IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF IOWA
CENTRAL DIVISION

DIGITAL CONTROL INCORPORATED and MERLIN TECHNOLOGY, INC., Plaintiffs, v. UNDERGROUND MAGNETICS, INC., Defendant.	)	Case No: 4:22-cv-173 **COMPLAINT** **JURY TRIAL DEMANDED**

COMPLAINT

Plaintiffs Digital Control Incorporated ("DCI") and Merlin Technology, Inc., by and through their undersigned counsel, hereby file the following Complaint and Demand for Jury Trial against Defendant Underground Magnetics, Inc., and allege as follows:

NATURE OF CLAIMS

1. This is an action for (a) patent infringement arising under the Patent Laws of the United States based on Defendant's deliberate infringement of U.S. Patent No. 8,729,901 ("the '901 patent"); U.S. Patent No. 10,520,536 ("the '536 patent"); U.S. Patent No. 11,320,474 ("the '474 patent"); U.S. Patent No. 9,739,140 ("the '140 patent"); U.S. Patent No. 7,956,614 ("the '614 patent"); U.S. Patent No. 9,291,738 ("the '738 patent"); U.S. Patent No. 9,519,074 ("the '074 patent"); and U.S. Patent No. 10,227,867 ("the '867 patent") (collectively, "the Asserted Patents"); and (b) trademark infringement, unfair competition, and false advertising under the federal Lanham Act, 15 U.S.C. § 1051 *et seq*., state, and/or common law.

2. Defendant directly and indirectly infringes the Asserted Patents. Defendant makes, uses, offers to sell, sells, and/or imports—without authorization—various horizontal direction drilling ("HDD") receivers (also referred to as "locators"), transmitters, and related

products designed to assist HDD drill rig operators in installing and mapping the location of critical infrastructure (e.g., utilities) underground, including but not limited to Defendant's receivers (collectively, the "Accused Receivers"), displays, and/or systems commercialized under names such as "Mag 3," "Mag 3s," "Mag 5," Mag 5s," "Mag 6," "Mag 8," "Mag 8e," and "Mag 9" (collectively, the "Accused Systems"), as well as transmitters commercialized under names such as "Echo 110," "Echo 90," "Echo 70," "Echo 60," "Echo 50," "Echo 50x," "Echo 50XF," "Echo 51," "Echo 1," "Echo 2S," "Echo 3," "Echo Xmini," "Echo ST," and "Echo ST-H" (collectively, the "Accused Transmitters"). The Accused Receivers, Accused Systems, and Accused Transmitters are collectively referred to as the "Accused Products."

3. In addition to patent infringement, Defendant has infringed Plaintiffs' common law trademarks and engaged in unfair competition through its copycat branding and marketing intended to lure away Plaintiffs' customers by passing off the Accused Products as featuring Plaintiffs' popular BALL-IN-THE-BOX™ user interface.

4. Defendant recently expanded its efforts to sow consumer confusion by featuring Plaintiffs' SUB-K trademark on Defendant's website to market and sell competitive products.

5. Furthering its deceptive practices, Defendant—a corporate affiliate of a Chinese-based company named Huangshan Golden Land Electronics Co., Ltd., Huangshan Goldenland Electronics Inc., or Ningbo Golden Land Electronics Inc. (collectively, "Golden Land")—has passed itself off as a U.S. company that manufactures the Accused Products in the United States, when in reality the Accused Products are manufactured in China. Through its material misrepresentations, Defendant's attempts to dupe U.S. consumers into purchasing from what they are falsely led to believe is a U.S. company proudly manufacturing in the United States (like Plaintiffs) constitute false advertising under federal and state laws.

THE PARTIES

6. DCI is a corporation organized and existing under the laws of the State of Washington and having its principal place of business at 19625 62nd Ave. S, Suite B103, Kent, Washington 98032.

7. DCI is a wholly owned subsidiary of Merlin Technology, Inc.

8. Merlin Technology, Inc., is a corporation organized and existing under the laws of the State of Washington.

9. Merlin Technology, Inc., is the sole owner of the Asserted Patents and has exclusively licensed the Asserted Patents to co-plaintiff DCI.

10. Merlin Technology, Inc., has granted DCI the right to sue for infringement of the Asserted Patents, as well as all rights to and claims for damages, restitution, and injunctive and other legal and equitable relief for past, present, and future infringement.

11. Defendant Underground Magnetics, Inc., is a corporation organized and existing under the laws of the State of Iowa and having its principal place of business at 5501 NW Beaver Dr., Johnston, Iowa 50131.

12. Michael Young is president of Underground Magnetics, Inc.

JURISDICTION AND VENUE

13. This action arises under the Patent Act, 35 U.S.C. § 101 *et seq.*; the federal Lanham Act, 15 U.S.C. § 1051 *et seq.*; and the related law of the State of Iowa. This Court has original subject matter jurisdiction over this controversy pursuant to 28 U.S.C. §§ 1331 and 1338(a) and (b) and 15 U.S.C. § 1121. This Court has supplemental jurisdiction over Plaintiffs' state-law claims pursuant to 28 U.S.C. § 1367 because those claims are substantially related to Plaintiffs' federal Lanham Act claims.

14. This Court has personal jurisdiction over Defendant because Defendant holds itself out as an Iowa corporation with a registered office in Iowa. Defendant's principal place of business is 5501 NW Beaver Dr., Johnston, Iowa 50131. *See* https://undergroundmagnetics.com/contact-us/ (last visited May 16, 2022).

15. In addition, Defendant has been conducting and/or is presently conducting business in the Southern District of Iowa on a regular basis. Defendant places infringing products within the stream of commerce, directed to this District, with knowledge and/or understanding that these products will be sold in the Southern District of Iowa. Defendant has accordingly infringed or caused infringement in the State of Iowa by, among other things, promoting, advertising, offering for sale, or selling infringing products in this District and by providing services for products that are used, offered for sale, sold, and/or purchased in this District. The Court's exercise of jurisdiction is accordingly appropriate under the applicable jurisdictional statutes and accords with traditional notions of fair play and substantial justice.

16. Defendant has designated its agent, Michael Young, for service of process at 5555 NW Beaver Dr., Johnston, Iowa 50131.

17. Ren Chao, Yuyiy Khapochkin, and Jian Jin (also known as Jeremy Jin) are registered directors of Underground Magnetics, Inc., at 5555 NW Beaver Dr., Johnston, Iowa 50131.

18. Defendant has knowingly and actively engaged in acts that have infringed and will infringe, and/or induced or contributed to the direct infringement of, claims of the Asserted Patents in the Southern District of Iowa.

19. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391 and/or 1400(b) because Defendant is incorporated in the State of Iowa and headquartered in this District, has

knowingly and actively committed, and continues to commit, acts of patent and trademark infringement within this District, and Plaintiffs are being harmed in this District.

FACTUAL BACKGROUND AND ALLEGATIONS

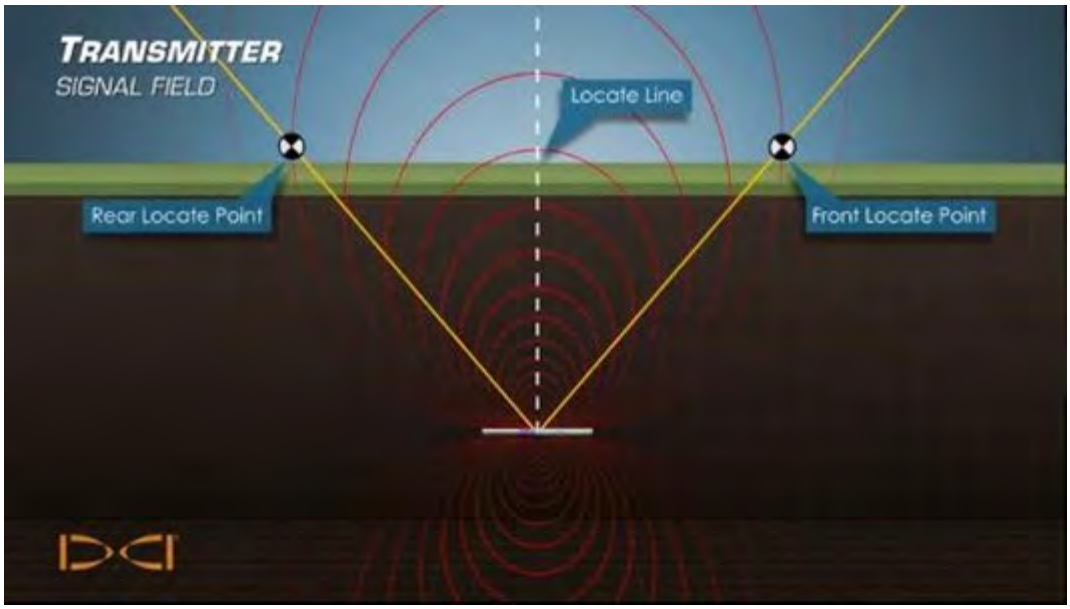
A. DCI's Innovative Technology

20. HDD is a widely used process for installing critical infrastructure and other utilities underground. Traditionally, a contractor would install telecommunications, power, water, sewer, gas, oil, and product pipelines by digging a long trench before placing the pipe into the ground. HDD is a less expensive and less environmentally damaging method of installing pipe underground without digging a trench. However, drilling underground can present challenges for the drill rig operator since the drill head may veer off path underground without the operator knowing it, which can lead to the drill head striking another utility buried underground and/or installing the new utility in the wrong place. The purpose of an HDD locating system is to track the location and direction of the drill head underground to help the drill rig operator steer underground (and make course corrections to get back on track, if necessary), and to collect data about where the utility is buried. HDD locating systems are now used in most underground installations of critical infrastructure in the United States and around the world.

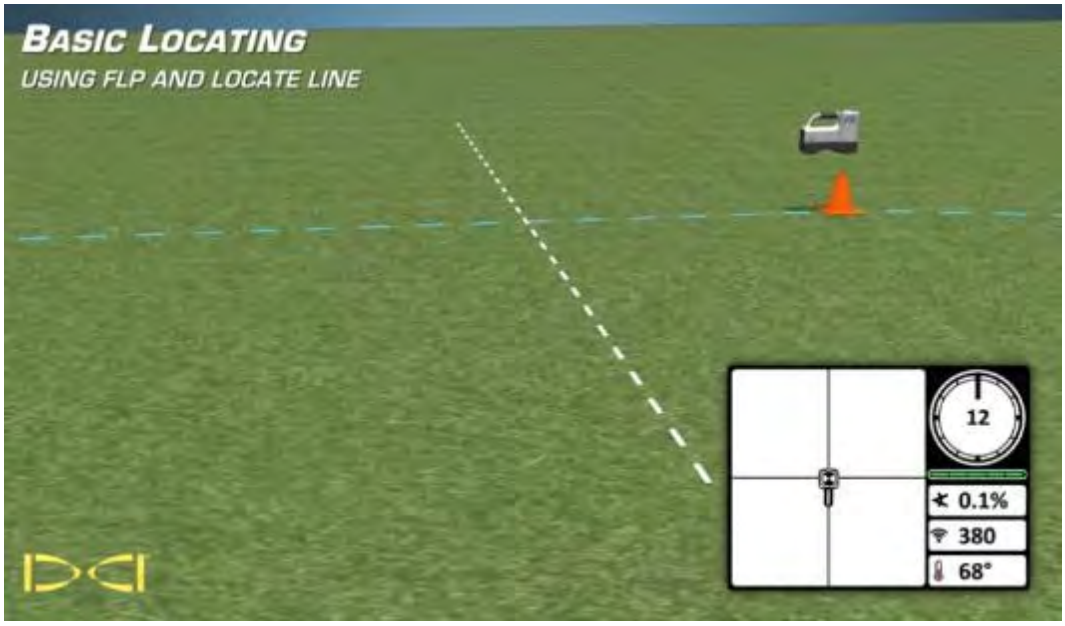
21. DCI, which was incorporated in 1988, helped pioneer the HDD locator industry. Plaintiffs' improved locate point technology revolutionized the HDD industry by greatly speeding up the HDD locating process, improving locating accuracy, and reducing the need for operator training:

DCI DigiTrax Falcon F5+ receiver, https://digital-control.com/receivers/digitrak-falcon-f5-1 (last visited May 16, 2022).

22. DCI's transmitters generate a magnetic field signal, which DCI's receivers use to identify and track the position and orientation of underground drill heads. Specifically, Plaintiffs' locate point technology conveniently and quickly guides operators to a Rear Locate Point ("RLP"), a Front Locate Point ("FLP"), and/or a Locate Line ("LL") to accurately locate and track the position and orientation of underground drill heads:



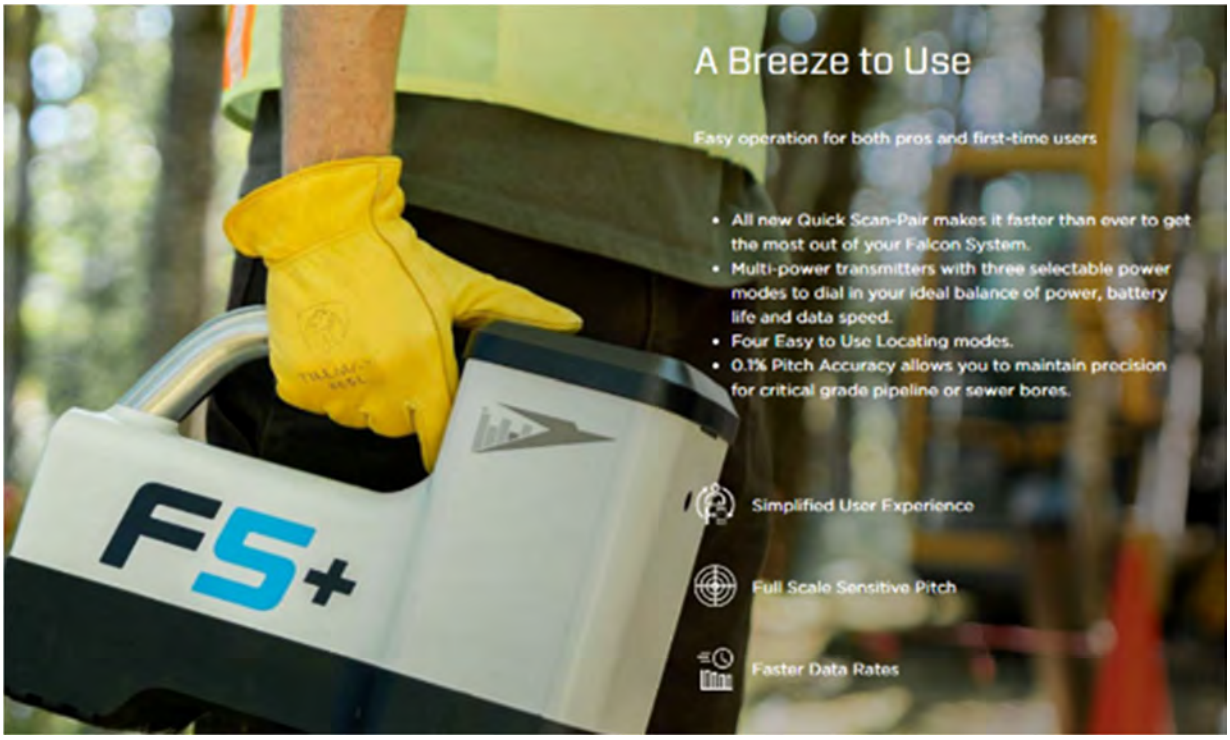
DigiTrak Falcon F5 Basic Locating How-To for Horizontal Directional Drilling at 0:40, https://www.youtube.com/watch?time_continue=40&v=ildTa5n1feY (last visited May 16, 2022);



id. at 1:44.

23. DCI's marketing and advertising materials highlight additional innovative technological features, including "Frequency Optimization," "Full Scale Sensitive Pitch," and "Faster Data Rates":

DigiTrak® Falcon Technology – Plus, https://digital-control.com/technology (last visited May 16, 2022);



Falcon F5+, https://digital-control.com/receivers/digitrak-falcon-f5-1 (last visited Nov. 18, 2021).

24. One of the biggest challenges with HDD locating is jobsite interference (noise), which can negatively impact the ability of a receiver to pick up the signal from the underground transmitter. As discussed in greater detail below, DCI developed what at the time for the HDD industry was a novel and inventive approach to tackling the problem of jobsite interference that went against the grain of other HDD manufacturers. DCI's Falcon frequency optimization measures the noise—which DCI discovered can vary over time and with even small changes in location at HDD jobsites—at multiple frequencies along the desired drilling (bore) path at a jobsite and generates a display that helps guide the user in determining which frequency to select to avoid noise. This revolutionary technology allows DCI's customers to complete jobs in noisy environments that previously could not be completed with an HDD locator, and significantly enhances the core performance—range and accuracy—of DCI's locator products.

25. Depth range is considered one of the key performance metrics for an HDD locating system. However, as discussed in greater detail below, demonstrating an HDD locating system's depth range to customers can present a difficult challenge since drilling underground can be expensive, time-consuming, and impractical for this purpose, while demonstrating a system above ground introduces other complications. Furthermore, a technique to help mitigate this challenge for customer demonstrations above ground leads to inaccurate depth measurements during underground drilling operations. DCI locating systems solved these problems by introducing a more flexible HDD locating system with an above-ground surface mode (known as AGR for "above ground range") for customer demonstrations with a surface effect compensation technique that demonstrates what a system's approximate depth range

capability underground would be, and a below-ground drilling mode for more accurate depth measurements during underground drilling operations.

26. In 2001, DCI introduced the Eclipse locating system. This system revolutionized HDD locating by introducing a new locating technique that guides an operator straight to a "locate point," greatly speeding up and simplifying the locating process. This technique leveraged a new means of measuring the magnetic field signal from the underground transmitter. This new technique enabled new, simpler user interfaces. The specific user interface that DCI chose became synonymous with DCI's brand identity, reduced the need for operator training and, as mentioned above, sped up and simplified the operation of an HDD locator.

27. Additionally, DCI's Falcon systems feature the ability to adjust data resolution based on the pitch of the transmitter. Because transmitters operate underground and in regions with electromagnetic noise, the rate at which accurate data can be transmitted is often limited. By adjusting the resolution of pitch data when high-resolution data is not necessary, DCI's locator products are able to reduce packet sizes, which translates into increased update rates for purposes of monitoring the drilling underground. Increased update rates allow DCI's customers to complete a larger number of jobs in a shorter period of time, ultimately making them more profitable.

28. DCI engineers and manufactures its receivers, transmitters, and other innovative products at its Kent, Washington, facility in the United States. Manufacturing in the United States provides a significant competitive advantage for DCI. Quality is paramount with a locating system both in terms of speed and efficiency of the locating process (making it more profitable) and for safety and liability considerations (e.g., inadvertently striking a utility underground). In addition, HDD locating systems generate data about where critical

infrastructure is buried underground, and it is important for customers to trust that this data will not be misappropriated for other uses. Customers therefore place a premium on products that are manufactured in the United States.

29. Today, DCI has over 100 employees, including engineers, customer service representatives, and in-field sales personnel.

30. DCI is the largest provider of HDD locating systems in the United States.

31. DCI has consistently been the innovation leader in the HDD locating industry. DCI's locate point and Falcon technologies have set the standard that other competitors follow. DCI funnels a significant portion of its profits into research and development ("R&D") to continually innovate its products. The United States Patent and Trademark Office ("USPTO") has recognized DCI's innovation by awarding numerous U.S. patents covering DCI's HDD products and systems, including the Asserted Patents.

32. DCI has sold, and continues to sell, locating systems implementing the Asserted Patents in Iowa and throughout the United States.

33. DCI's largest distribution partner in the United States, Vermeer Corporation, is headquartered in Pella, Iowa. Vermeer purchases DCI's products and then resells them, together with Vermeer's drill rigs, to end customers throughout the United States.

B. The Asserted Patents

34. On May 20, 2014, the USPTO duly and legally issued the '901 patent, entitled "Measurement Device and Associated Method for Use in Frequency Selection for Inground Transmission," to inventors Loc Viet Lam and Albert W. Chau.

35. Merlin Technology, Inc., is the assignee and sole owner of the '901 patent and has exclusively licensed the '901 patent to co-plaintiff DCI, including the right to bring this action,

enforce the ’901 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’901 patent is attached as **Exhibit A**.

36. On December 31, 2019, the USPTO duly and legally issued the ’536 patent, entitled “Apparatus for Predicting a Maximum Operational Depth for an Underground Drilling Procedure and Method,” to inventors Loc Viet Lam and Albert W. Chau.

37. Merlin Technology, Inc., is the assignee and sole owner of the ’536 patent and has exclusively licensed the ’536 patent to co-plaintiff DCI, including the right to bring this action, enforce the ’536 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’536 patent is attached as **Exhibit B**.

38. On May 3, 2022, the USPTO duly and legally issued the ’474 patent, entitled “Portable Device for Noise Measurement at Locations Along a Path to Determine One or More Indications,” to inventors Loc Viet Lam and Albert W. Chau.

39. Merlin Technology, Inc., is the assignee and sole owner of the ’474 patent and has exclusively licensed the ’474 patent to co-plaintiff DCI, including the right to bring this action, enforce the ’474 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’474 patent is attached as **Exhibit C**.

40. The application resulting in the ’901 patent—Application No. 12/497,990—was filed July 6, 2009. The ’536 patent, ’474 patent, and ’901 patent share a common specification, and all three patents claim the benefit of priority to Application No. 12/497,990.

41. On August 22, 2017, the USPTO duly and legally issued the ’140 patent, entitled “Communication Protocol in Directional Drilling System, Apparatus and Method Utilizing Multi-Bit Data Symbol Transmission,” to inventors Rudolf Zeller, Gary Garrabrant, Timothy Bayliss, and John E. Mercer.

42. Merlin Technology, Inc., is the assignee and sole owner of the ’140 patent and has exclusively licensed the ’140 patent to co-plaintiff DCI, including the right to bring this action, enforce the ’140 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’140 patent is attached as **Exhibit D**.

43. On June 7, 2011, the USPTO duly and legally issued the ’614 patent, entitled “Flux Plane Locating in an Underground Drilling System,” to inventors Guenter W. Brune, Albert W. Chau, and John E. Mercer.

44. Merlin Technology, Inc., is the assignee and sole owner of the ’614 patent and has exclusively licensed the ’614 patent to co-plaintiff DCI, including the right to bring this action, enforce the ’614 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’614 patent is attached as **Exhibit E.**

45. On March 22, 2016, the USPTO duly and legally issued the ’738 patent, entitled “Flux Plane Locating in an Underground Drilling System,” to inventors Guenter W. Brune, Albert W. Chau, and John E. Mercer.

46. Merlin Technology, Inc., is the assignee and sole owner of the ’738 patent and has exclusively licensed the ’738 patent to co-plaintiff DCI, including the right to bring this action, enforce the ’738 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’738 patent is attached as **Exhibit F.**

47. On December 13, 2016, the USPTO duly and legally issued the ’074 patent, entitled “Flux Plane Locating in an Underground Drilling System,” to inventors Guenter W. Brune, Albert W. Chau, and John E. Mercer.

48. Merlin Technology, Inc., is the assignee and sole owner of the ’074 patent and has exclusively licensed the ’074 patent to co-plaintiff DCI, including the right to bring this action,

enforce the ’074 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’074 patent is attached as **Exhibit G.**

49. The ’614 patent, ’738 patent, and ’074 patent share a common specification and claim the benefit of priority to Application No. 09/641,006, filed on August 17, 2000, now U.S. Patent No. 6,496,008.

50. The ’614 patent, ’738 patent, and ’074 patent expired on August 17, 2020.

51. On March 12, 2019, the USPTO duly and legally issued the ’867 patent, entitled “Directional Drilling Communication Protocols, Apparatus and Methods,” to inventors Albert W. Chau, Loc Viet Lam, and Scott Phillips.

52. Merlin Technology, Inc., is the assignee and sole owner of the ’867 patent and has exclusively licensed the ’867 patent to co-plaintiff DCI, including the right to bring this action, enforce the ’867 patent against infringers, collect damages for all relevant times, and obtain injunctive relief. A copy of the ’867 patent is attached as **Exhibit H**.

53. In compliance with the requirements of 35 U.S.C. § 271(a), DCI has continuously and consistently marked its applicable products with the Asserted Patents (until, with respect to the ’614, ’738, and ’074 patents, they expired).

54. The Asserted Patents are valid and enforceable.

55. The inventions claimed in the Asserted Patents revolutionized the field of HDD locating and were not well understood, routine, or conventional. The inventions claimed in the Asserted Patents are embodied in several DCI products, including but not limited to many of DCI’s DigiTrak Falcon Receivers and Transmitters. These solve specific technological problems in tracking drill heads underground during underground utility installations, and have saved time and money over prior-art location technology by allowing operators to successfully complete

more drilling jobs and to more easily, quickly, and accurately identify the location and orientation of the drill head underground. These inventions provide competitive advantages to HDD drilling contractors using this equipment, who bid for drilling contracts on a price per foot of drilling basis in a fiercely competitive and price sensitive marketplace.

56. For instance, the accuracy and range of prior-art locator systems were limited due to local interference with the transmitter signal caused by electromagnetic noise that is present in the environment. *See, e.g.*, Ex. A, ’901 patent, at 1:30-2:3. Moreover, electromagnetic noise can vary along different points in a region, at different times, and across the transmission frequency range. *See, e.g., id.* This electromagnetic noise limited the maximum depth at which transmitters could effectively operate. *See, e.g., id.*

57. The inventions claimed in the ’901 patent, ’536 patent, and ’474 patent reduce or eliminate these problems by employing an unconventional approach for avoiding noise at HDD jobsites. *See, e.g., id.* at 2:7-3:42. Prior to the inventions claimed in the ’901 patent, ’536 patent, and ’474 patent, HDD locators typically employed a single fixed frequency for the transmitter’s signal to avoid noise (for example, a frequency that would avoid noise from the 60hz power grid). HDD locating manufacturers commonly claimed that their frequency was better than the competition’s, reflecting an underlying assumption that there were certain frequencies that would generally avoid noise. Accordingly, members of the HDD industry, including Golden Land, focused on building bigger, more powerful transmitters that could emit stronger signals to overwhelm noise:

(April 2015 Golden Land Trade Show Promotion in China).

58. After extensive testing in high-noise HDD environments, the inventors of the ’901 patent, ’536 patent, and ’474 patent discovered that noise was more varied and pervasive on HDD jobsites than previously realized, and that noise could change with even small changes in location along a bore path, or even at different times of day. Accordingly, flexibility to choose among a greater number of frequencies could have a greater impact on avoiding noise than increasing the signal strength of the transmitter, and unconventional design would be required to provide the necessary flexibility to handle noise at an HDD jobsite.

59. The inventive concepts claimed in the ’901 patent, ’536 patent, and ’474 patent provide highly advantageous and effective technology for identifying an optimal discrete transmission frequency for use in underground drilling in environments where electromagnetic noise changes across frequencies and with even small changes in position along a drilling path. *See, e.g., id.* For example, the inventions claimed in the ’901 patent, ’536 patent, and ’474 patent

can be used to determine a predicted maximum depth of the transmitter at one or more frequencies, and update those readings along a drill path, to allow the crew to pick the best frequency and adjust as necessary as noise changes in the HDD environment. *See, e.g.*, Ex. A at 2:7-3:42. The inventive concepts claimed in the ’901 patent, ’536 patent, and ’474 patent were not well-understood, routine, or conventional activity in HDD environments, and forged a new direction in HDD locators that both the Defendant and its affiliated entity, Golden Land, soon followed.

60. The inventive concepts claimed in the ’901 patent, ’536 patent, and ’474 patent are critical to enhancing the core performance of HDD locating systems by increasing their range and accuracy. These improvements allow for successful completion of operational procedures in environments with high levels of electromagnetic noise, including urban environments, that previously could not be completed with an HDD locating system. This saves drilling contractors significant time and money compared to having to use more expensive and time-consuming alternatives (such as “wireline systems”) to tackle more challenging drilling projects. Thus, the inventive concepts claimed in the ’901 patent, ’536 patent, and ’474 patent improve the capability of HDD locating systems as a whole in ways that were not well understood, routine, or conventional at the time of the inventions.

61. The inventions claimed in the ’140 patent were likewise not well-understood, routine, or conventional activity. Depth range is considered one of the key performance metrics for an HDD locating system. However, demonstrating a system’s depth range to customers presented a difficult challenge. Renting and setting up drilling equipment involves significant time and expense; drilling extremely deep (to the outer limits of a system’s range) and digging down to verify the depth is impractical. Accordingly, HDD manufacturers typically simulate this

by laying a transmitter and receiver apart from each other on the ground (i.e., horizontal range on the ground instead of vertical range underground). However, due to differences in conductivity between air and underground, an HDD system's horizontal range on the surface can appear less than the vertical range while drilling underground. Surface effect compensation is a technique that approximates what the depth range would actually be underground during demonstrations on the earth's surface. However, the inventors also identified another problem—this compensation technique could provide inaccurate depth measurements while drilling underground.

62. The inventive concepts claimed in the '140 patent solve specific technological problems in both demonstrating the performance of an HDD locating system and accurately tracking a drill head underground during drilling, with specific technical solutions—a more flexible dual-mode system that provides an above-ground mode employing a surface effect compensation technique (enhancing customer demonstrations and making such demonstrations more practical), and a below-ground drilling mode that allows for more accurate depth measurements during drilling operations. Thus, the inventive concepts claimed in the '140 patent improve the capability of HDD locating systems as a whole in ways that were not well understood, routine, or conventional at the time of the inventions.

63. The inventions claimed in the '614 patent, '738 patent, and '074 patent were also not well-understood, routine, or conventional activity. Prior to these inventions, HDD locators employed a two-dimensional antenna to receive the signal from an underground transmitter. While this approach represented the cutting edge of HDD locators at the time, this ultimately required the operator to learn a more complicated locating technique that involved making a series of 90-degree turns (with each turn essentially representing the third dimension) based on changes in the locator readings before finally homing in on a "locate point." This presented

challenges in terms of training, complexity involved with using the equipment and time required to perform the HDD locating process.

64. The inventive concepts claimed in the ’614 patent, ’738 patent, and ’074 patent solve specific technological problems in tracking a drill head underground during an HDD operation with specific technical solutions—measuring and utilizing the flux intensity of a locating signal above ground with a portable receiver to determine the location and orientation of an underground boring tool. By measuring the local flux intensity of the magnetic field signal from the transmitter in three dimensions, the inventors could generate an improved directional indication that would lead the operator straight to the “locate point.”

65. The inventive concepts claimed in the ’614 patent, ’738 patent, and ’074 patent revolutionized how HDD locating is performed. The claimed approach greatly simplified the locating process, making it easier and faster, and reducing drilling contractors’ costs. *See*, *e.g.*, Ex. E, ’614 patent, at 1:25-2:16. These inventions also reduced the need for operator training, which represents significant value for drilling companies. *See id.* Thus, the inventive concepts claimed in the ’614 patent, ’738 patent, and ’074 patent improve the capability of HDD locating systems as a whole in ways that were not well understood, routine, or conventional at the time of the inventions.

66. Similarly, the inventions claimed in the ’867 patent were not well-understood, routine, or conventional activity. Electromagnetic interference and depth impacted the amount of sensor data that could be recovered by prior-art systems with sufficient accuracy. Ex. H, ’867 patent, at 1:18-64. One prior-art approach was to simply increase the transmission power. *Id.* at 1:56-58. This approach, however, was of limited value, particularly when the inground electronics package is powered by batteries. *Id.* at 1:58-61. Moreover, lowering the data or baud

rate at which data is modulated on the locating signal would be attended by a drop in data throughput. *Id.* at 1:61-64.

67. The inventive concepts claimed in the ’867 patent reduce or eliminate these problems by employing nonroutine and unconventional techniques such as advanced data protocols to selectively customize data resolution for various parameters based on the received data signals, including pitch resolution. *Id.* at 2:6-3:60. The inventions claimed in the ’867 patent allow for reduced packet sizes, which translates into increased update rates for purposes of monitoring the inground tool while utilizing a narrow data bandwidth that provides ample noise immunity. *Id.* at 2:6-3:60, 9:65-10:48. Increasing update rates allows for a better customer experience (thereby translating to a competitive advantage and more sales of locators), and enables customers to complete a larger number of jobs in a shorter period of time, ultimately making them more profitable. Thus, the inventive concepts claimed in the ’867 patent improve the capability of HDD systems as a whole in ways that were not well understood, routine, or conventional at the time of the inventions.

68. DCI has invested, and continues to invest, substantial time and resources in advertising and establishing a market for the technology claimed in the Asserted Patents. For example, DCI employs a network of sales and marketing professionals and field managers to advertise and demonstrate its products embodying the Asserted Patents to customers across the country.

C. DCI’s Trademarks

69. DCI created and has been using its distinctive ball design trademark  and variations thereof (such as ) (collectively, DCI’s “Ball Mark”) in commerce continuously

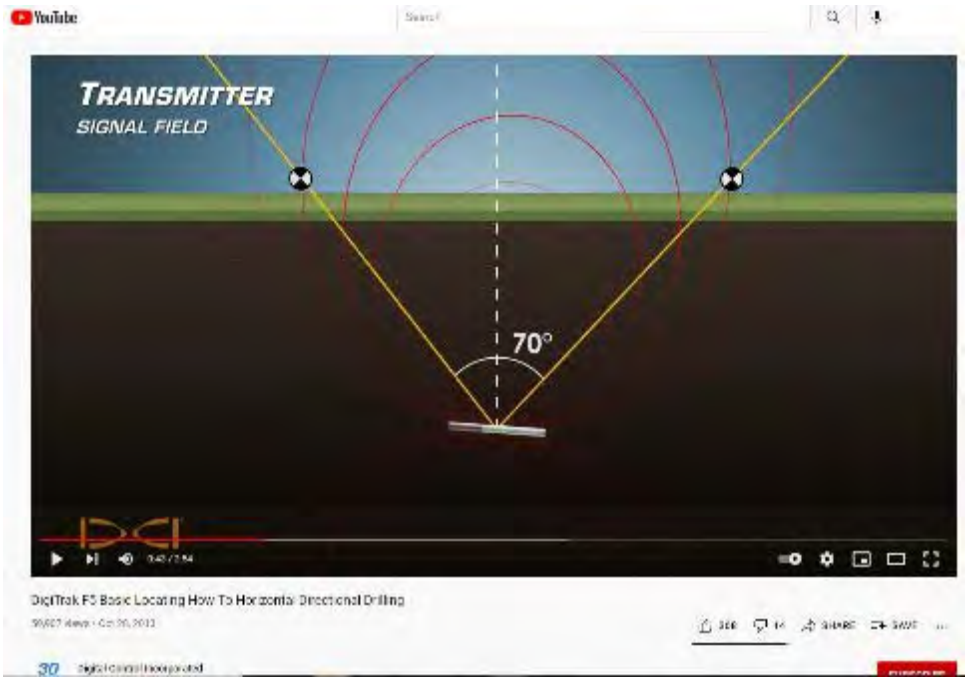
since approximately 2001 in connection with its core HDD locating system products. Such use has occurred nationally and globally, including throughout the State of Iowa.

