IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

VOCALTAG LTD. and SCR ENGINEERS LTD.,

Plaintiffs,

v.

AGIS AUTOMATISERING B.V.,

Defendant.

OPINION & ORDER
PUBLIC VERSION

13-cv-612-jdp

Note: This is the public version of the court's opinion and order. Dkt. 289. Defendant has made an adequate showing that certain details of the operation of its accused system are trade secrets and should be redacted. Dkt. 291. The court accepts defendant's showing only for the purposes of removing information asserted to be trade secrets, but this determination is not intended to have any preclusive effect. In this version, the pertinent information is replaced with text in italics to show the basis of the court's analysis.

This is a patent infringement case involving electronic cattle monitoring systems. The systems at issue in this case track rumination (an indicator of animal health) and estrus (the period in which a cow is receptive to mating). Each plaintiff owns a patent in this area, and they accuse defendant, Agis Automatisering B.V., of infringing both patents with its CowManager system.

The operation of the Agis CowManager system is not genuinely disputed, and thus infringement turns on questions of claim construction. The court will substantially adopt the narrower claim constructions proposed by defendant, which properly reflect choices made by the inventors in claiming their inventions and in prosecuting their patents. Under these constructions, defendant is entitled to summary judgement of non-infringement of both patents. Defendant is also entitled to summary judgment on the willful infringement allegation. The

court will exercise its discretion to decline to reach the question of the validity of the patents-in-suit.

BACKGROUND

We start with some basics of cattle behavior, information well known before the priority dates of the patents-in-suit.

Cows are ruminants, which means that they have a multi-chambered stomach. One chamber is the rumen, from which ingested food is regurgitated for re-chewing, or rumination. Rumination breaks food into smaller particles and mixes it with saliva, thus facilitating digestion. A healthy cow will spend about half her time ruminating, and the amount of rumination is a good indicator of animal health and a proper diet. Too little or too much rumination indicates a problem that will reduce milk production. Cows also chew when they eat, but that chewing is erratic and accompanied by head movements. The chewing of rumination, by contrast, is rhythmic and steady, with pauses for regurgitation and swallowing. The distinctive qualities of rumination have made it a natural target of cattle monitoring systems as an indicator of animal health.

Cows reach peak milk production 45 to 90 days after calving, after which production declines. Optimal milk production thus requires conception and renewed calving every 12 to 15 months. Cows are receptive to mating when they are in "estrus," a state that lasts about 5 to 10 hours and occurs about every 19 to 23 days. Cows in estrus tend to engage in characteristic behavior, such as standing receptively while a bull or herd mate mounts them. In general, a cow in estrus is physically much more active than when she is not. Because most dairy cows are bred through artificial insemination, the dairy farmer needs somehow to identify estrus in those cows

due for breeding, but direct observation of the behavioral signs of estrus can be difficult and time consuming.

Plaintiffs are Israel-based companies that develop and sell cattle monitoring systems, and they hold patents on such systems. Plaintiff VocalTag Ltd. owns U.S. Patent 7,350,481, to Avshalom Bar-Shalom, for "Method and System for Monitoring Physiological Conditions of, and/or Suitability of Animal Feed for Ruminant Animals" (which the court will refer to as the "'481 patent" or the "rumination patent"). VocalTag licenses the '481 patent to co-plaintiff SCR Engineers Ltd. SCR owns U.S. Patent 7,878,149 for "Method and Device for Detecting Estrus" ("'149 patent" or the "estrus patent"). SCR sells a cattle monitoring system in the United States under the tradename "Heatime."

Defendant Agis is a Netherlands-based company that makes cattle monitoring systems and competes with SCR in the United States. The Agis system is called CowManager, and it uses an ear tag with an accelerometer to monitor the motion of each cow. The system samples and analyzes the accelerometer readings to identify periods of rumination and estrus. VocalTag and SCR accuse the Agis CowManager system of infringing both the rumination patent and the estrus patent. They also contend that Agis copied SCR's Heatime system, and that therefore Agis's infringement is willful.

Agis has no offices in the United States, but it does not contest personal jurisdiction or venue in this court, presumably because it sells the CowManager system in this district. The case arises under the patent laws of the United States, and thus the court has subject matter jurisdiction on the basis of a federal question under 28 U.S.C § 1331.

ANALYSIS

Defendant has moved for summary judgment of non-infringement of both patents-in-

suit.

A. Basic legal principles

In patent cases, as in civil cases generally, summary judgment is appropriate if a defendant shows that "there is no genuine dispute as to any material fact and [the defendant is] entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). In ruling on defendant's motion for summary judgment, the court views all facts and draws all reasonable inferences in the light most favorable to plaintiffs as the non-moving parties. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986). "Only disputes over facts that might affect the outcome of the suit under the governing law will properly preclude summary judgment." *Id.* at 248.

Infringement analysis is a two-step process. *See, e.g., Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1323 (Fed. Cir. 2002); *Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1359 (Fed. Cir. 2000). The first step is claim construction, in which the court must determine the correct scope of the claims. The second step is to compare the properly construed claims to the accused device, to determine as a matter of fact whether every claim element is present, either literally or by a substantial equivalent, in the accused device. When, as in this case, the relevant structure and operation of the accused device is not genuinely disputed, the question of infringement turns on claim construction, and the question of infringement is amenable to resolution on summary judgment. *Gen. Mills, Inc. v. Hunt-Wesson, Inc.*, 103 F.3d 978, 983 (Fed. Cir. 1997).

