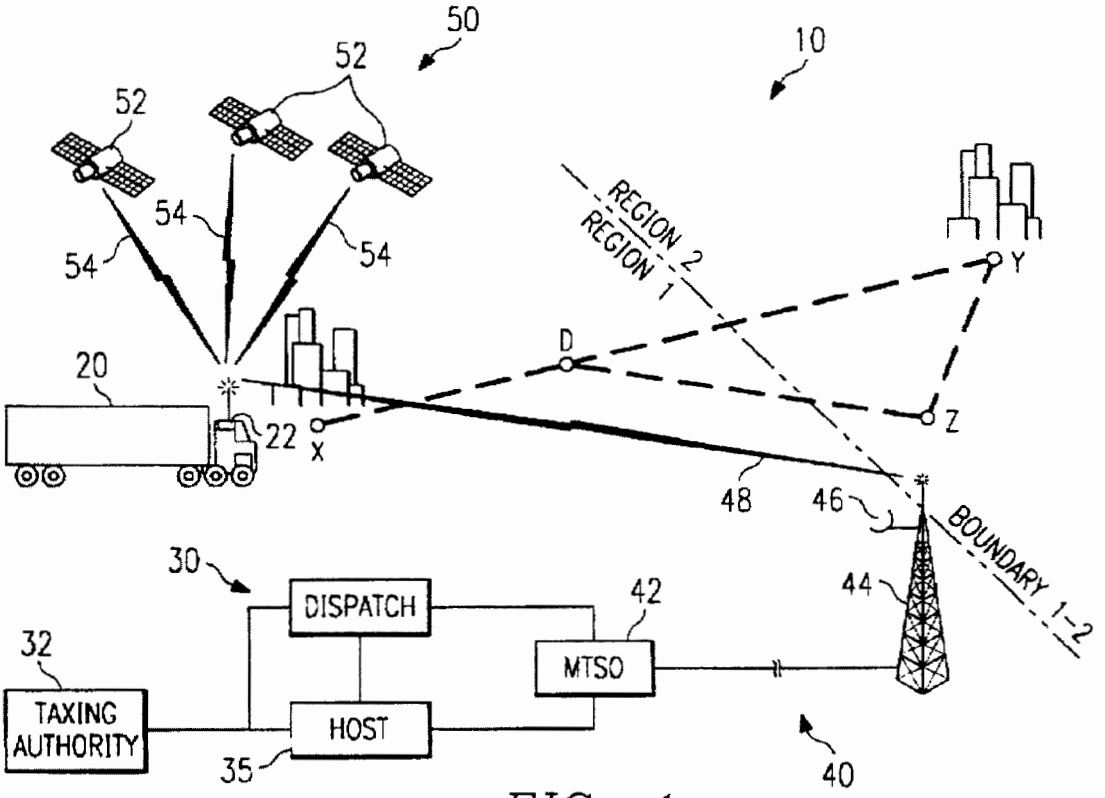


FIG. 1

The mobile unit determines positioning of the vehicle by either a land-based or satellite-

based positioning system, such as global positioning system ("GPS"), LORAN-C, or GLONASS technology, or an on-board positioning sensor, such as an inertial navigation system or a dead reckoning system.[3] (*Id.*, col. 3:38-3:62, 4:18-29) The mobile unit determines the "position fixes" of the vehicle from the positioning information. (*Id.*, col. 4:29-32) Using the position fixes, the mobile unit may determine the distance traveled and tax assessed and then transmit the information to the dispatch via the communications link for additional processing. (*Id.*, col. 4:49-52) Alternatively, the mobile unit may transmit information to the dispatch, which in turn performs the determination of distance traveled and tax assessed remotely. (*Id.*, col. 4:40-45, 4:53-57, 6:54-63, 10:3-7, 10:15-17) Information may also be downloaded to the dispatch rather than over a communications link. (*Id.*, col. 7:32-37) Optionally, some or all of the functions performed by the dispatch may be distributed to one or more "hosts." (*Id.*, col. 6:37-42)

The specification of the '322 patent provides several methods for executing the invention. (*Id.*, col. 9:11-14) The steps in these methods may either be performed wholly on the vehicle by the mobile unit, or partially on the vehicle and partially at a remote location, such as at a dispatch, host, or taxing authority. (*Id.*, col. 10:3-17; *see also id.*, col. 4:45-49, 4:53-57)

Relevant to the asserted claims, the specification teaches a method that uses

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[3]An inertial navigation system "integrates accelerations imparted to [a] vehicle to determine current position." ('322 patent, 4:20-23) A dead reckoning system "computes vehicle location based on compass orientation and distance traveled at that orientation" and may employ a distance sensor such as an odometer or a tire rotation counter. (*Id.*, col. 4:23-29)

"predetermined vehicle positions," which "are defined as significant geographical points, such as cities, towns, boundaries between taxing regions, or intersections of major highways." (*Id.*, col. 9:33-43, 12:4-10, fig. 4) The mobile unit generates a number of position fixes and, optionally, interpolated vehicle positions along a route, and that information is overlaid on a grid showing taxing regions divided into same-size cells, wherein each cell is associated with the nearest predetermined vehicle position. (*Id.*, col. 12:10-13, 12:23-40, 13:38-47, figs. 4 & 5) Each position fix or interpolated vehicle position is then associated with the predetermined vehicle position for the cell in which it lies. (*Id.*, col. 13:47-49)

The specification also teaches that, by using "a database containing the predetermined vehicle positions, the corresponding distance in each taxing region between vehicle positions, and the tax associated with each taxing region between vehicle positions," the distance traveled and associated tax can be determined between any two predetermined vehicle positions. (*Id.*, col. 13:54-65, 14:1-5, 14:41-44, fig. 6) The distance traveled between two position fixes is then divided proportionally among the taxing regions that it spans so that the determination of tax can be made "for each taxing region in response to the distance traveled by [the] vehicle in that taxing region." (*Id.*, col. 16:16-18) With respect to the prospect of "automatically determining," the specification only provides that "vehicle information and tax for [the] vehicle are automatically determined. Any human error in inputting the vehicle information or determining the tax is substantially reduced or eliminated." (*Id.*, col. 8:37-40)

Asserted claims 7 and 51 are system claims and depend from claim 1, which

recites:

> 1. A system for determining a tax for a vehicle equipped with a mobile unit, comprising:
>
> the mobile unit operable to determine a plurality of position fixes along a route traveled by the vehicle, the mobile unit further operable to transmit the position fixes;
>
> a communications link coupled to the mobile unit, the communications link operable to receive the position fixes from the mobile unit; and
>
> a dispatch remote from the vehicle and coupled to the communications link, the dispatch operable to receive the position fixes determined by the mobile unit using the communications link, the dispatch further operable to store geographic information comprising a plurality of predetermined vehicle positions, the dispatch further operable to associate the position fixes with the predetermined vehicle positions, the dispatch further operable to automatically determine a distance traveled by the vehicle within a region using the predetermined vehicle positions, the dispatch further operable to **automatically determine a tax for the vehicle in response to the distance traveled by the vehicle within the region**.

(Emphasis added)

The claimed methods generally teach four steps: (1) generating geographic information from "predetermined vehicle positions;" (2) determining a plurality of "position fixes;" (3) associating each position with a predetermined vehicle position; and (4) "automatically determining" the tax in each taxing region based on the predetermined vehicle positions. (*See id.*, figs. 4-6) Claim 27, from which asserted claims 29, 30, 34, 130, 135, 140, 141 depend, is exemplary of the asserted method claims:

> 27. A method for determining a tax for a vehicle traveling through a plurality of taxing regions, comprising:
>
> generating geographic information identifying a plurality of predetermined vehicle positions;

determining a plurality of position fixes;

associating each position fix with one of the predetermined vehicle positions; and

automatically determining the tax in each taxing region in response to the predetermined vehicle positions.