70. For example, the Ball Mark features prominently on DCI's DigiTrak Eclipse inGround Position System and DigiTrak Mark V products:

Ex. KK (DCI DigiTrak Eclipse Facebook Post); Ex. LL (DigiTrak Eclipse Spec Sheet);

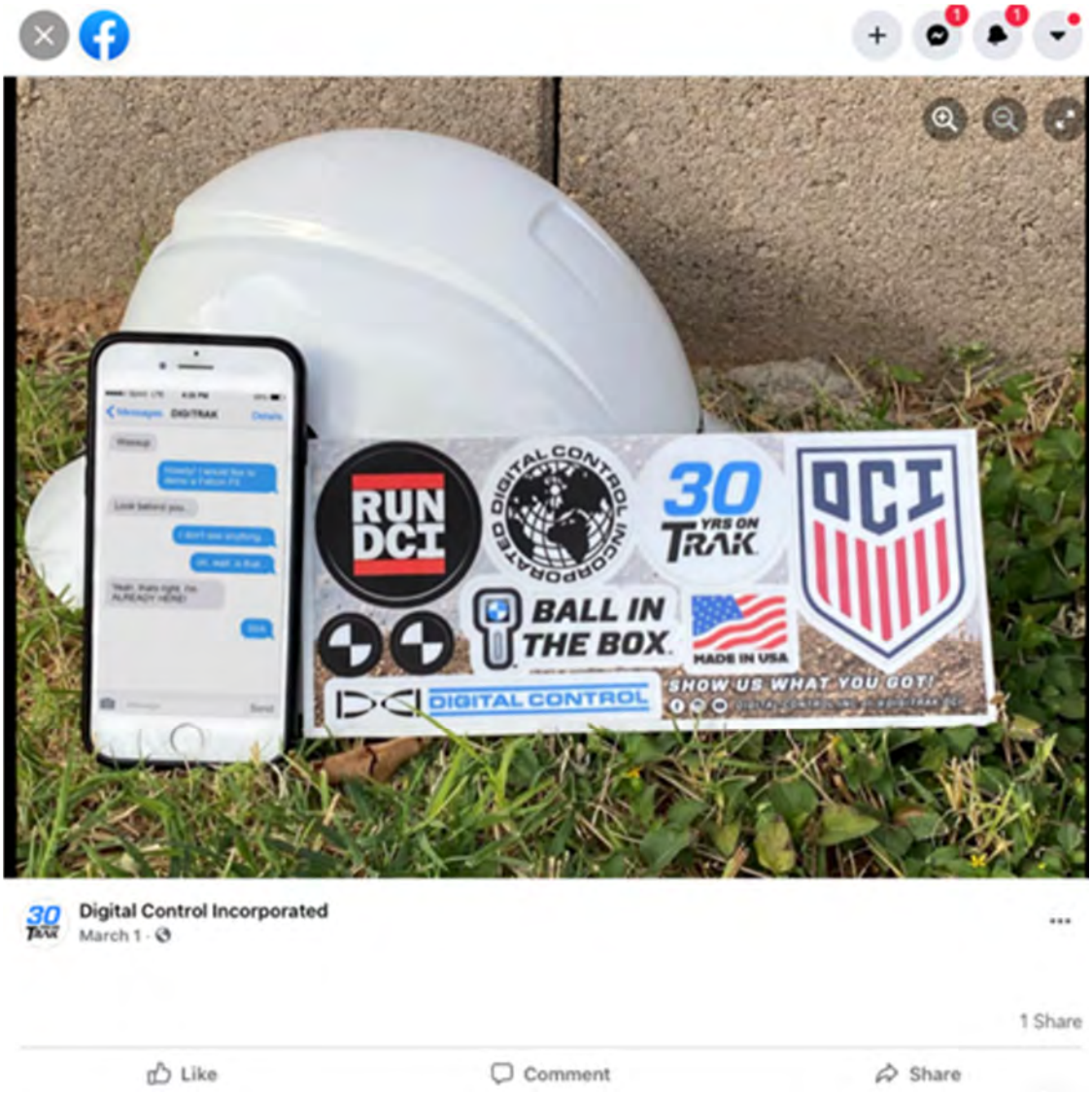
Ex. MM (DigiTrak Mark V).

71. DCI also features its Ball Mark in its product and promotional materials. These include, for example, YouTube videos that have been viewed tens of thousands of times, widely distributed promotional giveaways (e.g., stickers), and DCI's product manuals, as shown below:



DigiTrak F5 Basic Locating How-To Horizontal Directional Drilling at 0:43, https://www.youtube.com/watch?v=tGD-hDeE8G0 (last visited May 16, 2022);

DigiTrak Falcon F5 Basic Locating How-To for Horizontal Directional Drilling – Animated at 0:41, https://www.youtube.com/watch?v=6e5XDKIgYbI (last visited May 16, 2022);



Ex. NN (DCI Mar. 1, 2020, Facebook Post) (available at https://www.facebook.com/digitrak.dci/photos/pcb.10158116172513310/10158116169688310/ (last visited May 16, 2022)); *see also* Ex. OO (DigiTrak Falcon F5 Supplement B).

72. Building on its rights in the Ball Mark, in or around 2001, DCI coined the trademark BALL-IN-THE-BOX™ (hereinafter the "BALL-IN-THE-BOX™ Word Mark"), which it has used continuously throughout the country, including Iowa, in connection with its core HDD locating system products. DCI's BALL-IN-THE-BOX™ products revolutionized the

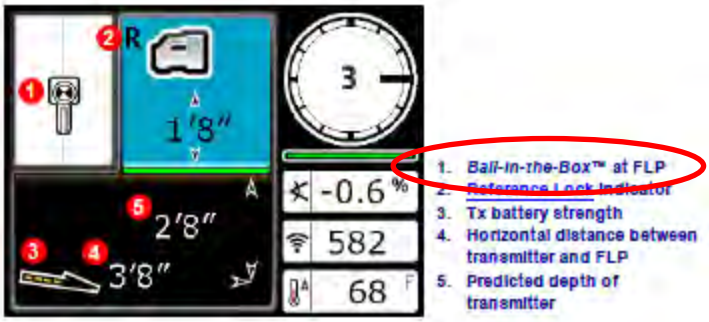
HDD industry by simplifying and speeding up the HDD locating process, saving drilling contractors time and money, and making them more competitive.

73. DCI features the BALL-IN-THE-BOX™ Word Mark in connection with its DigiTrak HDD locating system products, including the DigiTrak Falcon F5+, DigiTrak Falcon F1, DigiTrak Falcon F2+, and DigiTrak Falcon F5 products.

74. For example, the BALL-IN-THE-BOX™ Word Mark features prominently in DCI's marketing materials for its DigiTrak Falcon F5 product:

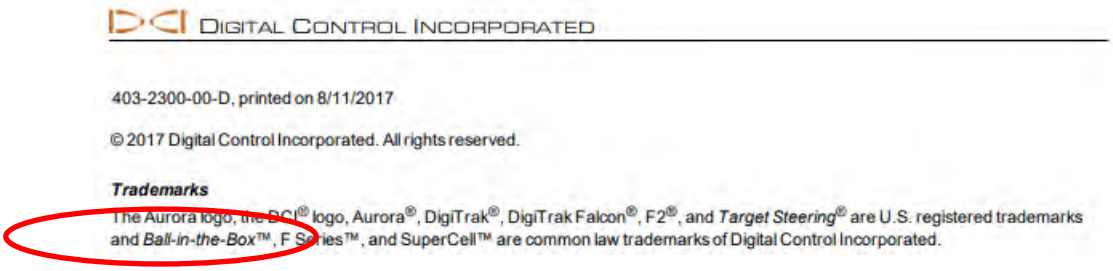
Ex. JJ (F5 A Breeze to Use) (annotated); *see also* Ex. NN.

75. DCI also features its BALL-IN-THE-BOX™ Word Mark in its product materials, as shown in the following examples for its DigiTrak Falcon F5+ and DigiTrak Falcon F2 products:

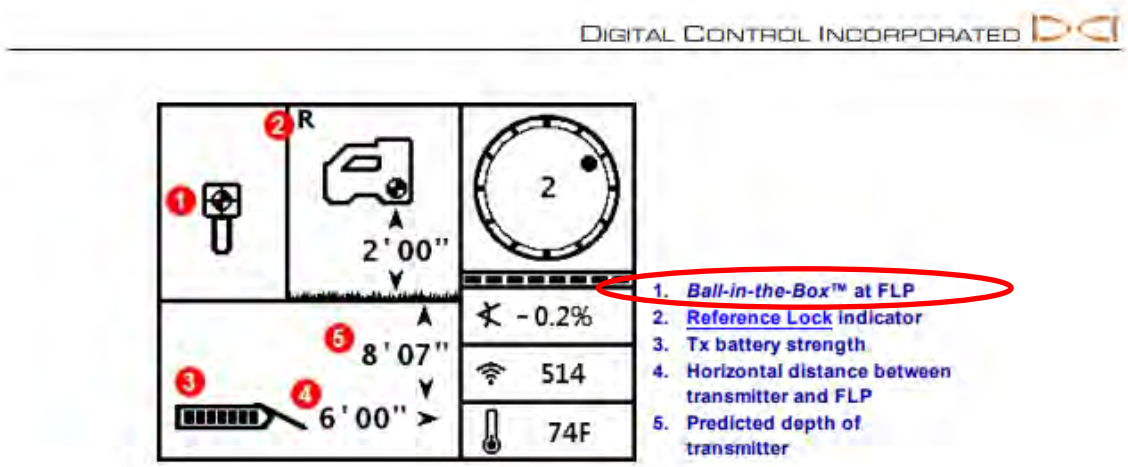


Predicted Depth Screen at FLP with HAG On

Ex. TT (Falcon F5 2017 Operator's Manual) at 39 (annotated);



Ex. GG (Falcon F2 2017 Operator's Manual) at ii (annotated);



Predicted Depth Screen at FLP with HAG On

Ex. GG at 33 (annotated); *see also* Ex. LL at 1.

76. Furthermore, DCI's authorized distributors feature the BALL-IN-THE-BOX™ Word Mark in their product listings, as the below example demonstrates:

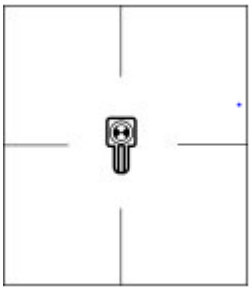
DIGITRAK SE SYSTEM

The DigiTrak® SE® locating system introduces the engineering advancements of DCI and is still compatible with your familiar Mark Series accessories.
Utilizing Ball-in-the-Box™ technology, a simple to learn user interface, and DCI's world class functionality the SE locator is a formidable tool for any HDD contractor. The proven 12 kHz frequency and remote steering make the SE a must-have for contractors who rely on getting the job done without any complications.

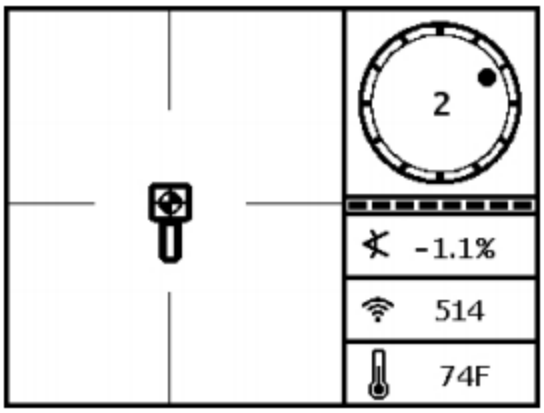
https://worldhdd.com/category/dci-locators/digitrak-se-system/ (last visited May 16, 2022).

77. Additionally, DCI created and has been continuously using its BALL-IN-THE-BOX design trademarks shown below (individually and collectively, hereinafter the "BALL-IN-THE-BOX Design Marks") in connection with its DigiTrak HDD locating system products at least as early as 2001.

BALL-IN-THE-BOX Design Marks

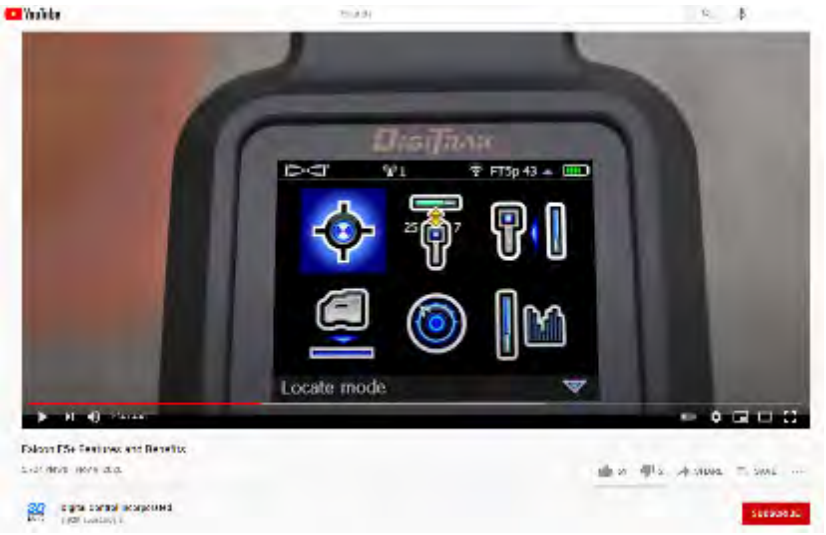


78. DCI's BALL-IN-THE-BOX Design Marks feature prominently in DCI's BALL-IN-THE-BOX™ locating system's graphic user interfaces, as shown in the following examples:



Ex. GG at 43;

Introducing the Falcon F5+ at 0:50, https://www.youtube.com/watch?v=2ssHHuhS_ew (last visited May 16, 2022);

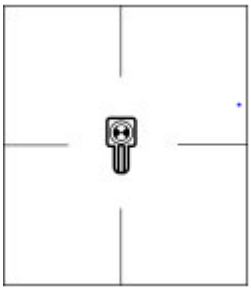


Falcon F5+ Features and Benefits at 1:24, https://www.youtube.com/watch?v=D6RumvK6cvg (last visited May 16, 2022); *see also* Ex. NN.

79. DCI's BALL-IN-THE-BOX™ Word Mark and BALL-IN-THE-BOX Design Marks are collectively referred to as the "BALL-IN-THE-BOX Marks." DCI owns, among others, the following federal trademark applications for the BALL-IN-THE-BOX Marks.

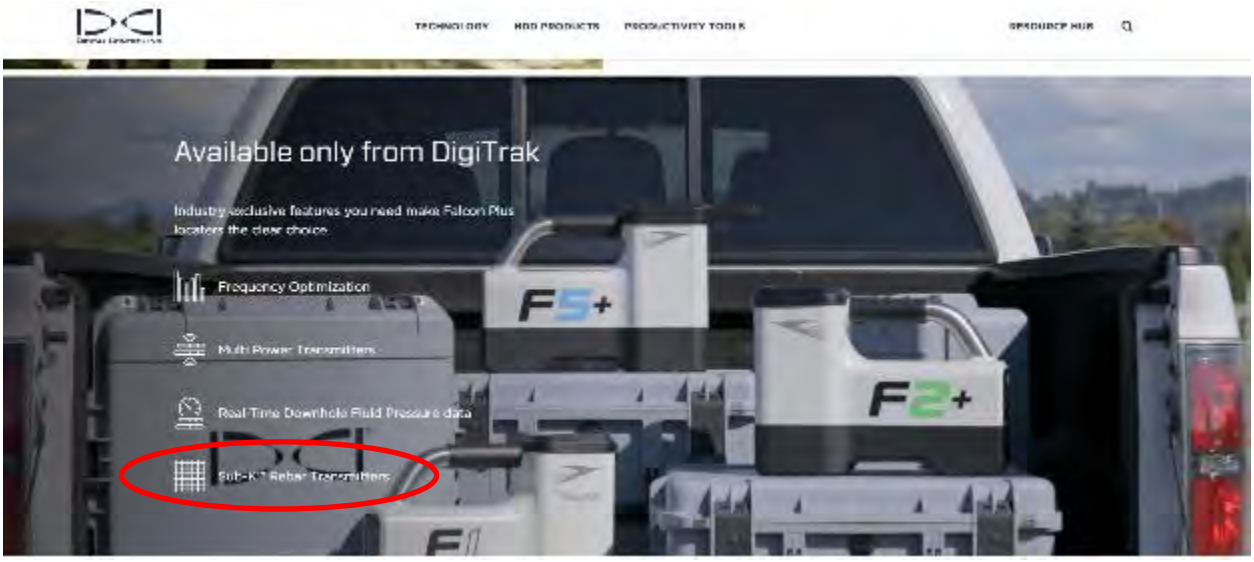
Mark	**App. No.**	**Goods/Services**
BALL-IN-THE-BOX	88910933	Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Digital and electromagnetic Receivers, digital and electromagnetic transmitters and digital displays for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; Electronic display interfaces; Electronic navigational and positioning apparatus and instruments; Downloadable Software for collecting, transmitting, receiving, analyzing, storing

Mark	App. No.	Goods/Services
		and presenting information on underground objects and related parameters; downloadable software for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Sensors for the determination of temperatures, positions and distances; Electronic devices for locating and tracking underground objects using dipole magnetic fields in Class 9. Telecommunication services, namely, digital and electromagnetic transmission of location data by means of wireless communications network in Class 38. Scientific and technological services, namely, scientific research and analysis in the field of underground objects and related parameters and research and design relating thereto; industrial analysis of underground objects and related parameters, industrial research in the field of underground objects and related parameters and industrial design services; quality control of goods and services, namely, underground objects and underground drilling; design and development of computer hardware and software in Class 42.
	90059051	Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Digital and electromagnetic Receivers, digital and electromagnetic transmitters and electronic digital display interfaces for collecting, transmitting, receiving, analyzing, storing and presenting

Mark	App. No.	Goods/Services
		information on underground objects and related parameters; Electronic display interfaces; Electronic navigational and positioning apparatus and instruments; Downloadable Software for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; downloadable software for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Sensors for the determination of temperatures, positions and distances; Electronic devices for locating and tracking underground objects using dipole magnetic fields in Class 9.
	90059062	Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Digital and electromagnetic Receivers, digital and electromagnetic transmitters and electronic digital display interfaces for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; Electronic display interfaces; Electronic navigational and positioning apparatus and instruments; Downloadable Software for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; downloadable software for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Sensors for the determination of temperatures, positions and distances; Electronic devices for locating and tracking

Mark	App. No.	Goods/Services
		underground objects using dipole magnetic fields in Class 9.

80. Moreover, in or around 2017, DCI coined the trademark SUB-K, which it has used continuously (nationally, including throughout the State of Iowa) in connection with its rebar transmitters, including its DigiTrak locating systems:



See https://digital-control.com/technology (last visited May 16, 2022) (annotated);

DigiTrak - Falcon F5 with Sub-K Rebar transmitter animated demonstration at 1:09, https://www.youtube.com/watch?v=RbPYhgAJ4z8 (last visited May 16, 2022); *see also* DigiTrak Transmitters, https://digital-control.com/transmitters (last visited May 16, 2022) ("Sub-k"); Underground Supply Solutions, DCI Locators, https://www.ugsupply.com/products/dci-locators (last visited May 16, 2022) ("Sub-k"); Ex. OO ("Sub-k").

81. DCI owns the following federal trademark registration for the SUB-K Mark:

Mark	**Reg. No.**	**Goods/Services**
SUB-K	6685363	Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; Electronic hardware, namely, digital and electromagnetic receivers and transmitters for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Digital and electromagnetic receivers, digital and electromagnetic transmitters and electronic digital display interfaces for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects

Mark	Reg. No.	Goods/Services
		and related parameters; Electronic display interfaces; Electronic navigational and positioning apparatus and instruments; Downloadable software for collecting, transmitting, receiving, analyzing, storing and presenting information on underground objects and related parameters; Downloadable software for collecting, transmitting, receiving, analyzing, storing and presenting physical positioning data; Sensors for the determination of temperatures, positions and distances; Electronic devices for locating and tracking underground objects using dipole magnetic fields in Class 9.

82. DCI has spent substantial time, money, and resources in marketing, advertising, and promoting its Ball Mark, BALL-IN-THE-BOX Marks, and SUB-K Mark (collectively, "DCI Marks") in a variety of media, e.g., on the Internet (including its website at https://digital-control.com/) and social media (e.g., Facebook and YouTube).

83. DCI and its products are also regularly featured in industry publications, including *Trenchless Technology*.

84. DCI also advertises and promotes its DCI Marks at tradeshows, including the Underground Construction Technology trade show and The Utility Expo.

85. DCI's products offered in connection with the DCI Marks have enjoyed substantial commercial success, with sales in the tens of millions annually. Additionally, DCI's U.S. market share is well above 50%.

86. As a result of its widespread, continuous, and exclusive use of the DCI Marks to identify its HDD locating systems and DCI as their source, DCI owns valid and subsisting common law rights to the DCI Marks.

87. The DCI Marks are distinctive to both the consuming public and DCI's trade.

88. As a result of DCI's significant promotional efforts and investment, and the popularity and commercial success of DCI's products offered in connection with the DCI Marks, consumers have come to associate the DCI Marks exclusively with DCI, and the DCI Marks have acquired substantial goodwill belonging exclusively to DCI.

D. Underground Magnetics, Inc.

1. Underground Magnetics, Inc.'s Patent Infringement

a. Nature of Patent Infringement

89. Underground Magnetics, Inc., was incorporated on December 29, 2017.

90. Underground Magnetics, Inc., makes, uses, offers to sell, sells, and/or imports various HDD receivers, transmitters, and related products designed to assist HDD machine operators in installing and mapping the location of critical infrastructure (e.g. utilities) underground, including but not limited to Defendant's receivers, displays and/or systems commercialized under names such as "Mag 3," "Mag 3s," "Mag 5," Mag 5s," "Mag 6," "Mag 8," "Mag 8e," and "Mag 9," as well as transmitters commercialized under names such as "Echo 110," "Echo 90," "Echo 70," "Echo 60," "Echo 50," "Echo 50x," "Echo 50XF," "Echo 51," "Echo 1," "Echo 2S," "Echo 3," "Echo Xmini," "Echo ST," and "Echo ST-H." *See* Ex. J (Packages Web Archive); Ex. K (Receivers Web Archive); Ex. L (Transmitters Web Archive); Ex. M (Displays Web Archive); Ex. N (Mag 8 - Underground Magnetics Website Capture); Ex. R (2019 QuickStart Mag 3-6-8); https://undergroundmagnetics.com/products/receivers/ (last visited May 16, 2022); https://undergroundmagnetics.com/products/transmitters/ (last visited May 16, 2022). Sales of the Accused Receivers and Accused Transmitters also stimulate sales of remote displays and other accessories that are often sold as part of a bundled system (e.g., as part of the Accused Systems).

91. Underground Magnetics, Inc., heavily advertises features in these Accused Products that infringe the Asserted Patents and instructs customers to use them in an infringing manner.

92. For example, Underground Magnetics, Inc., has created and posted videos advertising how the Accused Receivers are used to measure electromagnetic interference along a path and select a discrete transmission frequency to use for an operational procedure in a manner that infringes the ’901 patent, the ’536 patent, and the ’474 patent:

Underground Magnetics Walking The Bore Path at 1:12-1:30, https://www.youtube.com/watch?v=xBrbRwzOAWI (last visited Nov. 18, 2021) (“So let’s take a walk and see what we have for ***active interference*** and ***choose which frequency to use*** for our bore today. As we walk from the drill, we notice that there is little interference since the top number is showing we can drill at least 65 feet deep in the selected frequency and power level. The worst case is showing 39 feet.” (emphases added));

id. at 0:10-0:16, 0:38-1:30 ("Now, the ***predicted depth*** will be displayed. You'll see a signal graph and three numbers to the right. The receiver is measuring the active interference in the area you are standing based on the frequency chosen. In this case, you'll see ECHO2S 19K with two bars highlighted indicating low power. To the right, the top number is the best depth prediction, and the bottom is the worst. The middle number is reading the signal in real time and will be changing ***as you walk along your bore path***. At any time while walking along the bore path, you can tap the enter button to refresh the depth prediction." (emphases added));

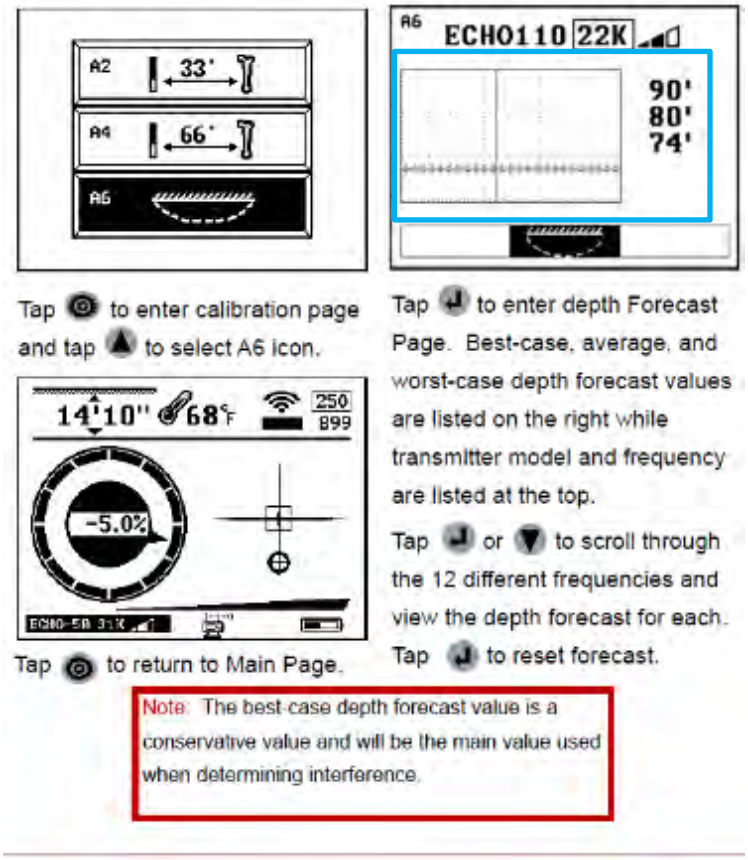
2. Walk the bore path with the receiver while using depth forecast to check for interference.

Manual 8S | 16
Manual 3&6S | 16

- Use this information to choose which frequency to use.
- 10 frequency bands: 4kHz, 7kHz, 10kHz, 12kHz, 16kHz, 19kHz, 22kHz, 25kHz28kHz, and 31kHz
- Select desired frequency and power level in Transmitter Settings

Manual 8S | 18
Manual 3&6S | 18

Ex. O at 4 (Mag 3-6-8 Manual);

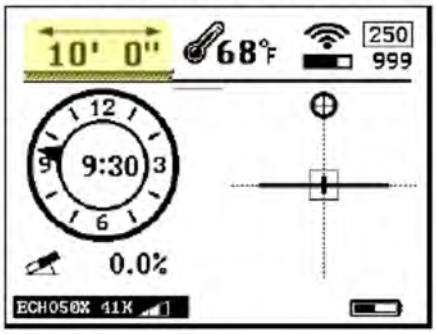


Ex. P (Mag System Manual) at 21 (annotated in blue). *see also* Ex. HH (Mag 9 Manual) at 10, 22, 25; Ex. QQ (Mag 3S 5S Manual) at 10, 21, 24; UM Bore Path at 0:26-1:50, https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s (last visited May 16, 2022) ("So let's take a walk, and see what we can see for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice the numbers changing as the interference changes.").

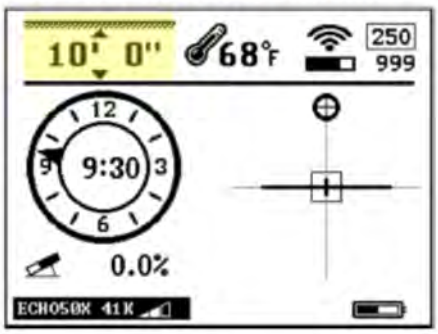
93. Defendant's user manuals and online tutorial videos also demonstrate how the Accused Receivers are configured to determine an above-ground range from the receiver to the transmitter in a first operational mode with a surface effect compensation and to determine a below-ground depth in second operational mode without a surface effect compensation in a manner that infringes the '140 patent:

After calibration, above ground distance will change to below ground distance. Below ground distance is the distance to the transmitter or, the depth when directly above the transmitter. This conversion is done automatically when the transmitter has rotated for 15 seconds.

ABOVE GROUND DISTANCE



BELOW GROUND DISTANCE



Ex. HH at 20 (showing 10ft for both "ABOVE GROUND DISTANCE" and "BELOW GROUND DISTANCE") ("After calibration, above ground distance *will change to below ground distance*. . . . This *conversion* is done automatically when the transmitter has rotated for 15 seconds." (emphases added)); *see also* Ex. QQ at 19; UM Calibration at 0:19-2:11, https://www.youtube.com/watch?v=8k5ONcotxg0 (last visited May 16, 2022).

94. Additionally, Defendant advertises and highlights for its customers how its transmitters change pitch resolution at pitches outside of -45% to +45% in a manner that infringes the '867 patent.

9.3: Digital Information

- **Pitch:** From -100% to +100% with 0.1% resolution within the range of –45% to +45% and 1.0% resolution outside of that range.
- **Roll:** 24 transmitter roll positions.
- **Battery:** Install batteries positive side down and install battery cap with provided battery cap tool.
  - **Lithium:** Echo Power Cell will show full until completely dead.

Ex. P at 51 (annotated in blue).

95. Michael Young, president of Underground Magnetics, Inc., is a former DCI employee.

96. Michael Young was employed by DCI from approximately October 1995 through November 2, 2010.

97. Michael Young worked in a variety of sales and customer training positions during his twelve-year tenure at DCI, including as a lead member of DCI's customer field service team.

98. DCI terminated Michael Young's employment on November 2, 2010.

99. At the time of his termination on November 2, 2010, Michael Young had been promoted to the position of International Sales Manager.

100. During Michael Young's tenure at DCI, he gained extensive knowledge of and experience with Plaintiffs' technology, patents, trademarks, and trade dress underlying DCI's locating systems for HDD.

101. As part of his sales role at DCI, Michael Young instructed customers and potential customers how to use various features of DCI's products, including Plaintiffs' patented locate point technology. During his tenure at DCI, Michael Young traveled to trade shows, customer job sites, and other events to demonstrate to customers and potential customers how to use DCI's locating systems for HDD.

102. Defendant advertises Michael Young's extensive experience at DCI and familiarity with Plaintiffs' technology to the public for Defendant's own gain, including claiming that "he helped in the development of one of the first locating systems[,] the Digitrak." *See* https://www.undergroundmagnetics.com/about-us/ (last visited Nov. 18, 2021).

103. The "Digitrak" family of products incorporated the locate point technology claimed in the '614 patent, '738 patent, and '074 patent during Michael Young's employment at DCI. The "Digitrak" family of products also includes the DCI's Falcon technology.

104. When DCI terminated Michael Young's employment on November 2, 2010, several patents from the same patent family and sharing the same specification as the '614 patent, '738 patent, and '074 patent had already issued, including U.S. Patent No. 6,496,008; U.S. Patent No. 6,653,837; U.S. Patent No. 6,768,307; U.S. Patent No. 6,963,201; U.S. Patent No. 7,176,690; U.S. Patent No. 7,304,479; U.S. Patent No. 7,663,371; and U.S. Patent No. 7,768,265.

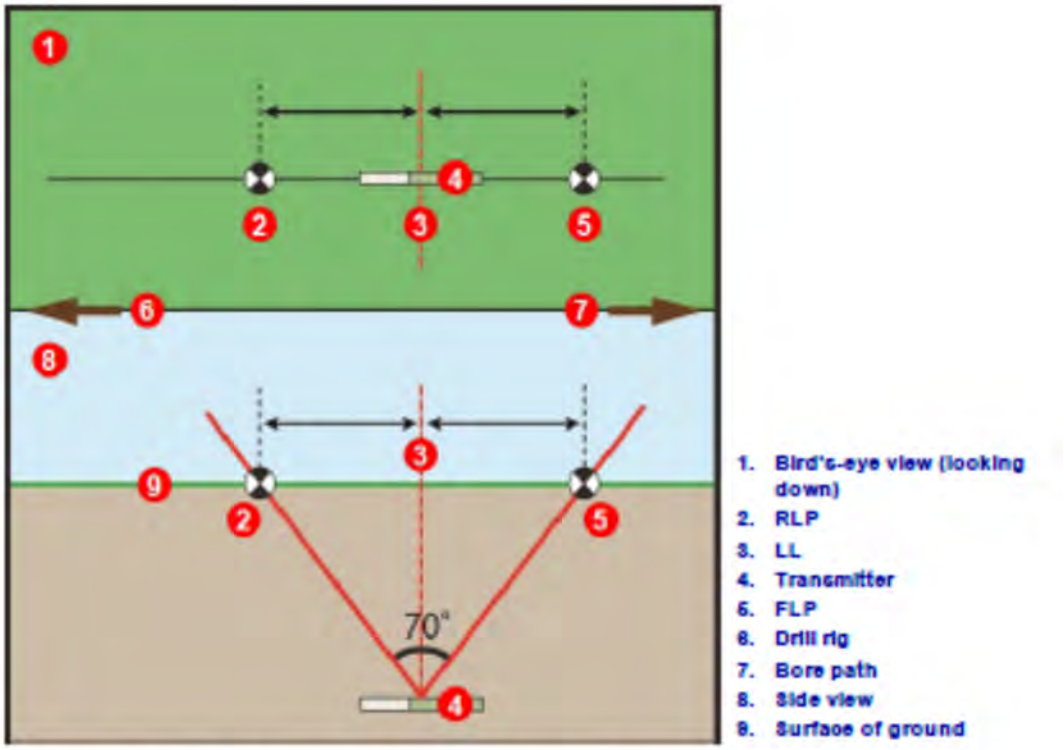
105. Upon information and belief, Michael Young—president of Underground Magnetics, Inc.—had knowledge of the '614 patent, '738 patent, and '074 patent while those patents were in force.

106. Upon information and belief, Defendant had knowledge of the '614 patent, '738 patent, and '074 patent while those patents were in force.

107. Despite Defendant's knowledge of the '614 patent, '738 patent, and '074 patent, Defendant intentionally and knowingly committed acts of patent infringement. Defendant's infringement of the '614 patent, '738 patent, and '074 patent was willful.