The ultimate question of the scope of a patent claim is a matter of law for the court. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996). But that determination may, in part, rest on underlying factual determinations that would be reviewed on appeal for clear error. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The basic principles of claim construction are well known, and they are not disputed in this case. The court summarizes

them only briefly here; the court will address concepts as needed in the context of the analysis that follows.

A "bedrock principle" of patent law is that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). In construing a term, the "objective baseline" is the "ordinary and customary meaning," which is "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1313. "[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification" and the prosecution history. *Id.*

The "primary basis for construing [a] claim" and "the best source for understanding a technical term" is a patent's intrinsic evidence. *Id.* at 1314. Intrinsic evidence includes the patent and its prosecution history, related patents and their prosecution histories, and the prior art that is cited or incorporated by reference in the patent-in-suit and prosecution history. *Id.* Of these sources, "the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Id.* at 1315 (internal quotations and citations omitted). When a court relies solely upon the intrinsic evidence, the court's construction is a determination of law. *Teva Pharm.,* 135 S. Ct. at 841.

The court may also consider extrinsic evidence, which refers to all other types of evidence, including inventor testimony, expert testimony, documentary evidence of how the patentee and alleged infringer have used the claim terms, dictionaries, treatises, and other similar sources. *Phillips*, 415 F.3d at 1318. Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* at 1317-19. However, extrinsic evidence is less reliable and less

useful in claim construction than the patent and its prosecution history. *Id.* Intrinsic evidence trumps any extrinsic evidence that would contradict it. *Id.* at 1314.

B. The rumination patent: U.S. Patent 7,350,481

To put it simply and at a high level of abstraction, the invention of the '481 patent is a system that keeps track of rumination as an indicator of animal health and the suitability of feed, with an eye toward optimizing milk production. '481 patent, at 1:14-16. But the basic notion of monitoring rumination as an indicator of animal well-being was known in the art; the '481 patent claims a specific system for rumination monitoring.

Although the claims define the legal boundaries of the patent, an embodiment is a good starting point to understand the invention of the '481 patent. In the embodiment described and illustrated by figures 1-6, a sound sensor is attached to a neck band on the cow. '481 patent, at 3:42 - 4:6-17. The sound sensor picks up the sounds made by chewing, converts those sounds to electronic signals, and transmits the signals to a data processor. The data processor samples a three-second period to determine whether two to four chews occurred during the period. After 20 seconds, the data processor samples another three-second period. If the data processor determines that two to four chews occurred in two successive samples, it deems the cow to be ruminating, because those samples suggest the pattern and tempo typical of rumination. The data processor tracks periods of rumination and calculates the rumination time in a larger time period, such as a 24-hour day.

The '481 patent has one independent claim, claim 1:

> 1. A monitoring system for monitoring the suitability of animal feed, of ruminant animals, comprising:
>
> at least one sensor for sensing chewing actions of the animal produced by the animal while chewing animal feed, including the time of each chewing action and the number of chewing actions per predetermined time interval, for indicating a ruminating activity;

> and a data processor accumulating both the time of each of said sensed chewing actions and the number of said chewing actions per unit time interval, for determining the chewing rhythm of the animal indicating ruminating activities over a predetermined time period to provide an indication of desirable changes in the animal feed for maximizing milk production or for maintaining animal health.

'481 patent, at 8:56 - 9:3.

Plaintiffs assert claim 1 and dependent claims 8 and 9. Claim 8 depends from claim 1 and adds two further elements: a transmitter included in the sensor; and a receiver at a remote location. Claim 9 depends from claim 8, and adds an alarm to be actuated when sensed actions indicate a condition requiring immediate action. *Id.* at 10:12-20. The court's infringement analysis will address only claim 1, because the claims that depend from an independent claim cannot be infringed if the independent claim is not infringed. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1553 (Fed. Cir. 1989).

1. Claim construction

The parties present two terms for judicial construction: "sensor for sensing chewing actions" and "data processor." The issue is whether these are "means-plus-function" limitations, and, if so, how they should be construed.

A patentee may elect to draft a claim limitation in general terms by reciting a specified function without including the specific structure, material, or act that performs the function. 35 U.S.C. § 112(f) (formerly ¶ 6). But if the patentee chooses to draft a claim in this manner, the specification must disclose the particular structures that perform that function. *Id.*; *see also Aristocrat Technologies Australia Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Once the court determines that a claim term is a means-plus-function limitation governed by § 112(f), construing a means-plus-function limitation requires the court to (1) identify the claimed function and (2) identify the corresponding structure in the written description that

performs the identified function. *Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1318-19 (Fed. Cir. 2003). The scope of the claim is limited to those structures disclosed in the specification as performing that function and equivalents of those disclosed structures. *Aristocrat Technologies*, 521 F.3d at 1333.

a. "sensor for sensing chewing actions"