(Emphasis added) Asserted claims 38, 174, and 175 relate to a similar method but refer to two points in different taxing regions. They each depend from claim 37, which recites:

37. A method for determining a tax for a vehicle traveling through a plurality of taxing regions, comprising:

generating geographic information comprising a plurality of predetermined vehicle positions, each predetermined vehicle position associated with a corresponding taxing region;

determining a first position fix and a second position fix;

associating the first position fix with a first predetermined vehicle position and the second position fix with a second predetermined vehicle position; and

automatically determining the tax in each of the two taxing regions in response to the predetermined vehicle positions.

(Emphasis added)

E. The Accused System and Method

VIP alleges that Werner's systems and methods for automatically determining the fuel tax of a vehicle directly infringe the '322 patent. (D.I. 78 at ¶ 24) The accused systems and methods relate to the use of GPS units in Werner's trucks along with Werner's computer-based communication and processing system, which uses various software programs to determine the distance traveled by Werner's vehicles and the fuel

taxes for various jurisdictions. (D.I. 113 at 1) VIP also alleges induced infringement of the '322 patent. (D.I. 78 at ¶ 25)

III. STANDARD OF REVIEW

"The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). The moving party bears the burden of demonstrating the absence of a genuine issue of material fact. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 415 U.S. 574, 586 n.10 (1986). A party asserting that a fact cannot be – or, alternatively, is – genuinely disputed must demonstrate such, either by citing to "particular parts of materials in the record, including depositions, documents, electronically stored information, affidavits or declarations, stipulations (including those made for the purposes of the motions only), admissions, interrogatory answers, or other materials," or by "showing that the materials cited do not establish the absence or presence of a genuine dispute, or that an adverse party cannot produce admissible evidence to support the fact." Fed. R. Civ. P. 56(c)(1)(A) & (B). If the moving party has carried its burden, the nonmovant must then "come forward with specific facts showing that there is a genuine issue for trial." *Matsushita*, 415 U.S. at 587 (internal quotation marks omitted). The court will "draw all reasonable inferences in favor of the nonmoving party, and it may not make credibility determinations or weigh the evidence." *Reeves v. Sanderson Plumbing Prods., Inc.*, 530 U.S. 133, 150 (2000).

To defeat a motion for summary judgment, the non-moving party must "do more than simply show that there is some metaphysical doubt as to the material facts."

Matsushita, 475 U.S. at 586-87; *see also Podohnik v. U.S. Postal Serv.*, 409 F.3d 584, 594 (3d Cir. 2005) (stating party opposing summary judgment "must present more than just bare assertions, conclusory allegations or suspicions to show the existence of a genuine issue") (internal quotation marks omitted). Although the "mere existence of some alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment," a factual dispute is genuine where "the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Anderson v. Liberty Lobby, Inc.*, 411 U.S. 242, 247-48 (1986). "If the evidence is merely colorable, or is not significantly probative, summary judgment may be granted." *Id.* at 249-50 (internal citations omitted); *see also Celotex Corp. v. Catrett*, 411 U.S. 317, 322 (1986) (stating entry of summary judgment is mandated "against a party who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial").

A. Claim Construction

Claim construction is a matter of law. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1330 (Fed. Cir. 2005) (en banc). Claim construction focuses on intrinsic evidence – the claims, specification and prosecution history – because intrinsic evidence is "the most significant source of the legally operative meaning of disputed claim language." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Claims must be interpreted from the perspective of one of ordinary skill in the relevant art at the time of the invention. *Phillips*, 415 F.3d at 1313.

Claim construction starts with the claims, *id.* at 1312, and remains centered on the words of the claims throughout. *Interactive Gift Express, Inc. v. Compuserve, Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001). In the absence of an express intent to impart different meaning to claim terms, the terms are presumed to have their ordinary meaning. *Id.* Claims, however, must be read in view of the specification and prosecution history. Indeed, the specification is often "the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315.

B. Infringement

A patent is infringed when a person "without authority makes, uses or sells any patented invention, within the United States . . . during the term of the patent." 35 U.S.C. § 271(a). To prove direct infringement, the patentee must establish, by a preponderance of the evidence, that one or more claims of the patent read on the accused device literally or under the doctrine of equivalents. *See Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 261 F.3d 1329, 1336 (Fed. Cir. 2001). A two-step analysis is employed in making an infringement determination. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995). First, the court must construe the asserted claims to ascertain their meaning and scope. *See id.* Construction of the claims is a question of law subject to de novo review. *See Cybor Corp. v. FAS Techs.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998). The trier of fact must then compare the properly construed claims with the accused infringing product. *See Markman*, 52 F.3d at 976. This second step is a question of fact. *See Bai v. L & L Wings, Inc.*, 160 F.3d 1350, 1353 (Fed. Cir. 1998).

"Direct infringement requires a party to perform each and every step or element of a claimed method or product." *BMC Res., Inc. v. Paymentech, LP*, 498 F.3d 1373, 1378 (Fed. Cir. 2007). "If any claim limitation is absent from the accused device, there is no literal infringement as a matter of law." *Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1247 (Fed. Cir. 2000). If an accused product does not infringe an independent claim, it also does not infringe any claim depending thereon. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989). However, "[o]ne may infringe an independent claim and not infringe a claim dependent on that claim." *Monsanto Co. v. Syngenta Seeds, Inc.*, 503 F.3d 1352, 1359 (Fed. Cir. 2007) (quoting *Wahpeton Canvas*, 870 F.2d at 1552) (internal quotation marks omitted).

When an accused infringer moves for summary judgment of non-infringement, such relief may be granted only if one or more limitations of the claim in question does not read on an element of the accused product, either literally or under the doctrine of equivalents. *See Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1376 (Fed. Cir. 2005); *see also TechSearch, LLC v. Intel Corp.*, 286 F.3d 1360, 1369 (Fed. Cir. 2002) ("Summary judgment of non-infringement is . . . appropriate where the patent owner's proof is deficient in meeting an essential part of the legal standard for infringement, because such failure will render all other facts immaterial."). Thus, summary judgment of non-infringement can only be granted if, after viewing the facts in the light most favorable to the non-movant, there is no genuine issue as to whether the accused product is covered by the claims (as construed by the court). *See Pitney Bowes, Inc. v.*

Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed. Cir. 1999).

IV. DISCUSSION

A. Claim Construction

The parties identified ten disputed limitations in their supplemental joint claim construction statement. (D.I. 100, ex. B) The court construes the following limitations at the summary judgment stage.

1. "Automatically"

The parties identify "automatically determin[e/ing]" as the limitation that is primarily being disputed. During the *Markman* hearing, the court raised several concerns regarding this limitation and asked the parties to submit supplemental papers to address those concerns. (D.I. 194 at 97:25-99:5)[4] In those supplemental papers, both VIP and Werner proposed modified constructions. (D.I. 179 at 2; D.I. 178 at 5) The dispute regarding the meaning of "automatically determin[e/ing]" relates to two primary issues: (1) the degree of human involvement permissible; and (2) what must be performed "automatically." Because the word "automatically" confers the degree of human involvement permissible, the court finds it more helpful to construe the "automatically" limitation separately. Then, to clarify what must be performed "automatically," the court will construe the "determin[e/ing] [a/the] tax . . ." phrases that follow the word "automatically" in the asserted claims: "determine a tax for the vehicle in response to the distance traveled by the vehicle within the region," and "determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle

[4]The court also asked the parties to address in the supplemental papers issues related to an emergency request for relief. (D.I. 194 at 155:5-24)

positions."[5]

