No. 2014-1732

IN THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CONVOLVE, INC.,

Plaintiff-Appellant

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, THE

Plaintiff

v.

COMPAQ COMPUTER CORP.,

Defendant-Appellee

SEAGATE TECHNOLOGY, INC.

Defendant

SEAGATE TECHNOLOGY, LLC,

Defendant-Appellee

Appeal from the United States District Court for the Southern District of New York in Case No. 1:00-CV-05141-GBD-JCF, Judge George B. Daniels

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BRIEF OF DEFENDANT-APPELLEE SEAGATE TECHNOLOGY LLC

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March 10, 2015

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CERTIFICATE OF INTEREST

Counsel for Appellee Seagate Technology certifies the following:

1. The full name of every party represented by me is:

Seagate Technology LLC

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

None

3. All parent corporation and any publicly held companies that own 10 percent or more of the stock of the party represented by me are:

Seagate Technology (US) Holdings, Inc., a Delaware corporation; Seagate HDD Cayman, a Cayman Islands corporation; Seagate Technology HDD Holdings, a Cayman Islands corporation; Seagate Technology, a Cayman Islands corporation; Seagate Technology Public Limited Company, an Irish company (STX on NYSE).

4. The names of all law firms and the partners or associates that appeared for the parties now represented by me in the trial court or are expected to appear in this court are:

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STATEMENT OF RELATED CASES

A petition for writ of mandamus was before this Court in *In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007) (Misc. No. 830) (Newman, Mayer, Lourie, Rader, Schall, Bryson, Gajarsa, Linn, Dyk, and Prost). Convolve's appeal from the district court's previous entry of summary judgment was before this Court in *Convolve Inc. v. Compaq Computer Corp.*, 527 F. App'x 910 (Fed. Cir.) (No. 2012-1074) (Rader, Dyk, and O'Malley) ("*Convolve I*"), *cert. denied*, 134 S. Ct. 801 (2013). The district court's order denying American International Underwriters Insurance Company and National Union Fire Insurance Company leave to intervene was before this Court in *Convolve, Inc. v. Compaq Computer Corp.*, No. 14-1049, which was voluntarily dismissed on June 30, 2014. The patent in suit is also at issue in *Convolve, Inc. v. Dell, Inc.*, No. 2:08-CV-244-CE, in the Eastern District of Texas.

JURISDICTION

Seagate agrees with Convolve's jurisdictional statement.

STATEMENT OF ISSUES

1. Whether the district court properly held that there was no infringement of the '473 patent because Seagate's drives do not meet the "user interface" claim limitation.

2. Whether the district court properly held that defendants have intervening rights because the '473 patent was substantively amended in 2008.

3. Whether the district court's decision should be affirmed for the reasons articulated in Compaq's brief, and fully adopted and incorporated by Seagate.

STATEMENT OF THE CASE

Convolve has prolonged this litigation for nearly 15 years by asserting a staggering number of unfounded claims. In 2000, Convolve sued Seagate and Compaq after they rejected Convolve's sales pitch. Convolve chose to file suit in the Southern District of New York, rather than the Eastern District of Texas or elsewhere. Convolve asserted myriad claims—

infringement of three patents, misappropriation of 57 alleged trade secrets, and six other contract and tort claims.

In 2002, after a Special Master rejected many of Convolve's originally-identified trade secrets as too vague, the list of alleged trade secrets shrank to 25. A4479-93; A4237-63. In 2006, the district court granted summary judgment in Seagate's favor on Convolve's four California law tort claims (fraud, tortious interference, breach of confidence, and unfair competition), finding them preempted by the trade secret claims. *Convolve, Inc. v. Compaq Computer Corp.*, 2006 WL 839022, at *4-8 (S.D.N.Y. Mar. 31, 2006). Later in 2006, the district court ordered Convolve to drop another 10 trade secrets on the ground that Convolve "has no evidence in this case to prove its claims of misappropriation." A4314. And in 2010, the district court granted summary judgment for Seagate on Convolve's claim for infringement of U.S. Patent No. 5,638,267. A4397.[1] Convolve did not appeal any of those orders.