Defendant contends that "sensor for sensing chewing actions" in independent claim 1 is a means-plus-function limitation, even though the claim does not use the standard "means for" language. The lack of "means for" phrasing raises a presumption that the limitation is not a means-plus-function limitation. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002). But here, the claim language provides so little information about the structure that would perform the sensing function that the presumption would likely be overcome. *Id.*

The question is definitively resolved by the inventor's statements during prosecution, where he expressly told the USPTO (and, thus, the public) that amendments to the claim were intended to put the claims in means-plus-function format. Dkt. 41-1, at 261.[1] Plaintiffs' position in this litigation is equivocal: they do not "welcome" the means-plus function determination. Dkt. 111 (response to Proposed Fact 41). But plaintiffs concede the critical point: the inventor told the examiner that he intended "sensor for sensing" to be a means-plus-function limitation. Dkt. 111 (Proposed Facts 31-36). And the inventor made this statement to overcome a prior art rejection. *Id*. Under these circumstances, the doctrine of prosecution disclaimer prevents plaintiffs from reversing course and claiming now that the "sensor for sensing" is not a means-plus-function limitation. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323-24 (Fed. Cir. 2003).

The next step is to determine the function of the "sensor for sensing" limitation. The

[1] Docket citations are made to the ECF page number.

parties agree on the function, which is drawn directly from claim 1: "sensing chewing actions of the animal produced by the animal while chewing animal feed, including the time of each chewing action and the number of chewing actions per predetermined time interval." Dkt. 111 (Proposed Fact 42, citing '481 patent, at 8:58-62).

The final step in the analysis is to determine the corresponding structure that performs the claimed function. Only one structure is disclosed for sensing chewing actions: a "sound sensor." '481 patent, at 3:41 - 4:12. The specification indicates that a sound sensor could include "a diaphragm-type microphone, a piezoelectric device, or any other sound-to-electrical transducer." *Id.* at 4:7-9.

Plaintiffs contend that other structures are also disclosed. Plaintiffs rely on these passages from the specification:

> The sensors for sensing chewing actions are preferably sound sensors . . . However, other types of sensors could be used. For example, chewing actions could be sensed by sensors for sensing the motions of the animal's lower jaw, or the tightening of the animal's muscles in the throat when swallowing.

Id. at 2:43-49;

> [C]hewing actions may be sensed in another manner, e.g., by sensing the tightening of the muscles in the animal's neck during chewing or swallowing, or the movement of the animal's jaw during chewing, and that the regurgitations may also be sensed in other manners, e.g. by the use of microswitches . . .

Id. at 8:38-43.

But these passages do not adequately disclose alternative structures for two reasons. First, the claimed function is sensing chewing actions, not swallowing or regurgitations. Thus, "microswitches," or any means of sensing swallowing or regurgitation, are not tied to the claimed function, and thus they are not alternative structures for performing that function. *See B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424-25 (Fed. Cir. 1997). (Besides, even if

"microswitches" were deemed to be a corresponding structure, it would not affect this case, because the CowManager system does not use microswitches.) Second, the specification does not sufficiently describe any actual structure that senses jaw motions or muscle tightening. *Id.*; *see Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382-83 (Fed. Cir. 2009). These alternatives simply suggest that chewing may be sensed indirectly, by sensing related bodily movements, but no actual sensor structure is disclosed. Accepting these as alternative structures would be tantamount to allowing purely functional claiming, which section 112(f) prohibits. *Id.*

The court concludes that "sensor for sensing chewing actions" is a means-plus-function limitation. The claimed function is: sensing chewing actions of the animal produced by the animal while chewing animal feed, including the time of each chewing action and the number of chewing actions per predetermined time interval. The corresponding structure is a sound sensor, which includes a diaphragm-type microphone, a piezoelectric device, or any other sound-to-electrical transducer.

b. "data processor"

The analysis of the "data processor" term in claim 1 follows the same template as the "sensor for sensing" term. The patentee expressly identified the data processor term as a means-plus-function limitation during prosecution, as plaintiffs concede. Dkt. 111 (Proposed Fact 39).

The parties agree that the claimed function is:

> [A]ccumulating both the time of each of said sensed chewing actions and the number of said chewing actions per unit time interval, for determining the chewing rhythm of the animal indicating ruminating activities over a predetermined time period to provide an indication of desirable changes in the animal feed for maximizing milk production or for maintaining animal health.

Dkt. 111 (Proposed Fact 53, drawn directly from claim 1).

The next step is to ascertain the corresponding structure. In a case like this, where the

corresponding structure of a means-plus-function term is a computer, the patent must disclose an algorithm for performing the claimed function. "[S]imply disclosing a computer as the structure designated to perform a particular function" is insufficient to limit the scope of the claim under § 112(f) because "a general purpose computer programmed to carry out a particular algorithm creates a 'new machine.'" *Aristocrat Technologies*, 521 F.3d at 1333 ("[A] general purpose computer 'in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.'" (quoting *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1348 (Fed. Cir. 1999))).