The parties do not genuinely dispute that, as a practical matter, any automatic function will require some human interaction at some point, e.g., to turn on a machine that will perform the automated function. (*See* D.I. 186 at 1; D.I. 179 at 4) The parties, however, disagree about what performs the claimed automatic functions and whether there may be human intervention within the claimed automatic functions. Werner proposes that "automatically" means "thereafter [performing the claimed function] without any human intervention."[6] (D.I. 178 at 5) Werner asserts that its construction appropriately precludes any human intervention within the claimed function and clarifies when the claimed function must begin. (D.I. 111 at 8-10; D.I. 178 at 4-5; D.I. 186 at 1-2) VIP submits that "automatically" means "[performing the claimed function] using a programmed computer, without the need for manually performing [the claimed function]." (D.I. 179 at 2-4; *see also* D.I. 116 at 15)

VIP's original proposed construction was "once initiated, [the claimed function] is performed by a machine." (D.I. 100, ex. B) In its supplemental papers, VIP proposes that "automatically" requires a "programmed computer," not just any machine, to perform the claimed function. (D.I. 185 at 2) Its proposed language in this regard stems from the parties' agreement that a calculator should not be able to practice the "automatically determining a tax" limitations. (*Id.*; D.I. 186 at 1) VIP avers that

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[5]The parties on summary judgment primarily dispute the "automatically determin[e/ing]" limitation as it relates to the automatic determination of tax (rather than distance). (*See* D.I. 179 at 2 n.1)

[6]Werner's original proposed construction was performing the claimed function "without any human intervention." (D.I. 100, ex. B)

replacing the word "machine" with "programmed computer" would exclude the possibility that simply using a calculator to multiply two numbers and arrive at a tax would read on "automatically" determining a tax. (D.I. 185 at 2)

The claims of the '322 patent disclose that the function of determining a tax must be performed "automatically." (*See, e.g.*, '322 patent, claims 1, 27, 37) In some claims, the function of determining a distance must also be performed "automatically." (*Compare id.*, claim 1 *with id.*, claim 30) The specification discloses embodiments in which a "system" performs the function of determining a tax. (*Id.*, col. 8:7-10) Specifically, the tax calculation is performed either on board a vehicle by a mobile unit or at a remote location by a dispatch or a host. (*Id.*, col. 6:59-63, 9:55-56, 10:4-7, 11:66-12:3, 13:62-65, 14:51-55, 16:16-19, 16:58-61, 17:45-48, 18:64-19:2, 19:44-46, 21:17-20; 21:53-57) For steps performed at a mobile unit, the "processor" of the mobile unit makes the determinations and, for steps performed at a dispatch, the "central controller" of the dispatch makes the determinations. (*Id.*, col. 10:7-12) In all of the disclosed embodiments, the determination of tax is performed by machine; no disclosure limits "automatically" to functions that must be performed by programmed computers.

The file history also contains no explicit disavowal of the scope of "automatically." The asserted claims of the '322 patent were intentionally amended during prosecution to include the word "automatically." In a non-final office action, the examiner had rejected then-pending claims 38-51 and 55-82 as being obvious in view of two prior art references. (D.I. 102 at JA96-97) In response, the inventors amended

the independent claims to add the word "automatically." (*See id.* at JA81-84) The inventors distinguished the amended claims by averring:

> [N]one of the cited references teach or show such a dispatch operable to automatically determine a distance traveled by the vehicle within a region using the position fixes, the dispatch further operable to **automatically determine a tax** for the vehicle in response to the distance traveled by the vehicle within the region.

(*Id.* at JA88-89) (emphasis added)

The examiner found that the addition of the word "automatically," alone, was insufficient to overcome the obviousness rejection because "it would have been obvious to one of ordinary skill at the time the invention was made that these functions are performed automatically by the computer of [one of the prior art references] to prevent the possibility of human error." (*Id.* at JA78) The examiner also noted that, "even if it could be shown that these functions are not performed automatically in [that prior art reference] then it would have been obvious to one of ordinary skill at the time the invention was made that the determination of distance and applicable taxes could be automated in the computer [of that prior art reference] to prevent the possibility of human error." (*Id.*) Therefore, while the inventors intentionally added the word "automatically," they did not disavow any scope of what performs the claimed automatic functions.

The court does not find VIP's proposed "machine" versus "programmed computer" distinction to be helpful or necessary. First, the language "programmed computer" finds no support in the intrinsic evidence. All of the specification's examples of determining a tax are performed by a machine, and the emphasis is on substantially

reducing or eliminating human error, not on what type of machine replaces human intervention. In any case, it is not clear that the term "programmed computer" would necessarily exclude a calculator, as VIP intends. Therefore, the court does not adopt VIP's suggestion that only a "programmed computer" can perform the claimed function. Any machine suffices.

Having confirmed that the "automatically" limitation must be performed by machine, the court addresses the dispute regarding the degree of human intervention that is permissible. The court finds that "automatically" requires that all of the necessary functionality must be performed by machine, but a human may interrupt or intervene. In this regard, the specification, in conclusory fashion, discloses the problems that the automation in the claimed invention seeks to address: (1) "vehicle information and tax for [a] vehicle are automatically determined. Any human error in inputting the vehicle information or determining the tax is substantially reduced or eliminated"[7] (*id.*, col. 8:36-40; *see also id.*, col. 2:14-15); and (2) the claimed invention may "provide . . . determinations [of vehicle taxes] near instantaneously or 'on the fly.'" (*Id.*, col. 7:42-43) These goals leave open the possibility that not all human error is eliminated.

The asserted claims of the '322 patent recite the "automatically" limitation using the word "comprising." "The transitional term 'comprising' . . . is inclusive or open-

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[7]Although the '322 patent contemplates the possibility that human error is not eliminated completely, that does not mean that the word "automatically" must allow for human intervention. For instance, human error may still arise from less than perfect algorithms designed for automatically determining a tax or from manual operations before and/or after automatically determining a tax.

ended and does not exclude additional, unrecited elements or method steps." *Georgia-Pacific Corp. v. U.S. Gypsum Co.*, 195 F.3d 1322, 1327-28 (Fed. Cir. 1999). The use of the word "comprising," therefore, also suggests that the asserted limitations should be inclusive of the possibility that manual operations could occur before, after, and/or during the claimed automatic functions.

On the other hand, for "automatically" to permit some human intervention, without any other limiting principle, would reduce "automatically" to essentially mean "with the aid of a machine." It would open the door to the possibility that the necessary steps within a function are performed manually, as long as one step is performed by machine. Such a construction would not materially distinguish the allowed claims from the originally submitted claim language that did not recite "automatically." It has long been common to use the aid of a machine in determining a tax. "Automatically" must provide a more meaningful limitation. Moreover, to permit human intervention without a limiting principle would be broader than the plain and ordinary meaning of "automatically." The plain and ordinary meaning of "automatic" is "having a self-acting or self-regulating mechanism that performs a required act at a predetermined point in an operation."[8] *Webster's 3rd New International Dictionary of the English Language Unabridged* (Philip Babcock Gove ed., 1993) [hereinafter *Webster's 3rd*].

VIP points to several examples in the specification of processes that may be performed manually rather than by machine. (*See* D.I. 135 at 8-9) The specification

[8]This definition is consistent with the discussion above that "automatically" requires that a machine perform the claimed function without the need for human intervention.

teaches that "the total taxes due . . . can be reduced by the amount of the prepaid taxes[,] [which] can be generated at [the] vehicle either automatically or by operator intervention." ('322 patent, col. 7:13-17) The specification also discloses "adjustments in billing" (without specifying that such adjustments be automatic) and manually recording information about vehicle positions or mileage. (*Id.*, col. 7:61-64, 8:1-7, 13:25-28, 17:30-46) None of these embodiments relate to human interventions that are necessarily within the claimed functions of "automatically" determining a tax or a distance.

In order for the limitation "automatically" to mean anything within the context of the '322 patent, it must mean performing a function by machine without any requirement for human intervention. Allowing non-essential human interruption or intervention is consistent with the broad disclosure of "automatically" and the use of "comprising" in the claim language. Moreover, it does not negate the prior art problems that the claimed invention seeks to address.

