UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
SHERMAN DIVSION

ONPOINT SYSTEMS, LLC Plaintiff, v. PROTECT ANIMALS WITH SATELITES, LLC Defendant.	C.A. No. 4:20-cv657-ALM **JURY TRIAL DEMANDED**

SECOND AMENDED COMPLAINT

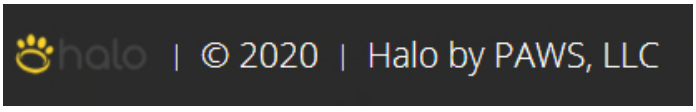
Plaintiff OnPoint Systems, LLC ("OPS"), by and through its attorneys, alleges the following for its second amended complaint against Protect Animals With Satellites, LLC ("PAWS"):

PARTIES

1. OPS is New Hampshire limited liability company with its principal place of business located at 7 Perimeter Rd Manchester, NH 03103.

2. Upon information and belief, PAWS is a Delaware limited liability company and its authorized agent for service of process is National Corporate Services, Inc, which is located at 203 NE Front Street, Suite 101, Milford, DE 19963.

3. Upon information and belief, PAWS does business, in whole or in part, as "Halo" and/or makes, markets, sells, and offers to sell a product called the "Halo Collar" under the "HALO by PAWS, LLC" name. The bottom of the website for the "Halo Collar" (https://www.halocollar. com) contains the following language:



4. Upon information and belief, PAWS owns, operates, and maintains the website https://www.halocollar.com, through which the "Halo Collar" can be purchased, and also owns, operates, and maintains the "mobile application" used with the Halo Collar. The "website disclaimer" on the aforementioned website contains the following language:

WEBSITE DISCLAIMER

The information provided by Protect Animals With Satellites, LLC ("we," "us" or "our") on https://www.halocollar.com (the "Site") and our mobile application is for general informational purposes only. All information on the Site and our mobile application is provided in good faith, however we make no representation or warranty of any kind, express or implied, regarding the accuracy, adequacy, validity, reliability, availability or completeness of any information on the Site or our mobile application. UNDER NO CIRCUMSTANCE SHALL WE HAVE ANY LIABILITY TO YOU FOR ANY LOSS OR DAMAGE OF ANY KIND INCURRED AS A RESULT OF THE USE OF THE SITE OR OUR MOBILE APPLICATION OR RELIANCE ON ANY INFORMATION PROVIDED ON THE SITE AND OUR MOBILE APPLICATION. YOUR USE OF THE SITE AND OUR MOBILE APPLICATION AND YOUR RELIANCE ON ANY INFORMATION ON THE SITE AND OUR MOBILE APPLICATION IS SOLELY AT YOUR OWN RISK.

https://www.halocollar.com/legal-disclaimer/

5. According to the Halo Collar website, PAWS is the entity that provides a warranty for the "Halo Collar" product:

WHAT THE WARRANTY COVERS

For a period of ninety (90) days from the date of purchase of your Halo Collar, or ninety (90) days from the date of receipt of your replacement Halo Collar (see Section II below for details), PAWS LLC ("PAWS") will, at its sole option, repair or replace any PAWS products that malfunction due to defective parts or workmanship at no charge to you. This warranty is not transferable and applies only to the original consumer purchaser. PAWS may, in its sole discretion, make any repair or replacement with new or refurbished product or components. If the product or component requiring repair or replacement is no longer available, PAWS may, in its sole discretion, replace such product with a similar product of similar function.

https://www.halocollar.com/warranties/. That same warranty states that it only covers "PAWS products." (*Id.*)

6. Upon information and belief, PAWS's regular and established place of business – at least with respect to its "Halo Collar" product – is located at One Legacy West, 7950 Legacy Dr., Suite 400, Plano, TX 75024.

JURISDICTION AND VENUE

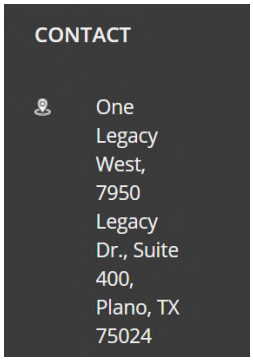
7. This is a civil action for patent infringement under the patent laws of the United States, 35 U.S.C. § 271, *et seq*. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

8. This Court has personal jurisdiction over PAWS in this action because PAWS, by and though "Halo" or otherwise, has committed acts within this District giving rise to this action

and has established minimum contacts with this forum such that the exercise of jurisdiction over PAWS would not offend traditional notions of fair play and substantial justice.

9. PAWS, directly and/or through subsidiaries, intermediaries, or trade names (including through "Halo"), has committed and continues to commit acts of infringement in this District by, among other things, importing, offering to sell and selling products that infringe the patent-in-suit. Moreover, PAWS – through Halo or otherwise – has a physical presence in this District from which, upon information and belief, it offers to sell and sells at least one product that infringes the patent-in-suit.

10. The only "contact" information listed at the bottom of the "Halo Collar" website states:



https://www.halocollar.com/

11. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400. PAWS – through Halo or otherwise – maintains a regular and established place of business in this District and in the Sherman Division from which, upon information and belief, it offers to sell and sells the "Halo Collar" that infringes the patent-in-suit.

12. Upon information and belief, PAWS has also transacted business in this District and the Sherman Division and has committed acts of direct infringement in this District and in the Sherman Division.

13. The "terms of use" for the "Halo Collar" website contains the following language:

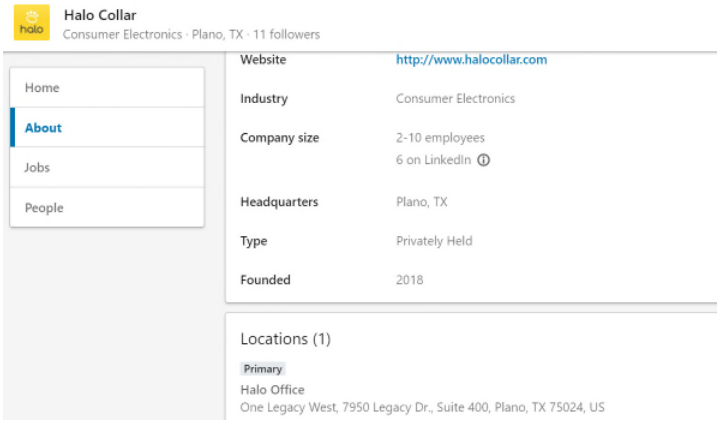
CONTACT US

In order to resolve a complaint regarding the Site or to receive further information regarding use of the Site, please contact us at:

Protect Animals With Satellites, LLC
One Legacy West, 7950 Legacy Dr, Suite 400, Plano, TX 75024, USA
7950 Legacy Dr, Suite 400,
Plano, TX 75024
United States
Phone: (US)(214) 712-2270
support@halocollar.com

https://www.halocollar.com/terms-of-use/

14. The LinkedIn page for "Halo Collar" states that the "primary" "Halo Office" is located at aforementioned Plano, TX location (and it is the only location identified):



https://www.linkedin.com/company /halocollar/about/

15. According to LinkedIn, a least one senior "Halo" employee (Michael Ehrman, Co-Founder and Chief Technology Officer) is located "full time" in Plano, TX. *See* https://www.linkedin.com/in/michael-ehrman-61987346/.