Defendant contends that the only corresponding structures are the algorithms in Figures 8 and 11 of the '481 patent. Plaintiffs appear to accept that those two algorithms are corresponding structures, but plaintiff asserts that the algorithm in Figure 6 is also a corresponding structure. Defendant disagrees, arguing that the algorithm in Figure 6 cannot be a corresponding structure because it does not determine the time of each chewing action, but only counts the number of chewing sounds in a particular time period. Plaintiffs contend that this characterization is "inaccurate" in some unspecified way, but they offer no meaningful rebuttal to defendant's argument. Dkt. 111 (response to Proposed Fact 55). Defendant is correct: chew time is represented by "CT" in Figures 8 and 11. Figure 6 does not determine the chewing rhythm using "time of each of said sensed chewing actions."

The court concludes that "data processors" is a means-plus-function claim. The claimed function is: accumulating both the time of each of said sensed chewing actions and the number of said chewing actions per unit time interval, for determining the chewing rhythm of the animal indicating ruminating activities over a predetermined time period to provide an indication of desirable changes in the animal feed for maximizing milk production or for maintaining animal health. The corresponding structures are the algorithms in Figures 8 and 11.

2. Infringement

a. The accused CowManager system

The parties' experts agree on the operation of defendant's CowManager system. The CowManager system uses accelerometers attached to ear tags to monitor cow movement, and accelerometer data is analyzed to classify the cows' activities. The CowManager system has four main components. The first component is the SensOor ear tag, containing an accelerometer and a microprocessor which performs a statistical calculation on the accelerometer data. The ear tag also contains a transmitter for sending the statistical calculations to the next component, a router/coordinator. The coordinator is hardware that provides data to the local farm computer; routers may be used to extend the range of the coordinator. The third component is the CowManager user software on the local computer, which serves two functions. First, the user software passes data on to the fourth component, the Agis server in the Netherlands which analyzes the statistical data from the accelerometers. The second function of the user software is to display the processed and analyzed data for use by the dairy farmer.

There is no dispute that the CowManager system monitors and reports rumination and estrus status. The question is whether it does so by practicing the systems claimed in plaintiffs' patents. To answer this question, we must examine in more detail the means by which the CowManager system determines that a cow is ruminating or in estrus.

These details are presented in the full version of the opinion and order.

b. CowManager does not infringe the rumination patent

All agree that defendant's CowManager system detects rumination. The question is whether it does so according to the system claimed in the '481 patent. Defendant is entitled to summary judgment if it can show that even one limitation in claim 1 of the '481 patent is missing from the CowManager system.

1. Sound sensor

As construed above, claim 1 includes a means-plus-function element that requires that a sound sensor perform the claimed function of sensing chewing actions. The CowManager system does not have a sound sensor; it detects rumination by means of an accelerometer located on the ear of the animal. Plaintiffs' infringement expert, Daniel J, Aneshansley, PhD, initially confirmed that the SensOor ear tags detected movements, and his report does not suggest that the ear tags sensed sound in any way. Dkt. 85-1.

To fill this obvious gap in the infringement case, plaintiffs argue the accelerometer on the SensOor ear tag is a microphone, or that it is the equivalent of a microphone. Dkt. 93, at 30-31. Plaintiffs cite a declaration by Aneshansley that states:

> [The] accelerometer used in the Agis system has the capability to sense physical vibrations. In this case, sound pressure signals could cause the ear of the cow to move and the movement could be sensed by the accelerometer, effectively acting as a microphone.

Dkt. 85, ¶ 15. Plaintiffs' argument fails for several reasons.

First, plaintiffs' bear the burden of proof on infringement, and if they proceed under the doctrine of equivalents, they have to set out that theory in their summary judgment opposition. Plaintiffs would have to make a case that the accelerometer in the SensOor ear tag performed substantially the same function in a similar way to achieve a similar result. *See Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir. 1999). Plaintiffs' one-liner about the doctrine of equivalents is insufficient, and the court will deem this argument to be waived. *Central States, Southeast & Southwest Areas Pension Fund v. Midwest Motor Express, Inc.*, 181 F.3d 799, 808 (7th Cir. 1999) ("Arguments not developed in a meaningful way are waived.").

Second, the only factual support for plaintiffs' contention that the ear tag accelerometer is somehow a sound sensor is the Aneshansley declaration, made January 23, 2015, only after

defendant moved for summary judgment, and well after the deadline for disclosure of expert reports. This expert opinion is excluded as untimely.

Third, the notion that the ear tag accelerometer "could" function as a microphone is inconsistent with the undisputed evidence that shows that the accelerometer is configured to take instantaneous samples of acceleration forces, not sound waves. Plaintiffs have presented no admissible evidence that, nor have they offered any analysis to show that, the accelerometer on the SensOor ear tag senses sound in any way.

Plaintiffs' argument is implausible, undeveloped, and supported only by inadmissible evidence. Accordingly, the court concludes that the CowManager system does not use a sound sensor to detect chewing actions as required by claim 1 of the '481 patent. Defendant is entitled to summary judgment of non-infringement of the '481 patent.

2. Number of chews and the time of each chewing action

The report of plaintiffs' infringement expert, Dr. Aneshansley, establishes that the CowManager system can reliably detect movements characteristic of rumination. But that point is not in controversy. The Aneshansley report falls short of showing that the CowManager system detects rumination according to the system claimed in the '481 patent. According to claim 1, the sensor must sense both "the time of each chewing action," and "the number of chewing actions per predetermined time interval." To put it simply, the claimed system involves counting and timing individual chews; the CowManager system does neither.