VIP directs the court to the Federal Circuit's construction of the term "automatically" in *CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225 (Fed. Cir. 2005). Although claim construction is a highly contextual exercise, the court finds that much of the reasoning from *CollegeNet* is applicable to the "automatically" limitation of the '322 patent. In *CollegeNet*, the Federal Circuit opined on the proper construction of the term "automatically" in U.S. Patent No. 6,345,278 ("the '278 patent"). (D.I. 116 at 16-17; D.I. 179 at 1-2) The '278 patent is directed to the data-sharing component of an online service that makes it easier for applicants and institutions to, respectively, submit

and process applications for admission. *Id.* at 1235. The asserted claims of the '278 patent recite steps for "automatically" inserting and "automatically" storing applicant information. *Id.* at 1228. The Federal Circuit found that, in the context of the '278 patent, "automatically" means "once initiated, the function is performed by a machine, without the need for manually performing the function." *Id.* at 1235-36. The Court explained that, because of the open-ended transitional term "comprising," the problem that the claimed invention sought to redress, and the prosecution history, "additional unrecited elements are not excluded" and a human could initiate or interrupt the claimed functions. *Id.* at 1235. In other words, a "machine still performs the claimed functions without manual operation, even though a human may initiate or interrupt the process." *Id.* The Court analogized to an automatic dishwasher, which "automatically" washes dishes but needs to be loaded and turned on and has the ability to be turned off mid-cycle. *Id.* The Court also analogized to the function of autopilot on an airplane, a function which must be turned on and, at some point, be interrupted, although it is still deemed automatic. *Id.*

Similar to *CollegeNet*, there was no explicit disclaimer of human interaction when the inventors of the '322 patent added "automatically" during prosecution. The court agrees that an automatic function may be interrupted by a human – nothing in the intrinsic evidence for the '322 patent precludes interruption of the claimed automatic function by a human and such interruption does not affect the goals of the claimed invention.[9] Consistent with the *CollegeNet* Court's determination, "automatically" refers

[9]The more complex the claimed function, the less likely the patentee intended it to be performed without any human intervention at all, unless doing so was the

to performing by machine without any need for human intervention. *Id.* at 1235-36.

The *CollegeNet* Court used the phrase "once initiated" in its construction to indicate that the claimed automatic functions may be started by a human, as in the case of an automatic dishwasher or the function of autopilot. Initially, VIP also submitted a proposed construction that included "once initiated." (D.I. 100, ex. B) However, the parties at bar now agree that using the phrase "once initiated" would be unhelpful because it would introduce confusion to the jury.[10] (*See* D.I. 111 at 11; D.I. 178 at 1, 3; D.I. 179 at 1-2)

While the phrase "once initiated" may be appropriate for systems or methods that have a clear input that acts as a trigger (such as a user pushing a "start" button on an automatic dishwasher or turning on autopilot), the claimed functions of determining a distance or determining a tax, as discussed below, are much more complex functions that may require more than one "input." To require a specific act to initiate "automatically" determining a distance or tax would open the door to the absurd result that the order in which the necessary data is inputted could determine whether the claimed function is performed "automatically." For example, if determination of a tax requires numerous inputs and one of those inputs is construed to be the initiator or trigger of the automatic function, then one could circumvent the "automatically" limitation by using any of the other inputs to "initiate" the automatic function.

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inventive aspect of the patent. Viewed as a whole, the inventive aspect of the '322 patent, while not totally apparent to the court, was clearly not eliminating **all** human involvement in determining a tax.

[10]Werner's proposes a construction that uses "thereafter" instead of "once initiated," but the court finds "thereafter" too vague to be helpful.

Accordingly, the court agrees with the parties that using the phrase "once initiated" in the construction would not be helpful to a jury. On the other hand, to give practical meaning to "automatically," there must be some discernible point at which the claimed function must be performed by a machine without the need for human intervention. As noted *supra*, the plain and ordinary meaning of "automatic" is "having a self-acting or self-regulating mechanism that performs a required act **at a predetermined point in an operation**."[11] *Webster's 3rd* (emphasis added). The court finds this definition helpful for clarifying that an automatic function may not require an "initiation," such as pressing a "start" button or providing a specific trigger, but only needs to occur at a predetermined point in an operation. In the context of the '322 patent, the predetermined point would be when the machine has all of the algorithms and inputs necessary to perform the claimed function, regardless of the order in which it obtains that information. No single piece of information has to be the final input that triggers the automatic function.

For the foregoing reasons, the court does not adopt either party's proposed construction. The limitation "automatically" means "performing by machine, without the need for any human intervention, at a predetermined point in an operation."[12]

2. "Determine a tax in response to the distance traveled by the vehicle within the region"

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[11]This definition is consistent with the discussion above that "automatically" requires that a machine perform the claimed function without the need for human intervention.

[12]The court has struggled with the metes and bounds of the "automatically" limitation given the paucity of intrinsic evidence directed to this limitation.

In the asserted claims that depend from claim 1, the claimed system must automatically "determine a tax in response to the distance traveled by the vehicle within the region." It is the function of determining a tax that must be performed automatically. In their joint claim construction statement, the parties agreed that "determine a tax" means "calculate or compute a tax." (D.I. 100, ex. B) However, it became clear at the *Markman* hearing that the parties disagree as to what "calculate or compute a tax" entails. (*See* D.I. 194 at 28:21-29:12, 31:1-4, 41:14-18, 42:24-45:5, 47:15-48:2) In VIP's view, to "calculate or compute" a tax needs no further clarification and is broad enough to include just the final arithmetic step of multiplying two numbers together to obtain the amount of tax due (e.g., multiplying a taxable unit by a tax rate to arrive at a tax).[13] (*See* D.I. 179 at 2; D.I. 194 at 31:1-13) Werner, on the other hand, asserts that to "calculate or compute" a tax requires more than the final arithmetic step in determining a tax; it requires some processing to determine the relevant information to use in that final arithmetic step of determining a tax. (D.I. 178 at 4; D.I. 194 at 42:24-44:8) To that end, Werner proposes that to "determine" a tax means to "process the necessary information to and then calculate" a tax. (D.I. 178 at 4) Put another way, the parties dispute whether "determine a tax" requires "processing" before a final "calculation." (*See* D.I. 178 at 5; D.I. 185 at 5)

The specification teaches that to "determine a tax" may involve more than the final arithmetic step of calculating a tax. For example, the specification provides that

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[13]VIP asserts that the word "automatically" requires that the calculation be done using programmed logic, such as a computer spreadsheet, so that using a calculator to perform the final arithmetic step would not constitute "automatically" determining a tax. (*See* D.I. 194 at 31:1-13)

"[t]he[] determinations [of vehicle taxes] may consider the specifics of each trip, such as the route traveled by [the] vehicle, actual mileage traveled within a taxing region, actual time and mileage at which [the] vehicle traveled from one taxing region into another, and points through which [the] vehicle passes along a particular route." ('322 patent, col. 7:43-50) The specification also provides embodiments illustrating that the determination of a tax may include more than the final arithmetic step of calculating the tax, such as determining distance or referencing a database of data:

> [T]he **step of determining the tax** is executed as follows. [The] [p]rocessor utilizes a database containing the predetermined vehicle positions, the corresponding distance in each taxing region between vehicle positions, and the tax associated with each taxing region between predetermined vehicle positions. [The] [p]rocessor determines the distance traveled by [the] vehicle in each taxing region . . . . [The] [p]rocessor then **determines the tax** in each region by referencing the database for the tax associated with each taxing region between the predetermined vehicle positions along the route traveled by [the] vehicle.