16. Upon information and belief, Michael Ehrman, on behalf of PAWS, submitted an Application for Equipment Authorization FCC Form 731 TCB Version to the Federal Communications Commission ("FCC") for the "Halo Collar" that contained the following address information and instructed the FCC to send all communications to Michael Ehrman at

that address:

Applicant Information

Applicant's complete, legal business name:	Protect Animals with Satellites, LLC
FCC Registration Number (FRN):	0028931939
Alphanumeric FCC ID:	2AUWWHALOWA1
Unique Application Identifier:	Fy5e2ufUlj5o8jDaVSaN0g==
Line one:	7950 Legacy Dr, Suite 400
City:	Plano
State:	Texas
Country:	United States
Zip Code:	75024

Person at the applicant's address to receive grant or for contact

Name:Michael Ehrman

https://fccid.io/2AUWW-HALOWA1

OPS'S INNOVATION AND PROTECTION OF ITS TECHNOLOGY

17. Established in 2015 by the founders of Insight Technology, OPS leverages decades of experience developing high-quality electronic devices for military and law enforcement professionals.

18. OPS is also a leader in containment and tracking solutions. OPS's flagship product is the SpotOn Virtual Smart Fence System ("SpotOn"). SpotOn, which is the first dog containment and tracking system that allows dog owners to take their dogs and virtual smart fence wherever they go, includes a collar, training plans, and smartphone application that allows users to store, manage and share up to ten custom virtual smart fences.

19. Because SpotOn relies on global navigation satellite systems and cellular networks, rather than stationary hardware, the collar can be used to create a virtual smart fence – making the entire system portable. SpotOn lets dog owners program containment areas by walking a perimeter with the SpotOn collar in hand – at home, at the beach, camping or anywhere in between where dogs can safely be leash-free. The entire system is a collar and a

smartphone application that connects to three global navigation satellite systems and multiple cellular networks.

20. In the unlikely event that the dog wearing a SpotOn collar leaves its containment area, dog owners (or whoever is using the system) receive a smartphone alert within ten seconds and will automatically be able to track the dog, displaying its location, direction and proximity. With a reliable local cellular network, users will receive updates every six seconds and be able to locate the dog within ten feet.

21. SpotOn uses two sets of tones before issuing an optional static correction and never issues a static correction for dogs returning home. Learning the tones means static correction becomes a true last resort and also will make it easier for dogs to learn the boundaries in new places.

22. Training is also an important and unique part of the SpotOn system. The SpotOn team partnered with professional dog trainers to develop and test customizable plans for customers and their dog. Each program offers instructional videos and written directions to guide customers through every step in the process.

23. OPS has also created the Retrieve by SpotOn give-back program which provides microchipping and tracking technologies to shelter animals in need. Retrieve by SpotOn contributes more than 12,000 microchips annually to pre-adoption shelter dogs.

24. In June, 2020, SpotOn received a People's Choice Stevie® Award for Favorite New Products in the 18th Annual American Business Awards®, which came on the heels of being named the winner of a Gold Stevie® Award in the New Product – Consumer Electronics category. SpotOn also received a CES 2020 Innovation Award, was named as the 2019 Product of the Year by the New Hampshire Tech Alliance, was featured in *Wired* magazine, USA Today,

and other publications as among the best technology for dogs, and has been nationally recognized by trainers and pet experts as effective and humane.

25. OPS has invested substantial time, money, and effort to develop and protect its intellectual property in SpotOn, including by filing for an obtaining patents from the U.S. Patent & Trademark Office (the "PTO"). OPS's intellectual property, including its patents, allow SpotOn to have features and capabilities that no other virtual smart fence dog containment and tracking system can have.

26. On December 19, 2017, the PTO issued United States Patent No. 9,848,295 (the "'295 patent"), titled DEVICE AND METHOD FOR CONTAINING AND TRACKING A SUBJECT USING SATELLITE POSITIONING DATA. The '295 patent is valid and enforceable. A true and accurate copy of the '295 patent is attached hereto as Exhibit 1 and is incorporated herein by reference.

27. OPS is the owner and assignee of all rights, title and interest in and to the '295 patent, and holds all substantial rights therein, including the rights to grant licenses, to exclude others, and to enforce and recover past damages for infringement of that patent.

28. Claim 1 of the '295 patent is reproduced below:

> A device to be disposed on a subject for determining whether the subject is inside or outside of a containment zone defined by a containment perimeter, the device comprising:
>
> A positioning unit for generating position data corresponding to the position of the subject; the position data including satellite positioning data; and
>
> A processor unit, in communication with the positioning unit, configured to:
>
> Receive data from a memory representing a plurality of line segments forming the containment perimeter;
>
> Obtain from the positioning unit the position data corresponding to the position of the subject;

Mathematically cast a ray from the position of the subject toward a line segment of the plurality of line segments representing the containment perimeter;

Mathematically determine the number of line segments of the plurality of line segments that are intersected by the ray; and

Determine, from the number of line segments of the plurality of line segments intersected by the ray, whether the subject is inside the containment zone or outside of the containment zone.

29. On January 3, 2017, the PTO issued United States Patent No. 9,538,329 (the "'329 patent"), titled DEVICE AND METHOD FOR CONTAINING AND TRACKING A SUBJECT USING SATELLITE POSITIONING DATA. The '329 patent is valid and enforceable. A true and accurate copy of the '329 patent is attached hereto as Exhibit 2 and is incorporated herein by reference.

30. OPS is the owner and assignee of all rights, title and interest in and to the '329 patent, and holds all substantial rights therein, including the rights to grant licenses, to exclude others, and to enforce and recover past damages for infringement of that patent.

31. Claim 1 of the '329 patent is reproduced below:

A device to be disposed on a subject for determining whether the subject is inside or outside of a containment zone defined by a containment perimeter, the containment perimeter intersecting a portion of a structure, the device comprising:

A positioning unit for generating position data corresponding to the position of the subject; the position data comprising satellite positioning data, including a carrier to noise ratio; and

A processor unit, in communication with the positioning unit, configured to:

Determine from the position data if the carrier to noise ratio is greater than a first predetermined threshold indicating that the subject is not under the structure or less than a second predetermined threshold indicating that the subject is under the structure,

If the carrier to noise ratio is greater than the first predetermined threshold, determine from the position data if the subject is inside the containment zone or if the subject has exited the containment zone; and

> If the carrier to noise ratio is less than the second predetermined threshold, assign the subject to a virtual position in the containment zone different from the actual position of the subject based on the position data.