Convolve's remaining claims, including infringement of two patents, breach of contract and the covenant of good faith, and misappropriation of

[1] Seagate agrees with the citations of published decisions of the trial tribunal listed in Compaq's brief. Compaq Br. 4; Fed. Cir. R. 28(a)(7), (b).

15 trade secrets, proceeded through years of discovery. The record is enormous: over 450,000 pages of documents, millions of lines of source code, and over 200 days of depositions. In February 2009, Seagate moved for summary judgment on Convolve's remaining claims. Among other arguments, Seagate contended that the majority of the asserted trade secrets were not trade secrets at all, and were not confidentially disclosed in compliance with the terms of the parties' non-disclosure agreement.

In 2011, the district court granted summary judgment on eleven of Convolve's trade secret claims, and its patent infringement claims. A4399. The court denied Seagate's motion for summary judgment on Convolve's claims for breach of contract, breach of the covenant of good faith and fair dealing, and misappropriation of four trade secrets. *Id.* At that point, Convolve had the option of proceeding to trial on the claims that had survived summary judgment. Instead, it chose to stipulate to their dismissal, so that it could take an immediate appeal. A4466.

In its appeal to this Court, Convolve raised almost every claim it lost in the 2011 summary judgment order—infringement of two patents, and misappropriation of ten trade secrets. In 2013, this Court affirmed the grant of summary judgment against Convolve on all ten trade secret

claims, holding that many of the alleged disclosures were not confidential because Convolve failed to follow the parties' non-disclosure agreement, and others "were not 'trade secrets' worthy of protection" because they were "generally known" in the industry. *Convolve, Inc. v. Compaq Computer Corp.*, 527 F. App'x 910, 921-22 (Fed. Cir.) ("*Convolve I*"), *cert. denied*, 134 S. Ct. 801 (2013). This Court also affirmed the grant of summary judgment against Convolve on U.S. Patent No. 4,916,635, holding that the patent was invalid due to nonenablement because the "inventor himself concedes that he was unable to fully implement the claimed method in disk drives for nine (9) years after the filing date." *Id.* at 931.

This Court vacated summary judgment on one claim, infringement of U.S. Patent No. 6,314,473 ("the '473 patent"). The district court had held that defendants' technologies did not infringe the "selected unwanted frequencies" claim limitation. *Convolve I*, 527 F. App'x at 919. *Convolve I* found that "genuine disputes of material fact remain" on that issue after "drawing all justifiable inferences in Convolve's favor." *Id.* at 928.

Convolve I also vacated the district court's ruling "that even if the drives conceivably could infringe, Convolve's inducement claim fails" because it "failed to present evidence of a user who actually altered drive pa-

rameters, *i.e.*, who used the user interface in an infringing way." *Id.* at 928-29. The Court concluded that "[w]hile a very close call, we find that Convolve presented enough evidence to preclude summary judgment on its inducement claims," because it "provided evidence of specific tools, with attendant instructions, on how to use the drives in an infringing way." *Id.* at 929. Finally, this Court declined to reach defendants' alternative arguments for summary judgment, holding that "the district court, and the parties, should be afforded the first opportunity to develop the record … before we conduct our review." *Id.* at 932.

On remand, Compaq and Seagate moved for summary judgment, raising defenses to the '473 patent that the district court had not reached in its 2011 order. The district court held that Compaq and Seagate were entitled to summary judgment "on the following three independent grounds": (1) "the ATA and SCSI interfaces in Seagate's accused disk drives do not satisfy the patent's required 'user interface' element"; (2) "the commands issued by Compaq's F10 BIOS utility do not satisfy the patent's required 'commands' element"; and (3) "Defendants are entitled to intervening rights arising from the substantive December 2, 2008 amendment of certain asserted claims." A24. The district court did not reach the remaining de-

fenses asserted, including that the patent is invalid and that the accused products did not satisfy the "inverse relation" element.