The statistical analysis performed by defendant's system does not detect the number of chewing actions in a time interval. Details are provided in the full version of the opinion and order.

Plaintiffs have no effective response to defendant's evidence. Plaintiffs' evidence consists of statements by defendant that it monitors rumination, or that it monitors how often a cow chews its cud. None of this shows that the CowManager system counts individual chews, or that

it can detect chewing frequency. Plaintiffs cite the deposition of Paul Rump, Agis's consultant and former Chief Technical Officer, as saying that the CowManager system can detect "the presence of chewing frequency." Dkt. 93, at 28. But this is misleading. Rump made clear that the system "never [is] capable of detecting a frequency." Dkt. 101 (Rump Dep. 131:13-14).

The parties have presented a detailed and undisputed explanation of the operation of the CowManager system. The CowManager system samples acceleration data, it analyzes that data, and it determines whether a cow is ruminating based on that data. But nowhere in the process does the CowManager system measure the time of each chew or count individual chews. Plaintiffs have not adduced any evidence that the CowManager system measures the time of each chewing action, or that it counts chews in a predetermined time period. Defendant uses a different method of detecting rumination than that claimed in the rumination patent. Defendant is, for this reason also, entitled to summary judgment of non-infringement of the '481 patent.

C. The estrus patent: U.S. Patent 7,878,149

The '149 patent provides a method and device for detecting estrus in cattle. The invention exploits the well-known fact that a cow in estrus tends to be physically more active than when she is not in estrus. But cows are also physically active when eating, which makes it difficult for an automated system to distinguish estrus-based movement from a cow's other physical activity. The basic steps in the invention of '149 patent are to determine a baseline for an individual cow's normal physical movements when not eating, and to predict estrus by noting when the cow's non-eating physical activity exceeds that baseline.

During prosecution, the examiner determined that an invention claiming these basic steps would have been obvious. The inventors first argued against this determination, and then they amended their claims to overcome it. (More on this process in the claim construction

analysis below.) Ultimately the inventors were issued one independent claim to a specific multi-step method for detecting estrus using this basic idea, and a second independent claim to a device for implementing the method. Claim 1, for the method, is thus representative:

> 1. A method for detecting estrus in a cattle animal, comprising the steps of:
>
> sensing and accumulating acceleration level of said cattle animal, over a period of time, by an acceleration sensor, wherein the acceleration level is indicated by energy level of an acceleration signal produced by the acceleration sensor;
>
> sensing, over a period of time, data indicative of eating performed by said cattle animal;
>
> attenuating the energy level of the acceleration signal as the indication of eating is stronger, the energy attenuated acceleration signal identifying neutralized motion data;
>
> extracting typical activity level of said animal based on said neutralized motion data; and
>
> identifying abnormal behavior indicative of said estrus in said animal by comparing recently identified neutralized motion data with the extracted typical activity level.

'149 patent, at 8:12-28.

1. Claim construction

Defendant asks for judicial construction of three claim elements: (1) the "sensing data . . . indicative of eating" step; (2) the attenuating step; and (3) the term "neutralized motion data."

a. The "sensing data . . . indicative of eating" step

A version of this claim element is in both independent claims 1 and 12. Claim 1 requires that the method of detecting estrus include the step of "sensing, over a period of time, data indicative of eating performed by said cattle animal." *Id.* at 8:12-13, 8:19-20. Claim 12 requires that the device for detecting estrus include "at least one sensor for sensing over a period of time, data indicative of eating performed by said cattle animal." *Id.* at 8:66-67, 9:5-6.

Defendant contends that the term "sensing, over a period of time, data indicative of

eating" should be construed to require an input signal or data stream that is distinct from the acceleration signal produced by the acceleration sensor. Dkt. 45, at 47-48. In support of its position, defendant cites passages in the specification suggesting that the "present invention" necessarily combines information about the animal's movement with information about the animal's eating to predict estrus, *see, e.g.*, 2:31-41; 5:14-27, and the concept of "combination" necessarily implies separate inputs. Defendant is right that the specification of the '149 patent consistently discusses the present invention as having two inputs: an acceleration signal and a separate indicator of eating, such as a sensor to detect the position of the head. But the court will not treat the description of embodiments as claim limitations, nor will the court automatically take passing comments about the "present invention" as claim limitations. *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.") (citation omitted), *reh'g denied* (June 17, 2014).

The starting point of construction is the claim language, and when that language is clear, as it is here, it should be given its ordinary meaning. *Aventis Pharms. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013). There is simply no ambiguity to resolve as it relates to this claim element. There is nothing in the claim language that requires that the data indicative of eating must come from a source that is separate from the acceleration sensor. Nor is there any statement in the specification that is inconsistent with the idea that the data indicative of eating might come from the acceleration sensor, which also provides an acceleration signal that reflects the animal's overall level of activity. The inventor is not required to expressly anticipate every manner in which the invention might be implemented. *SRI Int'l v. Matsushita Elec. Corp. of Am.*,

775 F.2d 1107, 1121 (Fed. Cir. 1985) ("The law does not require the impossible. Hence, it does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention.").