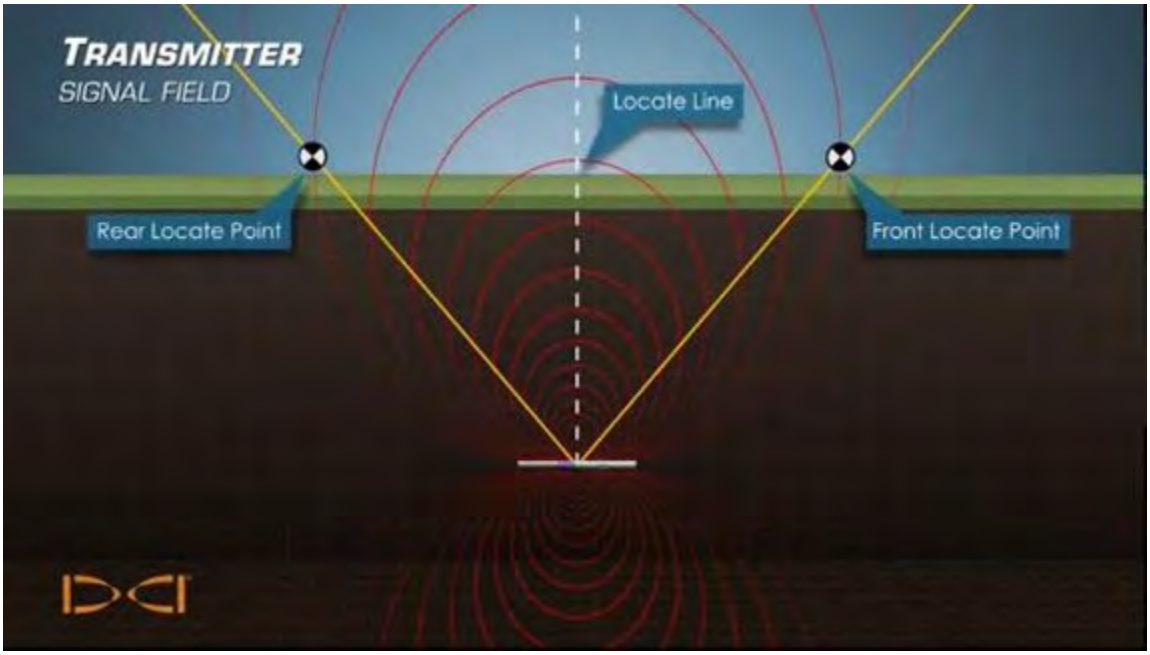
108. For example, the '614 patent, '738 patent, and '074 patent describe Plaintiffs' locate point inventions using unique terms such as "forward locate point," "FLP," "rear locate point," "RLP," "locate line," and "LL." *See, e.g.*, Ex. E, '614 patent, at 2:20-48, 6:13-22, 6:56-64, Figs. 2, 3.

109. DCI's locator products similarly use terms such as "forward locate point," "FLP," "rear locate point," "RLP," "locate line," and "LL":



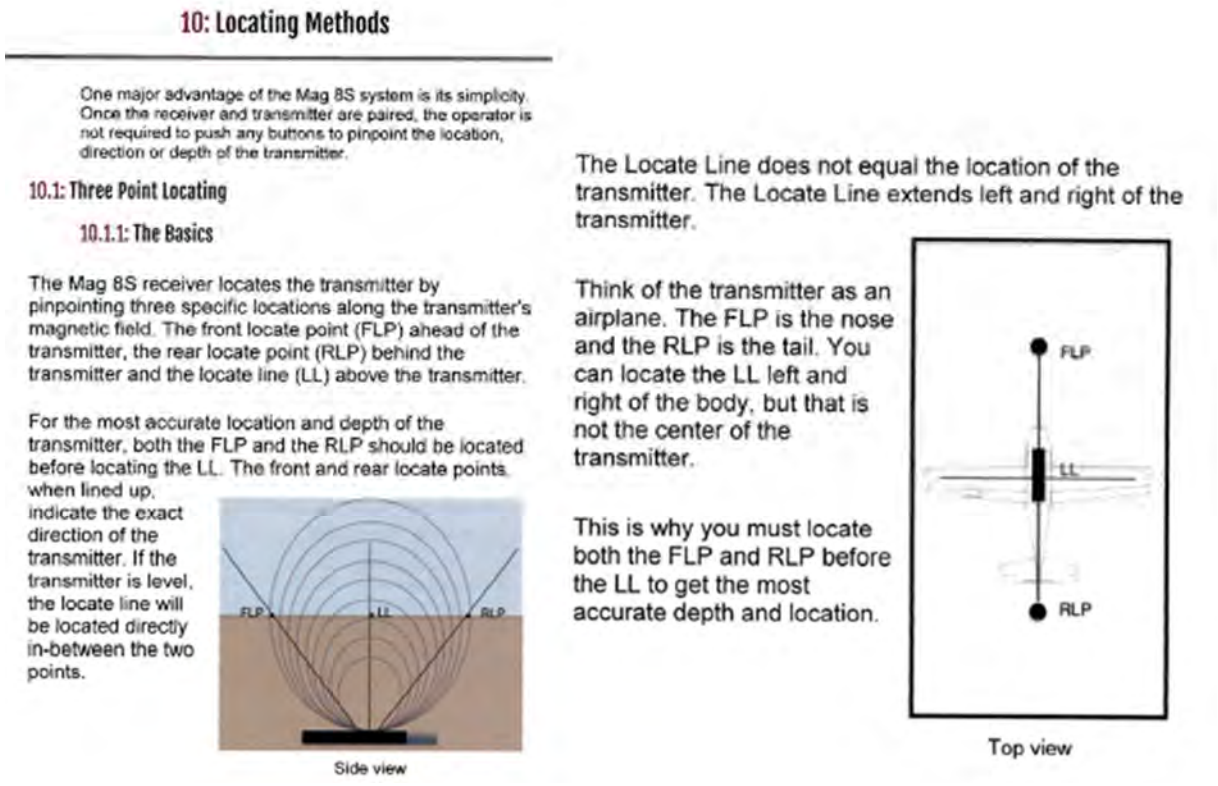
Geometry of FLP, RLP, and LL from Top (Bird's-Eye) and Side Views

Ex. TT at 43; *see also* Ex. S (DigiTrak Falcon F5+ Quick Start Guide, 2020) at 5, 7-8;



https://www.youtube.com/watch?time_continue=40&v=ildTa5n1feY at 0:40.

110. While the ’614 patent, ’738 patent, and ’074 patent were in force, Defendant’s user manuals, online tutorial videos, and marketing materials for the Accused Products used the terms “front locate point,” “FLP,” “rear locate point,” “RLP,” “locate line,” and “LL.” Specifically, Defendant described and instructed customers how to use a “front locate point” or “FLP,” a “rear locate point” or “RLP,” and a “locate line” or “LL” to locate and track underground drill head locations and orientations:



10: Locating Methods

One major advantage of the Mag 8S system is its simplicity. Once the receiver and transmitter are paired, the operator is not required to push any buttons to pinpoint the location, direction or depth of the transmitter.

10.1: Three Point Locating

10.1.1: The Basics

The Mag 8S receiver locates the transmitter by pinpointing three specific locations along the transmitter's magnetic field. The front locate point (FLP) ahead of the transmitter, the rear locate point (RLP) behind the transmitter and the locate line (LL) above the transmitter.

For the most accurate location and depth of the transmitter, both the FLP and the RLP should be located before locating the LL. The front and rear locate points, when lined up, indicate the exact direction of the transmitter. If the transmitter is level, the locate line will be located directly in-between the two points.

Side view

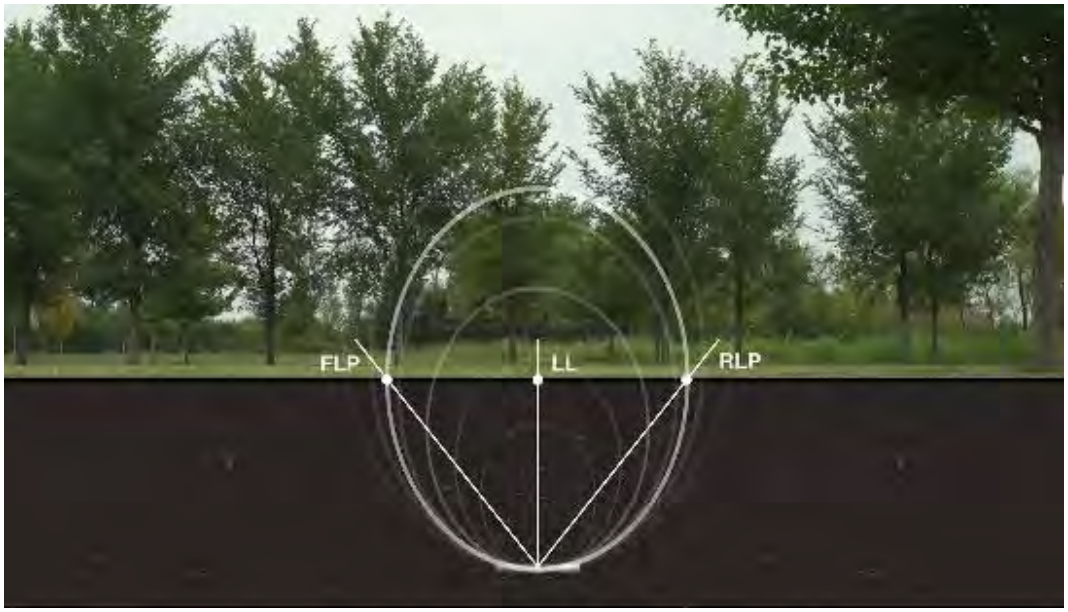
The Locate Line does not equal the location of the transmitter. The Locate Line extends left and right of the transmitter.

Think of the transmitter as an airplane. The FLP is the nose and the RLP is the tail. You can locate the LL left and right of the body, but that is not the center of the transmitter.

This is why you must locate both the FLP and RLP before the LL to get the most accurate depth and location.

Top view

Ex. Q (2019 Mag 8 Manual) at 45-46;

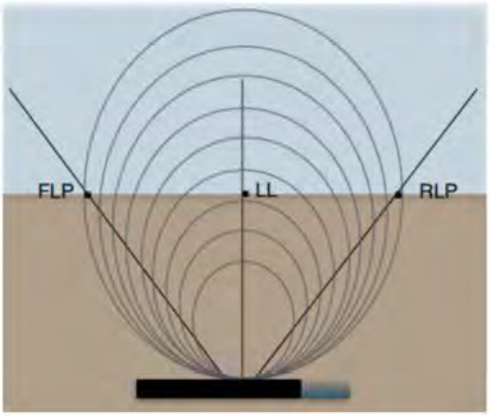


Underground Magnetics Locating 101 at 0:33-1:20, https://www.youtube.com/watch?v=0ShW2RDPglk (last visited Nov. 18, 2021); Mag Series Locator Training (Locating 101) at 0:33-1:20, https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:33-1:20 (last visited May 16, 2022) (posted Oct. 22, 2018);

Understanding How the Receiver Locates the Transmitter

The Mag 6 System uses the "3 locate point" pattern tc pinpoint the location and depth of the transmitter.

- Front Locate Point (FLP)
- Locate Line (LL)
- Rear Locate Point (RLP)



Ex. R at 5.

111. Defendant's use of the same terminology found in Plaintiffs' locate point patents and DCI's products highlights Defendant's deliberate and willful copying of DCI's patented technology, including the inventions claimed in the '614 patent, '738 patent, and '074 patent.

112. Defendant has admitted in its online marketing material that it had knowledge of Plaintiffs' locate point patents while the '614 patent, '738 patent, and '074 patent were in force. Specifically, Defendant's video posted on August 23, 2019, shows Defendant's employee Kurtis Fulkman declaring to a potential customer that

> I've been drilling 25 years with DCI. . . . [I]t took me a little bit for the transition, you know what I mean, because of BALL-IN-THE-BOX. That patent ends this year. So we can actually transition everybody to BALL-IN-THE-BOX, if you like the BALL-IN-THE-BOX.

Underground Magnetics at 7:08-7:25, https://www.youtube.com/watch?v=CCTqKRifSH4 (last visited May 16, 2022).

113. Defendant was already infringing the '614 patent, '738 patent, and '074 patent—which cover Plaintiffs' locate point technology and not DCI's graphical user interface—when the above statements were made. And Defendant's online marketing material only confirms that Defendant willfully infringed with full knowledge that Plaintiffs' locate point technology was protected by patents, including the '614 patent, '738 patent, and '074 patent.

114. Additionally, the application directly resulting in the '901 patent—Application No. 12/497,990—was filed on July 6, 2009.

115. When DCI terminated Michael Young's employment on November 2, 2010, Application No. 12/497,990 had already been filed.

116. Upon information and belief, Michael Young was aware of Application No. 12/497,990 when DCI terminated his employment. Additionally, Michael Young had knowledge of the ’901 patent and related patents when they issued, including the ’536 patent and ’474 patent.

117. As a former DCI employee with extensive experience demonstrating and servicing DCI’s products in the field, Michael Young has intricate knowledge of Plaintiffs’ technology and its importance to the HDD industry.

118. Upon information and belief, Michael Young—president of Underground Magnetics, Inc., and former DCI employee—has knowledge that Plaintiffs have patented their technology and further monitors Plaintiffs’ patent portfolio. Michael Young has knowledge of Plaintiffs’ patents, including the Asserted Patents.

119. In compliance with the requirements of 35 U.S.C. § 271(a), DCI has continuously and consistently marked its products with the patents covering Plaintiffs’ technology, including marking products with the Asserted Patents, until the patents expire.

120. Upon information and belief, Defendant additionally had knowledge of the Asserted Patents through DCI’s continuous and consistent marking of its products with the Asserted Patents in compliance with the requirements of 35 U.S.C. § 271(a).

121. Despite Defendant’s knowledge of the Asserted Patents, Defendant has intentionally and knowingly committed, and continues to commit, acts of patent infringement. Defendant’s infringement of the Asserted Patents has been, and continues to be, willful, such that Plaintiffs are entitled to enhanced damages pursuant to 35 U.S.C. § 284.

122. In addition to directly infringing the Asserted Patents, Defendant has infringed, and continues to contribute to and/or induce others to directly infringe, the Asserted Patents

through purposeful and voluntary acts intended to encourage and allow others to make, use, offer for sale, sell, and/or import the Accused Products. Such acts of contributory and/or induced infringement by Defendant include, for example, expressly instructing users to perform infringing acts with Accused Products sold by Defendant that have no substantial noninfringing uses. *See, e.g.*, https://www.youtube.com/watch?v=xBrbRwzOAWI; https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; Underground Magnetics Training Videos, https://www.undergroundmagnetics.com/videos/ (last visited Nov. 18, 2021); https://undergroundmagnetics.com/tutorials/ (last visited May 16, 2022); Ex. O; Ex. P; Ex. T (2019 Mag 3 System Manual); Ex. U (2019 Mag 3-6 System Manual); Ex. Q; Ex. J; Ex. K; Ex. L; Ex. M; Ex. HH; Ex. QQ.

123. This is an exceptional case under 35 U.S.C. § 285, entitling Plaintiffs to recover attorneys' fees.

b. Plaintiffs Are Entitled to Injunctive Relief

124. DCI has invested millions in its R&D efforts to develop its patented technology, including the technology features in the Asserted Patents. Defendant directly competes with DCI, and its infringing activities threaten DCI's flagship products. Because of Defendant's infringing activities, DCI is forced to compete against its own patented technology at prices that fail to account for its considerable R&D efforts. Defendant has not only piggybacked off DCI's R&D to save costs, but it also manufactures the Accused Products in China to save manufacturing costs while improperly holding itself out as manufacturing in the United States. Additionally, Defendant's infringing activities and unfair pricing undermine DCI's substantial investment in marketing its products and educating customers to create market demand for Plaintiffs' technology.

125. Defendant has priced the Accused Products thousands of dollars below DCI's systems, which is likely to irreparably harm DCI through price erosion and lost market share. *See, e.g.*, Ex. V (Underground Magnetics Price Catalog, 2021-22) at 3-13, 19; https://www.digital-control.com/receivers/digitrak-falcon-f5-1/ (last visited May 16, 2022); https://www.digital-control.com/receivers/digitrak-falcon-f2/ (last visited May 16, 2022). Indeed, DCI is being forced into toe-to-toe competition with an infringement, which causes a direct loss of market share, customers, and access to potential customers, and causes irreversible price erosion such that money damages are insufficient to compensate Plaintiffs for their loss.

126. DCI provides customers with an ecosystem of products, accessories, and peripherals associated with its locating systems, including but not limited to receivers, transmitters, remote displays, batteries, and chargers. As a result of Defendant's continued infringement of the unexpired Asserted Patents, DCI is highly likely to lose future revenue and sales from products related to DCI's receivers and locating systems, including but not limited to transmitters, remote displays, batteries, and chargers that are compatible with DCI's receivers. Additionally, due to Defendant's infringement of the Asserted Patents, DCI is highly likely to lose downstream sales and revenue from repeat customers buying replacement units or newer models of DCI's receivers, transmitters, remote displays, batteries, and chargers. The extent of damages caused by Defendant's infringement of the Asserted Patents is highly likely to cause irreparable harm, and monetary damages alone are insufficient to make DCI whole.

127. DCI has heavily invested in building relationships with its customers, supporting DCI's products, and training its customers to use DCI's innovative technology. Defendant's continued infringement of the Asserted Patents and unfair pricing irreparably undermine these investments and damages DCI's reputation as an innovator, causing irreparable harm to DCI.

128. Additionally, when a customer purchases DCI's products and invests time and effort in training its employees to use DCI's products, this creates a familiarity of use that increases the chances that the customer will purchase again from DCI when it needs additional HDD products. DCI has invested millions of dollars in customer/field service, including visits to customer job sites, to assist with this training effort by customers. By copying DCI's patented products with its infringing systems, Defendant is also piggybacking on DCI's investment in customer/field service, reducing the need to invest its own funds to train customers on the use of its infringing products. This, too, irreparably harms DCI.

129. Defendant's infringement of the Asserted Patents causes irreparable harm to DCI's right to exclude direct competitors. DCI is an exclusive licensee to the Asserted Patents. To maintain a technical advantage over its competitors and recoup its R&D investment, DCI has not licensed the Asserted Patents to its competitors or to any other entity. Defendant's continued infringement tramples DCI's right to exclude others and causes DCI irreparable harm.

130. Under 35 U.S.C. § 283, Plaintiffs are entitled to injunctive relief prohibiting Defendant from further making, using, selling, offering to sell, or importing the Accused Products in a manner that infringes the unexpired Asserted Patents and from encouraging and inducing others to do the same.

131. Plaintiffs have been, and continue to be, damaged and irreparably harmed by Defendant's infringement, which will continue unless this Court enjoins Defendant.

2. Underground Magnetics, Inc.'s Trademark Infringement

132. Defendant did not stop at copying Plaintiffs' patented technology. Rather, it set out to pass off its products as DCI's by copying the DCI Marks and trading off the valuable goodwill those marks enjoy.

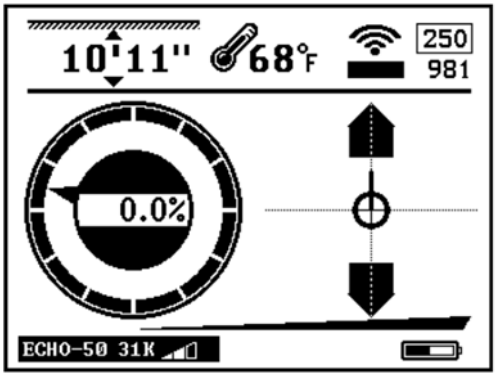
133. In particular, with full knowledge of the Ball Mark and BALL-IN-THE-BOX Marks, Defendant began promoting its competitive products as featuring BALL-IN-THE-BOX technology.

134. Despite infinite noninfringing shapes and designs available to Defendant, Defendant chose a ball design that mimics DCI's Ball Mark, i.e., an outer circular band with an inner circle divided into four equal parts:

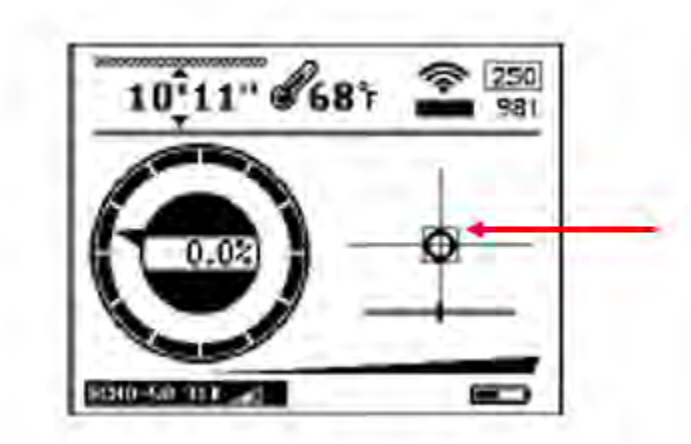
Defendant's Ball


There is no reason for Defendant to use this particular design other than to trade off DCI's Ball Mark. It could have selected a diamond, star, hexagon, or infinite other shapes and designs.

135. Defendant did not stop there. Despite once again having infinite noninfringing shape and design options available to it, Defendant changed its previous user interface,

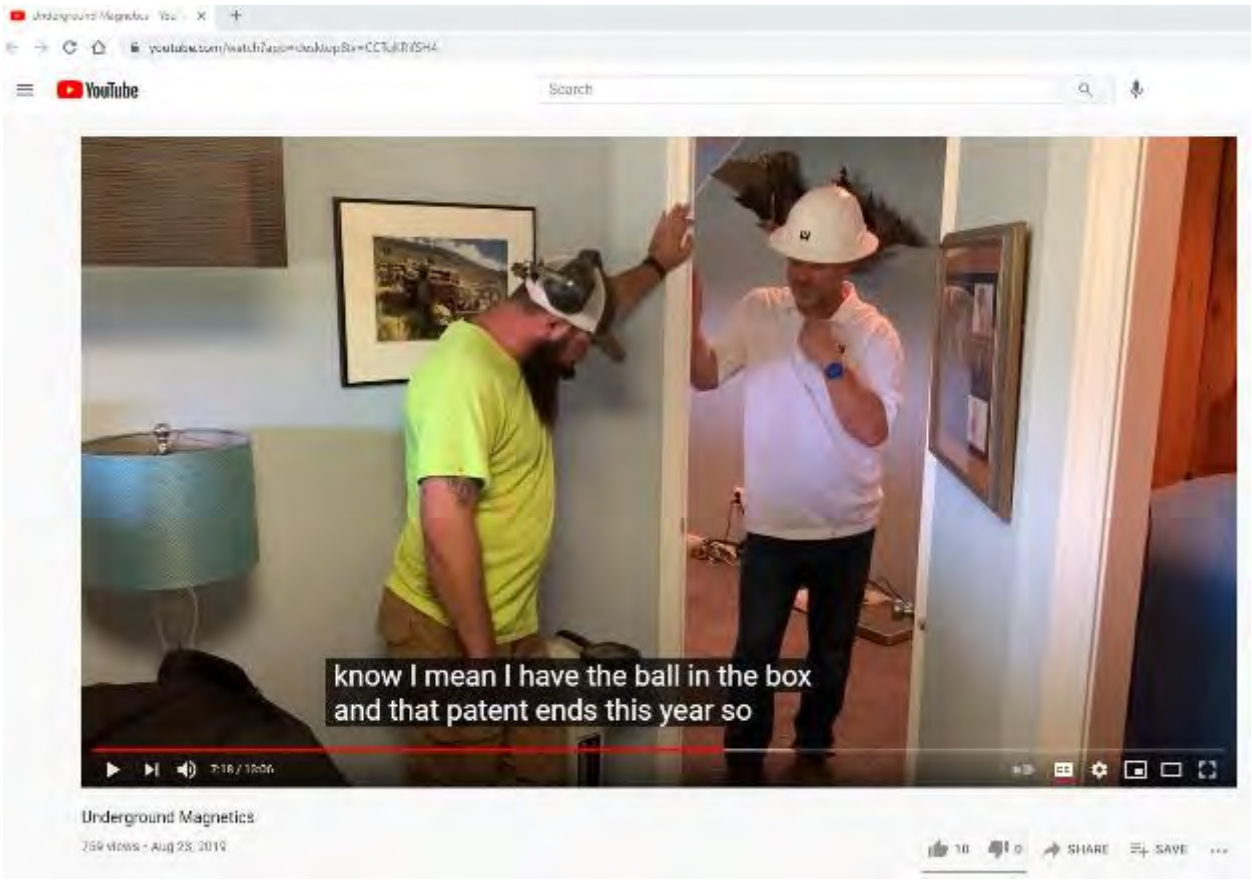


Ex. P at 57, to a user interface featuring the ball shown in Paragraph 134 above *within a box*, just like DCI's BALL-IN-THE-BOX Design Marks:



id. at 57 (annotated) (hereinafter the "Infringing BALL-IN-THE-BOX Design Mark"); *see also id.* at 14, 15, 19-33, 37, 41-44, 53-59; Ex. W (Mag 8e System Manual) at 9, 12-25, 45-47; Ex. HH at 62-66; Ex. QQ at 53-57.

136. To eliminate any doubt of Defendant's blatant intent to copy DCI's marks in its new user interface, in a video Defendant posted on YouTube, Defendant's sales representative Kurtis Fulkman stated, "I've been drilling 25 years with DCI. . . . [I]t took me a little bit for the transition, you know what I mean, because of **BALL-IN-THE-BOX**. That patent ends this year. So we can actually transition everybody to **BALL-IN-THE-BOX**, if you like the **BALL-IN-THE-BOX**." Underground Magnetics at 7:08-7:25, https://www.youtube.com/watch?v=CCTqKRifSH4 (emphases added). In response, the other individual in the video states, "**I do like the BALL-IN-THE-BOX**." *Id.* (emphasis added).



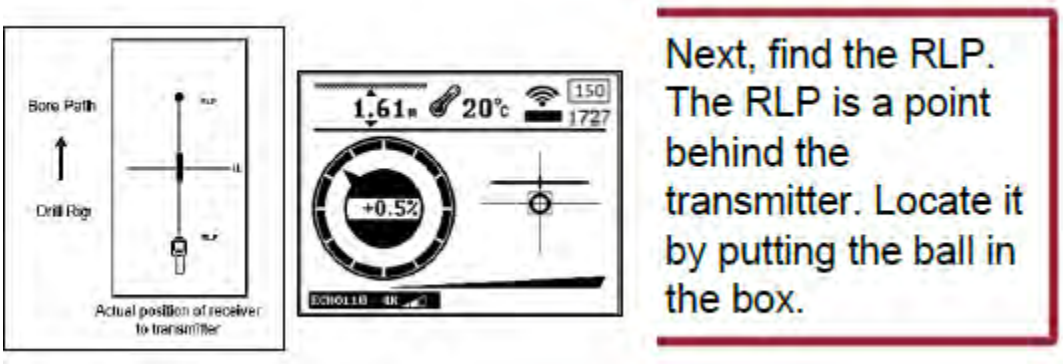
Id.

137. Egregiously, Defendant has advertised its receivers prominently on its website under the designation "Single Ball"—an obvious attempt to create confusion with DCI's Ball Mark and BALL-IN-THE-BOX Marks:

Ex. EE (UMag Website Capture).

Indeed, Defendant's copying of DCI's BALL-IN-THE-BOX Marks extends to its manuals and advertisements. Ex. P at 57 ("Locate it by *putting the ball in the square*. . . . Find it the same way by moving back until the arrows point back and *the ball appears in the square*." (emphases added)); *see also id*. at 15, 53-54, 58; Ex. HH at 62-68 ("Single Ball shows the location of the closest locate point with a ball only. Move in the direction of the ball to pinpoint the location."); Ex. QQ at 53-59.

138. As another example, on page 45 of Defendant's Mag 8e System Manual, Defendant states, "Locate it by putting the ***ball in the box*.**" Ex. W at 45 (emphasis added):



id.; *see also id.* at 9, 46 ("Simply walk forward toward the FLP until the ball is level with the cross hairs. Then move left or right to place ***the ball in the box***." (emphasis added)) (hereinafter the "Infringing BALL-IN-THE-BOX Word Mark").

139. On July 31, 2020, DCI sent a letter to Defendant informing it of DCI's trademark rights and concerns over DCI's infringement of the BALL-IN-THE-BOX Marks. A true and correct copy of the July 31, 2020, letter is attached hereto as Exhibit X.

140. On October 12, 2020, Defendant responded to DCI's July 31, 2020, letter. Defendant refused to stop its infringement of DCI's BALL-IN-THE-BOX Marks. A true and correct copy of the October 12, 2020, letter is attached hereto as Exhibit Y.

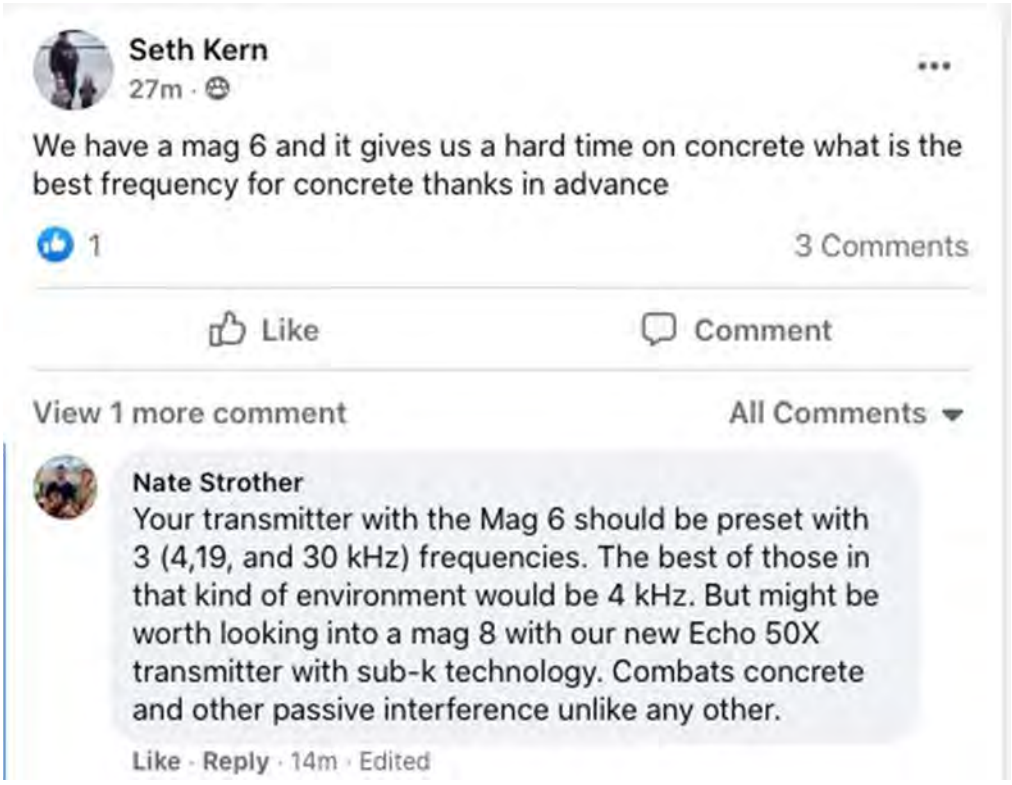
141. On November 13, 2020, DCI sent another letter to Defendant reiterating its continued concern over Defendant's infringements. A true and correct copy of the November 13, 2020, letter is attached hereto as Exhibit Z.

142. Despite DCI's July 31, 2020, and November 13, 2020, letters, Defendant continued to not only willfully infringe the BALL-IN-THE-BOX Marks but furthered its efforts to dupe consumers by also adopting DCI's SUB-K Mark.

143. For example, on or about May 17, 2021, Defendant featured DCI's SUB-K Mark on its Facebook page to market and promote competitive products:

Ex. AA (UMag Facebook Web Capture) (hereinafter the "Infringing SUB-K Mark").

144. To illustrate Defendant's pattern of infringing behavior regarding DCI's SUB-K Mark, the following is an exchange, captured on a Facebook post during fall 2021, where a UMAG sales representative (Nate Strother) touts its product as having "sub-k technology" to a potential customer (and to other potential customers who viewed the post):



Ex. I (sub-k Facebook Post).

145. Defendant's willful conduct described above is intended to deceive and confuse consumers into thinking its products come from, are affiliated with, are connected with, or are licensed/approved by DCI when they are not.

146. Defendant's unauthorized uses of the Infringing BALL-IN-THE-BOX Design Mark, Infringing BALL-IN-THE-BOX Word Mark, and Infringing SUB-K Mark (collectively, hereinafter the "Infringing Marks") are likely to cause confusion, mistake, and deception as to the source or origin of Defendant's products and are likely to falsely suggest a sponsorship, connection, or association between Defendant, its products, and/or its commercial activities with DCI. Additionally, Defendant is using the Infringing Marks to deliberately trade off the identity and goodwill that DCI has built up in the DCI Marks.

147. Defendant's unauthorized uses of the Infringing Marks have damaged and irreparably injured, and, if permitted to continue, will further damage and irreparably injure, DCI, the DCI Marks, DCI's reputation and goodwill associated with its marks, and the public's interest in being free from confusion.

148. Defendant knows that its use of the Infringing Marks violates DCI's trademark rights. As a result, Defendant has acted knowingly, willfully, in reckless disregard of DCI's rights, and in bad faith.

3. Underground Magnetics, Inc.'s False Advertising

149. Defendant has engaged in, and continues to engage in, a nationwide false advertising campaign to deceptively influence potential consumers into purchasing Defendant's products instead of DCI's products.

150. Defendant featured advertisements, in interstate commerce, which are visible to the general public and potential customers, that contain materially false, deceptive, and/or misleading statements about Defendant's presence and manufacturing in the United States.

151. Defendant falsely advertised at trade shows that its products are made in the United States. For example, on or about January 30, 2017, at the Underground Construction Technology trade show in Fort Worth, Texas, Defendant falsely advertised that it was proud that its products are "manufactured in the USA":

Ex. BB (Jan. 30, 2017, UCT Trade Show, Fort Worth).

152. As another example, in late September/early October 2019, at the ICUEE trade show in Louisville, Kentucky (the country's largest trade show centered on the HDD industry, since renamed "The Utility Expo"), the Defendant touted its "NEW U.S. MANUFACTURING FACILITY," despite the fact that its products at that time (and continuously from that time until the time of filing of this complaint) have been manufactured in China:

(Fall 2019 ICUEE Trade Show, Louisville, Kentucky).

153. As yet another example, on or about September 3, 2020, Defendant falsely advertised on Facebook that it was "[m]oving all manufacturing to the US next year" and the "Made in USA initiative is on!":

Ex. CC (Sept. 3, 2020, UM Facebook Post re Made in USA Initiative).

154. Furthermore, on or about September 28, 2021, at The Utility Expo in Louisville, Kentucky, Defendant misleadingly advertised a "US MANUFACTURING CENTER" that will be "OPENING 2022."