(*Id.*, col. 13:53-67; *see also id.*, col. 11:38-12:1, 15:57-16:20) (emphasis added)

On the other hand, nothing in the intrinsic evidence **requires** "determine a tax" to include more than the final arithmetic calculation of a tax. While dependent claims 28-34 recite additional processing (beyond the final arithmetic calculation) within the step of determining a tax, independent claims 1, 25, 27, and 37 recite no such additional requirements. Therefore, "determine a tax" is broad enough to include the final arithmetic step of calculating a tax, with or without additional processing. Depending on the complexity or type of vehicle tax being calculated, determining a tax may require only the final arithmetic step, or it may require additional processing or computing before that final arithmetic step.

However, claim 1 (from which asserted claims 7 and 51 depend) contains

additional language relevant to the scope of "determine a tax." The court concludes that, in light of the specification's vague disclosure, the only way to divine what must be performed "automatically" is to construe the entirety of the phrase that appears in claim 1: "determine a tax in response to the distance traveled by the vehicle within the region."

VIP recognizes that the determination of a tax "must use other information determined in previous claim steps." (D.I. 185 at 2) It avers that claim 1 only requires that the determination of tax "use[]" or be "based on" the "distance traveled by the vehicle within the region." (D.I. 179 at 4-5) Such a construction would broadly permit any automatic calculation or computation of tax, as long as said distance is used at some point in the claimed invention, i.e., even if that distance is used **before** the claimed step of "automatically determine a tax . . . ."

The court disagrees. The asserted claims require that the automatic determination of tax be made "**in response to** the distance traveled by the vehicle within the region." ('322 patent, claim 1) (emphasis added) The ordinary meaning of "response" is "reply or reaction." *Collins English Dictionary* (10th ed. 2009). Accordingly, the claim language "in response to" indicates that "the distance traveled by the vehicle within the region" must be an input in the claimed step of "automatically determine a tax." In other words, "in response to" limits how far removed the distance input is from the step of "automatically determine a tax." The automatically determined tax cannot merely be "based on" the distance a vehicle travels; rather, "the distance traveled by the vehicle within the region" must be a direct input in the step of

"automatically determine a tax." In the context of claim 1, said distance must be the "predetermined point" in the court's construction of "automatically."

In addition, the use of "the" in those phrases refers back to an initial antecedent phrase. *See Baldwin Graphic Sys., Inc. v. Siebert*, 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (noting that the use of "said" or "the" before a claim element is an anaphoric phrase). From the claim language, it is clear that "the distance traveled by the vehicle within the region," as used in claim 1, refers to the distance that had been "automatically determine[d]" in a previous step.[14]

Therefore, regardless of what processing, if any, is involved in "determine a tax," the entire limitation "determine a tax in response to the distance traveled by the vehicle within the region" means "calculate or compute a tax using the distance traveled by the vehicle within the region as a direct input. The distance traveled by the vehicle within the region is that previously determined automatically."

3. "Determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle positions"

In similar fashion to claim 1, claims 27 and 37 (from which all asserted claims except claims 7 and 51 depend) recite additional language after "determining the tax": "determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle positions." The court will also construe the entirety of this phrase. For the same reasons discussed above for "determine a tax," the phrase "determining the tax," alone, means "calculating or computing the tax."

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[14]Likewise, for the phrase "automatically determine a distance," the predetermined point in time when the determination of distance must be self-acting is the provision of the predetermined vehicle positions.

Again, the phrase "in response to" indicates that the ultimate determination of tax cannot be merely based on the predetermined vehicle positions. Rather, the predetermined vehicle positions must be a direct input in the claimed step of "automatically determining the tax." Furthermore, for the same reason "the distance" of claim 1 is that previously determined, "the predetermined vehicle positions" in claims 27 and 37 refer to the predetermined vehicle positions that have been associated, in a previous step, with the vehicle's position fixes.

Accordingly, "determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle positions" means "calculating or computing the tax using the predetermined vehicle positions as a direct input. The predetermined vehicle positions are those previously determined."

4. "Dispatch"

Independent claim 1, from which asserted claims 7 and 51 depend, recites a system for determining a tax that includes a "dispatch." VIP proposes that "dispatch" means "a computer-based communication and processing system remotely located from the vehicle." (D.I. 100, ex. B) Werner proposes the construction "a computer or device for processing and communicating vehicle information between a vehicle and a host." While the parties agree that the dispatch must be some computer-based system, Werner avers that VIP's construction "fails to recognize that the ['322] [p]atent clearly distinguishes between a dispatch and a host." (D.I. 134 at 3)

The specification provides that,

> [i]f distance and tax for vehicles have not been determined [after receiving vehicle information from the communications link], [a] host may make

> these determinations. Alternatively, [a] dispatch may receive and process vehicle information from [the] communications link and then route such information to [the] host. . . . [S]ome of the functions performed by [a] dispatch may be distributed among several hosts. For clarity, the remainder of this description will focus primarily on the functionality of [the] dispatch, but it is understood that [a] host can perform some or all of the function performed by [the] dispatch.

(*Id.*, col. 6:16-22, 6:37-42) Accordingly, functions performed by a dispatch may alternatively be performed by a host. The dispatch receives information over the communications link, which allows communication with the mobile unit. (*See id.*, col. 6:1-13) The dispatch may route information to the host, but it is not a requirement, as Werner proposes, for the dispatch to do so. Meanwhile, VIP's proposed construction that requires the dispatch to be "remotely located from the vehicle" is unnecessary because the language of claim 1 requires the dispatch to be "remote from the vehicle." Therefore, the court construes "dispatch" to mean "a computer-based system or other device for processing and communicating information received from the mobile unit."

5. "Distance"

During claim construction briefing, the parties agreed that the plain and ordinary meaning should apply for the "distance" limitation, which appears in independent claims 1, 14, 37, 42 and in all asserted claims except claims 29, 140, and 141. (D.I. 134 at 12; D.I. 135 at 15) However, at oral argument and in subsequent supplemental papers, the parties identified a dispute as to the plain and ordinary meaning of "distance." (D.I. 178 at 6; D.I. 185 at 4; D.I. 194 at 148:8-150:7) Before agreeing to the plain and ordinary meaning of "distance," the parties had briefed their proposed constructions for the limitation. (D.I. 111 at 12-13; D.I. 116 at 17-19) Given the dispute that has now been

identified, the court, consistent with its guidelines, will construe "distance."

VIP proposed that, to the extent a construction is necessary, "distance" means "the amount of separation between two or more points." (D.I. 100, ex. B) Werner avers that "distance" refers to the "actual" distance and submitted the construction: "the actual amount of separation between two or more points." (*Id.*) Werner's proposed construction is narrower in that it would exclude estimated distance.

The written description of the '322 patent discloses the determination of tax "based upon actual vehicle positions and distances traveled," even when a vehicle deviates from a route. ('322 patent, col. 8:16-19) It also explains that an odometer may measure the "actual distance traveled by [a] vehicle." (*Id.*, col. 16:47-48) However, the '322 patent makes clear that the "distance" does not need to be "actual" in the sense that it must precisely equal the actual distance traveled. The specification recognizes that the determination of distance may not be completely accurate, disclosing that "[t]he number of predetermined vehicle positions . . . dictates the accuracy of the distance . . . determination[]" – the more predetermined vehicle positions that are used, the more accurate the distance will be. (*Id.*, col. 12:41-45) The specification also discloses several examples of estimating a distance along a traveled route. For instance, rather than using an odometer, the claimed invention "may use an approved mileage database . . . to determine distance traveled." (*Id.*, col. 3:34-37) Another embodiment involves adding to the total distance traveled "small distances at the beginning and end of the trip" that were not accounted for by the predetermined vehicle positions. (*Id.*, col. 12:65-13:15) In yet another embodiment, the claimed invention may use "curve fitting

techniques or spline constructions," such as "multiplying the sum of the straight line segments by a curvature factor (i.e. 1.1)," to take into account the curvature of a road when calculating distance. (*Id.*, col. 11:51-66) Such techniques only "represent[] an **estimate** of the increase in distance due to road curvature." (*Id.*, col. 11:61-62) (emphasis added)

Therefore, Werner's proposed construction is too narrow for limiting "distance" to the "actual" distance between two or more points. The court adopts VIP's proposed construction and clarifies that the distance may be actual or estimated: "distance" means "the actual or estimated amount of separation between two or more points."