The court declines to adopt the construction proposed by defendant; this term will be given its ordinary meaning.

b. The attenuating step

The attenuating step lies at the heart of the parties' dispute over the '149 patent. Defendant contends that this claim element should be construed as it is written, to require that the magnitude of a signal produced by the acceleration sensor be reduced when there is data indicating that the animal is eating. Defendant argues, in essence, that the claim is written in signal-processing terms, and that it should therefore be construed to require the signal processing that the claim calls for. Plaintiffs argue for a more expansive, common-sense construction, which they contend would be how one of ordinary skill in the art of dairy management would construe the term. Plaintiffs do not expressly state their proposed construction, but it is apparent that plaintiffs are advocating a broad construction under which the attenuating step covers any manner in which the extent of an animal's physical movement is discounted when the animal is eating.

The core issue here is not the meaning of word "attenuate," which is not really disputed. In the sense relevant to the '149 patent, "attenuate" means to reduce the magnitude of something. The question is what, precisely, must be attenuated. Here the parties diverge.

Defendant draws its definition of the term "attenuate" from the field of signal processing, and in that context, the term means to reduce the magnitude of a signal. One of defendant's experts cites the 1994 edition of the IBM Dictionary of Computing, which defines "attenuation" to mean "decrease in magnitude of current, voltage, or power of a signal in

transmission between points." Dkt. 53, at 4-5. Plaintiffs draw their definition from a 2014 general purpose dictionary, which defines "attenuate" to mean "to lessen the amount, force, magnitude or value of." Dkt. 85-2, at 5. Plaintiffs appeal to a general purpose dictionary because they contend that a person of ordinary skill in the art would be one with some post-secondary education in dairy, animal, or veterinary science, and three to five years of experience in dairy herd management, but only "a passing knowledge of electronic monitoring devices." Dkt. 85-2, at 4-5. Such a person, according to plaintiffs, would not look to a specialized dictionary in the signal-processing field, but to a general purpose dictionary for the meaning of attenuate. And, using this general-purpose dictionary definition, a broader range of things could be "attenuated."

Plaintiffs' position has two fundamental flaws. First, their person of ordinary skill is, essentially, a potential user of an electronic cattle monitoring system, which is to say, a skilled dairy farmer. But the patent is not written for the dairy farmer, but for the designer of an electronic monitoring system. A dairy farmer with only a passing knowledge of electronic monitoring devices would find the specification of the '149 patent meaningless. This passage, for example, explains the source and quality of the energy level of the signal that the claims will require to be attenuated:

> The motion sensor can be anyone of the sensors described in the prior art. The motion level can be indicated by the energy of the signal. The energy level can be deduced, for example, from the RMS value of a signal produced by a sensor.

'149 patent, at 3:43-47. The patent is written in signal-processing terms, for a person who can understand those terms. (RMS, for example, stands for "root mean square" which is a typical way of measuring the power of a signal in the art of signal processing.) When we speak of the person of ordinary skill in the art, we are speaking of a person who would face and try to solve the same problems faced by the inventor, *see, e.g.*, *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420

(2007), not the person who would be the ultimate user of the invention. Plaintiffs' argument here demonstrates the danger of citing a general-purpose dictionary while ignoring art-specific sources. *Phillips*, 415 F.3d at 1321-22.

The second fundamental flaw of plaintiffs' position is that it ignores the claim language. The claim language makes clear that the object to be attenuated is "the energy level of the acceleration signal." Repeating here the attenuating step of claim 1:

> attenuating the energy level of the acceleration signal as the indication of eating is stronger, the energy attenuated acceleration signal identifying neutralized motion data;

'149 patent, at 8:20-24. Thus, even if the definition of "attenuating" did not necessarily imply the attenuation of the magnitude of a signal, the claim language itself requires it.

Now we step back to the broader question of the scope of the attenuating step. Plaintiffs contend that the attenuating step would include any process by which the level of the physical movement of the animal is discounted while the animal is eating. But plaintiffs' position is foreclosed by amendments made by the inventors during prosecution of the '149 patent.

The '149 patent claims priority from an Israeli patent application, whose PCT prosecution led to U.S. Application 11/795,574 (the '574 application). The original claim set in the '574 application included claims 2 and 15, which, after amendments, eventually became independent claims 1 and 12 of the '149 patent. As originally filed, application claim 2, for the method, did not include any version of the attenuating step. Application claim 15, for the device, required a microprocessor that carried out certain operations, one of which was to identify animal motion that was not related to eating periods:

> 15. A device comprising:
>
> at least one sensor for sensing the motion of a cattle animal;

> at least one sensor for sensing when the motion is related to eating periods of said cattle animal;
>
> at least one microprocessor for carrying out one or more of the operations comprising of receiving data of said sensed motion, *identifying when the sensed motion is not related to eating periods* of said cattle animal and identifying if said animal is in estrus based on the sensed motion which is not related to eating periods.

Dkt. 42-1, at 17 (emphasis added). The microprocessor element in application claim 15 performs a function close to what plaintiffs would now call "attenuation."