32. On March 20, 2018, the PTO issued United States Patent No. 9,922,522 (the "'522 patent"), titled DEVICE AND METHOD FOR CONTAINING A SUBJECT USING SATELLITE POSITIONING DATA. The '522 patent is valid and enforceable. A true and accurate copy of the '522 patent is attached hereto as Exhibit 3 and is incorporated herein by reference.

33. OPS is the owner and assignee of all rights, title and interest in and to the '522 patent, and holds all substantial rights therein, including the rights to grant licenses, to exclude others, and to enforce and recover past damages for infringement of that patent.

34. Claim 1 of the '522 patent is reproduced below:

> A device configured to be disposed on a subject for use by an operator for maintaining the subject within a containment zone, the device comprising:
>
> A positioning unit for generating satellite positioning data corresponding to a position of the subject and motion data corresponding to the motion of the subject;
>
> A memory for storing containment zone data defining the containment zone:
>
> A processor unit, in communication with the positioning unit and the memory, configured to determine from the motion data, a linear acceleration of the subject and configured to determine from the satellite positioning data, the linear acceleration of the subject, and the containment zone data if the subject is inside the containment zone or if the subject has exited the containment zone; and
>
> A correction unit, in communication with the processor unit, configured to issue the subject a stimulus when the subject exits the containment zone.

35. On March 20, 2018, the PTO issued United States Patent No. 9,924,314 (the "'314 patent"), titled DEVICE AND METHOD FOR TRACKING A SUBJECT USING SATELLITE POSITIONING DATA. The '314 patent is valid and enforceable. A true and accurate copy of the '314 patent is attached hereto as Exhibit 4 and is incorporated herein by

reference.

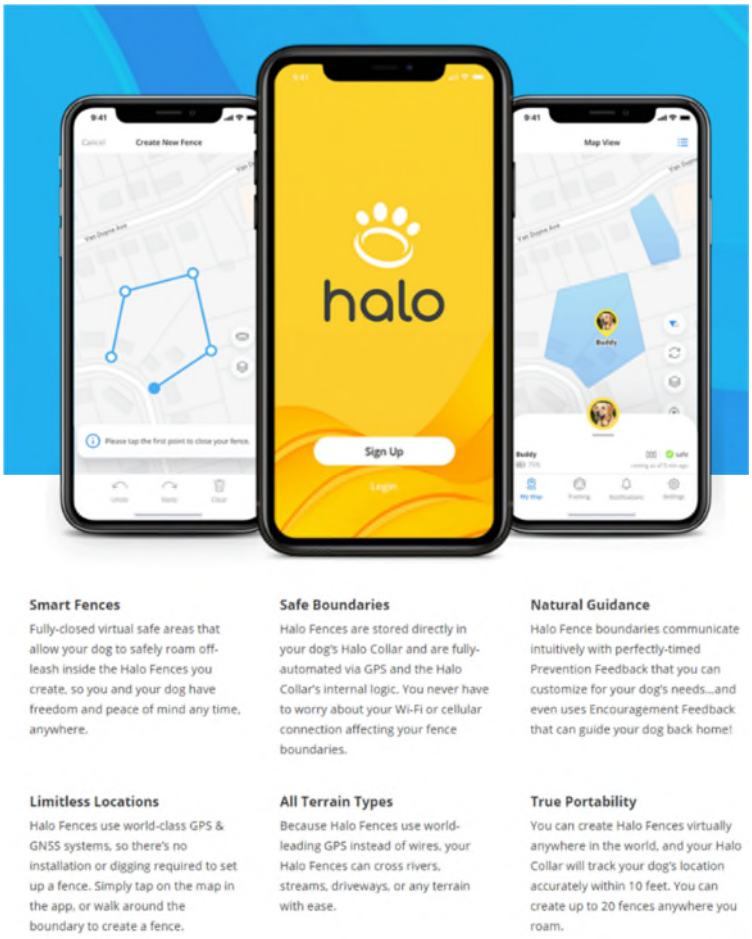
36. OPS is the owner and assignee of all rights, title and interest in and to the '314 patent, and holds all substantial rights therein, including the rights to grant licenses, to exclude others, and to enforce and recover past damages for infringement of that patent.

37. Claim 1 of the '314 patent is produced below:

> A device configured to be disposed on a subject for use by an operator for tracking the subject, the device comprising:
>
> > A positioning unit for generating satellite positioning data corresponding to a position of the subject and motion data corresponding to the motion of the subject;
> >
> > A processor unit, in communication with the positioning unit, configured to determine from the motion data a linear acceleration of the subject, and configured to determine from the linear acceleration of the subject and from the satellite positioning data the location of the subject; and
> >
> > A communication unit, in communication with the processor unit, configured to transmit to an electronic device of the operator by way of a communication network the location of the subject to allow the operator to track the location of the subject on the electronic device.

PAWS'S HALO COLLAR

38. PAWS offers for sale and sells a virtual smart fence product under the name "Halo Collar." The Halo Collar is designed to allow users to create virtual fences intended to keep one or more dogs within the containment area by applying various types of feedback, *e.g.* sounds or static correction, as the dog approaches the boundary. PAWS generally describes some of the features of its Halo Collar as follows:



https://www.halocollar.com/features/. The Halo Collar uses, all or in part, global position system data ("GPS") and/or Global Navigation Satellite System ("GNSS") data to track the location of the collar, and by extension the dog wearing it. (*Id.*)

39. The Halo Collar includes, *inter alia*, a processor, a cellular module, a GPS/GNSS antenna and receiver, and a Wi-Fi and Bluetooth module, as shown below:

GPS/GNSS and Cellular Antenna

GPS/GNSS Receiver

Wi-Fi/Bluetooth Module

Processor

40. The Halo Collar also includes an on-board accelerometer. As stated on the Halo Collar website:

GPS Reliability Improvement

Firmware version 0.1.60 features a new algorithm which prevents the GPS from "jumping" to a new location when your Halo's accelerometer registers new motion, or a transition from indoor GPS to outdoor GPS. This means that the GPS will now move more gradually, making the position appear more 'stable'. This should also eliminate certain unexpected Preventions that occurred rarely for some users, either while inside the fence or just after leaving the house.