(Sept. 28, 2021, Utility Expo, Louisville).

155. Moreover, on May 13, 2022, Defendant deceptively advertised on Facebook that its "new Johnston, Iowa *factory* is nearly ready":

Ex. UU (May 13, 2022, UM Facebook Post re Giveaway) (emphasis added).

156. Based on Defendant's own representations made to the City of Johnston, Defendant's "US MANUFACTURING CENTER" would create only "4 new high-quality jobs and retain 12 full-time positions." https://www.growjohnston.com/underground-magnetics-set-to-expand/ (last visited May 16, 2022). But this would be an insufficient number of employees to actually manufacture the Accused Products within the United States.

157. Upon information and belief, Defendant's alleged "US MANUFACTURING CENTER" is not a manufacturing facility for the Accused Products, but is instead a distribution warehouse to accept HDD rigs imported from China under the name "Meridian HDD" and to

distribute those rigs throughout the United States. *See* Ex. II (UMag Oct. 2021 Spec Sheets) at 7-9.

158. In furtherance of this pattern, Defendant's President, Michael Young, in an exchange of Facebook posts with a potential customer on February 16, 2021, responded to a statement questioning the origin of the Defendant's products with the following, presenting the false impression that the Defendant is a U.S. company with U.S. products:

> [P]ersonal invitation Jim to come meet our team at our facility in Iowa. As soon as the polar vortex heads back North, we'll start moving dirt for our new 40,000 square foot manufacturing facility behind our current building which we built two years ago and have already outgrown. My point is, come and meet us and don't believe everything you read on here, our products are designed and engineered right here in the heart land and like many US companies, we have offices all over the world. Best, Mike Young.

Ex. FF (Feb. 16, 2021, M. Young Facebook Post) at 2.

159. Further, Defendant prominently states on its website that "Underground Magnetics is an innovative company ***based in the U.S.*** with fresh ideas and designs backed by experience." https://www.undergroundmagnetics.com/about-us/ (last visited Nov. 18, 2021) (emphasis added); https://undergroundmagnetics.com/about-us/ (last visited May 16, 2022) ("*With worldwide headquarters in the heart of America's Heartland* – Johnston, Iowa – this privately held company designs, *produces*, and services the most powerful and versatile walk-over HDD locating systems in the world today." (emphases added)).

160. Unlike Plaintiffs, and despite its false and misleading statements to the contrary, Defendant is not a U.S. company employing U.S. workers to manufacture its products in the United States. Rather, it is an affiliate of Golden Land, a manufacturer of HDD locating systems headquartered in China. Upon information and belief, both Defendant and Golden Land are under the control of Jeremy Jin.

161. Golden Land manufactures its HDD locating systems at a factory in Huangshan, China. *See* http://www.goldenland-inc.com/index.php?g=portal&m=page&a=index&id=259 (last visited May 16, 2022); http://www.goldenland-inc.com/index.php?g=portal&m=page&a=index&id=260 (last visited May 16, 2022).

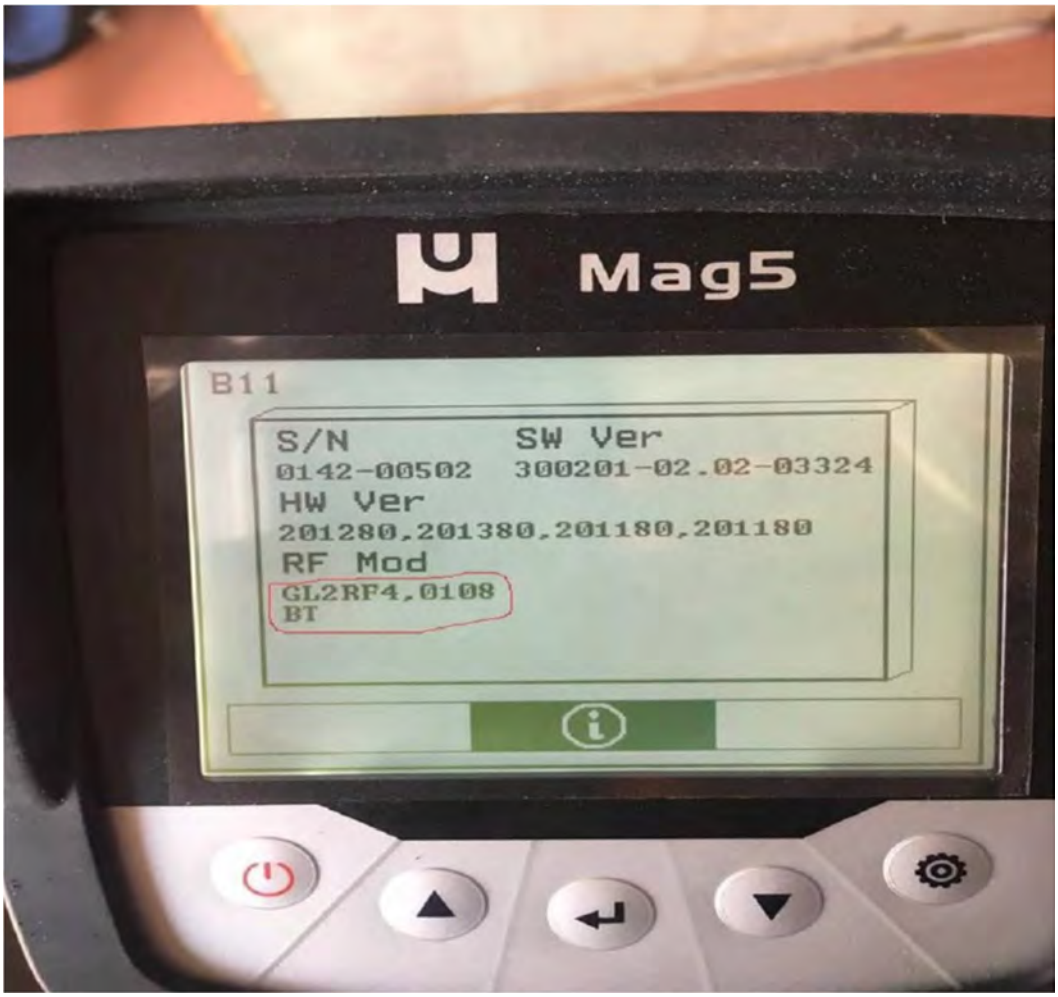
162. Information submitted to the U.S. Federal Communications Commission ("FCC") further confirms that Golden Land manufactures the Accused Products in China. For example, in its application for "Equipment Authorization" FCC Form 731 and related exhibits, Golden Land submitted the following to the FCC in 2017:

- The subject electronic locating systems are identified as manufactured by Huangshan Goldenland Electronics Inc. at its factory. The factory's address is reported as North Industrial Park, Huizhou District, Huangshan, Anhui Province, P.R. China. *See* https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=uKDaXlImTmntLsViOHTcmw%3D%3D&fcc_id=2AI3URMAG7 (last visited May 16, 2022) ("Test Report" at 1, 4).
- Photos of the HDD receiver identify a product bearing product labeling reading, in English, "Underground Magnetics" but evidence no country-of-origin labeling. *See id.* ("External Photos").
- The user manual submitted in support of the application is for the "Underground Magnetics" "Mag series" receiver, and includes within its text the Internet address http://www.undergroundmagnetics.com, which corresponds to the business located at 5501 NW Beaver Dr., Johnston, Iowa 50131. *See id.* ("Users Manual").
- Golden Land identifies the same factory and origin information in Golden Land's applications for "Equipment Authorization" FCC Form 731 for transmitters. *See* https://apps.fcc.gov/tcb/GetTcb731Report.do?applicationId=cnqv9%2F3PghPfEbGpAuilXw%3D%3D&fcc_id=2AI3UTECHO1 (last visited May 16, 2022). The test reports associated with those applications similarly identify the transmitters as being produced in the Huangshan Goldenland Electronics Inc. factory located at the North Industrial Park, Huizhou District, Huangshan, Anhui Province, P.R. China. Additionally, the user manuals submitted to the FCC in support of the application similarly bear the name "Underground Magnetics" and further include the www.undergroundmagnetics.com web address. *See* https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=cnqv9%2F3PghPfEbGpAuilXw%3D%3D&fcc_id=2AI3UTECHO1 (last visited May 16, 2022) ("Test Report" at 1, 5 and "User Manual"); *see also*

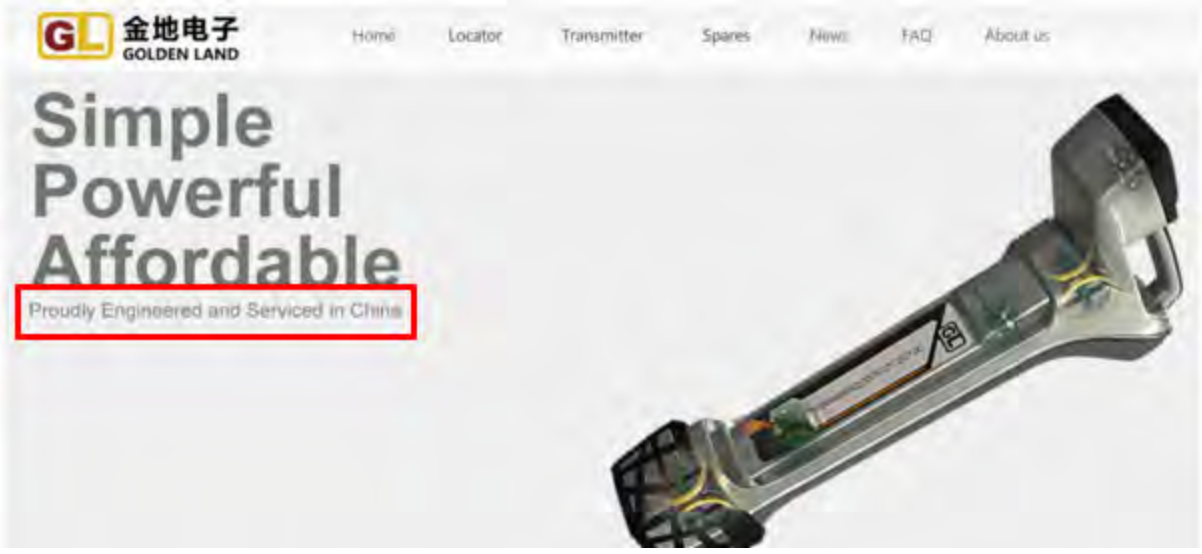
https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=HiYB5X928VXBsCeBH2kmOw%3D%3D&fcc_id=2AI3UTECHO2 (last visited May 16, 2022) ("Test Report" at 1, 5 and "Users Manual").

163. Jeremy Jin and Golden Land created Underground Magnetics, Inc., to sell Golden Land's HDD receivers, transmitters, and related products in the United States. Indeed, the Accused Products sold by Underground Magnetics, Inc., in the United States are nearly identical to the products sold by Golden Land in China. The below side-by-side comparisons featuring Defendant's Mag Series receivers (on the right of each picture) and Golden Land's receivers (on the left of each picture) plainly show that the products are nearly identical:

164. Additionally, the Accused Receivers run software developed by Golden Land in China. As shown in the below "SW Ver" menus (i.e., "Software Version" menus), both the Golden Land receiver and Defendant's Mag Series receiver operate using "GL" or "Golden Land" software:



165. Golden Land advertises that its products are "Proudly Engineered and Serviced in China." Even though Defendant has simply rebranded products manufactured and sold by Golden Land in China as its own, Defendant advertises that its products are "Proudly Engineered and Serviced in the USA."



http://www.goldenland-inc.com/?l=en-us (last visited May 16, 2022) (annotated);

https://www.undergroundmagnetics.com/ (last visited June 26, 2019) (annotated).

166. The Accused Receivers are manufactured in China.

167. The Accused Receivers are manufactured by Golden Land.

168. The Accused Systems are manufactured in China.

169. The Accused Systems are manufactured by Golden Land.

170. The Accused Transmitters are manufactured in China.

171. The Accused Transmitters are manufactured by Golden Land.

172. For the first several years of Defendant's operations in the United States, Defendant withheld the country-of-origin markings required to be on its products by U.S. Customs regulations as part of its attempt to conceal the Chinese origin of its products. On information and belief, only recently and only as a result of being notified that they were violating these requirements did Defendant start placing small "Made in China" labels on the roof of the internal battery compartment for some of its receivers and remote displays. Even so, the blatant efforts of Defendant to make these markings as obscure as possible (the user has to remove the internal battery and hold the device upside down to see the marking) only underscores Defendant's intention to deceive the public as to the true origins of its products. Moreover, the obscurity of these country-of-origin markings still fails to meet U.S. Customs requirements.

173. By placing the Underground Magnetics, Inc., name on Golden Land's products manufactured in China and selling the infringing Accused Products in the United States at steep discounts, Defendant deliberately seeks to irreparably harm DCI's market position and erode the price of DCI's authorized HDD receivers, transmitters, and related products.

174. Defendant's false and misleading claims, which give the false impression that Defendant is a U.S. company when it is not and that Defendant's products are manufactured in the United States when they are not, are material to the purchasing decisions of prospective consumers and irreparably injure the public and DCI by deceiving consumers into mistakenly believing that Defendant is a U.S. company employing U.S. workers to manufacture products in the United States.

175. Consumers for the Accused Products decide to purchase them based in part on Defendant's false representation that they are made in the United States by U.S. workers. Such

false claims lure away sales from DCI—a U.S. company that actually utilizes a U.S. workforce to manufacture its products in the United States.

COUNT I: INFRINGEMENT OF THE ’901 PATENT

176. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

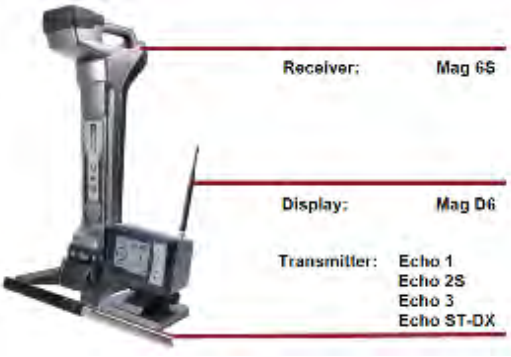
177. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringes at least claims 1, 2, 12, 13, and 15 of the ’901 patent by making, using, offering to sell, selling, and/or importing various receivers, including but not limited to the Accused Receivers listed herein.

178. By way of example, claim 1 of the ’901 patent recites:

> 1. For use in conjunction with a system in which a transmitter is moved through the ground in a region during an operational procedure while transmitting a transmitter signal having a transmission frequency and said transmission frequency is selectable as one of a group of discrete transmission frequencies that are spaced apart in a transmission frequency range and said region includes electromagnetic noise that can vary within said region and across said transmission frequency range, a portable device comprising:
>
> > a receiver having a receiver bandwidth that at least includes said transmission frequency range for measuring the electromagnetic noise at least in said transmission frequency range to establish a frequency content of the electromagnetic noise for use in selecting one of the discrete transmission frequencies as a selected transmission frequency that is subsequently received by the receiver during the operational procedure.

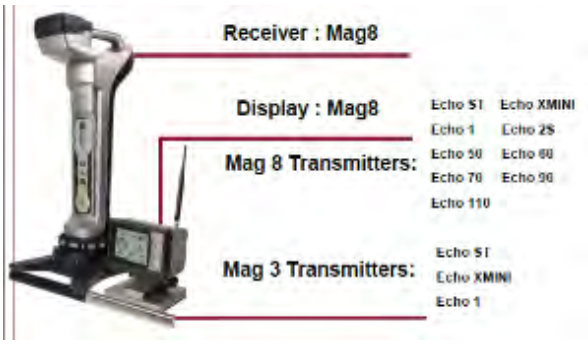
179. On information and belief, Defendant infringes all elements of at least claim 1 by making, using, offering to sell, selling, and/or importing the Accused Receivers. The Accused Receivers include each element of claim 1. As the examples below show, the Accused Receivers are “[f]or use in conjunction with a system in which a transmitter is moved through the ground in a region during an operational procedure.”

Ex. O at 1;

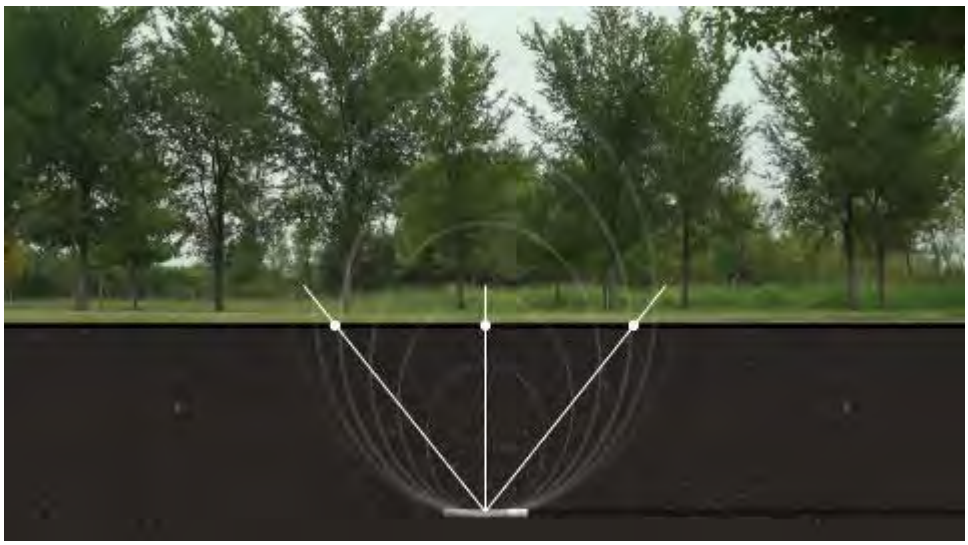


Ex. O at 2;

Ex. O at 2;

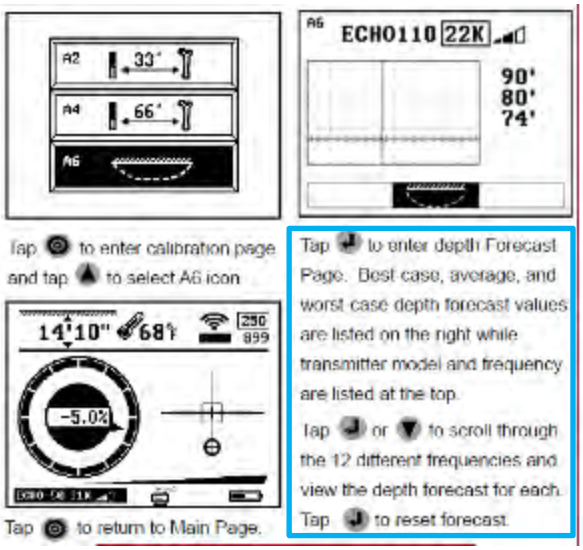


Ex. P at 12;

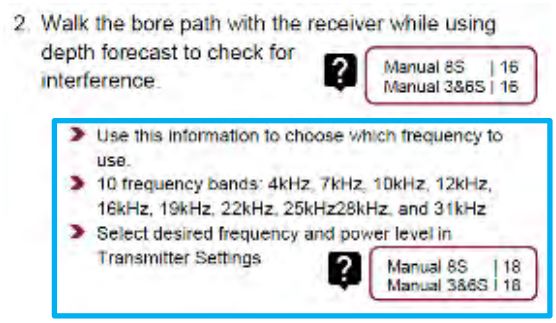


see Mag 6s Training Video at 0:37-0:52, https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ (last visited May 16, 2022) (posted Dec. 21, 2018); Ex. HH at 6; Ex. QQ at 6.

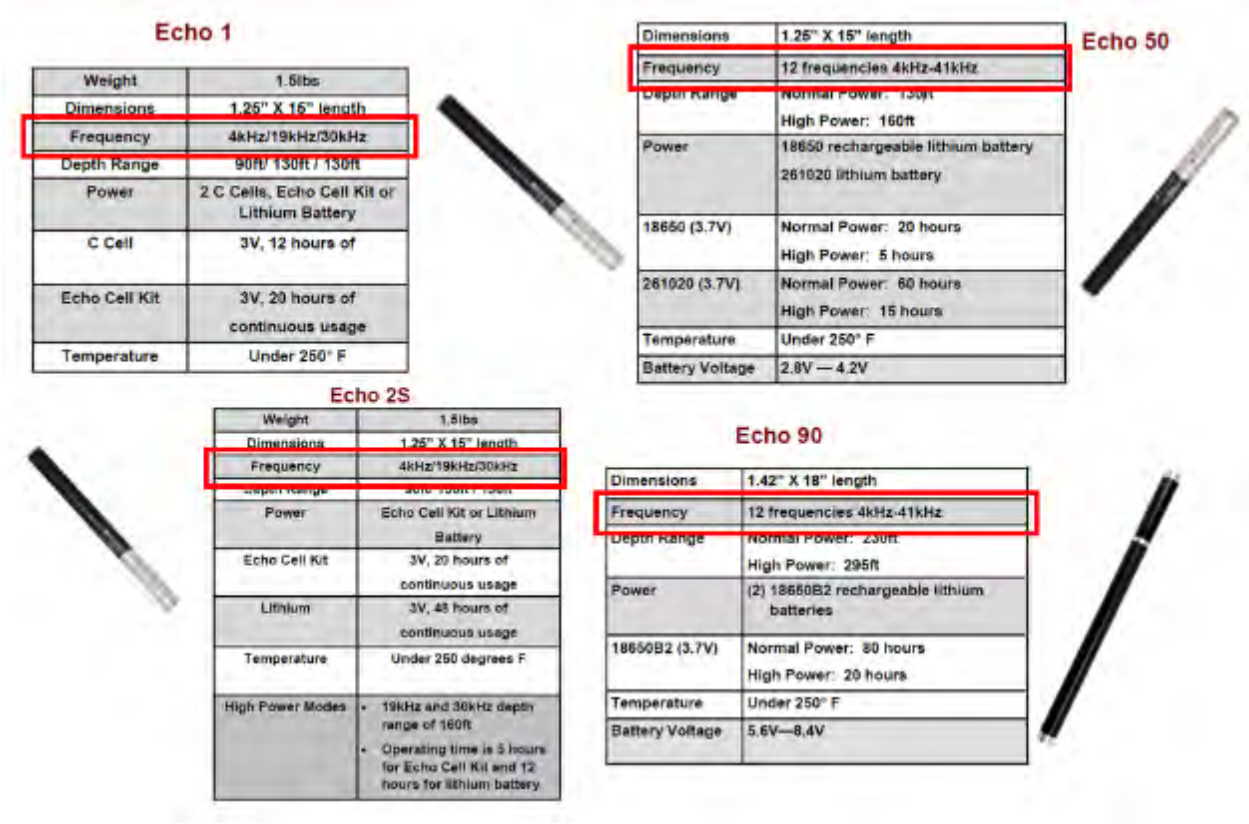
180. Defendant's Accused Transmitters for use with the Accused Receivers are used for "transmitting a transmitter signal having a transmission frequency." *See, e.g.*, https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52 ("Let's put the transmitter in the ground and take a look at the magnetic field. You'll notice the shape of the signal.");



Ex. P at 21 (annotated);

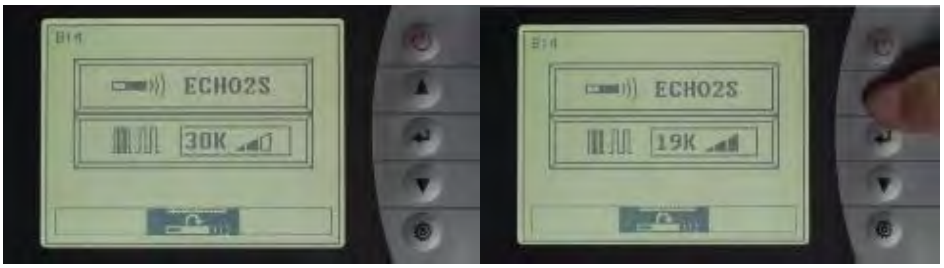


Ex. O at 4 (annotated);



Ex. P at 46-50 (annotated); *see also* Ex. HH at 22, 25, 55-59; Ex. QQ at 21, 24, 46-50; Ex. PP (Mag 9 Web Sheet) at 2; Ex. RR (Mag 3S Web Sheet) at 2; Ex. SS (Mag 5S Web Sheet) at 2.

181. Defendant advertises that the "transmission frequency is selectable as one of a group of discrete transmission frequencies that are spaced apart in a transmission frequency range," as recited in claim 1. *See, e.g.*, Ex. P at 21; Ex. O at 4;



Underground Magnetics Changing Frequency Power Down Hole Mag 8, 5, and 3 at 0:47-1:08, https://www.youtube.com/watch?v=BshAuRafEoI (last visited May 16, 2022) ("On your

display, press and hold the setup button to enter the setup screen. . . . Use the up and down arrows to choose the frequency and power level you would like to change to. Tap the enter button to begin the mode change."); Ex. O at 4; Ex. P at 13, 21, 46-50; Ex. HH at 22, 25, 55-59; Ex. QQ at 21, 24, 46-50.

182. Further, the regions in which Defendant's Accused Products operate include "electromagnetic noise that can vary within said region and across said transmission frequency range."

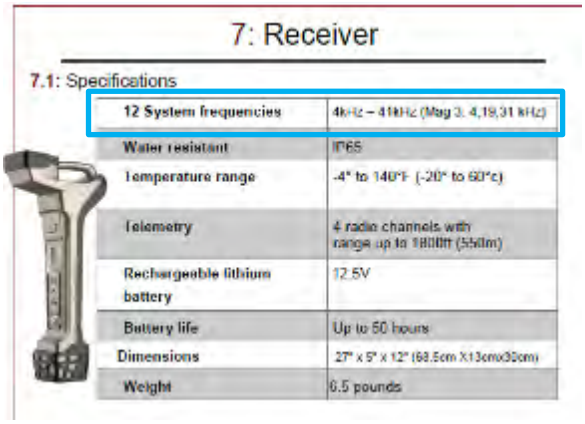
https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:44-0:50 ("The receiver is measuring the active interference in the area you're standing based on the frequency chosen.");

id. at 1:12-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice that there is little interference since the top number is showing we can drill at least 65 feet deep in the selected frequency and power level. The worst case is showing 39 feet.");

https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50 ("So let's take a walk, and see what we can see for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice the numbers changing as the interference changes.").

183. As the images above demonstrate, each of Defendant's Accused Receivers is "a portable device comprising[] a receiver." *See* Ex. O at 1-2; Ex. P at 12.

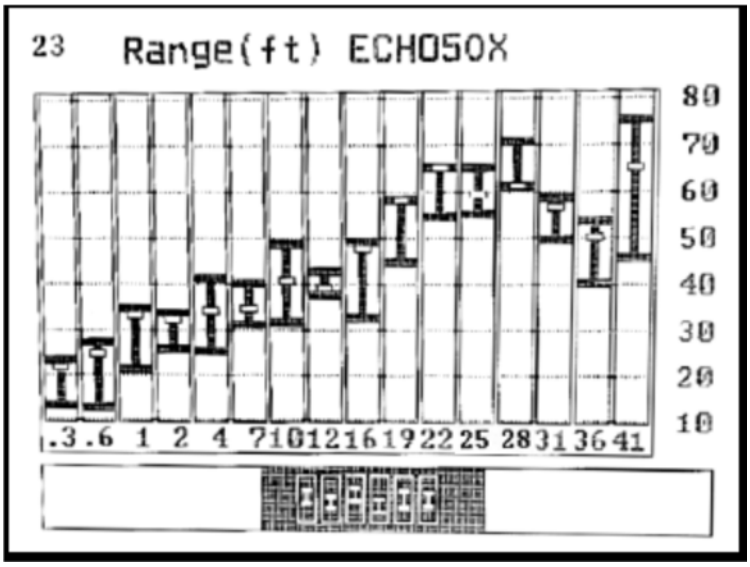
184. Each of the Accused Receivers includes "a receiver bandwidth that at least includes said transmission frequency range for measuring the electromagnetic noise at least in said transmission frequency range."



Ex. P at 13 (annotated); *see also* Ex. O at 4; Ex. HH at 13; Ex. QQ at 13. For example, the Accused Receivers measure the electromagnetic noise in the transmission frequency range at the various selectable frequencies. *See* https://www.youtube.com/watch?v=xBrbRwzOAWI at 1:12-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today."), 0:44-0:50 ("The receiver is measuring the active interference in the area you're standing based on the frequency chosen."); Ex. HH at 22; Ex. QQ at 21.

185. Further, the Accused Receivers measure electromagnetic noise "to establish a frequency content of the electromagnetic noise." For example, the Accused Receivers display a signal graph and corresponding depth prediction numbers indicating the electromagnetic noise in the area the receivers are placed based on the selected frequency or frequencies. *See* Ex. P at 21;

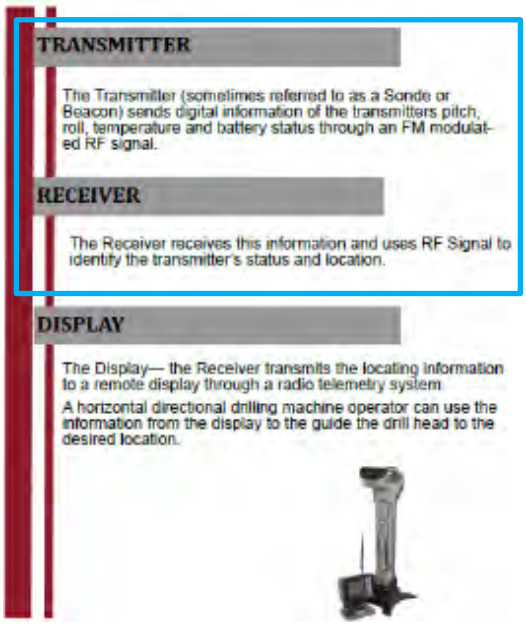
https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:10-0:16, 0:38-1:30 (“Now, the predicted depth will be displayed. You’ll see a signal graph and three numbers to the right. The receiver is measuring the active interference in the area you are standing based on the frequency chosen. In this case, you’ll see ECHO2S 19K with two bars highlighted indicating low power. To the right, the top number is the best depth prediction, and the bottom is the worst. The middle number is reading the signal in real time and will be changing as you walk along your bore path. At any time while walking along the bore path, you can tap the enter button to refresh the depth prediction.”);



Ex. HH at 22; Ex. QQ at 21; *see also* https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:34-0:59.

186. According to Defendant's manuals for the Accused Receivers, "[t]he best-case depth forecast value . . . will be the main value used when determining interference." Ex. P at 21. For example, the best-case depth forecast—derived from establishing a frequency content of the electromagnetic noise—is used to select one of the discrete transmission frequencies to be used subsequently in the drilling procedure. https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice that there is little interference since the top number is showing we can drill at least 65 feet deep in the selected frequency and power level. The worst case is showing 39 feet.").

187. Thus, the frequency content of the electromagnetic noise is used in selecting one of the discrete transmission frequencies as a selected transmission frequency that is subsequently received by the Accused Receivers during the operational procedure.



See Ex. P at 6 (annotated); Ex. HH at 6; Ex. QQ at 6; *see also* https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:01-0:10 ("In this tutorial, we will cover walking the bore path to determine the best frequency and power level to use for your job."), 1:12-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50 ("So let's take a walk, and see what we can see for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice the numbers changing as the interference changes.").

188. In addition to directly infringing the '901 patent itself, Defendant has intentionally induced end users to directly infringe the '901 patent and has contributed to end users directly infringing the '901 patent in violation of 35 U.S.C. § 271(b) and (c).

189. Defendant has acted and continues to act while the '901 patent is in force, intending to cause end users to infringe.

190. Upon information and belief, Defendant has knowledge of the '901 patent through DCI's consistent and continuous marking of its products with the '901 patent in compliance with the requirements of 35 U.S.C. § 271(a).

191. Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the '901 patent and contribute to infringement by others.

192. Despite its knowledge, Defendant instructed, and continues to instruct, end users to use the Accused Receivers as described above and infringe the '901 patent, using instructional videos, manuals, and other information provided on Defendant's website and platforms, and written materials provided with the Accused Receivers themselves. *See* Ex. O at 1-2, 4; Ex. P at 12-13, 21, 24; Ex. HH at 12-13, 22, 25; Ex. QQ at 12-13, 21, 24;

https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30. Defendant had knowledge that these instructions, if followed, would infringe the ’901 patent.

193. Upon information and belief, Defendant intends for the Accused Receivers to be used by end users in the manner described above, which infringes the ’901 patent. For instance, Defendant expressly instructs its customers to use the Accused Receivers in an infringing manner to establish the frequency content of the electromagnetic noise for use in selecting a discrete transmission frequency for an HDD procedure with the Accused Transmitters. *See* https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50.

194. Upon information and belief, end users use the Accused Receivers as instructed by Defendant to directly infringe the ’901 patent. *See* https://www.youtube.com/watch?v=CCTqKRifSH4; Underground Magnetics, Inc., Facebook Page, https://www.facebook.com/undergroundmagnetics/ (last visited May 16, 2022).

195. In addition, Defendant also sells, offers to sell, or imports within the United States a component of a product, or apparatus for use in a process, where the component or apparatus has no substantial, noninfringing use, and the component or apparatus constitutes a material part of the invention.

196. Defendant’s Accused Receivers are marketed and sold for infringement of the ’901 patent and are specially adapted for infringement of the ’901 patent. For example, the Accused Receivers are specifically designed to include a receiver bandwidth that features a transmission frequency range for measuring the electromagnetic noise to establish a frequency

content of the electromagnetic noise for use in selecting a discrete transmission frequency for an HDD procedure with the Accused Transmitters. Ex. O at 1-2, 4; Ex. P at 6, 10, 12-13, 21, 24, 46-50; Ex. HH at 6, 10, 12-13, 22, 25, 55-59; Ex. QQ at 6, 10, 12-13, 21, 24, 46-50; https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08 ("Use the up and down arrows to choose the frequency and power level you would like to change to. Tap the enter button to begin the mode change."); https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50.

197. Upon information and belief, the instructed use of the Accused Receivers by end users infringes the '901 patent, and any other use of this functionality would be unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Receivers cannot be used for substantial purposes other than infringing the '901 patent. The Accused Receivers are especially made or especially adapted for use in an infringement of the '901 patent and are not staple articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant has had knowledge of, or was willfully blind to, this infringement.

198. Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant's infringement.

199. Under 35 U.S.C. § 283, Plaintiffs are entitled to preliminary and permanent injunctions prohibiting Defendant from further making, using, selling, offering to sell, or importing the Accused Receivers in a manner that infringes the '901 patent and from encouraging and inducing others to do the same.

200. Plaintiffs have been, and continue to be, damaged and irreparably harmed by Defendant's infringement, which will continue unless this Court enjoins Defendant.