6. "Position fix[es]"

The limitation "position fix[es]" appears in every claim of the '322 patent. The parties dispute whether "position fix[es]" are limited to "actual" locations of a vehicle or may include estimated locations of a vehicle as well. VIP proposes the construction "a collection of position information that reflects the location(s) of [a/the] vehicle." (D.I. 100, ex. B) Werner proposes the narrower construction "actual location(s) of a vehicle." (*Id.*)

The specification teaches that a variety of positioning technologies may be used with the claimed invention, including GPS, LORAN-C, or GLONASS technology, or an on-board positioning sensor, such as an inertial navigation system or a dead reckoning system. ('322 patent, col. 3:38-3:62, 4:18-29) Some of these positioning technologies are more accurate than others. For example, GPS systems are more accurate than dead reckoning systems, which determine a vehicle's position by using distance and

acceleration sensors on the vehicle and which incur "cumulative" errors as to the exact position of the vehicle. (*See* D.I. 137 at ¶¶ 10-11) One of ordinary skill in the art would understand that all of the positioning technologies have some margin of error and, thus, are only capable of providing estimated locations. (*See id.* at ¶ 9)

The specification provides that the "position fixes may comprise standard geographical coordinates such as latitude and longitude." ('322 patent, col. 4:31-34; *see also id.*, col. 9:18-21, 9:62, 15:44-46) It also teaches that the position fixes are "actual locations over which [a] vehicle has traveled." (*Id.*, col. 9:17-19, 9:60-62) The use of "actual location over which [a] vehicle has traveled," however, refers to the requirement that the position fixes reflect the locations of a vehicle, as opposed to the planned route of a vehicle. While the specification discloses that the position fixes may be geographical coordinates, this is not a requirement and, in any case, those geographical coordinates do not necessarily have to be 100% accurate of the exact location of the vehicle.

Accordingly, the court finds Werner's proposed construction to be too narrow and potentially confusing. Although the position fixes must reflect the locations of a vehicle, requiring them to be "actual" locations may improperly imply that the position fixes must be location information that no existing technology can provide. The court adopts VIP's construction: "position fix[es]" means "a collection of position information that reflects the location(s) of [a/the] vehicle."

7. "Generating geographic information"

The limitation "generating geographic information" appears in independent

claims 27 and 37, from which many of the asserted claims depend. VIP proposes the construction "generating information representative of geographic locations." (D.I. 100, ex. B) The primary dispute is with respect to Werner's proposed requirement that the geographic information must be created by a "computer or other processing device" and "without any human intervention": "creating, by a computer or other processing device, data representative of geographic locations without any human intervention." (*Id.*)

VIP avers that, unlike the claimed functions preceded by the word "automatically," the claims do not require "generating geographic information" to be performed "automatically." (D.I. 135 at 20) The court agrees. The inventors did not amend this limitation during prosecution to be performed "automatically." While the specification discloses that a processor can generate a geographical database and that one embodiment "allows the geographic database to be updated 'on the fly' as [a] vehicle generates more accurate geographic information" ('322 patent, col. 17:57-60, 21:24-26), it also discloses manually recording geographic information such as vehicle positions or mileage. (*Id.*, col. 13:25-28, 17:30-46) Moreover, the primary purpose of the claimed invention was to create a system and method for automatically determining distance and tax to substantially reduce or eliminate human error. (*Id.*, col. 2:13-16, 8:37-40) Allowing manual generation of geographic information would not run counter to this goal.

Therefore, the specification does not require the generation of geographic information to be performed by a device or without human intervention. The court adopts VIP's proposed construction: "generating geographic information" means

"generating information representative of geographic locations."

8. "Generating a table"/"referencing a table"

The disputes with respect to the limitations "generating a table" (claim 34) and "referencing a table" (claims 130, 135) run parallel to that regarding "generating geographic information." VIP proposes the constructions "generating" or "referencing," respectively, "a systematic arrangement of data that usually includes at least one row or column." (D.I. 100, ex. B) Werner again submits that the steps must be performed by a computer or other processing device, and without any human intervention. (*Id.*)

Like the limitation "generating geographic information," the specification of the '322 patent does not disavow any scope of "generating a table" or "referencing a table." It provides no disclosure as to how a table is generated. ('322 patent, col. 14:1-5) With respect to "referencing a table," the written description only discloses embodiments in which a processor performs the step of referencing a table. The preferred embodiments, however, do not typically limit the scope of the claims absent "expressions of manifest exclusion or restriction." *See Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Comm'n*, 383 F.3d 1352, 1366 (Fed. Cir. 2004) (internal quotation marks omitted); *Phillips*, 415 F.3d at 1323.

To be clear, "generating a table" and "referencing a table" appear in asserted claims 34, 130, and 135 as steps within the step of "automatically determining the tax." The fact that the "generating a table" and "referencing a table" limitations are within an explicitly automatic step requires that they too must be performed "automatically," consistent with the way asserted claims 34 and 130 are written and the court's

construction of "automatically." The court does not need to import the "automatically" limitation into the constructions for "generating a table" or "referencing a table."

Accordingly, the court adopts VIP's construction. "Generating a table" means "generating a systematic arrangement of data that usually includes at least one row or column." "Referencing a table" means "referencing a systematic arrangement of data that usually includes at least one row or column."

B. Infringement

VIP moves for partial summary judgment of infringement for two of the asserted claims – claims 29 and 34, which are dependent from claim 27 and recite a "method for determining a tax for a vehicle traveling through a plurality of taxing regions." (D.I. 112) Werner moves for summary judgment of non-infringement for all of the asserted claims. (D.I. 105) The accused systems and methods on summary judgment are Werner's use of Qualcomm's Mobile Computing Platform 200 ("the MCP200 platform") in its vehicles in combination with a computer-based communication and processing system that includes an AS/400 server (collectively, "the accused system"). (D.I. 113 at 8) The AS/400 executes or works in conjunction with various software programs that are involved in the determination of distance and tax of Werner's vehicles. As the court understands them, the following material facts regarding the structure, function, and operation of the accused system are not in dispute.

1. The accused system

Werner participates in IFTA, under which each state sets its own tax rate for fuel consumed in the state. (D.I. 107, ex. 4 at WER00003594; *id.*, ex. 6 at WER00248647)

To complete its quarterly IFTA tax return, Werner determines the amount of fuel that it purchased in each state and the total amount of fuel consumed in the state (from the distance driven in the state) during that quarter. (*Id.*, ex. 4 at WER00003594) If the amount of fuel consumed in the state is more than the amount of fuel purchased in the state, Werner owes tax on the additional fuel. (*Id.*) If the amount of fuel purchased is more than the amount of fuel consumed, then Werner receives a refund. (*Id.*)

Werner began using the MCP200 platform in its vehicles in 2010, and the transition to the system for all of its vehicles was substantially completed in 2012. (D.I. 117, ex. 9 at 21:21-22:5, 23:18-24:12; *id.*, ex. 23 at 9) The MCP200 platform uses GPS technology to determine latitude and longitude coordinates reflecting the locations of Werner's vehicles at regular intervals, and this information is sent to Qualcomm's network operations center. (*Id.*, ex. 9 at 26:6-11, 44:4-17, 45:25-46:5, 173:22-174:9, 179:2-8; *id.*, ex. 23 at 9-10; *id.*, ex. 24) Qualcomm then forwards the latitude and longitude of the vehicle to Werner over a dedicated line or over the internet on a virtual private network ("VPN"). (*Id.*, ex. 9 at 29:4-30:21; *id.*, ex. 23 at 10; *id.*, ex. 27) Werner operates a computer-based communication and processing system that includes the AS/400 server. AS/400 executes several software programs, including Werner's custom software, Qualcomm QTRACS software ("the QTRACS software"), Rand McNally MileMaker software ("the MileMaker software"), and Microsoft Excel software ("Excel"), in the process of determining the distance traveled and associated taxes for Werner's vehicles. (*Id.*, ex. 9 at 30:22-32:21, 36:20-37:2, 38:2-15; *id.*, ex. 16; *id.*, ex. 23 at 10)