https://www.halocollar.com/firmware-update-0-1-60/

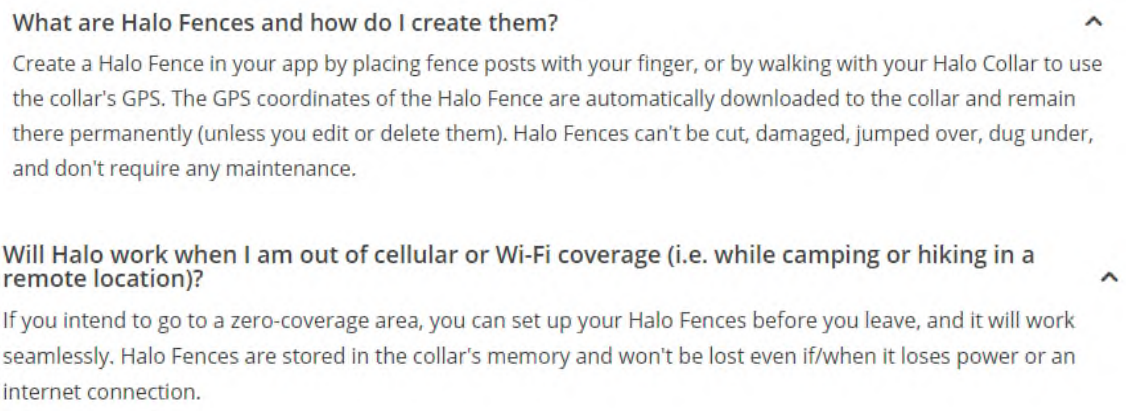
41. PAWS claims that users of the Halo Collar can expect "all-day battery life" from the onboard battery:

How often should I recharge my Halo Collar and what is the expected battery life of the collar? ^

The Halo Collar is built with all-day battery life, and should be removed at night to avoid irritation. The Halo Collar should be charged at night while it has been removed.

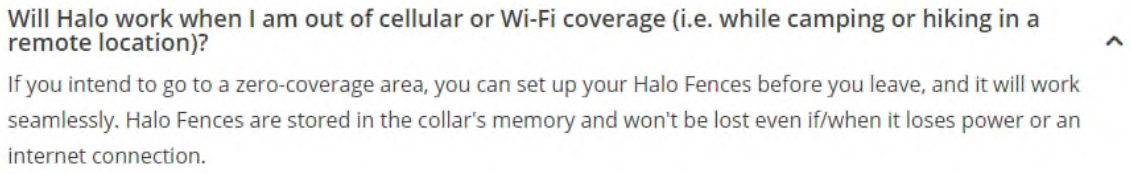
https://www.halocollar.com/faq/

42. According to PAWS, a user can create a new fence by either walking the perimeter of the desired fence with the Halo Collar or by virtually "drawing" the fence using the associated smartphone application. As stated on the Halo Collar website, once a fence is created, the GPS/GNSS coordinates of the "completed" fence are "downloaded to the collar" and are "permanently" stored locally in the Halo Collar's "memory":



https://www.halocollar.com/faq/

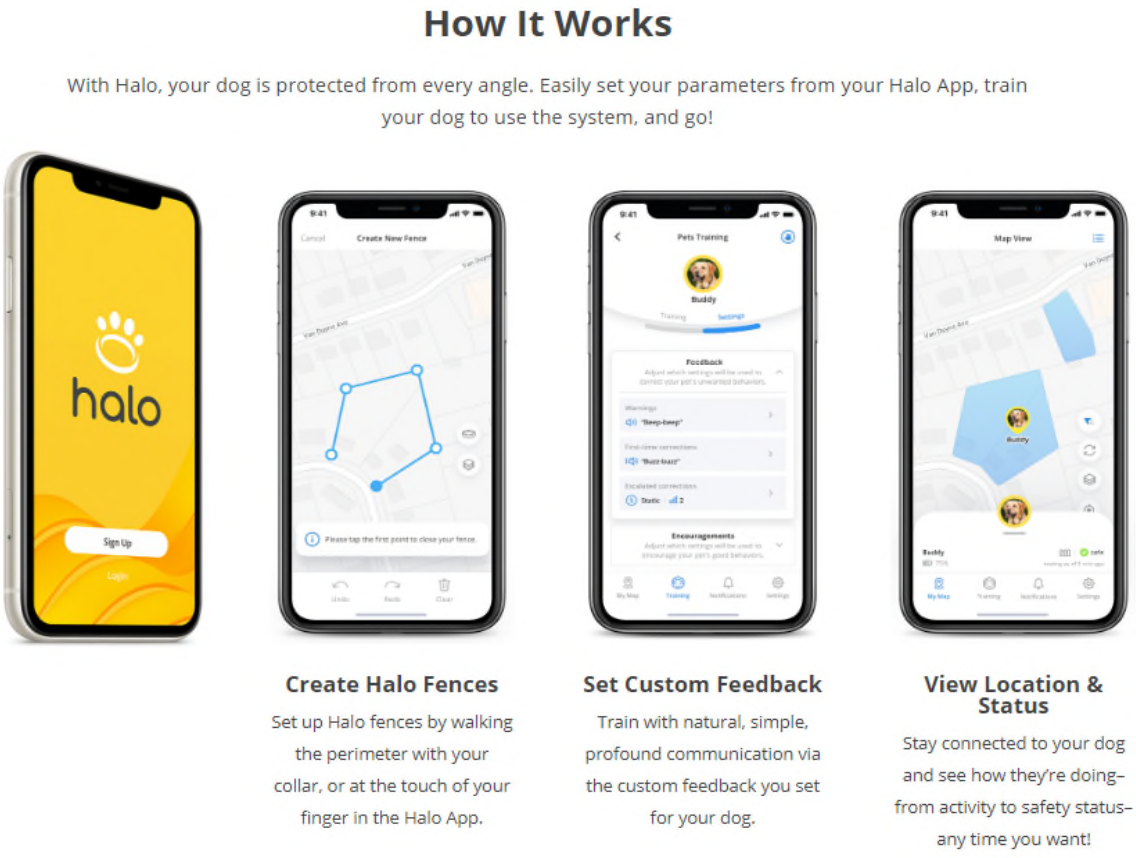
43. When in use, the onboard GPS/GNSS antenna and receiver receives location data for the Halo Collar but the location of the Halo Collar is determined locally, by the collar itself. Upon information and belief, the onboard processor uses, among other things, the location data received from the GPS/GNSS antenna and receiver as well as the GPS/GNSS coordinates of the fence saved in the onboard memory to determine the location of the Halo Collar in relation to the previously created virtual fence (which is stored in the collar's "memory"). As PAWS indicates on its website, the Halo Collar works "seamlessly" even in areas without cellular or Wi-Fi coverage:



https://www.halocollar.com/faq/

44. Upon information and belief, the onboard processor also receives acceleration data from the accelerometer, which it then uses to calculate the linear acceleration of the Halo Collar. The Halo Collar uses the linear acceleration data to help determine both the position of the Halo Collar as well as whether the Halo Collar is inside or outside of the containment zone.