201. Defendant's infringement of the '901 patent has been, and continues to be, deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or has been willfully blind to the fact, or should have known that its actions, if taken, would infringe the '901 patent. Yet despite this knowledge, Defendant has continued infringing the '901 patent and has not ceased its infringing activities.

COUNT II: INFRINGEMENT OF THE '536 PATENT

202. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

203. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringes at least claims 1, 4, 8, 10, and 13 of the '536 patent by making, using, offering to sell, selling, and/or importing various receivers, including but not limited to the Accused Receivers and Accused Systems listed herein.

204. By way of example, claim 1 of the '536 patent recites:

> 1. An apparatus for use in preparing for an underground drilling procedure in which a transmitter transmits a transmitter signal while moving through the ground in a region during the underground drilling procedure and said region includes electromagnetic noise that varies within the region and causes interference with the transmitter signal, said apparatus comprising:
>
> > a detector positioned at an above ground location to measure the electromagnetic noise in said region prior to said underground drilling procedure to establish a frequency content of the electromagnetic noise and to select a transmitter frequency based on the frequency content of the electromagnetic noise;
> >
> > a processor to determine a predicted maximum operational depth of the transmitter for subsequent reception of said transmitter signal at the above ground location during the underground drilling procedure based on the measured electromagnetic noise; and
> >
> > a display to indicate the predicted maximum operational depth at least prior to the underground drilling procedure.

205. On information and belief, Defendant infringes all elements of at least claim 1 by making, using, offering to sell, selling, and/or importing the Accused Receivers and Accused Systems. The Accused Receivers and Accused Systems include each limitation of claim 1. The Accused Receivers include "[a]n apparatus for use in preparing for an underground drilling procedure in which a transmitter transmits a transmitter signal while moving through the ground." Ex. O at 1-2; Ex. P at 12; *see also* https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52 ("Let's put the transmitter in the ground and take a look at the magnetic field."); Ex. P at 6, 46-50; Ex. HH at 6, 55-59; Ex. QQ at 6, 46-50.

206. Further, Defendant's Accused Receivers are designed to be used in a region for an underground drilling procedure where the "region includes electromagnetic noise that varies within the region and causes interference with the transmitter signal," as required by claim 1.

207. For example, Defendant's user manuals explain that proper use involves walking "the bore path"—the claimed region—to "check for interference" with the transmitter caused by electromagnetic noise. Ex. O at 4. Defendant's instructional videos posted on its website mirror this instruction. *See, e.g.*, https://www.youtube.com/watch?v=xBrbRwzOAWI at 1:12-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today."); https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50; Ex. HH at 22; Ex. QQ at 21.

208. On information and belief, Defendant's Accused Receivers include each of the claimed features, as discussed in greater detail below.

209. First, the Accused Receivers include "a detector." Ex. O at 1-2; Ex. P at 6, 12; Ex. HH at 6, 12; Ex. QQ at 6, 12. And the Accused Receivers' detectors are "positioned at an above ground location" when used as advertised by Defendant. *See* https://www.youtube.com/watch?v=xBrbRwzOAWI at 1:18-1:30 (showing the accused product's detector being used above ground).

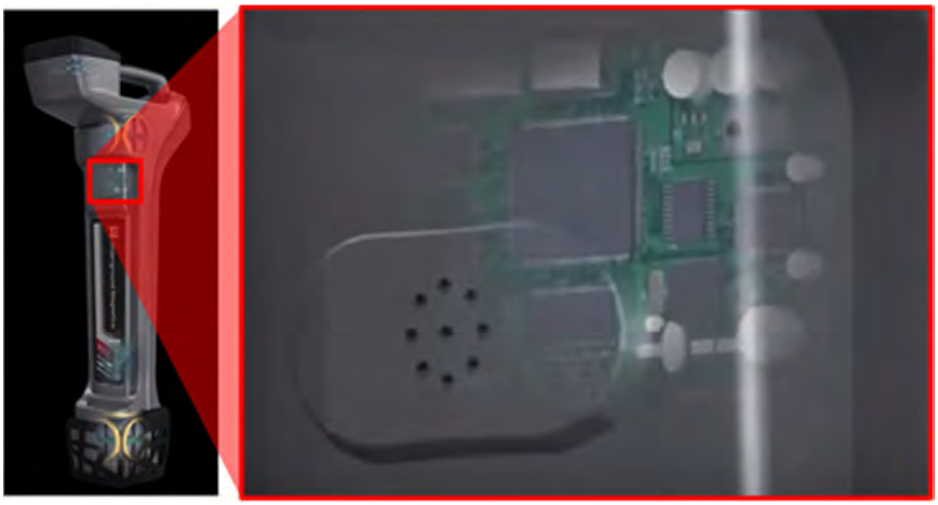
210. Additionally, Defendant's Accused Receivers use detectors "to measure the electromagnetic noise in said region prior to said underground drilling procedure." *See, e.g., id.* at 0:38-1:30 ("The receiver is measuring the active interference in the area you are standing based on the frequency chosen. . . . So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice that there is little interference since the top number is showing we can drill at least 65 feet deep in the selected frequency and power level. The worst case is showing 39 feet."); Ex. O at 4. The "interference" referenced by Defendant is a measurement of electromagnetic noise, as required by claim 1.

211. Further, Defendant's Accused Receivers measure electromagnetic noise "to establish a frequency content of the electromagnetic noise." *See* Ex. P at 21. Defendant's user manual states that the "best-case depth forecast value . . . will be the main value used when determining [electromagnetic noise]." *Id.*; *see also* Ex. HH at 22; Ex. QQ at 21. Defendant's instructional videos posted on its website explain how to read the established frequency content. *See* https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50.

212. Defendant's Accused Receivers establish a frequency content of the electromagnetic noise to "select a transmitter frequency based on the frequency content of the

electromagnetic noise." https://www.youtube.com/watch?v=xBrbRwzOAWI at 1:12-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50. Defendant's Accused Receivers readily allow users to select one of various transmitter frequencies based on the frequency content of the electromagnetic noise read by the detector. *See, e.g.*, Ex. O at 4; Ex. P at 21, 23; Ex. HH at 24; Ex. QQ at 23; Ex. PP at 2; Ex. RR at 2; Ex. SS at 2; https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08 ("Tap the enter button, which will display the current transmitter and frequency in use. Use the up and down arrows to choose the frequency and power level you would like to change to. Tap the enter button to begin the mode change.").

213. On information and belief, Defendant's Accused Receivers also include "a processor" as shown below:



https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:17-0:37 (annotated to expand an image of a processor embedded in Defendant's detector/receiver).

214. Further, on information and belief, a processor is configured in the Accused Receivers to "determine a predicted maximum operational depth of the transmitter for subsequent reception of said transmitter signal at the above ground location during the underground drilling procedure based on the measured electromagnetic noise." *Id.* ("As you know, the Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground."). Specifically, the processor in the Accused Receivers—operating above ground during the underground drilling procedure—determines the predicted maximum operational depth of the transmitter based on the measured electromagnetic noise. *See, e.g.*, Ex. O at 4; Ex. P at 21, 23; Ex. HH at 22, 24; Ex. QQ at 21, 23; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50.

215. Defendant's Accused Receivers include embedded display screens. *See, e.g.*, https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:10-0:16, 0:38-1:30. The embedded displays screens "indicate the predicted maximum operational depth at least prior to the underground drilling procedure." *See* Ex. P at 21; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30 ("Now, the predicted depth will be displayed. You'll see a signal graph and three numbers to the right."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:20-0:59, 1:32-1:36; Ex. HH at 22, 24; Ex. QQ at 21, 23.

216. In addition to embedded display screens, Defendant's Accused Systems also include remote displays that "indicate the predicted maximum operational depth at least prior to

the underground drilling procedure." Ex. P at 6, 12; Ex. O at 1-2; Ex. HH at 6, 36; Ex. QQ at 6, 36.

217. In addition to directly infringing the '536 patent itself, Defendant has intentionally induced end users to directly infringe the '536 patent and has contributed to end users directly infringing the '536 patent in violation of 35 U.S.C. § 271(b) and (c).

218. Defendant has acted and continues to act while the '536 patent is in force, intending to cause end users to infringe.

219. Upon information and belief, Defendant has knowledge of the '536 patent through DCI's consistent and continuous marking of its products with the '536 patent in compliance with the requirements of 35 U.S.C. § 271(a).

220. Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the '536 patent and contribute to infringement by others.

221. Despite its knowledge, Defendant instructed, and continues to instruct, end users to use the Accused Receivers and Accused Systems as described above and infringe the '536 patent, using instructional videos, manuals, and other information provided on Defendant's website and platforms, and written materials provided with the Accused Receivers and Accused Systems themselves. *See* Ex. O at 1-2, 4; Ex. P at 6, 12-13, 21; https://www.youtube.com/watch?v=xBrbRwzOAWI at 1:12-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today."); https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52 ("Let's put the transmitter in the ground and take a look at the magnetic field."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50. Defendant had knowledge that these instructions, if followed, would infringe the '536 patent.

222. Upon information and belief, Defendant intends for the Accused Receivers and Accused Systems to be used by end users in the manner described above, which infringes the ’536 patent. For instance, Defendant expressly instructs its customers to use the Accused Receivers and Accused Systems in an infringing manner when establishing the frequency content of the electromagnetic noise for use in selecting a discrete transmission frequency prior to an HDD procedure with the Accused Transmitters, including determining a predicted maximum operational depth of a transmitter for subsequent reception. *See* https://www.youtube.com/watch?v=xBrbRwzOAWI; https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s.

223. Upon information and belief, end users use the Accused Receivers and Accused Systems as instructed by Defendant to directly infringe the ’536 patent. *See* https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/.

224. In addition, Defendant also sells, offers to sell, or imports within the United States a component of a product, or apparatus for use in a process, where the component or apparatus has no substantial, noninfringing use, and the component or apparatus constitutes a material part of the invention.

225. Defendant’s Accused Receivers and Accused Systems are marketed and sold for infringement of the ’536 patent and are specially adapted for infringement of the ’536 patent. For example, the Accused Receivers and Accused Systems are specifically designed to establish a frequency content of the electromagnetic noise for use in selecting a discrete transmission frequency for an HDD procedure with the Accused Transmitters and to display a predicted maximum operational depth prior to the HDD procedure. Ex. O at 1-2, 4; Ex. P at 6, 12-13, 21,

24; Ex. HH at 6, 12-13, 22, 25; Ex. QQ at 6, 12-13, 21, 24; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30; https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:17-0:52; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50.

226. Upon information and belief, the instructed use of the Accused Receivers and Accused Systems by end users infringes the ’536 patent, and any other use of this functionality would be unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Receivers and Accused Systems cannot be used for substantial purposes other than infringing the ’536 patent. The Accused Receivers and Accused Systems are especially made or especially adapted for use in an infringement of the ’536 patent and are not staple articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant has had knowledge of, or was willfully blind to, this infringement.

227. Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant’s infringement.

228. Under 35 U.S.C. § 283, Plaintiffs are entitled to preliminary and permanent injunctions prohibiting Defendant from further making, using, selling, offering to sell, or importing the Accused Receivers in a manner that infringes the ’536 patent and from encouraging and inducing others to do the same.

229. Plaintiffs have been, and continue to be, damaged and irreparably harmed by Defendant’s infringement, which will continue unless this Court enjoins Defendant.

230. Defendant's infringement of the '536 patent has been, and continues to be, deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or has been willfully blind to the fact, or should have known that its actions, if taken, would infringe the '536 patent. Yet despite this knowledge, Defendant has continued infringing the '536 patent and has not ceased its infringing activities.

COUNT III: INFRINGEMENT OF THE '474 PATENT

231. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

232. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringes at least claims 1-6 of the '474 patent by making, using, offering to sell, selling, and/or importing various receivers, including but not limited to the Accused Receivers and Accused Systems listed herein.

233. By way of example, claim 1 of the '474 patent recites:

> 1. A portable device for use in conjunction with a system in which a transmitter is moved through the ground in a region during an operational procedure while transmitting a transmitter signal having a discrete transmission frequency selected from among a group of predetermined, discrete transmission frequencies that are spaced apart in a transmission frequency range and said region includes electromagnetic noise that varies within said region and across said transmission frequency range, said portable device comprising:
>
> > a receiver having a receiver bandwidth that at least includes said transmission frequency range and said receiver is configured, with said transmitter inactive, to (i) measure the electromagnetic noise continuously at a plurality of locations along a path at one or more of the predetermined, discrete frequencies, (ii) derive one or more indications for the one or more predetermined, discrete frequencies at each of said locations based on the measured electromagnetic noise, and (iii) continuously update the one or more indications in real time, said receiver further configured to use (i) through (iii) to provide for selection of one of the predetermined, discrete frequencies as a selected transmission frequency to avoid local electromagnetic interference with the transmitter signal subsequently transmitted by the transmitter at the discrete transmission frequency and received by the receiver during the operational procedure; and

a display that is configured to present at least one of the updated indications.

234. On information and belief, Defendant infringes all elements of at least claim 1 by making, using, offering to sell, selling, and/or importing the Accused Receivers and Accused Systems. The Accused Receivers and Accused Systems include each limitation of claim 1. The Accused Receivers include "[a] portable device for use in conjunction with a system in which a transmitter is moved through the ground in a region during an operational procedure." Ex. O at 1-2; Ex. P at 12; Ex. HH at 6; Ex. QQ at 6; *see also* https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52 ("Let's put the transmitter in the ground and take a look at the magnetic field.").

235. Further, Defendant's Accused Transmitters for use with the Accused Receivers are used for "transmitting a transmitter signal having a discrete transmission frequency." *See, e.g.*, https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52; Ex. O at 4; Ex. P at 21, 46-50; Ex. HH at 55-59; Ex. QQ at 46-50.

236. Defendant advertises that the discrete transmission frequency is "selected from among a group of predetermined, discrete transmission frequencies that are spaced apart in a transmission frequency range," as recited in claim 1. *See, e.g.*, Ex. P at 21; Ex. O at 4; Ex. HH at 10, 22, 25; Ex. QQ at 10, 21, 24; https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08 ("On your display, press and hold the setup button to enter the setup screen. . . . Use the up and down arrows to choose the frequency and power level you would like to change to. Tap the enter button to begin the mode change."); *see also* Ex. PP at 2; Ex. RR at 2; Ex. SS at 2.

237. Further, the regions in which Defendant's Accused Products operate include "electromagnetic noise that varies within said region and across said transmission frequency range." *See* https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:44-0:50 ("The receiver is measuring the active interference in the area you're standing based on the frequency chosen."); *id.* at 1:12-1:30 ("So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice that there is little interference since the top number is showing we can drill at least 65 feet deep in the selected frequency and power level. The worst case is showing 39 feet."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-0:51 ("You'll want to make your decision based on the type of interference you will be drilling around that day.").

238. On information and belief, Defendant's Accused Receivers include each of the claimed features, as discussed in greater detail below. Specifically, Defendant's Accused Receivers include "a receiver having a receiver bandwidth that at least includes said transmission frequency range." Ex. P at 6, 13; Ex. HH at 13; Ex. QQ at 13.

239. For example, each of the Accused Receivers has multiple frequency bands that allow communication between the transmitter and the receiver. *See, e.g.*, Ex. P at 13, 21, 46; Ex. O at 4; Ex. HH at 13; Ex. QQ at 13.

240. Defendant's Accused Receivers are also configured, "with said transmitter inactive, to . . . measure the electromagnetic noise continuously at a plurality of locations along a path at one or more of the predetermined, discrete frequencies." *See, e.g.*, Ex. P at 13, 21, 46; Ex. O at 4; Ex. HH at 22 ("Depth Forecast during Pre-Bore Walk"), 25; Ex. QQ at 21 ("Depth Forecast during Pre-Bore Walk"), 24; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:19-0:51 ("*Before putting any batteries in your Echo transmitter*, turn on your Mag receiver by

pressing the power button for 3 seconds. Once the locator is on, tap the menu button once to display the calibration and depth prediction icons. Use the down arrow to scroll to the last option, A5. Now the predicted depth will be displayed. All the frequencies at the bottom of the screen will start scrolling across displaying the best depth possible in every frequency." (emphasis added)).

241. Indeed, Defendant advertises that the Accused Receivers, "with said transmitter inactive, to (i) measure the electromagnetic noise continuously at a plurality of locations along a path at one or more of the predetermined, discrete frequencies."

https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:10-1:30 ("*Before putting any batteries in your transmitter*, turn on your receiver by pressing and holding the power button. . . . Now, the predicted depth will be displayed. You'll see a signal graph and three numbers to the right. The receiver is measuring the active interference in the area you are standing based on the frequency chosen. In this case, you'll see ECHO2S 19K with two bars highlighted indicating low power. To the right, the top number is the best depth prediction, and the bottom is the worst. The middle number is reading the signal in real time and will be changing as you walk along your bore path.

At any time while walking along the bore path, you can tap the enter button to refresh the depth prediction. So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice that there is little interference since the top number is showing we can drill at least 65 feet deep in the selected frequency and power level. The worst case is showing 39 feet." (emphasis added)); *see also* Ex. O at 4 (instructing a user to "[w]alk the bore path" to receive multiple interference readings); Ex. HH at 22 ("Depth Forecast during Pre-Bore Walk"); Ex. QQ at 21 ("Depth Forecast during Pre-Bore Walk");

https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:45, 0:19-1:50.

242. Defendant's Accused Receivers are further configured to "(ii) derive one or more indications for the one or more predetermined, discrete frequencies at each of said locations

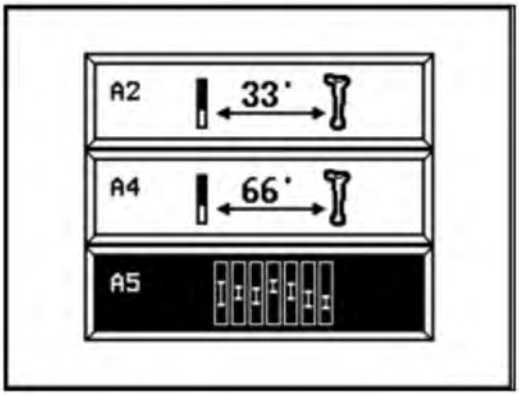
based on the measured electromagnetic noise."

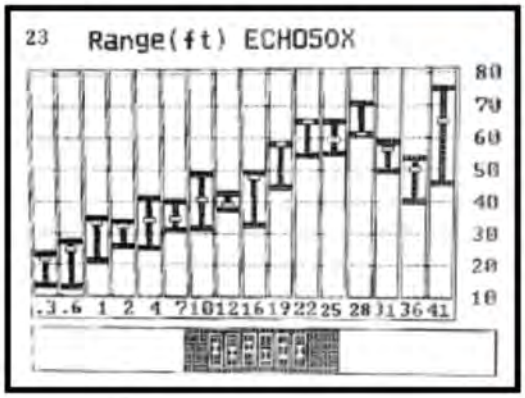
https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30;

https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08; Ex. P at 21;

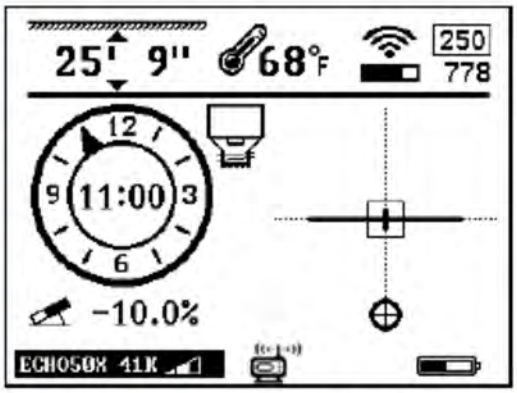
7.5: Operation

7.5.1: Depth Forecast during Pre-Bore Walk





Tap ◎ to enter calibration page and tap ▼ to select A5 icon.



Tap ◎ to return to Main Page.

Tap ↵ to enter the Depth Forecast page. On the Y-axis is a list of various depth measurements. The X-axis shows the available frequencies. The indicator at the bottom will now cycle through each available frequency and provide potential best and worse-case depth scenarios based on the surrounding interference.

Note: The best-case depth forecast value is a conservative value and will be the main value used when determining interference.

Ex. HH at 22; Ex. QQ at 21; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:19-1:50 ("So let's take a walk, and see what we can see for active interference and choose which

frequency to use for our bore today. As we walk from the drill, we notice the numbers changing as the interference changes.").

243. Defendant's Accused Receivers are further configured to "(iii) continuously update the one or more indications in real time," as shown below:

2. Walk the bore path with the receiver while using depth forecast to check for interference.

Manual 8S | 16
Manual 3&6S | 16

- Use this information to choose which frequency to use.
- 10 frequency bands: 4kHz, 7kHz, 10kHz, 12kHz, 16kHz, 19kHz, 22kHz, 25kHz28kHz, and 31kHz
- Select desired frequency and power level in Transmitter Settings

Manual 8S | 18
Manual 3&6S | 18

Ex. O at 4;

https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30 (screenshot annotated) ("Now, the predicted depth will be displayed. You'll see a signal graph and three numbers to the right. The receiver is measuring the active interference in the area you are standing based on the

frequency chosen. In this case, you'll see ECHO2S 19K with two bars highlighted indicating low power. To the right, the top number is the best depth prediction, and the bottom is the worst. The middle number is reading the signal in real time and will be changing as you walk along your bore path. At any time while walking along the bore path, you can tap the enter button to refresh the depth prediction. So let's take a walk and see what we have for active interference and choose which frequency to use for our bore today."); Ex. HH at 10, 22, 25; Ex. QQ at 10, 21, 24; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:19-1:50.

244. Indeed, the Accused Receivers are "further configured to use (i) through (iii) to provide for selection of one of the predetermined, discrete frequencies as a selected transmission frequency to avoid local electromagnetic interference with the transmitter signal subsequently transmitted by the transmitter at the discrete transmission frequency and received by the receiver during the operational procedure." Ex. P at 13, 21; Ex. O at 4; Ex. HH at 10, 22, 25; Ex. QQ at 10, 21, 24; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:19-1:50 ("So let's take a walk, and see what we can see for active interference and choose which frequency to use for our bore today. As we walk from the drill, we notice the numbers changing as the interference changes. . . . [A]s you can see, 41 kHz looks to be our best higher frequency . . . .").

245. Additionally, the Accused Receivers include an imbedded "display that is configured to present at least one of the updated indications." https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30 ("Now, the predicted depth will be displayed. You'll see a signal graph and three numbers to the right. The receiver is measuring the active interference in the area you are standing based on the frequency chosen. In this case, you'll see ECHO2S 19K with two bars highlighted indicating low power. To the right,

the top number is the best depth prediction, and the bottom is the worst. The middle number is reading the signal in real time and will be changing as you walk along your bore path. At any time while walking along the bore path, you can tap the enter button to refresh the depth prediction."); Ex. P at 21; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:20-0:59, 1:32-1:36; Ex. HH at 24; Ex. QQ at 23.

246. Defendant's Accused Systems also include a remote "display that is configured to present at least one of the updated indications." Ex. P at 6, 12; Ex. O at 1-2; Ex. HH at 6, 36; Ex. QQ at 6, 36.

247. In addition to directly infringing the '474 patent itself, Defendant has intentionally induced end users to directly infringe the '474 patent and has contributed to end users directly infringing the '474 patent in violation of 35 U.S.C. § 271(b) and (c).

248. Defendant has acted and continues to act while the '474 patent is in force, intending to cause end users to infringe.

249. Upon information and belief, Defendant has knowledge of the '474 patent through DCI's consistent and continuous marking of its products with the '474 patent in compliance with the requirements of 35 U.S.C. § 271(a).

250. Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the '474 patent and contribute to infringement by others.

251. Despite its knowledge, Defendant instructed, and continues to instruct, end users to use the Accused Receivers and Accused Systems as described above and infringe the '474 patent, using instructional videos, manuals, and other information provided on Defendant's website and platforms, and written materials provided with the Accused Receivers and Accused Systems themselves. *See* Ex. O at 1-2, 4; Ex. P at 6, 12-13, 21; Ex. HH at 10, 22, 25; Ex. QQ at

10, 21, 24; https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:38-1:30 ("Now, the predicted depth will be displayed. You'll see a signal graph and three numbers to the right. The receiver is measuring the active interference in the area you are standing based on the frequency chosen. In this case, you'll see ECHO2S 19K with two bars highlighted indicating low power. To the right, the top number is the best depth prediction, and the bottom is the worst. The middle number is reading the signal in real time and will be changing as you walk along your bore path."); https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08 ("On your display, press and hold the setup button to enter the setup screen. . . . Use the up and down arrows to choose the frequency and power level you would like to change to. Tap the enter button to begin the mode change."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50. Defendant had knowledge that these instructions, if followed, would infringe the '474 patent.

252. Upon information and belief, end users use the Accused Receivers and Accused Systems as instructed by Defendant to directly infringe the '474 patent. *See* https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/.

253. Upon information and belief, Defendant intends for the Accused Receivers and Accused Systems to be used by end users in the manner described above, which infringes the '474 patent. For instance, Defendant expressly instructs its customers to use the Accused Receivers and Accused Systems in an infringing manner to, with the transmitter inactive, measure the electromagnetic noise continuously at a plurality of locations along a path at one or more predetermined, discrete frequencies to derive a predicted maximum depth for the one or more predetermined, discrete frequencies at each of said locations based on the measured electromagnetic noise and continuously update the predicted maximum depth in real time to

provide for selection of one of the predetermined, discrete frequencies as a selected transmission frequency to avoid local electromagnetic interference with the transmitter signal subsequently transmitted by the transmitter at the discrete transmission frequency and received by the receiver during an operational procedure. *See* https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:49-1:12 ("The middle number is reading the signal in real time and will be changing as you walk along your bore path."); https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08 ("On your display, press and hold the setup button to enter the setup screen. . . . Use the up and down arrows to choose the frequency and power level you would like to change to."); https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52 ("Let's put the transmitter in the ground and take a look at the magnetic field."); https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50.

254. In addition, Defendant also sells, offers to sell, or imports within the United States a component of a product, or apparatus for use in a process, where the component or apparatus has no substantial, noninfringing use, and the component or apparatus constitutes a material part of the invention.

255. Defendant's Accused Receivers and Accused Systems are marketed and sold for infringement of the '474 patent and are specially adapted for infringement of the '474 patent. For example, the Accused Receivers and Accused Systems are specifically designed to, with the transmitter inactive, measure the electromagnetic noise continuously at a plurality of locations along a path at one or more predetermined, discrete frequencies to derive a predicted maximum depth for the one or more predetermined, discrete frequencies at each of said locations based on the measured electromagnetic noise and continuously update the predicted maximum depth in real time to provide for selection of one of the predetermined, discrete frequencies as a selected

transmission frequency to avoid local electromagnetic interference with the transmitter signal subsequently transmitted by the transmitter at the discrete transmission frequency and received by the receiver during an operational procedure. *See* https://www.youtube.com/watch?v=xBrbRwzOAWI at 0:49-1:12; https://www.youtube.com/watch?v=BshAuRafEoI at 0:47-1:08; https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52; https://www.youtube.com/watch?v=qulkw5jEYpc&t=2s at 0:26-1:50; Ex. HH at 22; Ex. QQ at 21.

256. Upon information and belief, the instructed use of the Accused Receivers and Accused Systems by end users infringes the ’474 patent, and any other use of this functionality would be unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Receivers and Accused Systems cannot be used for substantial purposes other than infringing the ’474 patent. The Accused Receivers and Accused Systems are especially made or especially adapted for use in an infringement of the ’474 patent and are not staple articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant has had knowledge of, or was willfully blind to, this infringement.

257. Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant’s infringement.

258. Under 35 U.S.C. § 283, Plaintiffs are entitled to preliminary and permanent injunctions prohibiting Defendant from further making, using, selling, offering to sell, or importing the Accused Receivers and Accused Systems in a manner that infringes the ’474 patent and from encouraging and inducing others to do the same.

259. Plaintiffs have been, and continue to be, damaged and irreparably harmed by Defendant's infringement, which will continue unless this Court enjoins Defendant.

260. Defendant's infringement of the '474 patent has been, and continues to be, deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or has been willfully blind to the fact, or should have known that its actions, if taken, would infringe the '474 patent. Yet despite this knowledge, Defendant has continued infringing the '474 patent and has not ceased its infringing activities.

COUNT IV: INFRINGEMENT OF THE '140 PATENT

261. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

262. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringes at least claims 62 and 63 of the '140 patent by making, using, offering to sell, selling, and/or importing various receivers, including but not limited to the Accused Receivers listed herein.

263. By way of example, claim 62 of the '140 patent recites:

> 62. A portable device for use in conjunction with a horizontal directional drilling system that includes a drill string that extends from a drill rig to an inground tool such that extension and retraction of the drill string moves the inground tool through the ground during an inground operation and the inground tool supports a transmitter that transmits an electromagnetic signal for detection by the portable device such that extension and retraction of the drill string moves the inground tool through the ground during an inground operation, said portable device comprising:
>
> > a receiver for detecting the signal with the transmitter above ground in a first operational mode and below a surface of the ground in a second operational mode; and
> >
> > a processor configured for selective operation in (i) said first mode to determine an above ground range from the portable device to the transmitter based on an above ground measured signal strength of said electromagnetic signal and a surface effect compensation, and (ii) said second mode with the transmitter in the ground to determine a depth of the

transmitter below the surface based on a below ground measured signal strength of said electromagnetic signal.

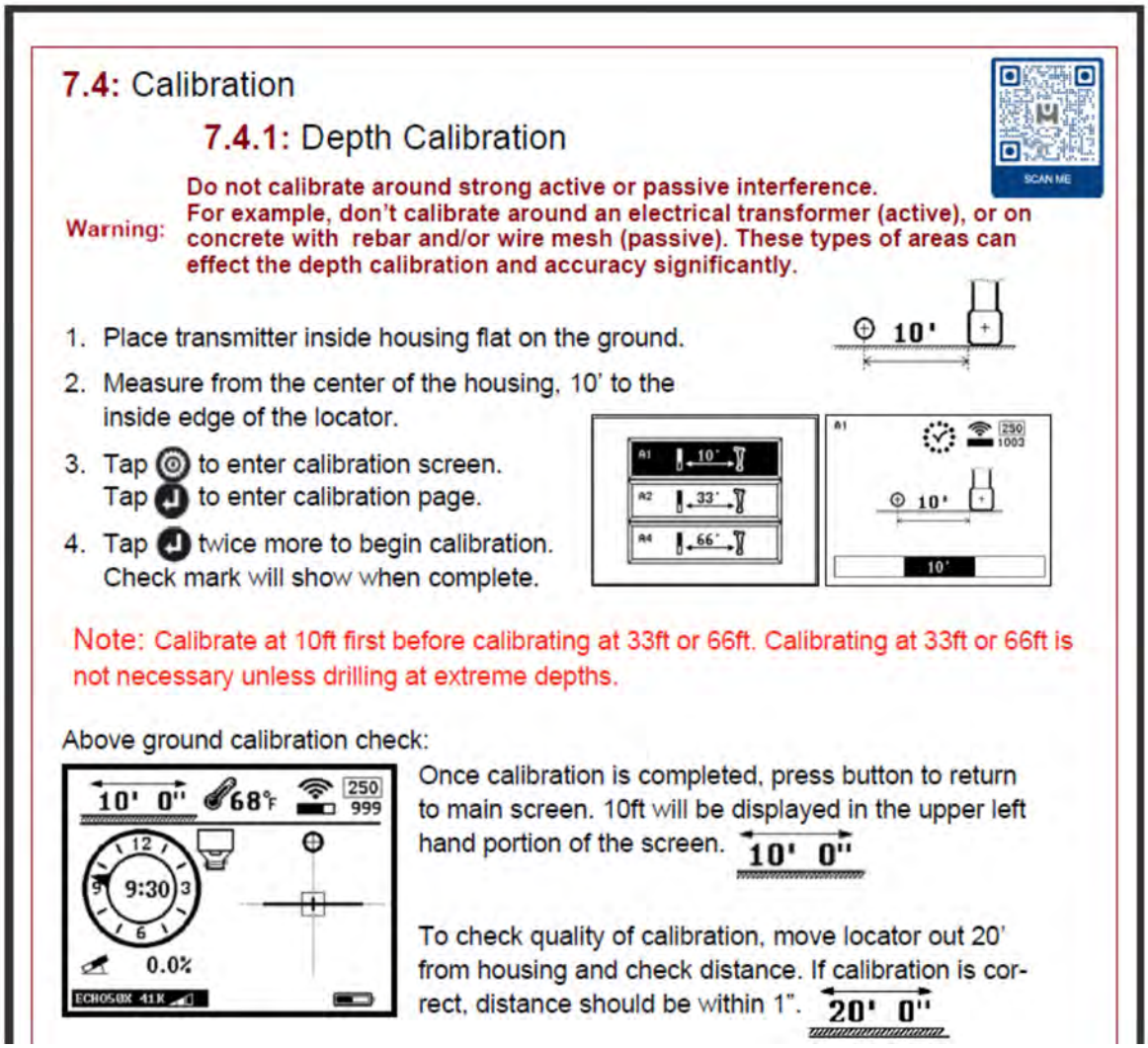
264. On information and belief, Defendant infringes all elements of at least claim 62 by making, using, offering to sell, selling, and/or importing the Accused Receivers. The Accused Receivers include each limitation of claim 62. The Accused Receivers include "[a] portable device for use in conjunction with a horizontal directional drilling system that includes a drill string that extends from a drill rig to an inground tool such that extension and retraction of the drill string moves the inground tool through the ground during an inground operation." *See* Ex. HH at 6 ("[T]he [r]eceiver transmits the locating information to the remote display through a radio telemetry system. A horizontal directional drilling machine operator can use the information from the display to the [sic] guide the drill head to the desired location."); Ex. QQ at 6;

UM Calibration at 2:02-2:10, https://www.youtube.com/watch?v=8k5ONcotxg0 (last visited May 16, 2022).