The QTRACS software allows the AS/400 to access and use vehicle position reports sent by Qualcomm, which contain vehicle information such as time stamps, truck ID for a particular vehicle, and latitude and longitude coordinates. (*Id.*, ex. 9 at 34:8-14) The QTRACS software also associates the latitude and longitude coordinates from the position reports with the nearest city within five miles. (*Id.*, ex. 9 at 50:11-51:16, 73:4-17, 74:10-75:7; *id.*, ex. 23 at 10-11) After adding some data to this information – such as "city codes" and information regarding whether a vehicle is loaded or empty (*id.*, ex. 9 at 50:11-51:16, 84:19-86:19, 90:15-91:7, 92:7-19) – Werner determines the route and mileage traveled by its vehicles between each pair of cities using the MileMaker software, which also resides on the AS/400. (*Id.*, ex. 9 at 38:23-39:7, 52:5-55:24; *id.*, ex 23 at 10-11) Werner stores the mileage information in a "route mileage record." (*Id.*, ex. 9 at 52:5-14, 54:11-55:24, 93:10-98:23; *id.*, ex. 23 at 10-11; *see also id.*, ex. 9 at 70:12-78:12; *id.*, ex. 28 at WER00249704-05) After the mileage information is received, Werner proceeds through a multi-step process to process the fuel and mileage information. These steps are enumerated in written instructions. (*See* D.I. 107, ex. 12)

Each month, Werner uses the route mileage record to generate a "temporary reasonableness report" and then a "final reasonableness report" containing the total mileage for Werner's vehicles. (*Id.*, ex. 9 at 59:14-60:20, 63:5-19, 132:4-133:10, 133:20-135:17; *id.*, ex. 13 at 99:14-104:6; *id.*, ex. 23 at 10-11) Prior to generating the temporary reasonableness report, a Werner employee must manually enter any vehicle fuel tickets that were received after the prior month's cutoff (the "late cash fuel"). (D.I.

107, ex. 8 at 18:3-11; *id.*, ex. 12 at WER00248654) Another Werner employee checks that the mileage numbers fall within a specified range and then causes the temporary reasonableness report to become the final reasonableness report. (*Id.*, ex. 8 at 28:23-29:2, 29:21-25) A Werner employee will also add up all miles reported in the final reasonableness report as being driven in Mexico because those miles can be excluded in a later calculation.[15] (*Id.*, ex. 8 at 31:12-32:2; *id.*, ex. 12 at WER00248654) With respect to fuel information, an employee performs a "fuel dump" to obtain information about the number of gallons of fuel purchased and the state in which it was purchased. (*Id.*, ex. 8 at 35:17-24; *id.*, ex. 12 at WER00248655)

Then the aforementioned mileage data and fuel information are transferred to a "summary file" spreadsheet by Werner personnel using either a spreadsheet function called "vertical lookup" ("v-lookup") or by keying in the data. (*Id.*, 13 at 86:12-87:18, 88:6-11, 90:14-18, 92:21-93:10; *id.*, ex. 18 at 79:14-80:11, 81:4-82:11, 83:7-84:2; *id.*, ex. 23 at 11-12; *id.*, exs. 34 & 35) The v-lookup function searches for and returns the mileage and fuel data, and Excel then replaces the v-lookup formula in the corresponding spreadsheet cell with that data using a copy-and-paste function. (*Id.*, ex. 18 at 50:10-51:22; *id.*, ex. 23 at 11-12) The employee then adjusts the mileage to account for miles that the system mistakenly indicated were driven in Mexico. (*Id.*, ex. 8 at 43:18-44:10; *id.*, ex. 12 at WER00249655) The employee also removes all fuel purchases made by equipment that is not part of the IFTA fleet, such as tractors

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[15]Werner's computer system creates "phantom miles" when a truck drives along the Mexican border. (D.I. 107, ex. 5 at 49:23-50:6)

registered to solely operate in Canada and "odd equipment." (*Id.*, ex. 8 at 47:17-49:2)

Thereafter, Werner's computer system uses the information to produce a report called the Front Cover Sheet ("FCS"). (D.I. 107, ex. 12; *id.*, ex. 13; D.I. 117, ex. 9 at 40:2-24, 41:13-22, 60:21-63:4, 133:20-135:17, 135:18-137:3, 137:21-138:7; *id.*, ex. 13 at 34:15-35:10; *id.*, ex. 18 at 32:23-33:33, 49:11-20; *id.*, ex. 23 at 10-11; *see id.*, ex. 32) The FCS contains all miles totaled by state and all fuel purchases totaled by state for Werner's entire fleet during the month. (D.I. 107, ex. 8 at 49:4-14; *id.*, ex. 13; D.I. 117, ex. 23 at 10-11; *id.*, ex. 32) The total miles and total fuel data are transferred to yet another spreadsheet ("the quarterly fuel and mileage spreadsheet"), and an employee manually adjusts the total miles to account for equipment with miles that should not be part of IFTA. (D.I. 107, ex. 8 at 54:24-56:3, 58:1-15; *see id.*, ex. 14) At various steps throughout the aforementioned monthly process, Werner employees check the information to ensure the accuracy of data. (*See, e.g.*, *id.*, ex. 8 at 29:9-20, 58:23-59:4; *see also id.*, ex. 12)

Every calendar quarter, Werner personnel prepare a "quarterly summary report," which mimics the information required by the quarterly IFTA return. (*Id.*, ex. 8 at 73:3-74:9) The quarterly IFTA return is reproduced below:

NEBRASKA SCHEDULE II – IFTA Fuel Tax Computation

* Round amounts in Columns B through F to nearest whole mile/gallon.

Name WERNER ENTERPRISES INC				IFTA License Number NE 470648386		Carrier Number 1156		Tax Period Oct 1 – Dec 31, 2012	
(A) Jurisdiction	(B) Total Miles in Each Jurisdiction	(C) Total Taxable Miles in Each Jurisdiction	(D) Taxable Gallons (Col C/ AMG)	(E) Tax – Paid Gallons in Each Jurisdiction	(F) Net Taxable Gallons (Col D – Col E)	(G) Tax Rate	(H) Tax Due/Credit (Col F x Col G)	(I) Interest at 0.1/Month	(J) Total Due/Credit (Col H + Col J)
Nebraska						0.2620			
Colorado						0.2050			
. . .						. . .			