45. When connected to a WiFi or cellular network, location data for the Halo Collar is also communicated to the user via the associated smartphone application, as shown on the PAWS website:



https://www.halocollar.com/

46. To deter the dog from crossing the virtual fence, the Halo Collar issues "feedback" to the dog. The feedback can include sounds, vibrations or a static correction, *i.e.* electric shock, as indicated on the PAWS website:

How does Halo keep my dog safely contained inside my Halo Fence?

When approaching a boundary, your dog will receive a customizable warning. This triggers your dog's associative memory, and your dog will learn that a warning means "keep away" from the boundary. Two more tiers of preventions are applied if your dog is distracted and ignores the boundary.

What types of feedback does the collar provide for my dog?

The Halo Collar is capable of providing six types of feedback:

- Prevention: **Warning**, **Boundary**, and **Emergency** feedback
- Encouragement feedback: **Whistle, Good Dog**, and **Come Home** feedback

Each type of feedback has predefined default settings, but you can customize your dog's settings at any time. Your dog's feedback types can be set to use sounds, vibrations, or static. With the variety of sounds, vibration patterns, and static levels to choose from—including Cesar's various voice commands and his famous "TSCH" sound—you have complete control over customizing your dog's experience. With Cesar's guidance, you'll learn to set the best feedback for your dog's energy levels.

https://www.halocollar.com/faq/

47. Per PAWS's website, up to 20 virtual fences can be stored at any one time in the onboard memory of the Halo Collar. Fences can be created anywhere in the world and any individual fence can accommodate up to "tens of square miles":

Is there a limit to the number, location, or size of Halo Fences I can create?

You can create and save up to 20 unique fences in your Halo App, and they can be created anywhere in the world. If you intend to go to a zero-coverage area, you can set up your Halo Fences before you leave, and it will work seamlessly. You can edit any fence, at any time (just be sure to practice this new boundary with your dog!). Each fence needs to include a minimum of 250 square feet for your dog to roam safely, and can accommodate a maximum of tens of square miles.

https://www.halocollar.com/faq/

48. Per PAWS's website, the Halo Collar is able create a "virtual fence," wherein at least a portion of such fence intersects a portion of a structure. In other words, the Halo Fence is capable of creating a "virtual fence" where one portion of it goes through the interior of, for example, a house:

You can also check the status of your GPS signal, both in your app and on the collar. In the app, you can tap on your dog's **Pet Card** to view their status and other information. The **Pet Card** will indicate if the collar is receiving an "**Indoor GPS**" or "**Outdoor GPS**" connection. The collar makes this determination based on the strength of the GPS signals it is receiving. *When your collar is detecting that it is indoors, it will not issue any corrections.* We are continuously working to improve this algorithm to ensure the most accurate GPS readings possible.

https://support.halocollar.com/hc/en-us/articles/360057959713

49. Per PAWS's website, the Halo Collar determines whether it is "indoors" or "outdoors" or in an outdoor area with weak GPS signals (*e.g.*, an area with "tree coverage" or "under dense overhead coverage") based, at least in part, on the strength of the GPS signals it is receiving:

Over time, your dog's Halo Collar will even collect and aggregate data to refine the GPS coordinates of your fence. This means that with each use and with longer times connected, the data provides increasingly accurate readings to ensure that your dog has the coverage needed to keep them safe - regardless of weather or cloud cover.

While tree coverage may initially affect your GPS accuracy, our amazing engineers have developed the most advanced solutions available to recalibrate your dog's location information using the technologies described above.

You can also check the status of your GPS signal, both in your app and on the collar. In the app, you can tap on your dog's **Pet Card** to view their status and other information. The **Pet Card** will indicate if the collar is receiving an "**Indoor GPS**" or "**Outdoor GPS**" connection. The collar makes this determination based on the strength of the GPS signals it is receiving. *When your collar is detecting that it is indoors, it will not issue any corrections.* We are continuously working to improve this algorithm to ensure the most accurate GPS readings possible.

https://support.halocollar.com/hc/en-us/articles/360057959713

Prevention Feedback Updates

To maximize your dog's containment and safety, your Halo Collar will no longer delay Preventions in outdoor areas if there is a weak GPS signal (i.e. if you are under dense overhead coverage). Instead, it will send a Return Whistle if it detects that your dog is approaching or bypassing a fence boundary.

This change means your collar will avoid sending 'false' Prevention Feedback caused by diminished GPS in those areas, while still ensuring that your dog receives safety guidance to stay contained within their fences.

In the past, your collar may have delayed sending its Prevention Feedback because it was recalculating GPS accuracy (which it is constantly calibrating for optimal performance).

Additionally, we resolved a rare issue in which some overlapping Protection Zones previously caused notifications to be associated with the wrong fence.

https://www.halocollar.com/firmware-update-0-1-70/

50. If the Halo Collar determines that it is "outdoors," then it also determines whether the position of the subject (e.g., dog) is inside or outside of the "virtual fence":

- Make sure your collar's GPS status ('**Indoor GPS**' or '**Outdoor GPS**') - as indicated on the **Pet Card** - is accurately representing where the dog is (i.e. it should say '**Indoor GPS**' when the dog is indoors, and vice versa)
    - If your dog is outdoors, but the collar shows '**Indoor GPS**', then the **Pet Pin** location will not update. Conversely, if the dog is indoors, but the collar shows '**Outdoor GPS**', then the **Pet Pin** may move around erroneously.
    - *Note: Accurate indoor/outdoor sensing is essential to the Halo Collar's function. If you are consistently receiving inaccurate indoor/outdoor readings, please reach out to us and we can manually adjust your collar's indoor/outdoor sensors.*

https://support.halocollar.com/hc/en-us/articles/360056114854-Why-is-there-a-difference-between-my-dog-s-location-and-what-I-see-in-the-App-; *see also*, supra.