265. Additionally, "the inground tool supports a transmitter that transmits an electromagnetic signal for detection by the portable device such that extension and retraction of the drill string moves the inground tool through the ground during an inground operation." *See id.* at 0:26-0:38, 1:59-2:10;

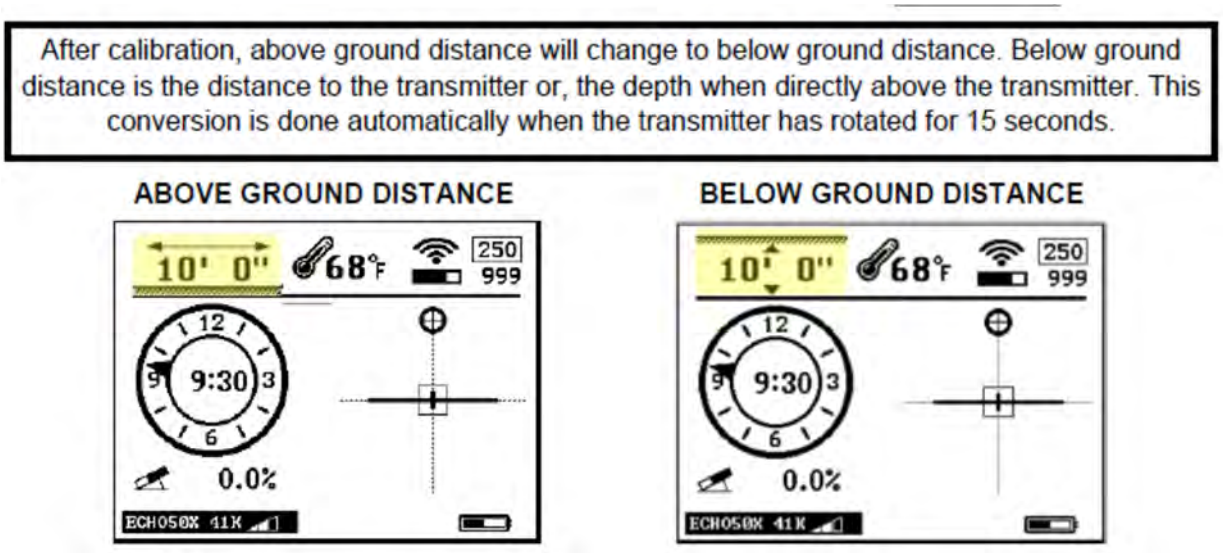
id. at 0:28; Ex. HH at 10 ("Install transmitter into the housing."), 61-66 ("The Mag receiver locates the transmitter by pinpointing three specific locations along the transmitter's magnetic[] field."); Ex. QQ at 10, 52-57.

266. On information and belief, Defendant's Accused Receivers include each of the claimed features, as discussed in greater detail below. Specifically, Defendant's Accused Receivers include "a receiver for detecting the signal with the transmitter above ground in a first operational mode and below a surface of the ground in a second operational mode." Indeed, Defendant's manuals confirm that the Accused Receivers have a first "[a]bove ground calibration check" operational mode with the transmitter above ground.



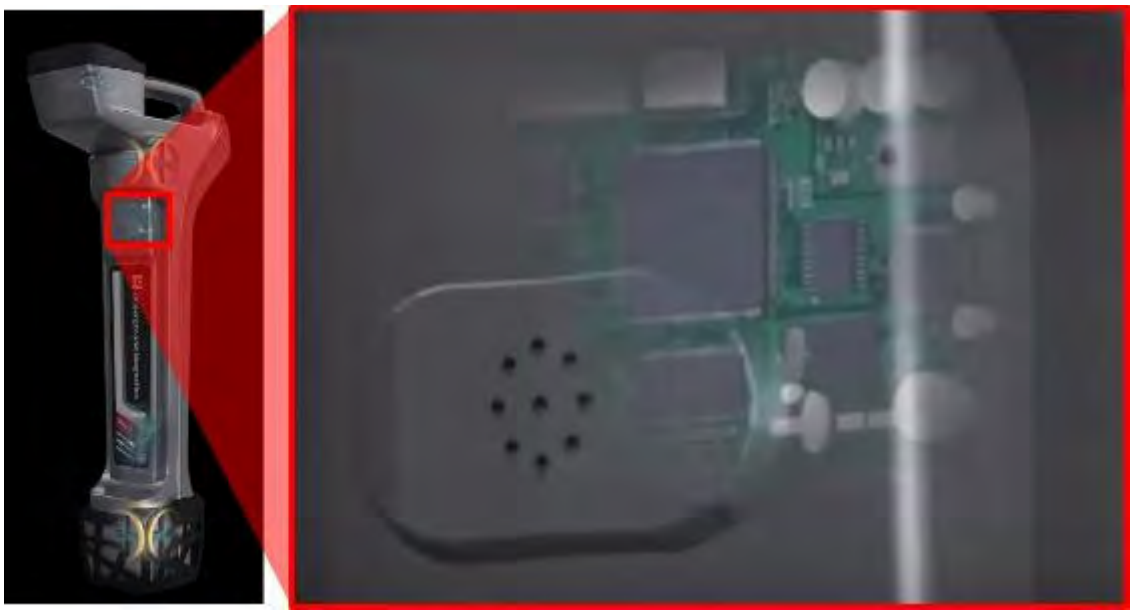
Ex. HH at 20; Ex. QQ at 19. The Accused Receivers detect the transmitter signal with the transmitter above ground in an "above ground calibration" mode. Ex. HH at 20 ("Place transmitter inside housing flat on the ground."); Ex. QQ at 19; https://www.youtube.com/watch?v=8k5ONcotxg0 at 0:19-2:11.

267. Defendant's Accused Receivers detect the signal with the transmitter below a surface of the ground in a second operational mode.



Ex. HH at 20; Ex. QQ at 19. Specifically, "[a]fter calibration, above ground distance *will change to below ground distance*. Below ground distance is the distance to the transmitter or[] the depth when directly above the transmitter. This *conversion* is done automatically when the transmitter has rotated for 15 seconds." Ex. HH at 20 (emphases added); Ex. QQ at 19. The "ABOVE GROUND DISTANCE" mode with the transmitter above ground and the "BELOW GROUND DISTANCE" mode with the transmitter below ground are distinct operational modes. Ex. HH at 20; Ex. QQ at 19.

268. Defendant's Accused Receivers further include "a processor configured for selective operation in (i) said first mode to determine an above ground range from the portable device to the transmitter based on an above ground measured signal strength of said electromagnetic signal and a surface effect compensation, and (ii) said second mode with the transmitter in the ground to determine a depth of the transmitter below the surface based on a below ground measured signal strength of said electromagnetic signal." *See* Ex. HH at 20; Ex. QQ at 19;



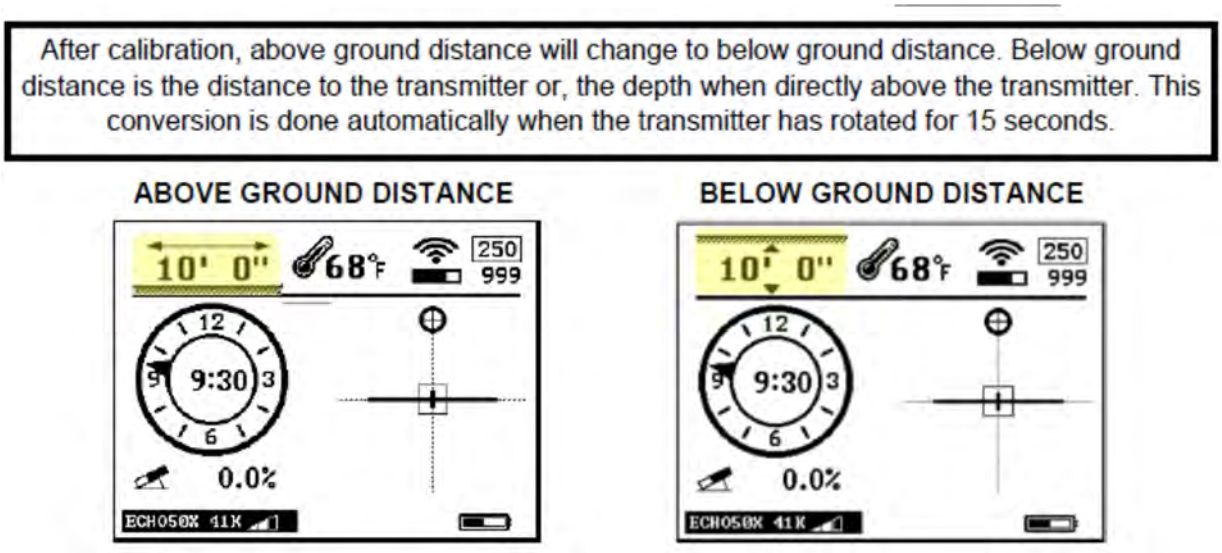
https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 (annotated to expand image).

269. For example, Defendant's manuals describe how a processor in the Accused Receivers is configured to selectively operate in a first mode to determine an above-ground range from the portable device to the transmitter based on an above-ground measured signal strength of said electromagnetic signal and a surface effect compensation. *See* Ex. HH at 20 (instructing users to conduct an "[a]bove ground calibration check," which is accessed through the "calibration screen," and instructing users to tap icons to "begin calibration") ("Once calibration is completed, press button to return to main screen. 10ft will be displayed in the upper left portion of the screen."); Ex. QQ at 19.

270. Additionally, Defendant's manuals describe how a processor in the Accused Receivers is configured to selectively operate in a second mode with the transmitter in the ground to determine a depth of the transmitter below the surface based on a below-ground measured signal strength of the electromagnetic signal. Ex. HH at 20 ("After calibration, above ground distance *will change to below ground distance*. Below ground distance is the distance to

the transmitter or[] the depth when directly above the transmitter. This *conversion* is done automatically when the transmitter has rotated for 15 seconds." (emphases added)); Ex. QQ at 19; *see also* Ex. HH at 15 ("Signal strength"); Ex. QQ at 14.

271. Defendant's manuals highlight that the Accused Receivers display the same measured distance above ground in the first operational mode and below ground in the second operational mode.



Ex. HH at 20; Ex. QQ at 19. On information and belief, the Accused Receivers are only able to achieve the same distance measurement above ground as below ground by using a surface effect compensation above ground in the first operational mode and then disengaging the surface effect compensation with the transmitter below ground in the second operational mode. *See* Ex. HH at 20 ("After calibration, above ground distance *will change to below ground distance*. Below ground distance is the distance to the transmitter or[] *the depth when directly above the transmitter*. This *conversion* is done automatically when the transmitter has rotated for 15 seconds." (emphases added)); Ex. QQ at 19.

272. In addition to directly infringing the ’140 patent itself, Defendant has intentionally induced end users to directly infringe the ’140 patent and has contributed to end users directly infringing the ’140 patent in violation of 35 U.S.C. § 271(b) and (c).

273. Defendant has acted and continues to act while the ’140 patent is in force, intending to cause end users to infringe.

274. Upon information and belief, Defendant has knowledge of the ’140 patent through DCI’s consistent and continuous marking of its products with the ’140 patent in compliance with the requirements of 35 U.S.C. § 271(a).

275. Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the ’140 patent and contribute to infringement by others.
Despite its knowledge, Defendant instructed, and continues to instruct, end users to use the Accused Receivers as described above and infringe the ’140 patent, using instructional videos, manuals, and other information provided on Defendant’s website and platforms, and written materials provided with the Accused Receivers themselves. *See* Ex. HH at 20; Ex. QQ at 19; *see also* https://www.youtube.com/watch?v=8k5ONcotxg0 at 0:19-2:11. Defendant had knowledge that these instructions, if followed, would infringe the ’140 patent.

276. Upon information and belief, end users use the Accused Receivers as instructed by Defendant to directly infringe the ’140 patent. *See* Ex. HH at 20; Ex. QQ at 19; *see also* https://www.youtube.com/watch?v=8k5ONcotxg0 at 0:19-2:11; https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/.

277. Upon information and belief, Defendant intends for the Accused Receivers to be used by end users in the manner described above, which infringes the ’140 patent. For instance, Defendant expressly instructs its customers to use the Accused Receivers in an infringing

manner in a first mode to determine an above-ground range from the Accused Receiver to the transmitter based on an above-ground measured signal strength and a surface effect compensation, and in a second mode with the transmitter in the ground to determine a depth of the transmitter below the surface based on a below-ground measured signal. *See* Ex. HH at 20; Ex. QQ at 19; *see also* https://www.youtube.com/watch?v=8k5ONcotxg0 at 0:19-2:11.

278. In addition, Defendant also sells, offers to sell, or imports within the United States a component of a product, or apparatus for use in a process, where the component or apparatus has no substantial, noninfringing use, and the component or apparatus constitutes a material part of the invention.

279. Defendant's Accused Receivers are marketed and sold for infringement of the '140 patent and are specially adapted for infringement of the '140 patent. For example, the Accused Receivers are specifically configured to operate in a first mode to determine an above-ground range from the Accused Receiver to the transmitter based on an above-ground measured signal strength and a surface effect compensation, and in a second mode with the transmitter in the ground to determine a depth of the transmitter below the surface based on a below-ground measured signal. *See* Ex. HH at 20; Ex. QQ at 19; *see also* https://www.youtube.com/watch?v=8k5ONcotxg0 at 0:19-2:11.

280. Upon information and belief, the instructed use of the Accused Receivers by end users infringes the '140 patent, and any other use of this functionality would be unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Receivers cannot be used for substantial purposes other than infringing the '140 patent. The Accused Receivers are especially made or especially adapted for use in an infringement of the '140 patent and are not staple

articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant has had knowledge of, or was willfully blind to, this infringement.

281. Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant's infringement.

282. Under 35 U.S.C. § 283, Plaintiffs are entitled to preliminary and permanent injunctions prohibiting Defendant from further making, using, selling, offering to sell, or importing the Accused Receivers in a manner that infringes the '140 patent and from encouraging and inducing others to do the same.

283. Plaintiffs have been, and continue to be, damaged and irreparably harmed by Defendant's infringement, which will continue unless this Court enjoins Defendant.

284. Defendant's infringement of the '140 patent has been, and continues to be, deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or has been willfully blind to the fact, or should have known that its actions, if taken, would infringe the '140 patent. Yet despite this knowledge, Defendant has continued infringing the '140 patent and has not ceased its infringing activities.

COUNT V: INFRINGEMENT OF THE '614 PATENT

285. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

286. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringed at least claims 11, 12, and 17 of the '614 patent while the patent was in force by making, using, offering to sell, selling, and/or importing various receivers, including but not limited to the Accused Receivers and Accused Systems listed herein.

287. By way of example, claim 11 of the '614 patent recites:

> 11. In an overall system in which a transmitter is moved through the ground within a given region along a path while transmitting a locating field such that the locating field exhibits a pair of locate points at the surface of the ground, one

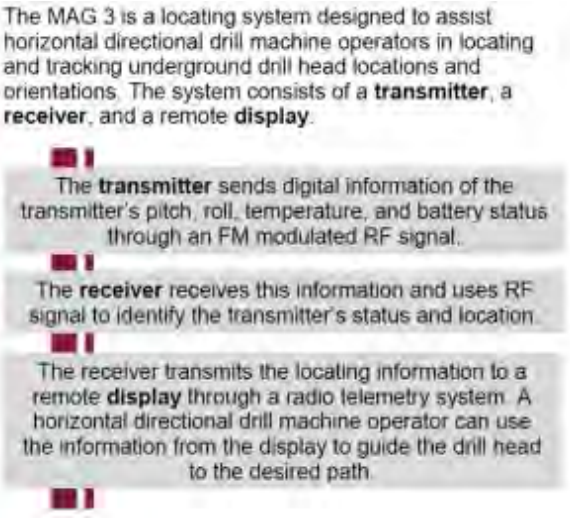
forward of the transmitter and the other to the rear of the transmitter, a portable locator for guiding an operator to each of the locate points, said portable locator comprising:

a) a receiver for measuring the intensity of the locating field;

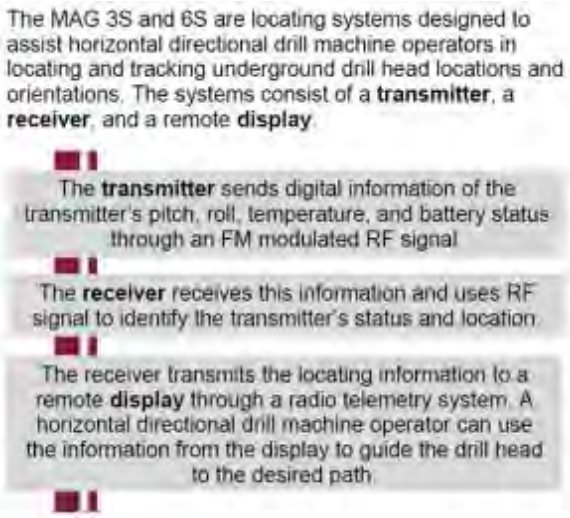
b) a processor for using the measured intensity of the locating field to determine a predicted location of a nearest one of the locate points in proximity to the portable locator at an above ground point; and

c) a display for displaying on the portable locator a positional relationship including the predicted location of the nearest locate point relative to the portable locator having a directional indication to serve in guiding an operator to the nearest locate point.

288. On information and belief, Defendant infringed all elements of at least claim 11 by making, using, offering to sell, selling, and/or importing the Accused Receivers and Accused Systems. The Accused Receivers and Accused Systems included each limitation of claim 11 while the ’614 patent was in force. As the examples below show, the Accused Receivers were for operation “[i]n an overall system in which a transmitter is moved through the ground within a given region along a path while transmitting a locating field.”



Ex. T at 1;



Ex. U at 1;

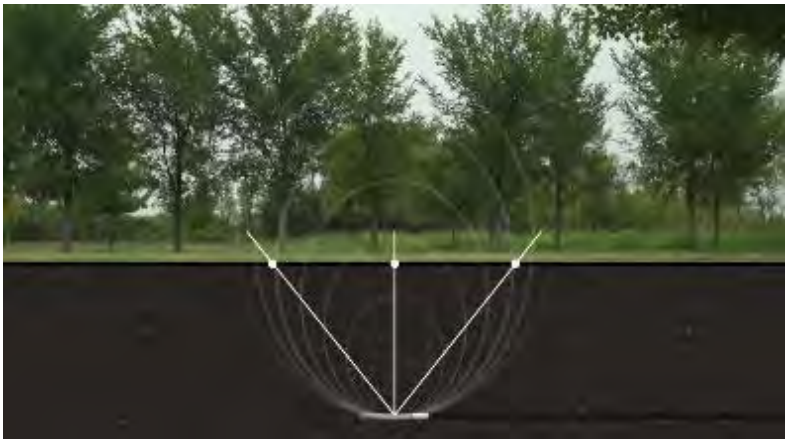
The MAG 8S is a locating system designed to assist horizontal directional drill machine operators in locating and tracking underground drill head locations and orientations. The systems consist of a **transmitter**, a **receiver**, and a remote **display**.

The **transmitter** sends digital information of the transmitter's pitch, roll, temperature, and battery status through an FM modulated RF signal.

The **receiver** receives this information and uses RF signal to identify the transmitter's status and location.

The receiver transmits the locating information to a remote **display** through a radio telemetry system. A horizontal directional drill machine operator can use the information from the display to guide the drill head to the desired path.

Ex. Q at 1;



see https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-0:52.

289. Indeed, Defendant's Accused Transmitters for use with the Accused Receivers are operated "such that the locating field exhibits a pair of locate points at the surface of the ground, one forward of the transmitter and the other to the rear of the transmitter."

Ex. T at 6;

Ex. U at 7-8;

Mag 8S System

- High precision and high anti-interference Faraday shield 3D antenna structure
- Industrial rated, gold-plated electronic modules
- High-performance DSP
- Dual locating system, functioning as two receivers independently tracking to provide better accuracy and reliability
- Up to 390ft depth range and up to 120 hours continuous usage

Receiver: Mag 6S

Display: Mag D6

Transmitter: Echo 50
Echo 90
Echo 110

Page 7

Ex. Q at 7-8;

8.1: Introduction

The transmitter provides drill head temperature, clock position, pitch, battery status and locating signal. The transmitter transmits signals at 4 kHz, 19 kHz or 30 kHz. The transmitter will enter a "sleep" mode after 15 minutes without rotation. It takes 10 seconds to "wake up" once the transmitter is rotated.

8.2: Specifications

Echo 1

Weight	1.5lbs
Dimensions	1.25" x 15" length
Frequency	4kHz/19kHz/30kHz
Depth Range	100ft/130ft/130ft
Power	2 C cells or Lithium Battery
C cell	3V, 12 hours of continuous usage
Lithium*	3V, 48 hours of continuous usage
Roll	24 transmitter roll positions
Pitch	01% resolution
Temperature	Under 185°F

Note: If drilling in adverse soil conditions (i.e. rock), normal C cell batteries will experience battery chatter. This can greatly reduce battery life. To prevent this, use your provided double C lithium cell battery instead.

Ex. T at 36;

9.1: Introduction

The transmitter provides drill head temperature, clock position, pitch, battery status and locating signal. The transmitter transmits signals at 4 kHz, 19 kHz or 30 kHz. The transmitter will enter a "sleep" mode after 15 minutes without rotation. It takes 10 seconds to "wake up" once the transmitter is rotated.

Note: If drilling in adverse soil conditions (i.e. rock), normal C cell batteries will experience battery chatter. This can greatly reduce battery life. To prevent this, use your provided double C lithium cell battery instead.

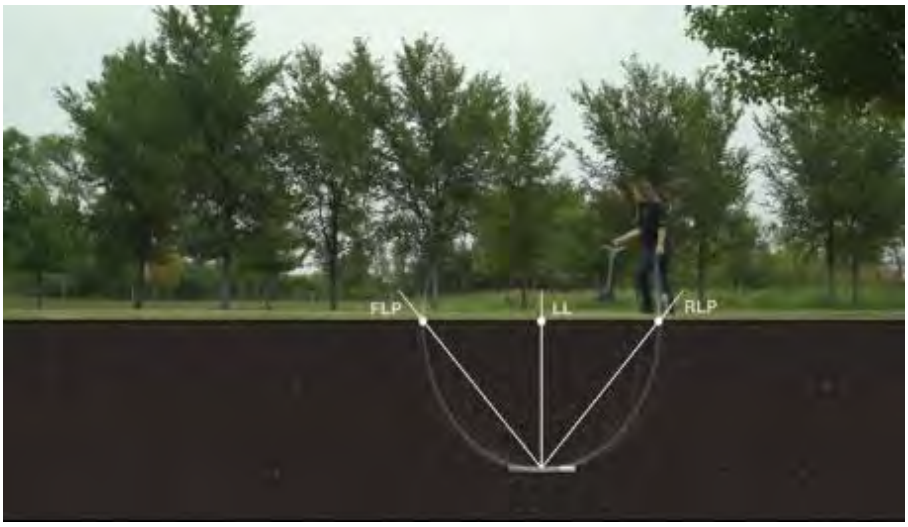
8.2: Specifications

Echo 1 (Mag 3S and 6S)

Weight	1.5lbs
Dimensions	1.25" x 15" length
Frequency	4kHz/19kHz/30kHz
Depth Range	90ft/130ft/130ft
Power	2 C cells, Echo Cell Kit, or Lithium Battery
C cell	3V, 12 hours of continuous usage
Echo Cell Kit	3V, 20 hours of continuous usage
Lithium*	3V, 48 hours of continuous usage
Roll	24 transmitter roll positions
Pitch	0.1% resolution
Temperature	Under 185°F

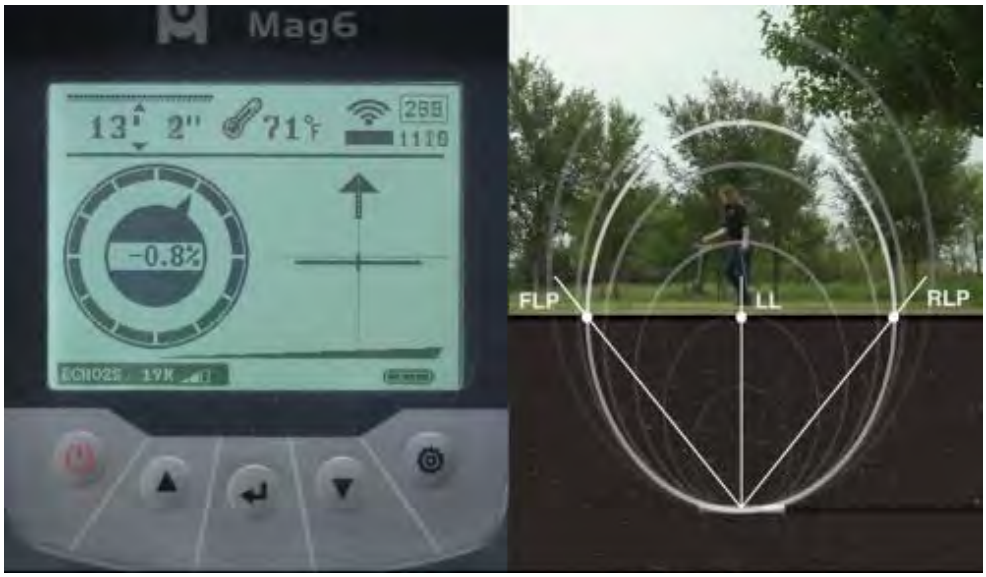
Ex. U at 41;

Ex. Q at 40;



https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01 (“The MAG system uses three points to find the exact location and direction in the transmitter. We call these locate points. The one in front of the transmitter is called the front locate point, or FLP. The one behind is called the rear locate point, or RLP. And the one over the transmitter is called the locate line, or LL. Using all three is the

most accurate method for pinpointing the transmitter's location and other data. . . . Simply find where the locate point arrow flips front to back, and you've crossed the locate point. The shaded arrow always indicates the direction of the nearest locate point to you. Now move right and left until the left/right steering bar is centered. This is the FLP. Now that we've located the front locate point, mark the spot on the ground. Think of it as an extension of your transmitter since this is the exact direction the transmitter's pointing. Now, move behind the transmitter and locate the RLP the same way. No need to mark this point. Simply walk towards the FLP since the transmitter is directly in line between these two points. As you move towards the FLP, you'll notice the locate line will become stable and centers when you're directly over the head.");



https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-2:27 ("Let's put the transmitter in the ground and take a look at the magnetic field. You'll notice the shape of the signal. The front and rear locate points are located where the signal goes vertical in relationship to the dual 3D antennas in the receiver. The front locate point, or FLP, is what we'll be focusing on with the new Mag 6S receiver. Just like

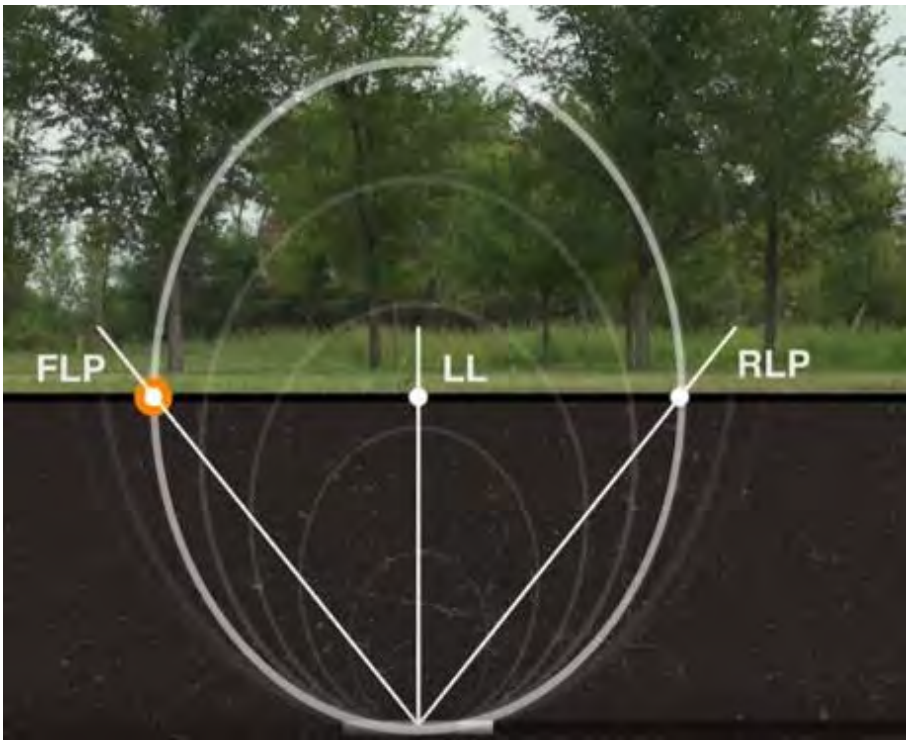
the previous version of the Mag 6, we'll use the highlighted arrows to guide us towards the closest locate point.").

290. Additionally, Defendant's Accused Receivers were each "a portable locator for guiding an operator to each of the locate points," as shown above. Ex. T at 6-7; Ex. U at 7-9; Ex. Q at 7-8; https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:43-1:07 ("The front and rear locate points are located where the signal goes vertical in relationship to the dual 3D antennas in the receiver. The front locate point, or FLP, is what we'll be focusing on with the new Mag 6S receiver. *Just like the previous version of the Mag 6, we'll use the highlighted arrows to guide us towards the closest locate point*." (emphasis added)).

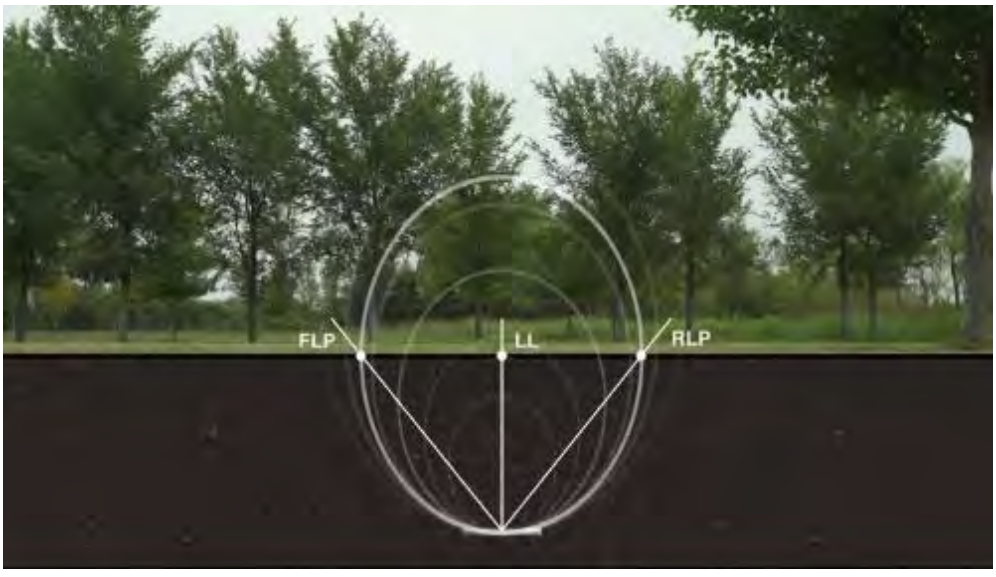
291. Defendant's Accused Receivers meet the remaining limitations in claim 11. Specifically, while the '614 patent was in force, Defendant's Accused Receivers were "portable locator[s] comprising[] . . . a receiver for measuring the intensity of the locating field." *See* Ex. T at 6-7; Ex. U at 7-9; Ex. Q at 7-8.

292. According to Defendant, the Accused Receivers measured the intensity of a magnetic signal emitted from the Accused Transmitters at an above-ground point.

https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 (“The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground.”);

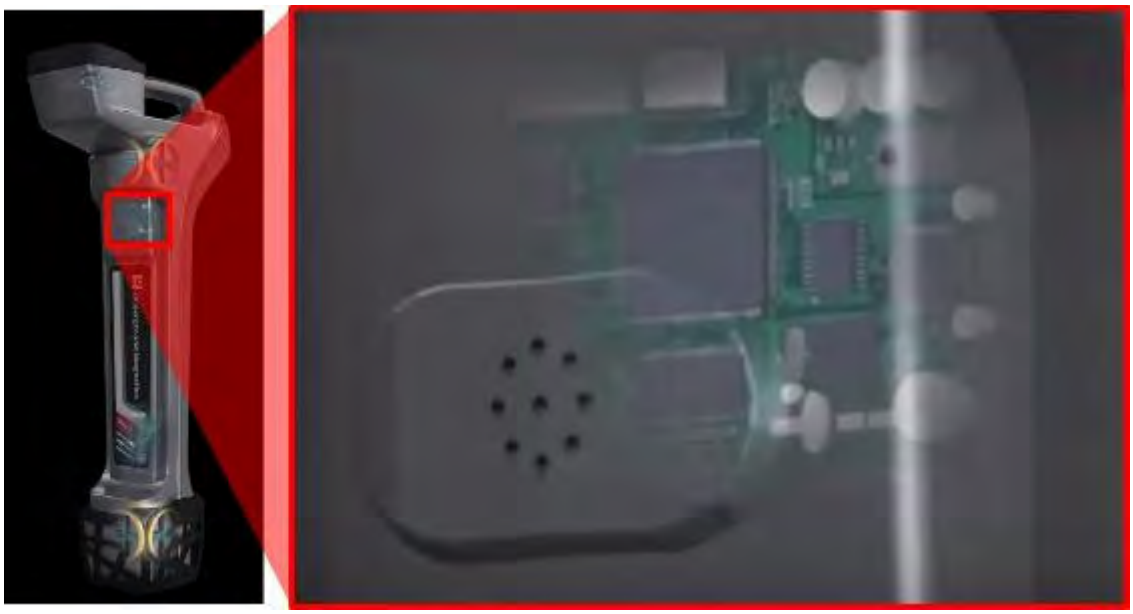


id. at 0:37-0:59 ("Let's put the transmitter in the ground and take a look at the magnetic field. You'll notice the shape of the signal. The front and rear locate points are located where the signal goes vertical in relationship to the dual 3D antennas in the receiver. The front locate point, or FLP, is what we'll be focusing on with the new Mag 6S receiver.");



https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-1:20 (“To understand locating 101, we first need to learn how the magnetic signal coming from the transmitter works and how the receiver uses that signal to find the transmitter’s position, depth, and direction. Let’s start by placing the transmitter in the ground below us. This is what we call the magnetic signal, or dipole field. You’ll notice the signal is egg-shaped and radiates from the center of the antenna in a very consistent shape. The MAG system uses three points to find the exact location and direction in the transmitter. We call these locate points. The one in front of the transmitter is called the front locate point, or FLP. The one behind is called the rear locate point, or RLP. And the one over the transmitter is called the locate line, or LL. Using all three is the most accurate method for pinpointing the transmitter’s location and other data. Let’s find the front locate point first. You’ll notice again the shape of the signal. The locate points are located exactly where the magnetic signal goes perfectly vertical in the relationship to the antennas in the receiver. With the MAG receiver’s 3D antenna configuration, we’re able to find this location quickly and most importantly accurately.”).

293. Further, while the ’614 patent was in force, Defendant’s Accused Receivers included “a processor for using the measured intensity of the locating field to determine a predicted location of a nearest one of the locate points in proximity to the portable locator at an above ground point.”



https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 (annotated to expand image) (“The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground.”);

Ex. DD (Photograph of Mag 8).

294. Defendant's instructional videos further explain how its Accused Receivers' processors "determine a predicted location of a nearest one of the locate points in proximity to the portable locator at an above ground point."