Application claims 2 and 15 were rejected as anticipated by or obvious over two references: published U.S. Patent Application 2003/0205208 to Bar-Shalom (which ultimately issued as the '481 patent, at issue in this case); and U.S. Patent 6,049,280 to Andersson. *Id*. at 159-60, 166. The examiner determined that Andersson taught a microprocessor that identified when sensed motion was not related to eating periods. *Id*. at 180-81. The inventors argued unsuccessfully against the rejections, ultimately amending the claims to include a version of the attenuating step in both the method claim and the device claim.

We need not review every intermediate step in the amendment process for the purposes of this opinion. However, the final amendment that produced the language of the attenuating step is particularly pertinent here. Prior to that final amendment, the pertinent parts of claim 2 provided:

> 2. A method, comprising the steps of:
>
> sensing along time and accumulating acceleration level of a cattle animal;
>
> sensing along time data indicative of eating performed by said cattle animal;
>
> identifying neutralized motion data by reducing effect of acceleration level sensed during eating on the accumulated acceleration level;

. . . .

Id. at 242. (Claim 15 was in material respects the same, though cast in the form of a device claim.) The examiner again rejected both claim 2 and claim 15 as obvious over the Bar-Shalom '208 application and Andersson. In response, the inventors amended claim 2 to provide:

> 2. A method for detecting estrus in a cattle animal, comprising the steps of:
>
> sensing along time and accumulating acceleration level of said cattle animal by an acceleration sensor, wherein the acceleration level is indicated by energy level of an acceleration signal produced by the acceleration sensor;
>
> sensing along time data indicative of eating performed by said cattle animal;
>
> attenuating the energy level of the acceleration signal as the indication of eating is stronger, the energy attenuated acceleration signal identifying neutralized motion data;
>
> . . .

Id. (Again, parallel amendments were made to claim 15.) The inventors contended that neither the Bar-Shalom '208 application nor Andersson contained the amended claim limitations. And, substantially as amended,[2] the claims were allowed and issued as claims 1 and 12 in the '149 patent.

The main point is this: the inventors added a detailed attenuation step to secure the patent over the prior art cited against them. The amended claims specifically require that the acceleration level of the animal is indicated by the energy level of the signal from the acceleration sensor. Further, the attenuation step requires that the energy level of the signal

[2] The claims were slightly adjusted by a non-substantive examiner's amendment by consent of the inventors. In particular, the examiner changed each occurrence of the phrase "along time" to "over a period of time."

from the acceleration sensor be attenuated in proportion to the strength of the data indicating that the animal is eating. Plaintiffs now contend that the attenuation step could be performed in any manner in which the acceleration level of the animal is reduced while the animal is eating. Plaintiffs are effectively attempting to undo the final amendment and resurrect the previous version of the claim. The inventors added a detailed attenuation step to secure allowance of the claims; plaintiffs cannot now reverse course and, by means of claim construction, secure the broader construction that the inventors knowingly abandoned.

The court will construe the attenuating step as proposed by defendant, which comports with the plain meaning of the claim. The attenuating step (and its counterpart in claim 12) requires that the energy level of the signal from the acceleration sensor be reduced in proportion to the strength of the indication that the animal is eating.

c. "Neutralized motion data"

In light of the court's construction of the attenuating step, the parties' dispute over the term "neutralized motion data" is a minor detail. Both agree that the term refers to data reflecting an animal's non-eating movement. The data is "neutralized" in the sense that the animal's movement data is modified to discount the effect of eating-related movement. Defendant would add a further dimension to the term, requiring that "neutralized motion data" be produced, by definition, from an attenuated signal from an acceleration sensor. The court will not construe the term as defendant proposes.

In the invention as ultimately claimed in the '149 patent, neutralized motion data is identified from the attenuated signal from the acceleration sensor. But the specification describes neutralized motion data in broader terms, which is not surprising because the specification was written before the attenuation step was incorporated into the claims. In the specification, neutralized motion data refers to data about "changes in the activity level of said

animal which is neutralized from the effect of eating activity." '149 patent, at 2:57-59. The court will construe the term "neutralized motion data" in the broader sense that it is used in the specification.

2. Infringement

Given the court's construction of the attenuating step, the infringement analysis is straightforward. The CowManager system performs a statistical analysis of data sampled from the accelerometer in the SensOor ear tag. The system determines when the sampled data shows an unusually high level of physical activity for a cow, and when certain criteria are met, it deems the monitored cow to be in estrus. But the level of physical activity of the cow is not expressed by the energy level of the signal from the accelerometer, and at no point is the energy level of the accelerometer signal attenuated. The CowManager system determines estrus in a manner other than that claimed in the '149 patent.[3]

Plaintiffs' primary argument concerning the attenuating step is a claim construction argument (which the court has rejected). Plaintiffs' summary judgment opposition brief makes almost no effort to show how the CowManager system performs the attenuating step, offering a scant two sentences:

> It is only what occurs in the microprocessor that has the effect of attenuating or neutralizing "the effect of the eating period." Such action is precisely what is accomplished by the microprocessor in the Defendant's system, when the microprocessor carries out the statistical calculations to determine the [*values used in the statistical analysis*].