51. If the Halo Collar determines that it is "indoors," the position of the subject (e.g., dog) will remain fixed on the subject's last "outdoor" position, rather than the actual position of the subject:

- Make sure your collar's GPS status ('**Indoor GPS**' or '**Outdoor GPS**') - as indicated on the **Pet Card** - is accurately representing where the dog is (i.e. it should say '**Indoor GPS**' when the dog is indoors, and vice versa)
    - If your dog is outdoors, but the collar shows '**Indoor GPS**', then the **Pet Pin** location will not update. Conversely, if the dog is indoors, but the collar shows '**Outdoor GPS**', then the **Pet Pin** may move around erroneously.
    - *Note: Accurate indoor/outdoor sensing is essential to the Halo Collar's function. If you are consistently receiving inaccurate indoor/outdoor readings, please reach out to us and we can manually adjust your collar's indoor/outdoor sensors.*

The above update rates are applicable to when your dog is outdoors and moving around. When your dog is resting, its position will not update. When your dog is indoors, the position of the **Pet Pin** should remain fixed to your dog's last outdoor position (i.e. the spot where they re-entered your house), and the **Pet Card** will show an '**Indoor GPS**' indication.

https://support.halocollar.com/hc/en-us/articles/360056114854-Why-is-there-a-difference-between-my-dog-s-location-and-what-I-see-in-the-App-

FIRST CLAIM FOR RELIEF
(Willful Infringement of United States Patent No. 9,848,295)

52. The allegations stated in preceding paragraphs are incorporated by reference as though fully set forth herein.

53. OPS is the sole owner of the '295 patent.

54. PAWS makes, uses, sells, offers to sell, and/or imports the Halo Collar.

55. The Halo Collar contains all of the elements of at least Claim 1 of the '295 patent.

56. To the extent the preamble of Claim 1 of the '295 patent is found to be limiting, the Halo Collar is a device to be disposed on a subject for determining whether the subject is inside or outside of a containment zone defined by a containment perimeter.

57. Claim 1 of the '295 patent requires "a positioning unit for generating position data corresponding to the position of the subject; the position data including satellite positioning

data." The Halo Collar contains a GPS/GNSS antenna and receiver which together are used to send and receive satellite positioning data for the position of the Halo Collar and the subject wearing it.

58. Claim 1 of the '295 patent requires "a processor unit, in communication with the positioning unit" the processor unit "configured to receive data from a memory representing a plurality of line segments forming the containment perimeter." The onboard processor, which is in communication with the GPS/GNSS antenna/receiver onboard the Halo Collar, receives, from the onboard memory, GPS/GNSS data representing a plurality of line segments that form the containment perimeter of the virtual fence created by the user.

59. Claim 1 of the '295 patent requires that the aforementioned "processor unit" "obtain from the positioning unit the position data corresponding to the position of the subject," "mathematically cast a ray from the position of the subject toward a line segment of the plurality of line segments representing the containment perimeter," "mathematically determine the number of line segments of the plurality of line segments that are intersected by the ray" and "determine, from the number of line segments of the plurality of line segments intersected by the ray, whether the subject is inside the containment zone or outside of the containment zone."

60. The onboard processor in the Halo Collar receives GPS/GNSS data relating to the position of the Halo Collar from the GPS/GNSS antenna/receiver. Furthermore, per claims by PAWS on its website, the onboard processor uses the data received from the GPS/GNSS antenna/receiver and the GPS/GNSS data defining the line segments that comprise the fence that are saved in the onboard memory in determining the location of the Halo Collar in relation to the fence. Upon information and belief, the Halo Collar calculates a line starting at the location of the Halo Collar toward a line segment representing the location of a portion of the virtual fence

and, using the number of intersected line segments, determines if the dog is inside or outside the containment zone.

61. PAWS knew (or should have known) of the '295 patent but was willfully blind to its existence.

62. Upon information and belief, PAWS had actual or constructive knowledge of the '295 patent and the Halo Collar prior to the filing of this Second Amended Complaint. For example, and without limitation, on June 10, 2020, OPS sent PAWS a letter regarding the existence of its patent portfolio and the Halo Collar's likely infringement. On or about September 1, 2020, OPS filed and served on PAWS its original Complaint and a copy of the '295 patent. Therefore, PAWS's actions were – and continue to be – willful and intentional, including under the standard the Supreme Court articulated in *Halo Electronics, Inc. v. Pulse Electronics, Inc.*

63. OPS believes, in good faith, that discovery will demonstrate that PAWS knew of the existence of the '295 patent vis a vis the Halo Collar even earlier.

64. Upon information and belief, as of the date of OPS's notice letter (June 10, 2020), PAWS had not yet shipped Halo Collars to its pre-order customers. Notwithstanding OPS's notice letter, PAWS subsequently actively, knowingly, and intentionally began providing the Halo Collar and instructions to its customers on how to set it up and to use it in an infringing manner. The Halo Collar is not a staple article of commerce suitable for non-infringing uses.

65. By making, using, testing, offering for sale, selling, and/or importing the Halo Collar, and by disseminating product descriptions and operating manuals, and by providing instructions to end-users on how to configure and use the Halo Collar, PAWS has injured OPS and is liable to OPS for infringing one or more claims of the '295 patent, including at least Claim

1, pursuant to 35 U.S.C. § 271(a) and (c), literally or under the doctrine of equivalents.

66. OPS has been damaged by PAWS infringement of the '295 patent and is suffering and will continue to suffer irreparable harm and damage as a result of this infringement unless such infringement is enjoined by this Court.

SECOND CLAIM FOR RELIEF
(Willful Infringement of United States Patent No. 9,538,329)

67. The allegations stated in preceding paragraphs are incorporated by reference as though fully set forth herein.

68. OPS is the sole owner of the '329 patent.

69. PAWS makes, uses, sells, offers to sell, and/or imports the Halo Collar.

70. The Halo Collar contains all of the elements of at least Claim 1 of the '329 patent.

71. To the extent the preamble of Claim 1 of the '329 patent is found to be limiting, the Halo Collar is a device to be disposed on a subject for determining whether the subject is inside or outside of a containment zone defined by a containment perimeter, the containment perimeter intersecting a portion of a structure. The Halo Collar is a collar worn by a dog that can determine if such dog is inside or outside a "virtual fence," which can (but need not) have a portion of such "virtual fence" be inside a structure (such as a house).

72. Claim 1 of the '329 patent requires "a positioning unit for generating position data corresponding to the position of the subject; the position data including satellite positioning data, including a carrier to noise ratio." The Halo Collar contains a GPS/GNSS antenna and receiver which together are used to send and receive satellite positioning data corresponding to the position of the Halo Collar (and the subject wearing it) and the strength of the GPS signals it is receiving.

73. Claim 1 of the '329 patent requires "a processor unit, in communication with the

positioning unit." The processor in the Halo Collar is in communication with the GPS/GNSS antenna/receiver in the Halo Collar.

74. Claim 1 of the '329 patent requires that the aforementioned "processor unit" "determine from the position data if the carrier to noise ratio is greater than a predetermined threshold indicating that the subject is not under the structure or less than a second predetermined threshold indicating that the subject is under the structure." The processor in the Halo Collar receives from the GPS/GNSS antenna/receiver, among other things, information about the strength of the GPS signals and determines whether the subject (e.g., dog) is, *inter alia*, "outdoors" or "indoors" based, at least in part, on the strength of the GPS signals.