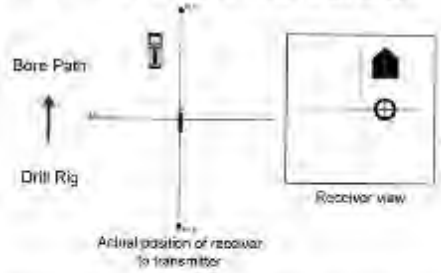
https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01;

https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-2:27 (“Let’s put the transmitter in the ground and take a look at the magnetic field. You’ll notice the shape of the signal. The front and rear locate points are located where the signal goes vertical in relationship to the dual 3D antennas in the receiver. The front locate point, or FLP, is what we’ll be focusing on with the new Mag 6S receiver. Just like the previous version of the Mag 6, we’ll use the highlighted arrows to guide us towards the closest locate point. Here, we see my closest locate point is in front of me, so I’ll start my

movement towards that point. As I get closer, you'll notice the arrow starts to expand and becomes completely darkened when I'm about to cross over the FLP. Once the arrow flips, I'm ready to pinpoint the FLP by moving the ball to the center of the crosshairs. Now, I'm directly over the FLP. . . . You'll notice the circle now has a line on top of it. Twist the locator in your hand until lined up with the vertical crosshair. This indicates the exact direction of the transmitter. Once you've pinpointed your FLP and the direction of the transmitter, simply press the enter button on the locator, and you'll now see the Bore-To screen. Here, you'll have all the information you need to make your decision to drill the next rod: direction of transmitter, distance back to transmitter, depth over the transmitter, and the projected depth at the locator relative to pitch. If you prefer to move back over the head, simply walk straight back until the locate line comes into focus and the ball disappears. You're now over the head and can record the depth displayed in the upper left-hand corner of the screen.").

295. Additionally, Defendant's manuals highlight that while the '614 patent was in force, its Accused Receivers were configured to include "a display for displaying on the portable locator a positional relationship including the predicted location of the nearest locate point relative to the portable locator having a directional indication to serve in guiding an operator to the nearest locate point," as shown below.

Walk forward until the base of the arrow is fully filled in.

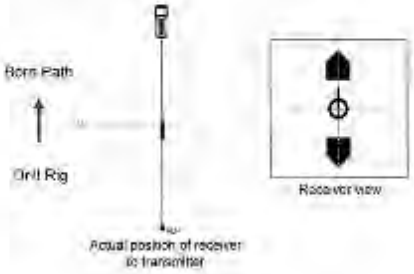


Notice how the Locate Line was replaced with a ball. The ball represents the FLP and appears when you are near it. It will slide along the horizontal axis of the cross hairs to give you the FLP's right-left location.

Where the cross hairs meet represents the receiver, the ball represents the FLP's position relative to the receiver, and the arrow represents the direction and nearness of the FLP. you can now see that you are about to cross over the FLP and that it is to your right.

Walk forward until the arrow shows two arrows on screen or flips. Then walk to the right to center the ball in the cross hairs. This is the exact location of the FLP.

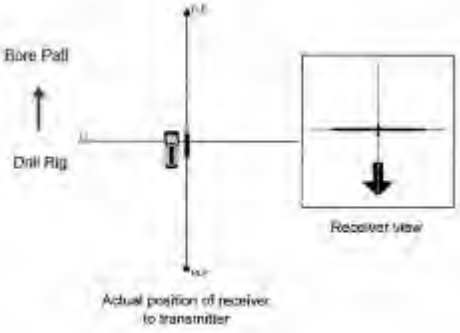
Notice the line that is now on top of the ball. This is for single point locating and will be addressed later.



10.1.3: Finding the Rear Locate Point

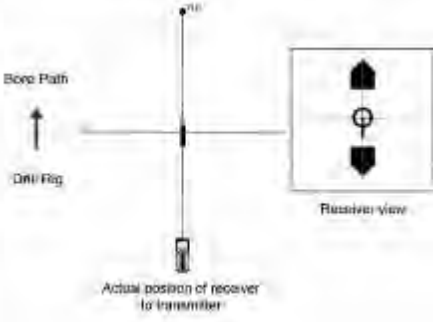
Steps to locate RLP

1. Move the receiver back toward the drill until the arrow flips as shown in the receiver view below. The ball will have disappeared, and the LL indicator will have replaced it. When the arrow flips and the LL indicator lines up with the horizontal axis, you have crossed the LL.

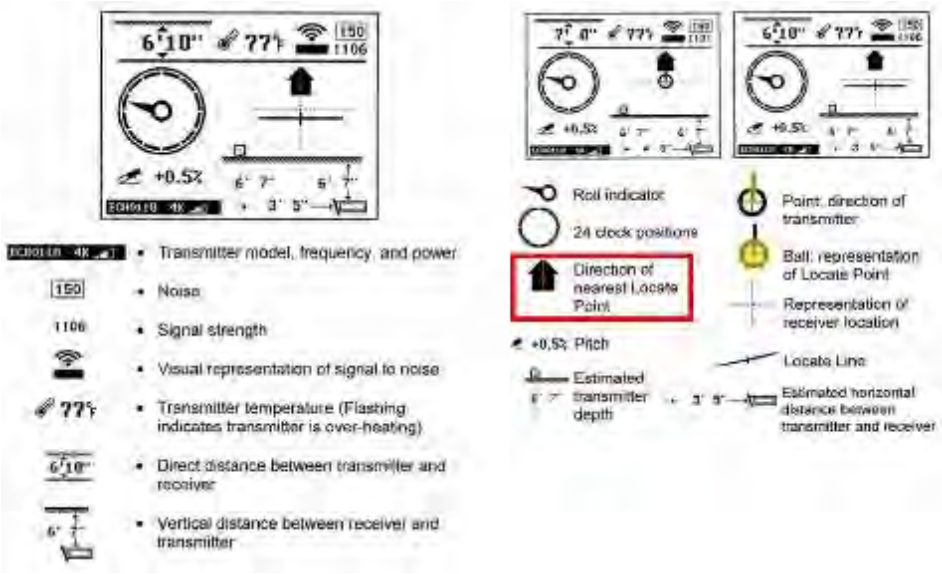


2. Continue to move back toward the drill. Watch the base of the arrow grow wider to indicate how close you are to the RLP. Once the base is completely full and the arrow either flips, or two arrows appear on the screen, you have crossed the RLP.

3. Fine tune the left-right position of the RLP by putting the ball in the cross hairs. This is the RLP.



Ex. Q at 47-49, 50-51;



Ex. Q at 9-10 (annotated); *see also* Ex. T at 6-7, 8-9, 40-42, 43-44, 47; Ex. U at 7-8, 10-11, 48-52, 55; Ex. Q at 7-8, 54.

296. In addition to embedded display screens, Defendant's Accused Systems also included remote displays "for displaying on the portable locator a positional relationship including the predicted location of the nearest locate point relative to the portable locator having a directional indication to serve in guiding an operator to the nearest locate point." *See* Ex. T at 1, 49; Ex. U at 1, 57; Ex. Q at 1, 56.

297. In addition to directly infringing the '614 patent itself, Defendant intentionally induced end users to directly infringe the '614 patent and contributed to end users directly infringing the '614 patent in violation of 35 U.S.C. § 271(b) and (c).

298. Defendant acted during the time the '614 patent was in force, intending to cause end users to infringe.

299. Upon information and belief, Defendant had knowledge of the ’614 patent through DCI’s consistent and continuous marking of its products with the ’614 patent in compliance with the requirements of 35 U.S.C. § 271(a).

300. Defendant has admitted in its online marketing material that it had knowledge of Plaintiffs’ locate point patents while the ’614 patent was still in force. *See* https://www.youtube.com/watch?v=CCTqKRifSH4 at 7:08-7:25; *see also* Ex. Q at 45-46 (Defendant using same terminology found in locate point patents and DCI’s products); Ex. R at 5 (same); https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:33-1:20 (same).

301. Thus, Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the ’614 patent and contribute to infringement by others.

302. Despite its knowledge, Defendant instructed end users to use the Accused Receivers and Accused Systems as described above and infringe the ’614 patent, using instructional videos, manuals, and other information provided on Defendant’s website and platforms, and written materials provided with the Accused Receivers and Accused Systems themselves. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5. Defendant had knowledge that these instructions, if followed, would infringe the ’614 patent.

303. Upon information and belief, end users used the Accused Receivers and Accused Systems as instructed by Defendant to directly infringe the ’614 patent. *See* https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/.

304. Upon information and belief, Defendant intended for the Accused Receivers and Accused Systems to be used by end users in the manner described above, which infringed the ’614 patent. For instance, Defendant expressly instructed its customers to use the Accused Receivers in an infringing manner to measure intensity of the locating field to determine a predicted location of a nearest one of the locate points in proximity to the portable locator at an above-ground point. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5.

305. In addition, while the ’614 patent was in force, Defendant also sold, offered to sell, or imported within the United States a component of a product, or apparatus for use in a process, where the component or apparatus had no substantial, noninfringing use, and the component or apparatus constituted a material part of the invention.

306. While the ’614 patent was in force, Defendant’s Accused Receivers and Accused Systems were marketed and sold for infringement of the ’614 patent and are specially adapted for infringement of the ’614 patent. For example, the Accused Receivers and Accused Systems were specifically designed to measure the intensity of the locating field to determine a predicted location of a nearest one of the locate points in proximity to the portable locator at an above-ground point. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5.

307. Upon information and belief, the instructed use of the Accused Receivers and Accused Systems by end users infringed the ’614 patent, and any other use of this functionality

would have been unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Receivers cannot be used for substantial purposes other than infringing the ’614 patent. The Accused Receivers and Accused Systems were especially made or especially adapted for use in an infringement of the ’614 patent and were not staple articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant had knowledge of or was willfully blind to this infringement.

308. Plaintiffs have been damaged by Defendant’s infringement, and Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant’s infringement.

309. Defendant’s infringement of the ’614 patent was deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or was willfully blind to the fact, or should have known that its actions, if taken, would infringe the ’614 patent. Yet despite this knowledge, Defendant continued infringing the ’614 patent.

COUNT VI: INFRINGEMENT OF THE ’738 PATENT

310. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

311. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringed at least claims 7-9 and 12-16 of the ’738 patent while the patent was in force by making, using, offering to sell, selling, and/or importing various receivers, including but not limited to the Accused Receivers listed herein.

312. By way of example, claim 7 of the ’738 patent recites:

> 7. In a system in which an inground tool is moved through the ground within a given region along a path while transmitting a dipole locating signal such that the locating signal exhibits locate points at the surface of the ground, both forward of and to the rear of the inground tool, a portable locator comprising:
>
> > an antenna for measuring a local flux intensity of the locating signal at an above ground point; and

> a processor that is configured to establish a horizontal flux vector oriented at least generally in a horizontal plane corresponding to the above ground point based on the local flux intensity and to indicate a direction based on the horizontal flux vector for guiding an operator to a nearest one of the locate points.

313. On information and belief, Defendant infringed all elements of at least claim 7 by making, using, offering to sell, selling, and/or importing the Accused Receivers. The Accused Receivers included each limitation of claim 7 while the '738 patent was in force. The Accused Receivers operated "[i]n a system in which an inground tool is moved through the ground within a given region along a path." Ex. T at 1; Ex. U at 1; Ex. Q at 1; *see* https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 ("The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground.").

314. While the '738 patent was in force, Defendant's Accused Receivers were configured for use "[i]n a system in which an inground tool is moved through the ground within a given region along a path while transmitting a dipole locating signal." *See* Ex. T at 6-7; Ex. U at 7-9; Ex. Q at 7-8.

315. Indeed, Defendant's Accused Transmitters "transmit[] a dipole locating signal such that the locating signal exhibits locate points at the surface of the ground." *See* Ex. T at 36; Ex. U at 41; Ex. Q at 40; https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01 ("To understand locating 101, we first need to learn how the magnetic signal coming from the transmitter works and how the receiver uses that signal to find the transmitter's position, depth, and direction. Let's start by placing the transmitter in the ground below us. This is what we call the magnetic signal, or

dipole field. You'll notice the signal is egg-shaped and radiates from the center of the antenna in a very consistent shape.").

316. Additionally, Defendant's Accused Transmitters operated such "that the locating signal exhibits locate points at the surface of the ground, both forward of and to the rear of the inground tool," as required by claim 7. In fact, Defendant called the locate points forward of and to the rear of the inground tool "front locate point[s]" and "rear locate point[s]," respectively. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01.

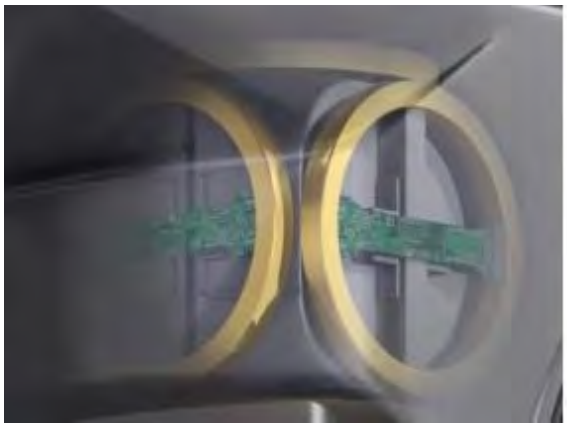
317. Defendant's instructional videos confirm that the locating signal generated by Defendant's Accused Transmitters exhibited "locate points at the surface of the ground, both forward of and to the rear of the inground tool," where the signal moved in a vertical direction relative to the inground tool and at the surface of the ground. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-2:27.

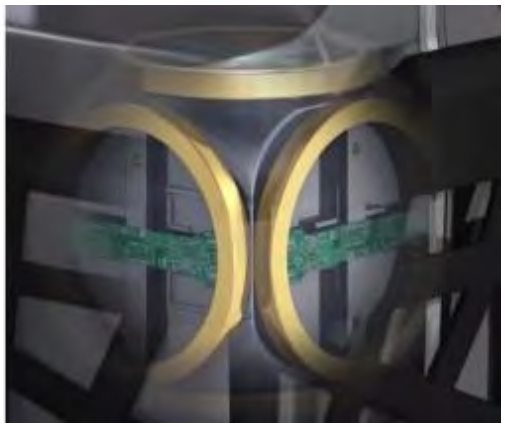
318. Defendant's locating "Basics" sections of its product manuals further confirm, while the '738 patent was in force, "that the locating signal exhibits locate points at the surface of the ground, both forward of and to the rear of the inground tool." *See* Ex. Q at 45-46; Ex. R at 4-5; *see also* Ex. U at 46-47; Ex. T at 38-39.

319. Further, Defendant's product manuals explained how to find the locate points "forward of and to the rear of the inground tool." *See* Ex. Q at 47-49, 50-51; Ex. T at 40-42, 43-44; Ex. U at 48-50, 51-52.

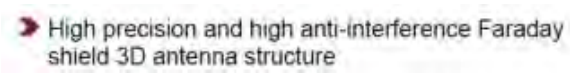
320. Defendant's Accused Receivers are "portable locator[s]." *See* Ex. T at 6; Ex. U at 7-8; Ex. R at 2; *see also* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/.

321. Additionally, Defendant's Accused Receivers are "portable locator[s] comprising[] an antenna," as demonstrated below.

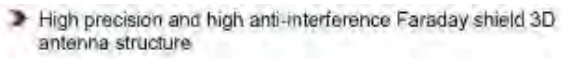




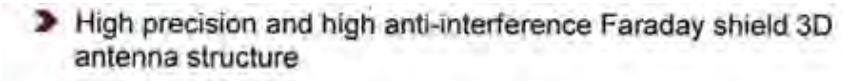
https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:30-0:37 ("With the Mag Series dual 3D antenna configuration, we're able to locate the signal in a unique fashion.");



Ex. T at 6;



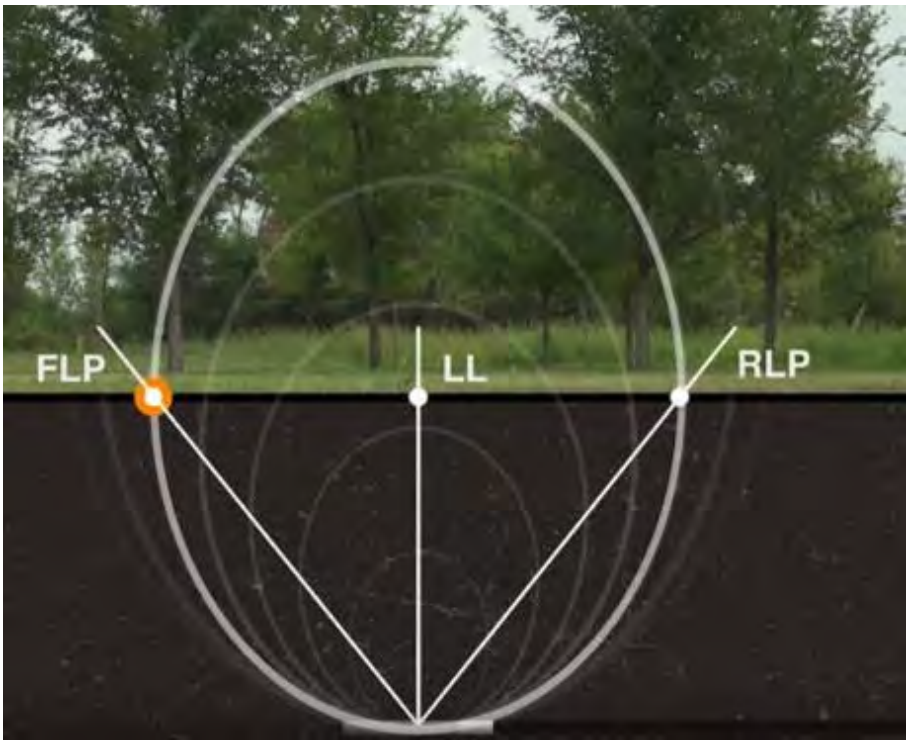
Ex. U at 7-8;



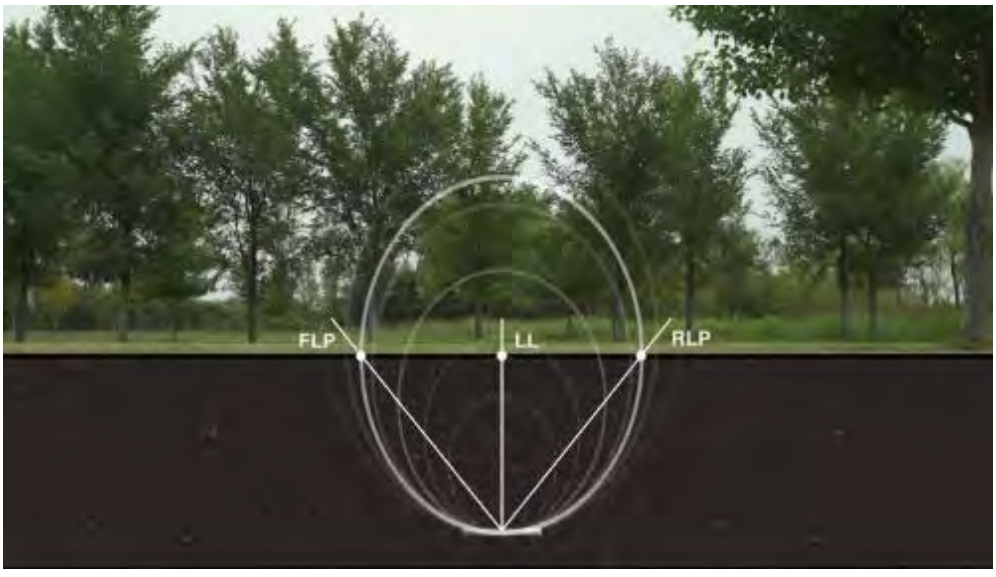
Ex. Q at 7.

322. Further, Defendant's Accused Receivers' antennas were used for "measuring a local flux intensity of the locating signal at an above ground point." According to Defendant, the Accused Receivers measured the intensity of a magnetic signal emitted from the Accused Transmitters at an above-ground point.

https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 (“The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground.”);

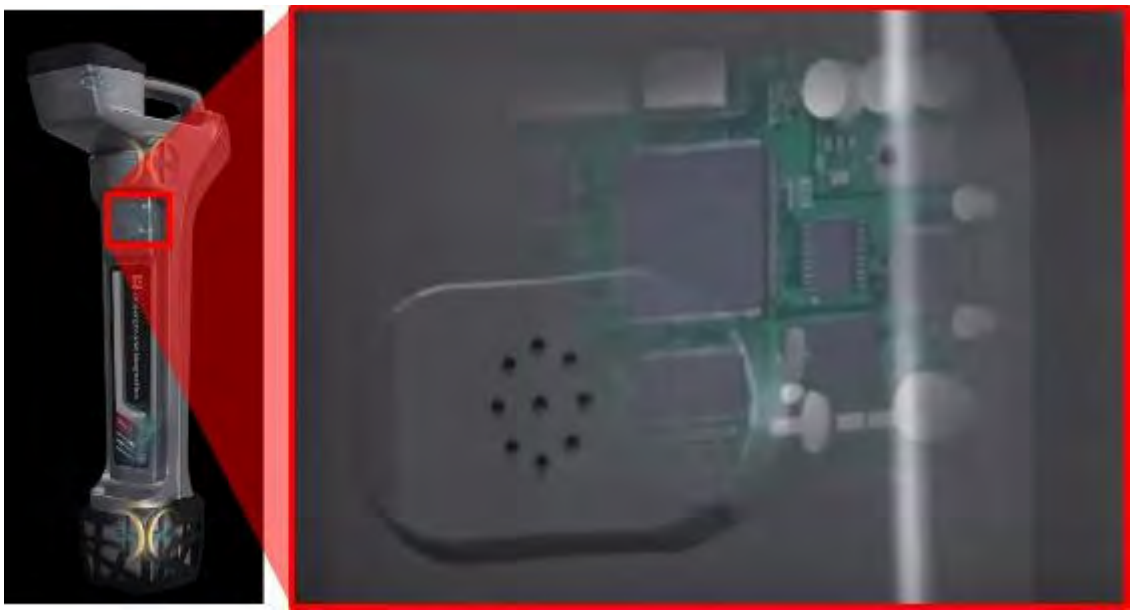


id. at 0:37-0:59 ("Let's put the transmitter in the ground and take a look at the magnetic field. You'll notice the shape of the signal. The front and rear locate points are located where the signal goes vertical in relationship to the dual 3D antennas in the receiver. The front locate point, or FLP, is what we'll be focusing on with the new Mag 6S receiver.");



https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-1:20 ("To understand locating 101, we first need to learn how the magnetic signal coming from the transmitter works and how the receiver uses that signal to find the transmitter's position, depth, and direction. Let's start by placing the transmitter in the ground below us. This is what we call the magnetic signal, or dipole field. You'll notice the signal is egg-shaped and radiates from the center of the antenna in a very consistent shape. The MAG system uses three points to find the exact location and direction in the transmitter. We call these locate points. The one in front of the transmitter is called the front locate point, or FLP. The one behind is called the rear locate point, or RLP. And the one over the transmitter is called the locate line, or LL. Using all three is the most accurate method for pinpointing the transmitter's location and other data. Let's find the front locate point first. You'll notice again the shape of the signal. The locate points are located exactly where the magnetic signal goes perfectly vertical in the relationship to the antennas in the receiver. With the MAG receiver's 3D antenna configuration, we're able to find this location quickly and most importantly accurately.").

323. On information and belief, while the '738 patent was in force, Defendant's Accused Receivers further included "a processor that is configured to establish a horizontal flux vector oriented at least generally in a horizontal plane corresponding to the above ground point based on the local flux intensity."



https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 (annotated to expand image) (“The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground.”);

Ex. DD.

324. Defendant's instructional videos further explain how its Accused Receivers "indicate a direction based on the horizontal flux vector for guiding an operator to a nearest one of the locate points."

https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01 (“Let’s find the front locate point first. You’ll notice again the shape of the signal. The locate points are located *exactly where the magnetic signal goes perfectly vertical in the relationship to the antennas in the receiver*. With the MAG receiver’s 3D antenna configuration, we’re able to find this location quickly and most importantly accurately. Simply find where the locate point arrow flips front to back, and you’ve crossed the locate point. The shaded arrow always indicates the direction of the nearest locate point to you. Now move right and left until the left/right steering bar is centered. This is the FLP. Now that we’ve located the front locate point, mark the spot on the ground. Think of it as an extension of your transmitter since this is the exact direction the transmitter’s pointing. Now, move behind the transmitter and locate the RLP the same way. No need to mark this point. Simply walk towards the FLP since the transmitter is directly in line between these two points. As you move towards the FLP, you’ll notice the locate line will become stable and centers when you’re directly over the head.” (emphasis added));

https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-2:27 ("Let's put the transmitter in the ground and take a look at the magnetic field. You'll notice the shape of the signal. The front and rear locate points are located where the signal goes vertical in relationship to the dual 3D antennas in the receiver. The front locate point, or FLP, is what we'll be focusing on with the new Mag 6S receiver. Just like the previous version of the Mag 6, we'll use the highlighted arrows to guide us towards the closest locate point. Here, we see my closest locate point is in front of me, so I'll start my movement towards that point. As I get closer, you'll notice the arrow starts to expand and becomes completely darkened when I'm about to cross over the FLP. Once the arrow flips, I'm ready to pinpoint the FLP by moving the ball to the center of the crosshairs. Now, I'm directly over the FLP. . . . You'll notice the circle now has a line on top of it. Twist the locator in your hand until lined up with the vertical crosshair. This indicates the exact direction of the transmitter. Once you've pinpointed your FLP and the direction of the transmitter, simply press the enter button on the locator, and you'll now see the Bore-To screen. Here, you'll have all the information you need to make your decision to drill the next rod: direction of transmitter, distance back to transmitter, depth over the transmitter, and the projected depth at the locator relative to pitch. If you prefer to move back over the head, simply walk straight back until the

locate line comes into focus and the ball disappears. You're now over the head and can record the depth displayed in the upper left-hand corner of the screen.").

325. Defendant's manuals further highlight that while the '738 patent was in force, the processors in Defendant's Accused Receivers were configured to "indicate a direction based on the horizontal flux vector for guiding an operator to a nearest one of the locate points." *See* Ex. Q at 9-10, 47-49, 50-51, 54; *see also* Ex. T at 8-9, 40-42, 43-44, 47; Ex. U at 10-11, 48-52, 55; Ex. R at 6-7.

326. In addition to directly infringing the '738 patent itself, Defendant intentionally induced end users to directly infringe the '738 patent and contributed to end users directly infringing the '738 patent in violation of 35 U.S.C. § 271(b) and (c).

327. Defendant acted during the time the '738 patent was in force, intending to cause end users to infringe.

328. Upon information and belief, Defendant had knowledge of the '738 patent through DCI's consistent and continuous marking of its products with the '738 patent in compliance with the requirements of 35 U.S.C. § 271(a).

329. Defendant has admitted in its online marketing material that it had knowledge of Plaintiffs' locate point patents while the '738 patent was still in force. *See* https://www.youtube.com/watch?v=CCTqKRifSH4 at 7:08-7:25; *see also* Ex. Q at 45-46 (Defendant using same terminology found in locate point patents and DCI's products); Ex. R at 5 (same); https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:33-1:20 (same).

330. Thus, Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the '738 patent and contribute to infringement by others.

331. Despite its knowledge, Defendant instructed end users to use the Accused Receivers as described above and infringe the ’738 patent, using instructional videos, manuals, and other information provided on Defendant’s website and platforms, and written materials provided with the Accused Receivers themselves. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5. Defendant had knowledge that these instructions, if followed, would infringe the ’738 patent.

332. Upon information and belief, end users used the Accused Receivers as instructed by Defendant to directly infringe the ’738 patent. *See* https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/.

333. Upon information and belief, Defendant intended for the Accused Receivers to be used by end users in the manner described above, which infringed the ’738 patent. For instance, Defendant expressly instructed its customers to use the Accused Receivers in an infringing manner to measure local flux intensity of a dipole locating signal at an above-ground point while an inground tool is moved through the ground and find the nearest locate point. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5.

334. In addition, while the ’738 patent was in force, Defendant also sold, offered to sell, or imported within the United States a component of a product, or apparatus for use in a process, where the component or apparatus had no substantial, noninfringing use, and the component or apparatus constituted a material part of the invention.

335. While the ’738 patent was in force, Defendant’s Accused Receivers were marketed and sold for infringement of the ’738 patent and are specially adapted for infringement of the ’738 patent. For example, the Accused Receivers were specifically designed to measure local flux intensity of a dipole locating signal at an above-ground point while an inground tool is moved through the ground and find the nearest locate point. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5.

336. Upon information and belief, the instructed use of the Accused Receivers by end users infringed the ’738 patent, and any other use of this functionality would have been unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Receivers cannot be used for substantial purposes other than infringing the ’738 patent. The Accused Receivers were especially made or especially adapted for use in an infringement of the ’738 patent and were not staple articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant had knowledge of or was willfully blind to this infringement.

337. Plaintiffs have been damaged by Defendant’s infringement, and Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant’s infringement.

338. Defendant’s infringement of the ’738 patent was deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or was willfully blind to the fact, or should have known that its actions, if taken, would infringe the ’738 patent. Yet despite this knowledge, Defendant continued infringing the ’738 patent.

COUNT VII: INFRINGEMENT OF THE ’074 PATENT

339. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

340. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringed at least claims 1-4 and 7-11 of the ’074 patent while the patent was in force by making, using, offering to sell, selling, and/or importing various receivers, including but not limited to the Accused Receivers listed herein.

341. By way of example, claim 1 of the ’074 patent recites:

> 1. In a system in which an inground tool is moved through the ground within a given region along a path while transmitting a dipole locating signal such that the locating signal exhibits locate points at the surface of the ground, both forward of and to the rear of the inground tool, a portable locator comprising:
>
> > an antenna for measuring a local flux intensity of the locating signal at an above ground point; and
> >
> > a processor that is configured to establish first and second orthogonal components of flux intensity based on the measured local flux intensity in an at least generally horizontal plane and to indicate a direction based on the first and second orthogonal components for guiding an operator to a nearest one of the locate points.

342. On information and belief, Defendant infringed all elements of at least claim 1 by making, using, offering to sell, selling, and/or importing the Accused Receivers. The Accused Receivers included each limitation of claim 1 while the ’074 patent was in force. The Accused Receivers operated “[i]n a system in which an inground tool is moved through the ground within a given region along a path.” *See* Ex. T at 1; Ex. U at 1; Ex. Q at 1; *see* https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 (“The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground.”).

343. While the ’074 patent was in force, Defendant’s Accused Receivers were configured for use “[i]n a system in which an inground tool is moved through the ground within

a given region along a path while transmitting a dipole locating signal." *See* Ex. T at 6-7; Ex. U at 7-9; Ex. Q at 7-8; Ex. R at 2.

344. Indeed, Defendant's Accused Transmitters "transmit[] a dipole locating signal such that the locating signal exhibits locate points at the surface of the ground." *See* Ex. T at 36; Ex. U at 41; Ex. Q at 40; https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01 ("To understand locating 101, we first need to learn how the magnetic signal coming from the transmitter works and how the receiver uses that signal to find the transmitter's position, depth, and direction. Let's start by placing the transmitter in the ground below us. This is what we call the magnetic signal, or dipole field. You'll notice the signal is egg-shaped and radiates from the center of the antenna in a very consistent shape.").

345. Additionally, Defendant's Accused Transmitters operated such "that the locating signal exhibits locate points at the surface of the ground, both forward of and to the rear of the inground tool," as required by claim 1. In fact, Defendant called the locate points forward of and to the rear of the inground tool "front locate point[s]" and "rear locate point[s]," respectively. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01.

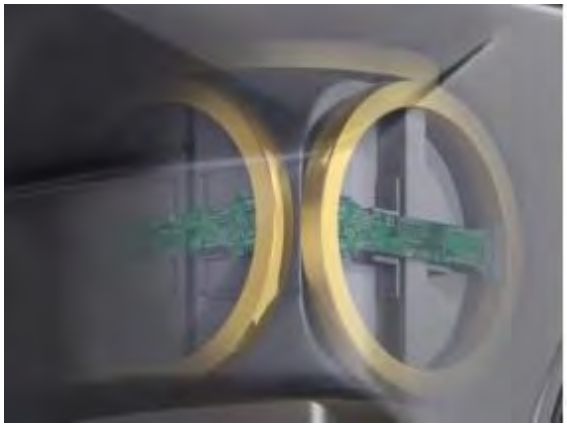
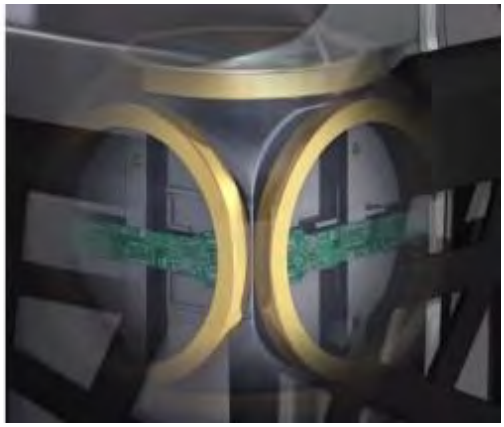
346. Defendant's instructional videos confirm that the locating signal generated by Defendant's Accused Transmitters exhibited "locate points at the surface of the ground, both forward of and to the rear of the inground tool," where the signal moved in a vertical direction relative to the inground tool at the surface of the ground. https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-2:27.

347. Defendant's locating "Basics" sections of its product manuals further confirm, while the '074 patent was in force, "that the locating signal exhibits locate points at the surface of the ground, both forward of and to the rear of the inground tool." *See* Ex. Q at 45-46; Ex. R at 4-5; *see also* Ex. U at 46-47; Ex. T at 38-39.

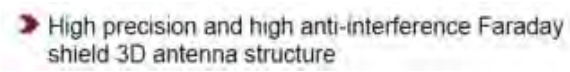
348. Further, Defendant's product manuals explained how to find the locate points "forward of and to the rear of the inground tool." Ex. Q at 47-49, 50-51; *see also* Ex. T at 40-42, 43-44; Ex. U at 48-50, 51-52.

349. On information and belief, Defendant's Accused Receivers are "portable locator[s]," as required by claim 1. *See* Ex. T at 6; Ex. U at 7-8; Ex. R at 2; *see also* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/.

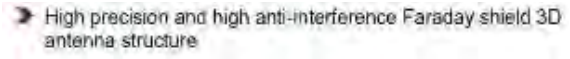
350. Additionally, Defendant's Accused Receivers are "portable locator[s] comprising[] an antenna," as demonstrated below.

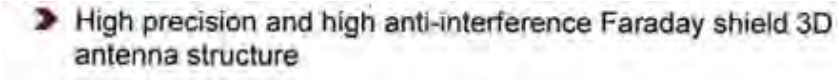
https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:30-0:37 ("With the Mag Series dual 3D antenna configuration, we're able to locate the signal in a unique fashion.").