(D.I. 107, ex. 6 at WER00248645-46)

To complete column B of the quarterly summary report, a Werner employee imports the mileage numbers for each state from the quarterly fuel and mileage spreadsheet by either using the v-lookup function or keying in the numbers. (*Id.*, ex. 5 at 86:12-87:10) The numbers in column C, the "total taxable miles in each jurisdiction," are the same as those in column B for many states and jurisdictions, but the employee must manually adjust the numbers in column C for some states and jurisdictions. (*Id.*, ex. 5 at 88:6-14, 84:9-24) Specifically, Massachusetts permits the subtraction of miles driven on turnpikes in that state (which Werner may or may not elect to do), and Oregon and Washington, D.C. do not participate in IFTA. (*Id.*, ex. 5 at 88:15-90:2, 90:3-18) Werner separately calculates the "taxable gallons" (column D) by dividing the total number of miles driven in a jurisdiction by Werner's nationwide average miles per gallon during the quarter. (*Id.*, ex. 8 at 90:20-92:18) The Werner employee then obtains the "tax paid gallons in each jurisdiction" (column E) information from the

quarterly fuel and mileage spreadsheet (*id.*, ex. 8 at 92:19-93:7), and column F calculates the difference between columns D and E. (*Id.*, ex. 8 at 93:11-14)

To fill in the "tax rate" (column G) for each jurisdiction, the Werner employee manually verifies and keys in the tax rates that need to be updated. (*Id.*, ex. 8 at 86:17-87:13, 93:15-24) Finally, the "tax due/credit" (column H) is calculated by multiplying the "net taxable gallons" (column F) and the tax rate (column G). (*Id.*, ex. 8 at 94:4-13) If any late payments were received, that would be reflected as "interest" (column I) before determining the total amount due to or from each jurisdiction (column J). (*Id.*)

Some states charge a tax on compressed natural gas ("CNG"), which Werner separately calculates and reports. (*Id.*, ex. 6 at WER00248647; *id.*, ex. 8 at 45:8-25, 88:23-86:16) In addition, Werner completes a number of other tax returns for states with additional or unique filing requirements, such as Oregon (D.I. 107, ex. 5 at 126:17-128:3; *id.*, ex. 8 at 98:7-109:8; *id.*, ex. 10), Kentucky (*id.*, ex. 8 at 109:10-113:4), New Mexico (*id.*, ex. 5 at 129:7-12), and New York (*id.*, ex. 5 at 128:4-129:6; *id.*, ex. 8 at 113:15-118:21; *id.*, ex. 11). It determines the tax or credit due for each of these states using a process in Excel. (*Id.*, ex. 13 at 125:15-129:12; *id.*, ex. 18 at 99:3-118:21)

2. Analysis

Each of the asserted claims includes the limitation "automatically determine a tax for the vehicle in response to the distance traveled by the vehicle within the region" (claims 7 and 51) or "automatically determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle positions" (claims 29, 30, 34, 38,

130, 135, 140, 141, 174, and 175).[16] Werner moves for summary judgment of non-infringement based solely on these "automatically determin[e/ing] . . . tax" limitations. (D.I. 105 at 1, 10) Werner characterizes its process for determining fuel and mileage tax as "a labor-intensive process requiring dozens of separate manual steps, including the separate calculation of the manually adjusted number of miles driven in each state and the manually adjusted number of gallons of fuel purchased in each state." (*Id.* at 2) In sum, Werner asserts that it

> cannot and does not determine its tax liability until (1) it manually calculates the adjusted number of miles driven in each state; (2) manually calculates the adjusted number of gallons of gas purchased and used in each state; and (3) manually applies the different tax rate for each jurisdiction to these numbers.

(*Id.* at 23)

VIP avers that the accused system meets the "automatically determining a tax" limitations because Werner's tax liability "is determined in response to the predetermined vehicle positions, which was [sic] the source of information used to determine distances traveled by [Werner's] vehicles in each region to estimate the amount of fuel consumed by its vehicles in those regions." (D.I. 113 at 21; *see also* D.I. 147 at 16-17) VIP contends that the accused system also meets the limitation under Werner's proposed construction, which requires the determination of tax "without human intervention." It alleges that the "specific tax computations and calculations are performed without any human intervention by . . . Excel running on [Werner's] computer system" and that "the actual step of calculating or computing tax is performed by

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[16]The parties agree that "tax" means "tax for a vehicle." (D.I. 100, ex. A)

[Werner's] computer system without any human intervention." (D.I. 113 at 22) VIP has not asserted any indirect infringement or doctrine of equivalents theory on summary judgment. (*See* D.I. 162 at 9-10)

The claims dependent from claim 1 require the step of "automatically determine a tax in response to the distance traveled by the vehicle within the region." According to the court's constructions, this limitation requires a machine, without the need for human intervention, to calculate or compute a tax using the distance traveled by the vehicle within the region as a direct input; the distance traveled by the vehicle within the region is that previously determined automatically.

There is no dispute that the accused system obtains position fixes, predetermined vehicle positions, and distances during the calculation of Werner's fuel taxes. However, it is unclear whether any of the data fed into the accused automated process or the final spreadsheet (which mimics the quarterly IFTA return) are distances traveled by a vehicle within a region and whether those distances were previously determined automatically. Even if the distance data entered into the final Excel spreadsheet were, in some instances, the same as that automatically determined, it is unclear how the accused system would map onto the court's constructions of "automatically" and "determine a tax in response to the distance traveled by the vehicle within the region." The court's construction differs from both parties' proposed constructions and, given the complexity of the accused system, the court cannot determine at the summary judgment stage that, under the undisputed facts, the accused system calculates or computes the tax without the need for any human

intervention using the requisite distance as a direct input. Therefore, the court denies Werner's motion for summary judgment of non-infringement with respect to claims 7 and 51, the asserted claims dependent from claim 1.

The remaining asserted claims all recite "automatically determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle positions." Werner has moved for summary judgment of non-infringement of these claims, and VIP has moved for partial summary judgment of infringement of claims 29 and 34, which depend from claim 27. Pursuant to the court's construction, this limitation requires calculating or computing a tax – by machine, without the need for human intervention – using the predetermined vehicle positions as a direct input; the predetermined vehicle positions are those previously determined. Based on the undisputed facts, the accused system does not use predetermined vehicle positions as a direct input to the step accused of automatically determining a tax. The final spreadsheet used in the accused system does not directly use any predetermined vehicle positions. None of the other functions or steps of the accused system that VIP asserts practices "automatically determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle positions" directly use predetermined vehicle information. Even viewing the record in the light most favorable to VIP, the accused automatic functions and steps, at best, might use distances that, at a previous point in time, were determined from predetermined vehicle positions. As such, the accused system does not infringe any of the asserted claims that recite "automatically determining the tax in each [of the two] taxing region[s] in response to the predetermined vehicle positions."

In summary, the undisputed facts demonstrate that any automatic determination of tax by the accused system does not directly use predetermined vehicle position information. Therefore, the court grants summary judgment of non-infringement with respect to claims 29, 30, 34, 38, 130, 135, 140, 141, 174, and 175 of the '322 patent. However, the court leaves for the jury the issue of infringement of claims 7 and 51 of the '322 patent. There remain genuine issues of material fact regarding how the accused system maps onto those asserted claims under the court's construction. Accordingly, the court denies Werner's motion for summary judgment of non-infringement for claims 7 and 51.

C. Invalidity

Werner's motion for summary judgment of invalidity asserts that, if the accused system is found to infringe any asserted claim of the '322 patent, Werner was using the accused system before the priority date of the '322 patent. In other words, Werner asserts that the systems and methods it was using before the priority date of the '322 patent ("the pre-1995 system") were the same, for all relevant purposes, as the accused system. If the accused system is found to infringe, it asserts, then the pre-1995 system would be an invalidating prior art reference. As discussed in the memorandum order issued contemporaneously, the court has excluded this invalidity theory for being untimely asserted.

Werner's motion for summary judgment of invalidity, therefore, is denied as moot. VIP's motion for partial summary judgment that the pre-1995 system is not prior art (D.I. 114) is also denied as moot because VIP need not respond to Werner's theory

that the pre-1995 system is an anticipatory reference if the accused system is found to infringe.

V. CONCLUSION

For the foregoing reasons, the court grants in part and denies in part Werner's motion for summary judgment of non-infringement. It is granted with respect to claims 29, 30, 34, 38, 130, 135, 140, 141, 174, and 175 of the '322 patent. The court denies VIP's motion for partial summary judgment of infringement. Furthermore, the court denies as moot Werner's motion for summary judgment of invalidity and VIP's motion for partial summary judgment that the pre-1995 system is not prior art. An appropriate order shall issue.