75. Claim 1 of the '329 patent requires "if the carrier to noise ratio is greater than the first predetermined threshold, determine from the position data if the subject is inside the containment zone or of the subject has exited the containment zone." If the Halo Collar determines that the subject is "outdoors," using (at least in part) information about the strength of the GPS signals, the Halo Collar uses, among other things, data from the GPS/GNSS receiver/antenna to determine whether the subject (e.g., dog) is inside or outside of the containment zone.

76. Claim 1 of the '329 patent requires "if the carrier to noise ratio is less than the second predetermined threshold, assign the subject a virtual position in the containment zone different from the actual position of the subject based on the position data." If the Halo Collar determines that the subject is "indoors," using (at least in part) information about the strength of the GPS signals, the location of the subject (e.g., dog) will remain fixed in its last "outdoor" position, rather than the actual position of the subject.

77. PAWS knew (or should have known) of the '329 patent and/or was willfully blind

to its existence.

78. Upon information and belief, PAWS had actual or constructive knowledge of the '329 patent and the Halo Collar prior to the filing of this Second Amended Complaint. For example, and without limitation, on June 10, 2020, OPS sent PAWS a letter regarding the existence of its patent portfolio and the Halo Collar's likely infringement. On March 26, 2021, OPS provided PAWS a draft copy of the First Amended Complaint and a copy of the '329 patent. Therefore, PAWS's actions were – and continue to be – willful and intentional, including under the standard the Supreme Court articulated in *Halo Electronics, Inc. v. Pulse Electronics, Inc*.

79. OPS believes, in good faith, that discovery will demonstrate that PAWS knew of the existence of the '329 patent vis a vis the Halo Collar even earlier.

80. PAWS has actively, knowingly, and intentionally provided the Halo Collar and instructions to its customers on how to set it up and to use it in an infringing manner. It continues to do so. The Halo Collar is not a staple article of commerce suitable for non-infringing uses.

81. By making, using, testing, offering for sale, selling, and/or importing the Halo Collar, and by disseminating product descriptions and operating manuals, and by providing instructions to end-users on how to configure and use the Halo Collar, PAWS has injured OPS and is liable to OPS for infringing one or more claims of the '329 patent, including at least Claim 1, pursuant to 35 U.S.C. § 271(a) and (c), literally or under the doctrine of equivalents.

82. OPS has been damaged by PAWS's infringement of the '329 patent and is suffering and will continue to suffer irreparable harm and damage as a result of this infringement unless such infringement is enjoined by this Court.

THIRD CLAIM FOR RELIEF
(Willful Infringement of United States Patent No. 9,922,522)

83. The allegations stated in preceding paragraphs are incorporated by reference as though fully set forth herein.

84. OPS is the sole owner of the ‘522 patent.

85. PAWS makes, uses, sells, offers to sell, and/or imports the Halo Collar.

86. The Halo Collar contains all of the elements of at least Claim 1 of the ‘522 patent.

87. To the extent the preamble of Claim 1 of the ‘522 patent is found to be limiting, the Halo Collar is a device configured to be disposed on a subject for use by an operator for maintaining the subject within a containment zone.

88. Claim 1 of the ‘522 patent requires a “positioning unit for generating satellite positioning data corresponding to a position of the subject and motion data corresponding to the motion of the subject.” The Halo Collar contains a GPS/GNSS antenna and receiver which together are used to send and receive satellite positioning data for the position of the Halo Collar and the subject wearing it. The Halo Collar also contains, *inter alia*, an accelerometer which is used to generate motion data regarding the Halo Collar and the subject wearing it.

89. Claim 1 of the ‘522 patent requires a “memory for storing containment zone data defining the containment zone.” The Halo Collar’s onboard memory stores GPS/GNSS data representing a plurality of line segments that define the containment perimeter of the virtual fence created by the user.

90. Claim 1 of the ‘522 patent requires a “processor unit, in communication with the positioning unit and the memory, configured to determine from the motion data, a linear acceleration of the subject and configured to determine from the satellite positioning data, the linear acceleration of the subject, and the containment zone data if the subject is inside the

containment zone or if the subject has exited the containment zone." The onboard processor in the Halo Collar receives GPS/GNSS data relating to the position of the Halo Collar from the GPS/GNSS antenna/receiver. Furthermore, the onboard processor receives the GPS/GNSS data defining the line segments that comprise the fence saved in the onboard memory. The onboard processor also calculates the linear acceleration of the Halo Collar, and the subject wearing it, from the data received from the accelerometer. The onboard processor determines whether the Halo Collar, and the subject wearing it, are inside or outside the containment zone using (at least) the linear acceleration of the Halo Collar (and the subject wearing it), the GPS/GNSS data relating to the position of the Halo Collar, and the aforementioned containment zone data stored in the memory.

91. Claim 1 of the '522 patent requires a "correction unit, in communication with the processor unit, configured to issue the subject a stimulus when the subject exits the containment zone." The Halo Collar issues "feedback" to the dog when it determines that the dog has exited the containment zone. The feedback can include sounds, vibrations or a static correction, *i.e.* electric shock.

92. PAWS knew (or should have known) of the '522 patent but was willfully blind to its existence.

93. Upon information and belief, PAWS has had actual knowledge of the '522 patent and the Halo Collar since at least June 10, 2020, when OPS sent it a letter identifying the '522 patent and its likely infringement. At least by that date, PAWS's actions were – and continue to be – willful and intentional, including under the standard the Supreme Court articulated in *Halo Electronics, Inc. v. Pulse Electronics, Inc.*

94. OPS believes, in good faith, that discovery will demonstrate that PAWS knew of

the existence of the '522 patent vis a vis the Halo Collar earlier than June 10, 2020. As such, upon information and belief, PAWS actually knew or should have known – at least by June 10, 2020 – of its clear, unmistakable and inexcusable infringing conduct with respect to the '522 patent and the Accused Halo Collar.

95. Upon information and belief, as of the date of OPS's notice letter (June 10, 2020), PAWS had not yet shipped Halo Collars to its pre-order customers. Notwithstanding OPS's notice letter, PAWS subsequently actively, knowingly, and intentionally began providing the Halo Collar and instructions to its customers on how to set it up and to use it in an infringing manner. The Halo Collar is not a staple article of commerce suitable for non-infringing uses.

96. By making, using, testing, offering for sale, selling, and/or importing the Halo Collar, and by disseminating product descriptions and operating manuals, and by providing instructions to end-users on how to configure and use the Halo Collar, PAWS has injured OPS and is liable to OPS for infringing one or more claims of the '522 patent, including at least Claim 1, pursuant to 35 U.S.C. § 271(a) and (c), literally or under the doctrine of equivalents.

97. OPS has been damaged by PAWS infringement of the '522 patent and is suffering and will continue to suffer irreparable harm and damage as a result of this infringement unless such infringement is enjoined by this Court.