Ex. T at 6;



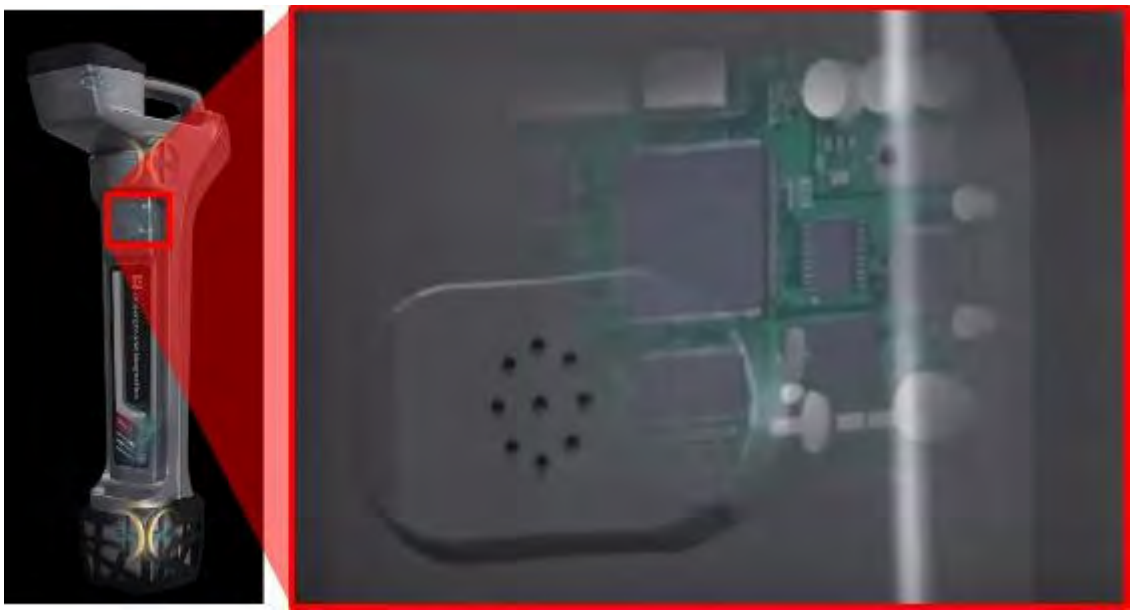
Ex. U at 7-8;



Ex. Q at 7.

351. Further, Defendant's Accused Receivers' antennas were used for "measuring a local flux intensity of the locating signal at an above ground point." According to Defendant, the Accused Receivers measured the intensity of a magnetic signal emitted from the Accused Transmitters at an above-ground point. https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 ("The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground."); *id.* at 0:37-0:59 ("Let's put the transmitter in the ground and take a look at the magnetic field. You'll notice the shape of the signal. The front and rear locate points are located where the signal goes vertical in relationship to the dual 3D antennas in the receiver. The front locate point, or FLP, is what we'll be focusing on with the new Mag 6S receiver."); https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-1:20.

352. On information and belief, while the '074 patent was in force, Defendant's Accused Receivers further included "a processor that is configured to establish first and second orthogonal components of flux intensity based on the measured local flux intensity in an at least generally horizontal plane."



https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:19-0:30 (annotated to expand image) ("The Mag Series locator, like all other walkover locators on the market, uses a magnetic signal to find the location and the direction of the transmitter in the ground."); Ex. DD.

353. Defendant's instructional videos further explain how its Accused Receivers "indicate a direction based on the first and second orthogonal components for guiding an operator to a nearest one of the locate points." *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-2:01; https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 0:37-2:27.

354. Defendant's manuals further highlight that while the '074 patent was in force, the processor in Defendant's Accused Receivers was configured to "indicate a direction based on the first and second orthogonal components for guiding an operator to a nearest one of the locate

points." *See* Ex. Q at 9-10, 47-49, 50-51, 54; *see also* Ex. T at 8-9, 40-42, 43-44, 47; Ex. U at 10-11, 48-52, 55; Ex. R at 6-7.

355. In addition to directly infringing the '074 patent itself, Defendant intentionally induced end users to directly infringe the '074 patent and contributed to end users directly infringing the '074 patent in violation of 35 U.S.C. § 271(b) and (c).

356. Defendant acted during the time the '074 patent was in force, intending to cause end users to infringe.

357. Upon information and belief, Defendant had knowledge of the '074 patent through DCI's consistent and continuous marking of its products with the '074 patent in compliance with the requirements of 35 U.S.C. § 271(a).

358. Defendant has admitted in its online marketing material that it had knowledge of Plaintiffs' locate point patents while the '074 patent was still in force. *See* https://www.youtube.com/watch?v=CCTqKRifSH4 at 7:08-7:25; *see also* Ex. Q at 45-46 (Defendant using same terminology found in locate point patents and DCI's products); Ex. R at 5 (same); https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:33-1:20 (same).

359. Thus, Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the '074 patent and contribute to infringement by others.

360. Despite its knowledge, Defendant instructed end users to use the Accused Receivers as described above and infringe the '074 patent, using instructional videos, manuals, and other information provided on Defendant's website and platforms, and written materials provided with the Accused Receivers. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-

101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5. Defendant had knowledge that these instructions, if followed, would infringe the ’074 patent.

361. Upon information and belief, end users used the Accused Receivers as instructed by Defendant to directly infringe the ’074 patent. *See* https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/.

362. Upon information and belief, Defendant intended for the Accused Receivers to be used by end users in the manner described above, which infringed the ’074 patent. For instance, Defendant expressly instructed its customers to use the Accused Receivers in an infringing manner to measure local flux intensity of a dipole locating signal at an above-ground point while an inground tool is moved through the ground and find the nearest locate point. *See* https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5.

363. In addition, while the ’074 patent was in force, Defendant also sold, offered to sell, or imported within the United States a component of a product, or apparatus for use in a process, where the component or apparatus had no substantial, noninfringing use, and the component or apparatus constituted a material part of the invention.

364. While the ’074 patent was in force, Defendant’s Accused Receivers were marketed and sold for infringement of the ’074 patent and are specially adapted for infringement of the ’074 patent. For example, the Accused Receivers were specifically designed to measure local flux intensity of a dipole locating signal at an above-ground point while an inground tool is moved through the ground and find the nearest locate point. *See*

https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/; https://www.youtube.com/watch?v=CCTqKRifSH4; Ex. T at 38-39; Ex. U at 42, 46-47; Ex. Q at 45-46; Ex. R at 4-5.

365. Upon information and belief, the instructed use of the Accused Receivers by end users infringed the ’074 patent, and any other use of this functionality would have been unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Receivers cannot be used for substantial purposes other than infringing the ’074 patent. The Accused Receivers were especially made or especially adapted for use in an infringement of the ’074 patent and were not staple articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant had knowledge of, or was willfully blind to, this infringement.

366. Plaintiffs have been damaged by Defendant’s infringement, and Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant’s infringement.

367. Defendant’s infringement of the ’074 patent was deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or was willfully blind to the fact, or should have known that its actions, if taken, would infringe the ’074 patent. Yet despite this knowledge, Defendant continued infringing the ’074 patent.

COUNT VIII: INFRINGEMENT OF THE ’867 PATENT

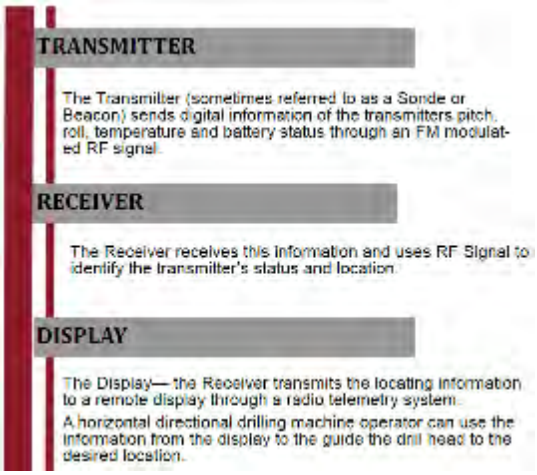
368. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

369. On information and belief, Defendant, in violation of 35 U.S.C. § 271, directly infringes at least claim 14 of the ’867 patent by making, using, offering to sell, selling, and/or importing various transmitters, including but not limited to the Accused Transmitters listed herein.

370. By way of example, claim 14 of the ’867 patent recites:

> 14. A transmitter for use in conjunction with a receiver as part of a system for performing an inground operation in which a drill string extends from a drill rig to an inground tool which supports the transmitter such that extension and retraction of the drill string generally produces corresponding movements of the inground tool during the inground operation, said transmitter comprising:
>
> > at least one sensor for sensing one or more operational parameters relating to the inground tool; and
> >
> > a processor configured for transmitting a data signal relating to the one or more operational parameters in a standard mode and in an alternative mode, such that the alternative mode characterizes at least a particular one of the operational parameters using a number of bits that is less than the number of bits that the particular operational parameter is characterized by in the standard mode with the alternative mode representing the particular operational parameter at a lower resolution than the standard mode,
> >
> > wherein the particular operational parameter is a pitch orientation having a magnitude and in at least one of the standard mode and the alternative mode, responsive to the magnitude of the pitch orientation increasing, a resolution of the pitch orientation decreases in one or more steps.

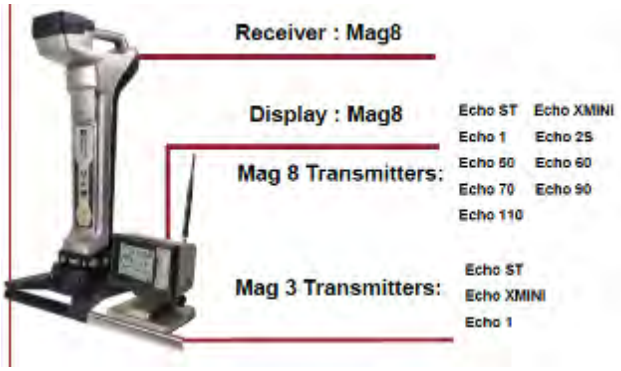
371. On information and belief, Defendant infringed all elements of at least claim 14 by making, using, offering to sell, selling, and/or importing the Accused Transmitters. The Accused Transmitters include each limitation of claim 14. As the examples below show, the Accused Transmitters operate "in conjunction with a receiver as part of a system for performing an inground operation in which a drill string extends from a drill rig to an inground tool which supports the transmitter."



Ex. P at 6;

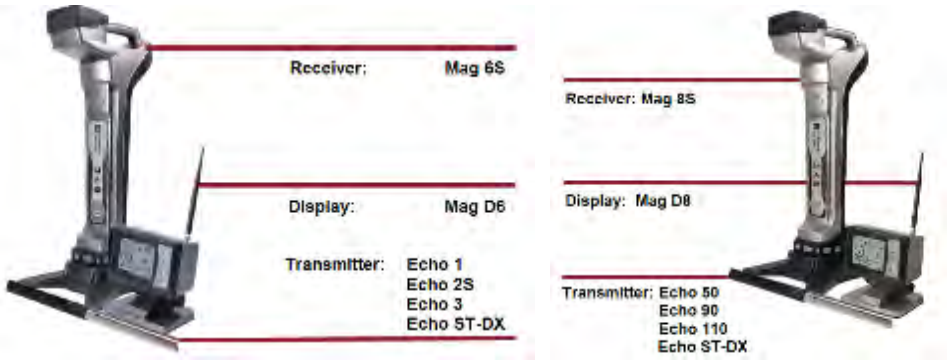
Ex. O at Cover (annotated);

Ex. P at 46;



Ex. P at 12;

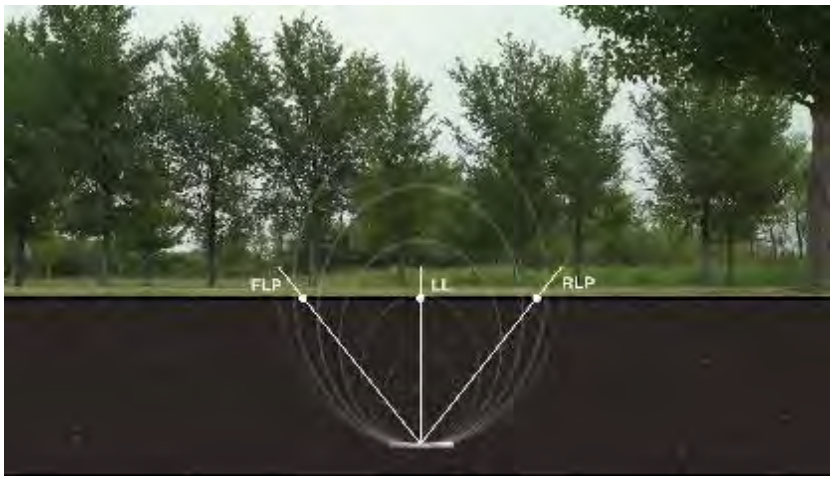
Ex. O at 1;



Ex. O at 2;

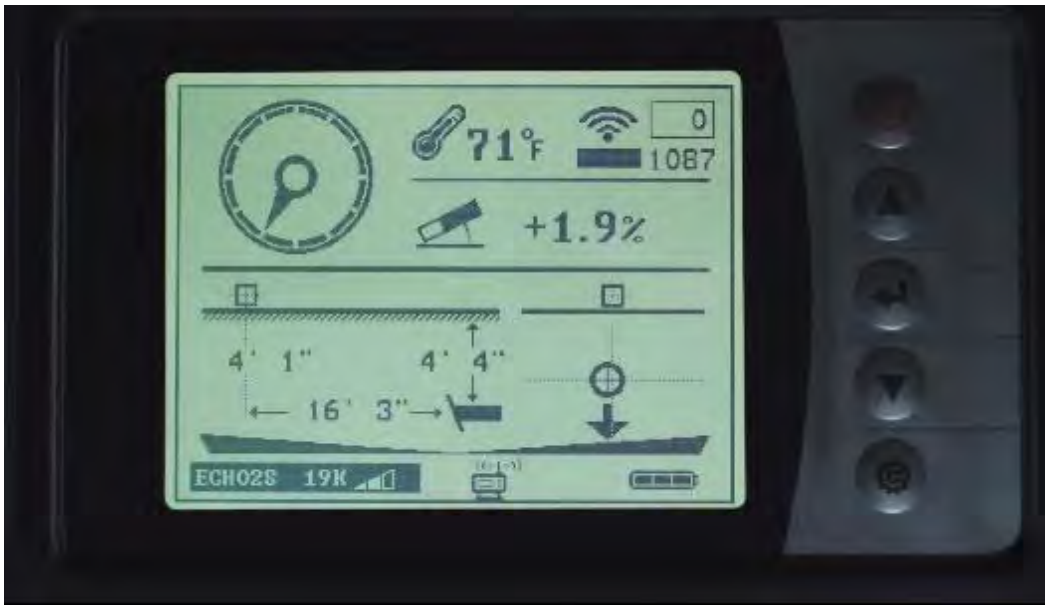
see also Ex. U at 1, 41-44; Ex. Q at 1, 40-43; Ex. T at 1, 36; Ex. HH at 6, 55-59; Ex. QQ at 6, 46-50.

372. Indeed, Defendant's instructional videos depict its system operating "such that extension and retraction of the drill string generally produces corresponding movements of the inground tool during the inground operation."



https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-0:59 (“To understand locating 101, we first need to learn how the magnetic signal coming from the transmitter works and how the receiver uses that signal to find the transmitter’s position, depth, and direction. Let’s start by placing the transmitter in the ground below us. This is what we call the magnetic signal, or dipole field. You’ll notice the signal is egg-shaped and radiates from the center of the antenna in a very consistent shape. The MAG system uses three points to find the exact location and direction in the transmitter. We call these locate points. The one in front of the transmitter is called the front locate point, or FLP. The one behind is called the rear locate point, or RLP. And the one over the transmitter is called the locate line, or LL. Using all three is the most accurate method for pinpointing the transmitter’s location and other data.”);

Mag Series Locator Training (Depth Calibration) at 0:31, https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-depth-calibration/112167059686575/ (last visited May 16, 2022);



https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 2:45-2:48 ("The drill operator will see the same screen on the display . . . ."); *see also* Ex. Q at 54-57; Ex. T at 47-50; Ex. U at 55-58.

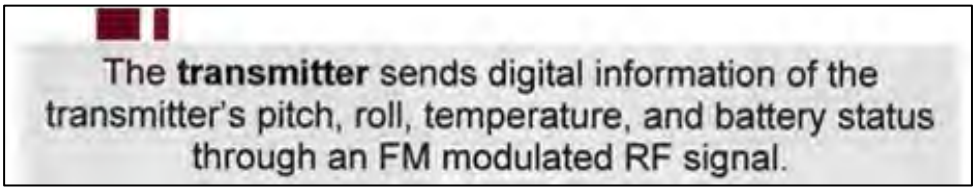
373. Further, Defendant's Accused Transmitters comprise "at least one sensor for sensing one or more operational parameters relating to the inground tool," as shown below.

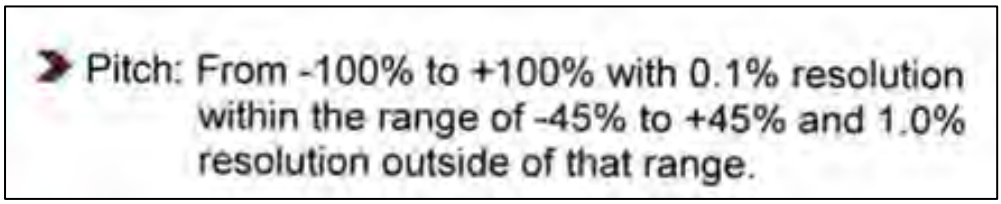
TRANSMITTER

The Transmitter (sometimes referred to as a Sonde or Beacon) sends digital information of the transmitters pitch, roll, temperature and battery status through an FM modulated RF signal.

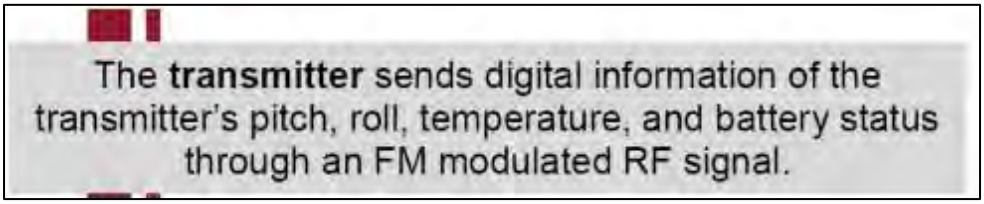
Pitch: From -100% to +100% with 0.1% resolution within the range of –45% to +45% and 1.0% resolution outside of that range.

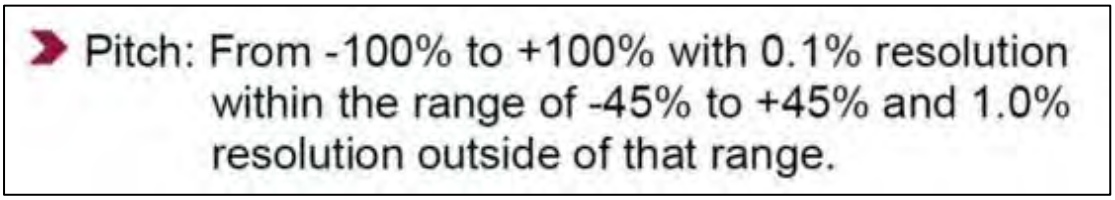
Ex. P at 6, 51;



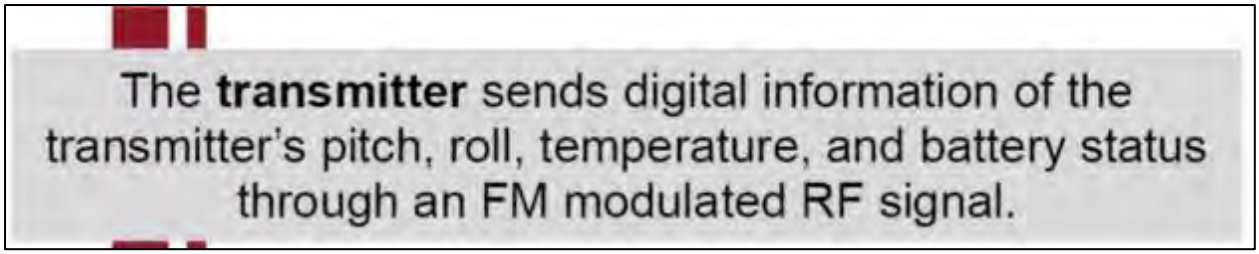


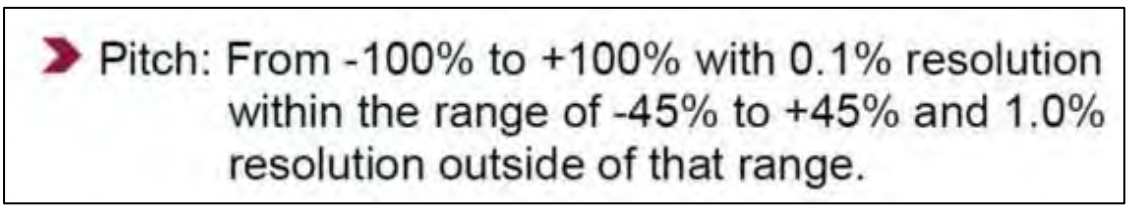
Ex. Q at 1, 44;





Ex. T at 1, 37;





Ex. U at 1, 45; *see also* Ex. HH at 6, 60; Ex. QQ at 6, 51.

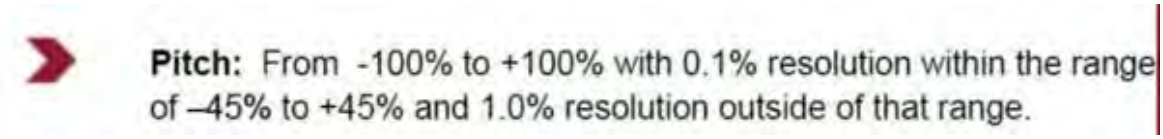
374. Additionally, Defendant's manuals show that its Accused Transmitters include "a processor configured for transmitting a data signal relating to the one or more operational parameters in a standard mode and in an alternative mode, such that the alternative mode characterizes at least a particular one of the operational parameters using a number of bits that is less than the number of bits that the particular operational parameter is characterized by in the standard mode with the alternative mode representing the particular operational parameter at a lower resolution than the standard mode," as demonstrated above. *See* Ex. P at 51; Ex. Q at 44; Ex. T at 37; Ex. U at 45.

375. Defendant's instructional videos confirm that its Accused Transmitters include a processor configured as required by claim 14.

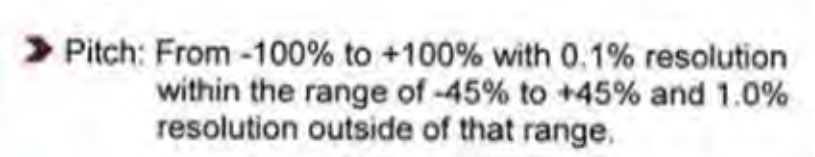
https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 1:33-2:11 ("You'll notice the circle now has a line on top of it. Twist the locator in your hand until lined up with the vertical crosshair. This indicates the exact direction of the transmitter. Once you've pinpointed your FLP and the direction of the

transmitter, simply press the enter button on the locator, and you'll now see the Bore-To screen. Here, you'll have all the information you need to make your decision to drill the next rod: direction of transmitter, distance back to transmitter, depth over the transmitter, and the projected depth at the locator relative to pitch."); *see also* Ex. P at 59; Ex. Q at 56-57; Ex. T at 49-50; Ex. U at 57-58.

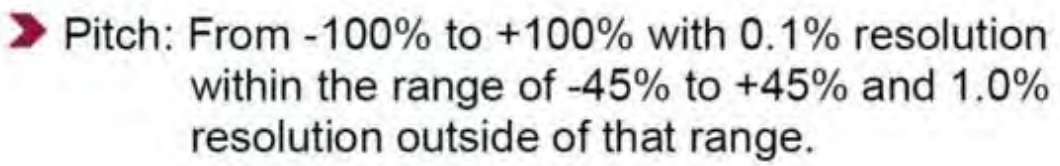
376. Defendant's Accused Transmitters operate such that "the particular operational parameter is a pitch orientation having a magnitude and in at least one of the standard mode and the alternative mode, responsive to the magnitude of the pitch orientation increasing, a resolution of the pitch orientation decreases in one or more steps," as shown below.



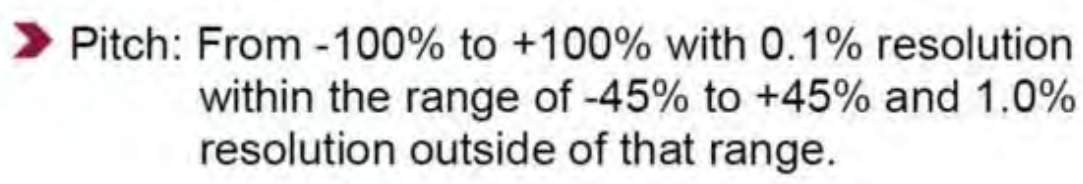
Ex. P at 51;



Ex. Q at 44;



Ex. T at 37;



Ex. U at 45; *see also* Ex. HH at 60; Ex. QQ at 51.

377. In addition to directly infringing the ’867 patent itself, Defendant has intentionally induced end users to directly infringe the ’867 patent and has contributed to end users directly infringing the ’867 patent in violation of 35 U.S.C. § 271(b) and (c).

378. Defendant has acted and continues to act while the ’867 patent is in force, intending to cause end users to infringe.

379. Upon information and belief, Defendant has knowledge of the ’867 patent through DCI’s consistent and continuous marking of its products with the ’867 patent in compliance with the requirements of 35 U.S.C. § 271(a).

380. Defendant knew, or was willfully blind to the fact, that its actions, if taken, would induce others to infringe the ’867 patent and contribute to infringement by others.
Despite its knowledge, Defendant instructed, and continues to instruct, end users to use the Accused Transmitters as described above and infringe the ’867 patent, using instructional videos, manuals, and other information provided on Defendant’s website and platforms, and written materials provided with the Accused Transmitters themselves. *See* Ex. P at 51; Ex. Q at 44; Ex. T at 37; Ex. U at 45; *see also* https://www.facebook.com/undergroundmagnetics/videos/mag-6s-training-video/547483992425245/ at 1:33-2:11; https://www.facebook.com/undergroundmagnetics/videos/mag-series-locator-training-locating-101/287498851880204/ at 0:06-0:59. Defendant had knowledge that these instructions, if followed, would infringe the ’867 patent.

381. Upon information and belief, end users use the Accused Transmitters as instructed by Defendant to directly infringe the ’867 patent. *See* https://www.youtube.com/watch?v=CCTqKRifSH4; https://www.facebook.com/undergroundmagnetics/.

382. Upon information and belief, Defendant intends for the Accused Transmitters to be used by end users in the manner described above, which infringes the ’867 patent. For instance, Defendant expressly instructs its customers to use the Accused Transmitters in an infringing manner for transmitting a data signal relating to pitch in a standard mode and in an alternative mode, such that the alternative mode characterizes pitch using a number of bits that is less than the number of bits that pitch is characterized by in the standard mode, with the alternative mode representing pitch at a lower resolution than the standard mode. *See* Ex. P at 51; Ex. Q at 44; Ex. T at 37; Ex. U at 45.

383. In addition, Defendant also sells, offers to sell, or imports within the United States a component of a product, or apparatus for use in a process, where the component or apparatus has no substantial, noninfringing use, and the component or apparatus constitutes a material part of the invention.

384. Defendant’s Accused Transmitters are marketed and sold for infringement of the ’867 patent and are specially adapted for infringement of the ’867 patent. For example, the Accused Transmitters are specifically designed to transmit a data signal relating to pitch in a standard mode and in an alternative mode, such that the alternative mode characterizes pitch using a number of bits that is less than the number of bits that pitch is characterized by in the standard mode, with the alternative mode representing pitch at a lower resolution than the standard mode. *See* Ex. P at 51; Ex. Q at 44; Ex. T at 37; Ex. U at 45.

385. Upon information and belief, the instructed use of the Accused Transmitters by end users infringes the ’867 patent, and any other use of this functionality would be unusual, far-fetched, illusory, impractical, occasional, aberrant, and/or experimental. That is, upon information and belief, the above functionality in the Accused Transmitters cannot be used for

substantial purposes other than infringing the ’867 patent. The Accused Transmitters are especially made or especially adapted for use in an infringement of the ’867 patent and are not staple articles or commodities of commerce suitable for substantial noninfringing uses. And Defendant has had knowledge of, or was willfully blind to, this infringement.

386. Plaintiffs seek damages under 35 U.S.C. § 284 adequate to compensate for Defendant’s infringement.

387. Under 35 U.S.C. § 283, Plaintiffs are entitled to preliminary and permanent injunctions prohibiting Defendant from further making, using, selling, offering to sell, or importing the Accused Transmitters in a manner that infringes the ’867 patent and from encouraging and inducing others to do the same.

388. Plaintiffs have been, and continue to be, damaged and irreparably harmed by Defendant’s infringement, which will continue unless this Court enjoins Defendant.

389. Defendant’s infringement of the ’867 patent has been, and continues to be, deliberate, willful, and knowing, entitling Plaintiffs to treble damages. Defendant knew, or has been willfully blind to the fact, or should have known that its actions, if taken, would infringe the ’867 patent. Yet despite this knowledge, Defendant has continued infringing the ’867 patent and has not ceased its infringing activities.

COUNT IX: SECTION 43(a)(1)(A) OF THE LANHAM ACT

Federal Trademark Infringement, False Designation of Origin, Passing Off, and Unfair Competition Under Section 43(a)(1)(A) of the Lanham Act, 15 U.S.C. § 1125(a)(1)(A)

390. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

391. Defendant used and continues to use in commerce the Infringing Marks in connection with the offering, distribution, and advertising of goods and services, which is likely

to cause confusion, or to cause mistake, or to deceive as to the origin, sponsorship, or approval of Defendant, its products and services, and/or its commercial activities by or with DCI, and thus constitute trademark infringement, false designation of origin, passing off, and unfair competition in violation of Section 43(a)(1)(A) of the Lanham Act, 15 U.S.C. § 1125(a)(1)(A).

COUNT X: COMMON LAW TRADEMARK INFRINGEMENT

Trademark Infringement Under Iowa Common Law

392. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

393. Defendant is intentionally and willfully using the Infringing Marks to trade off DCI's reputation and goodwill.

394. Defendant's actions, as described above, are likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of Defendant with DCI, or as to the origin, sponsorship, or approval of Defendant, its products, and its commercial activities by or with DCI such that Defendant's acts constitute infringement of DCI's proprietary rights in the DCI Marks, misappropriation of DCI's goodwill in those marks, and unfair competition under Iowa common law.

COUNT XI: FALSE ADVERTISING

False Advertising in Violation of Federal Law Section 43(a)(1)(B) of the Lanham Act, 15 U.S.C. § 1125(a)(1)(B)

395. Plaintiffs restate and reallege the foregoing allegations as if fully stated herein.

396. Defendant's actions, as described above, constitute false and misleading descriptions and misrepresentations of fact in commerce, which, in commercial advertising and promotion, misrepresent the nature, characteristics, and qualities of Defendant's products in violation of Section 43(a)(1)(B) of the Lanham Act, 15 U.S.C. § 1125(a)(1)(B).

DEMAND FOR JURY TRIAL

397. Plaintiffs respectfully demand a trial by jury under Federal Rule of Civil Procedure 39 for all claims and issues so triable.

PRAYER FOR RELIEF

On motion or after a trial by jury, Plaintiffs pray that the Court grant the following relief in its favor and against Defendant:

(a) Preliminarily and permanently enjoin Defendant, its officers, directors, principals, agents, servants, employees, successors, assigns, affiliates, and all that are in active concert or participation with Defendant from further infringement of each of the Asserted Patents;

(b) Enter judgment that Defendant has infringed, contributed to, and/or induced the infringement of one or more claims of each of the Asserted Patents;

(c) Enter judgment that Defendant's infringement of the Asserted Patents has been willful;

(d) Enter judgment that this case is exceptional under 35 U.S.C. § 285;

(e) Award Plaintiffs damages adequate to compensate Plaintiffs for Defendant's infringement of each of the Asserted Patents, including lost profits, but in no event less than a reasonable royalty;

(f) Award Plaintiffs enhanced damages for Defendant's infringement pursuant to 35 U.S.C. § 284;

(g) Award Plaintiffs their attorneys' fees, costs, and expenses pursuant to 35 U.S.C. § 285;

(h) Issue an Order declaring that Defendant's use of the Infringing Marks described above, and confusingly similar variations thereof, constitutes trademark infringement and/or unfair competition under federal and/or state law, as detailed above;

(i) Issue an Order declaring that Defendant's false claims wrongly giving the impression that Defendant is an American company manufacturing products in the United States, when it is in fact a sales arm of a Chinese company manufacturing its products in China, constitute false advertising and unfair competition under federal and/or state law, as detailed above;

(j) Issue a permanent injunction enjoining Defendant and its employees, agents, partners, officers, directors, owners, principals, subsidiaries, related companies, affiliates, distributors, dealers, and all persons in active concert or participation with any of them:

1. From using the Infringing Marks described above, and/or any other marks or names that are confusingly similar to the DCI Marks;

2. From representing by any means whatsoever, directly or indirectly, that Defendant, any products or services offered by Defendant, or any activities undertaken by Defendant, are associated or connected in any way with DCI or sponsored by or affiliated with DCI; and

3. From making the false and/or misleading statements detailed above and featured in the advertisements at paragraphs 151-165 above and from otherwise mischaracterizing the nature, characteristics, and qualities of Defendant's products or commercial activities;

(k) Issue an Order directing that, within thirty (30) days after the entry of the injunction, Defendant files with this Court and serves on DCI's attorneys a report in writing and under oath setting forth in detail the manner and form in which Defendant has complied with the injunction;

(l) Issue an Order directing Defendant to destroy all signage, advertisements, promotional materials, stationery, forms, and/or any other materials and things that contain or bear the Infringing Marks described above, and/or any other marks or names that are confusingly similar to the DCI Marks;

(m) Issue an Order directing Defendant to retract and destroy all advertisements, commercials, and other materials, including those at paragraphs 151-165 above, containing (1) any of the false, misleading, or deceptive statements complained of herein; and (2) any false, misleading, or deceptive statements regarding Defendant, Defendant's products, or Defendant's business activities;

(n) Award Plaintiffs supplemental monetary damages for any infringing acts after judgment and before entry of an injunction;

(o) Issue an Order requiring Defendant to account for and pay to DCI any and all profits arising from the foregoing acts, and increasing such profits, in accordance with 15 U.S.C. § 1117 and other applicable laws;

(p) Award Plaintiffs pre- and post-judgment interest on all damages;

(q) Award Plaintiffs all their costs and expenses in this action; and

(r) Grant Plaintiffs such further and other relief as the Court may deem just and proper.

Dated: May 20, 2022

Respectfully submitted,

BELIN MCCORMICK, P.C.

By: */s/ Michael R. Reck*

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