Dkt. 93, at 45. Beyond this passage in their brief, plaintiffs simply cite to the reports of their

[3] Defendant also contends that the asserted method claims cannot be infringed for another reason, namely that steps of the method are performed outside the United States. The court will decline to reach this issue, because it would not pertain to the device claims, and non-infringement is clear anyway.

experts: IT consultant Jeffry R. M. Hansbury, and electrical engineering professor, Dr. Aneshansley. Dkt. 111 (response to Proposed Fact 159, 164). But neither expert raises a genuine issue of fact as to whether the CowManager system performs the attenuating step as the court has construed that claim limitation. Essentially, Hansbury and Aneshansley simply point out anything that they could conceivably label "attenuation," as though any form of attenuation is sufficient to meet that claim limitation.

The Hansbury report is, for the most part, a description of the operation of the CowManager system. Dkt. 54. Although Hansbury cites both the '481 patent and the '149 patent as among the materials he reviewed, he does not discuss either patent, nor does he purport to compare the CowManager system to the asserted claims. In his conclusions, he identifies several instances of what he labels "attenuation (neutralization)." *Id*. at 16-17. But none of these instances show attenuation of the energy level of the acceleration signal as required in the asserted claims. For example, Hansbury finds "attenuation (neutralization)" in the calculation of the [*statistical value*], because [*some of the statistical values*] are removed. He also finds "attenuation (neutralization)" in the calculation of the [*statistical value*] because the calculation of the [*statistical value*] somehow reduces the high values. None of these are examples of attenuation of the energy level of the acceleration signal. And Hansbury has not shown that any of these purported attenuations are proportionate to the strength of the indication of eating.

The Aneshansley report, Dkt. 52, suffers from similar problems. Like the Hansbury report, the bulk of the report is a description of the operation of the CowManager system, and there is virtually no discussion of the claim elements. Although the Aneshansley report attaches claim charts, those charts simply state that for each element, "[b]ased on my observation and analysis" the claim element is present.

The Aneshansley report expressly discusses attenuation only in the "Conclusions and

Opinions" section. *Id*. at 21-22. Similar to Hansbury, Aneshansley lists ways in which accelerometer data is transformed, and he contends that in each case "eating energy" is in some sense attenuated. Aneshansley's notion of "attenuation" is a loose one, and it includes any process by which any accelerometer data are removed from the calculation or reduced by computations such as averaging. But Aneshansley does not show, as the asserted claims require, that the energy level of the acceleration signal is attenuated. Nor does Aneshansley show that the attenuation of this energy level is proportionate to the strength of the indication of eating.

In sum, the operation of the CowManager system is undisputed. And, under the court's claim construction, the CowManager system does not perform the critical attenuating step. Defendant is therefore entitled to summary judgment of non-infringement of the '149 patent.

D. Remaining issues: willful infringement and validity

Defendant has also moved for summary judgment that any infringement is not willful. To show willful infringement, plaintiffs have the burden to show the two prongs of the *Seagate* test: (1) that defendant acted despite an objectively high likelihood that its actions constituted infringement of a valid patent; and (2) that this risk "was either known or so obvious that it should have been known to the accused infringer." *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc). If the accused infringer, here Agis, has a reasonable non-infringement position, the objective first prong of the *Seagate* test cannot be met. *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1310 (Fed. Cir. 2011). The court has concluded that defendant is entitled to summary judgment of non-infringement of both patents, which shows that defendant had at least a reasonable non-infringement position. Thus, plaintiffs cannot meet the objective first prong of the *Seagate* test, and defendant is entitled to summary judgment on the willful infringement allegation.

Defendant has also moved for summary judgment on its counterclaims that the '481 and '149 patents are invalid. It is appropriate for a district court to dismiss counterclaims of invalidity when non-infringement is clear and invalidity and unenforceability are not plainly evident. *Phonometrics, Inc. v. Northern Telecom Inc.*, 133 F.3d 1459, 1468 (Fed. Cir. 1998) (citing *Leesona Corp. v. United States*, 530 F.2d 896, 906 n.9 (Ct. Cl. 1976)).

Discretionary dismissal is appropriate here. The infringement issue is clear; validity is not. Defendant moved for summary judgment that the patents-in-suit are invalid *under the constructions advanced by plaintiffs*. Because the court has substantially adopted the narrower constructions proffered by defendant, it is not clear how much of the parties' briefing on validity is still pertinent. It would be a poor use of judicial resources to examine and resolve the validity questions without the benefit of the parties' analysis and evidence under the proper claim constructions. Also, given that this order resolves the case, it is no longer clear that defendant has any ongoing interest in the validity of the patents-in-suit, as there is no indication in the record that defendant will face future infringement suits on the '481 and '149 patents. Accordingly, the court will dismiss defendant's counterclaims for declaratory judgment of invalidity without prejudice.

ORDER

IT IS ORDERED that:

1. Defendant's motion for summary judgment of non-infringement and no willful infringement, Dkt. 36, is GRANTED.

2. Defendant's counterclaims for declaratory judgment of invalidity are DISMISSED, without prejudice.

3. The clerk is ordered to enter judgment for defendant and close this case.

Entered June 4, 2015.

BY THE COURT:

/s/

_____

JAMES D. PETERSON
District Judge