FOURTH CLAIM FOR RELIEF
(Willful Infringement of United States Patent No. 9,924,314)

98. The allegations stated in preceding paragraphs are incorporated by reference as though fully set forth herein.

99. OPS is the sole owner of the '314 patent.

100. PAWS makes, uses, sells, offers to sell, and/or imports the Halo Collar.

101. The Halo Collar contains all of the elements of at least Claim 1 of the '314 patent.

102. To the extent the preamble of Claim 1 of the '314 patent is found to be limiting, the Halo Collar is a device configured to be disposed on a subject for use by an operator for tracking the subject.

103. Claim 1 of the '314 patent requires a "positioning unit for generating satellite positioning data corresponding to a position of the subject and motion data corresponding to the motion of the subject." The Halo Collar contains a GPS/GNSS antenna and receiver which together are used to send and receive satellite positioning data for the position of the Halo Collar and the subject wearing it. The Halo Collar also contains, *inter alia*, an accelerometer which is used to generate motion data regarding the Halo Collar and the subject wearing it.

104. Claim 1 of the '314 patent requires a "processor unit, in communication with the positioning unit, configured to determine from the motion data a linear acceleration of the subject, and configured to determine from the linear acceleration of the subject and from the satellite positioning data the location of the subject." The onboard processor in the Halo Collar receives GPS/GNSS data relating to the position of the Halo Collar from the GPS/GNSS antenna/receiver. The onboard processor further calculates the linear acceleration of the Halo Collar, and the subject wearing it, from the data received from the accelerometer. The onboard processor also determines the location of the Halo Collar, and the subject wearing it, using (at least) the GPS/GNSS data and the linear acceleration of the Halo Collar (and the subject wearing it).

105. Claim 1 of the '314 patent requires a "communication unit, in communication with the processor unit, configured to transmit to an electronic device of the operator by way of a communication network the location of the subject to allow the operator to track the location of the subject on the electronic device." The Halo Collar sends data regarding the location of the

Halo Collar, and the subject wearing it, to a user via the associated smartphone application (including, but not limited to, using a cellular network) such that it allows the user to track the location of the Halo Collar, and the subject wearing it, on the user's smartphone.

106. PAWS knew (or should have known) of the '314 patent but was willfully blind to its existence.

107. Upon information and belief, PAWS has had actual knowledge of the '314 patent and the Halo Collar since at least June 10, 2020, when OPS sent it a letter identifying the '314 patent and its likely infringement. At least by that date, PAWS's actions were – and continue to be – willful and intentional, including under the standard the Supreme Court articulated in *Halo Electronics, Inc. v. Pulse Electronics, Inc.*

108. OPS believes, in good faith, that discovery will demonstrate that PAWS knew of the existence of the '314 patent vis a vis the Halo Collar earlier than June 10, 2020. As such, upon information and belief, PAWS actually knew or should have known – at least by June 10, 2020 – of its clear, unmistakable and inexcusable infringing conduct with respect to the '314 patent and the Accused Halo Collar.

109. Upon information and belief, as of the date of OPS's notice letter (June 10, 2020), PAWS had not yet shipped Halo Collars to its pre-order customers. Notwithstanding OPS's notice letter, PAWS subsequently actively, knowingly, and intentionally began providing the Halo Collar and instructions to its customers on how to set it up and to use it in an infringing manner. The Halo Collar is not a staple article of commerce suitable for non-infringing uses.

110. By making, using, testing, offering for sale, selling, and/or importing the Halo Collar, and by disseminating product descriptions and operating manuals, and by providing instructions to end-users on how to configure and use the Halo Collar, PAWS has injured OPS

and is liable to OPS for infringing one or more claims of the '314 patent, including at least Claim 1, pursuant to 35 U.S.C. § 271(a) and (c), literally or under the doctrine of equivalents.

111. OPS has been damaged by PAWS infringement of the '314 patent and is suffering and will continue to suffer irreparable harm and damage as a result of this infringement unless such infringement is enjoined by this Court.

PRAYER FOR RELIEF

WHEREFORE, for the reasons set forth above, OPS respectfully requests that this Court enter judgement in its favor, and against PAWS, and award relief including, but not limited to, the following:

a) A judgment that PAWS has infringed one of more claims of the '295 patent, the '329 patent, the '522 patent, and the '314 patent;

b) An order and judgment enjoining OPS and its officers, agents, affiliates, employees, and attorneys, and all those persons acting or attempting to act in concert or participation with them, from further acts of infringement of the '295 patent, the '329 patent, the '522 patent, and the '314 patent;

c) A judgment awarding OPS all damages adequate to compensate OPS for PAWS's infringement of the '295 patent, the '329 patent, the '522 patent, and the '314 patent, including all prejudgment and post-judgment interest at the maximum rate permitted by law;

d) A judgment awarding OPS enhanced damages as provided for in 35 U.S.C. § 284 and associated case law;

e) A judgment awarding OPS its reasonable attorneys' fees as provided for in 35 U.S.C. § 285 to the extent the Court finds this case exceptional;

f) Actual damages suffered by OPS as a result of PAWS's unlawful conduct, in an amount to be proven at trial, as well as prejudgment interest as authorized by law;

g) An order directing PAWS to file with the Court and serve upon OPS's counsel within thirty (30) days after entry of the order of injunction, a report setting forth the manner and form in which PAWS has complied with the injunction, including the provision relating to destruction and recall of infringing products and materials;

h) Costs of suit and reasonable attorneys' fees; and

i) Such other and further relief to which OPS may show itself to be entitled.

JURY DEMAND

OPS demands trial by jury of all issues so triable in this action.

Dated: June 11, 2021

/s/ *Benjamin M. Stern*
Benjamin M. Stern (*pro hac vice*)
(LEAD COUSEL)
MA Bar No. 646778
VERRILL DANA LLP
One Federal Street
Boston, MA 02108
(617) 309-2600
bstern@verrill-law.com

Timothy R. Shannon (admitted to practice)
ME Bar No. 004582
Seth S. Coburn (admitted to practice)
ME Bar No. 004885
VERRILL DANA LLP
One Portland Square
Portland, Maine 04101-4054
(207) 774-4000
tshannon@verrill-law.com
scoburn@verrill-law.com

OF COUNSEL

Charles Everingham IV
State Bar No. 00787447
WARD, SMITH & HILL, PLLC
P.O. Box 1231
Longview, Texas 75606-1231
ce@wsfirm.com
(903) 757-6400 (telephone)
(903) 757-2323 (facsimile)
E-mail: ce@wsfirm.com

Attorneys for Plaintiff
OnPoint Systems, LLC

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Therefore, this document was served on all counsel who are deemed to have consented to electronic service on this the 11th day of June 2021.

/s/ Benjamin M. Stern
Benjamin M. Stern