STATEMENT OF FACTS

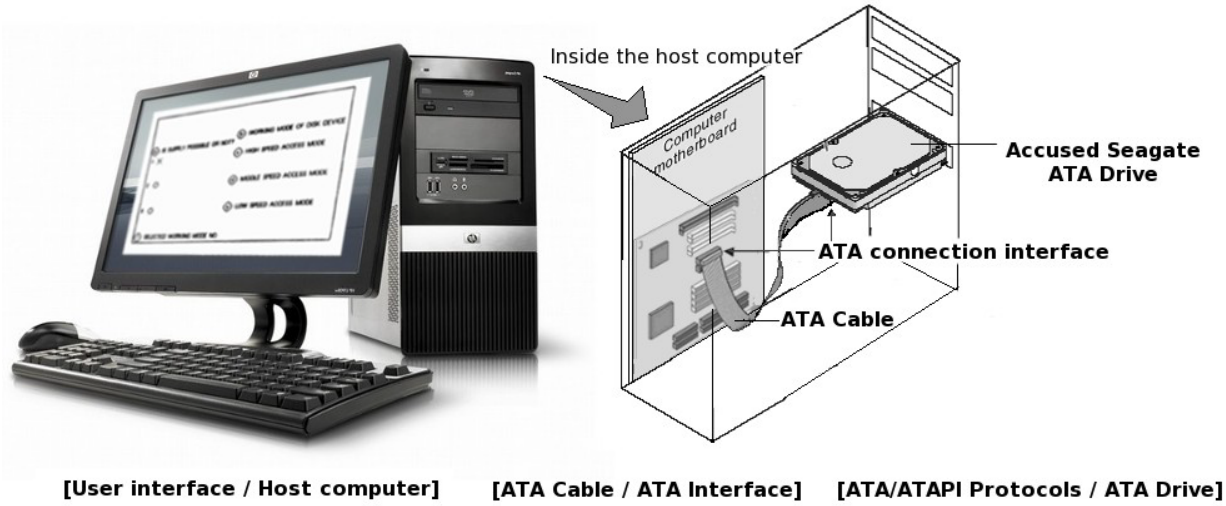
A. Computer And Disk Drive Technology.

Seagate designs, manufactures, and sells hard disk drives for computers. Disk drives store the data for the computer. Goel, *Computer Fundamentals* 24 (2010); A129 Col.3 ll.61-62. Another key component of a computer is the primary circuit board, or "motherboard," which "is the hub" that "connect[s] all the essential components of a computer." Goel, *supra*, at 31; *see* A2249 ¶ 12, Figure 1. One component installed on the motherboard is the computer processor, which performs the instructions of the computer's programs. Goel, *supra*, at 20, 31.

Computers also need a user interface that allows the person using the computer to interact with it. A80 ("The dictionary meaning of 'User interface' is 'the means of communication between a human user and a computer system.'"); *see also, e.g.,* Stone et al., *User Interface Design and Evaluation* 4 (2005) ("The user interface … is that part of the computer system with which a user interacts in order to undertake his or her tasks and achieve his or her goals."). One common type of user interface is a "graph-

ical user interface," or "GUI." Stone, *supra*, at 295; A2249 ¶ 12, Figure 1. A graphical user interface consists of a visual display that appears on a computer screen, through which the user can interact with the computer, for instance by clicking on icons or selecting from a drop-down menu using a mouse or a keyboard. Stone, *supra*, at 295. In addition to user interfaces, computer systems also have a multitude of other interfaces, including advanced programming interfaces, "which allow[] one software program to 'interface' with another," A81, and device-to-device interfaces, which allow component devices of the computer system to communicate with each other, A32.

Like other computer components, the disk drive must be attached to the motherboard. Goel, *supra*, at 31. This attachment allows the computer processor to communicate with and send instructions to the drive, and the drive to communicate with and send stored information back to the processor. A2176 ¶ 24; A4686. The figure below shows a computer, including a monitor displaying a user interface, a motherboard, and a disk drive attached to the motherboard:

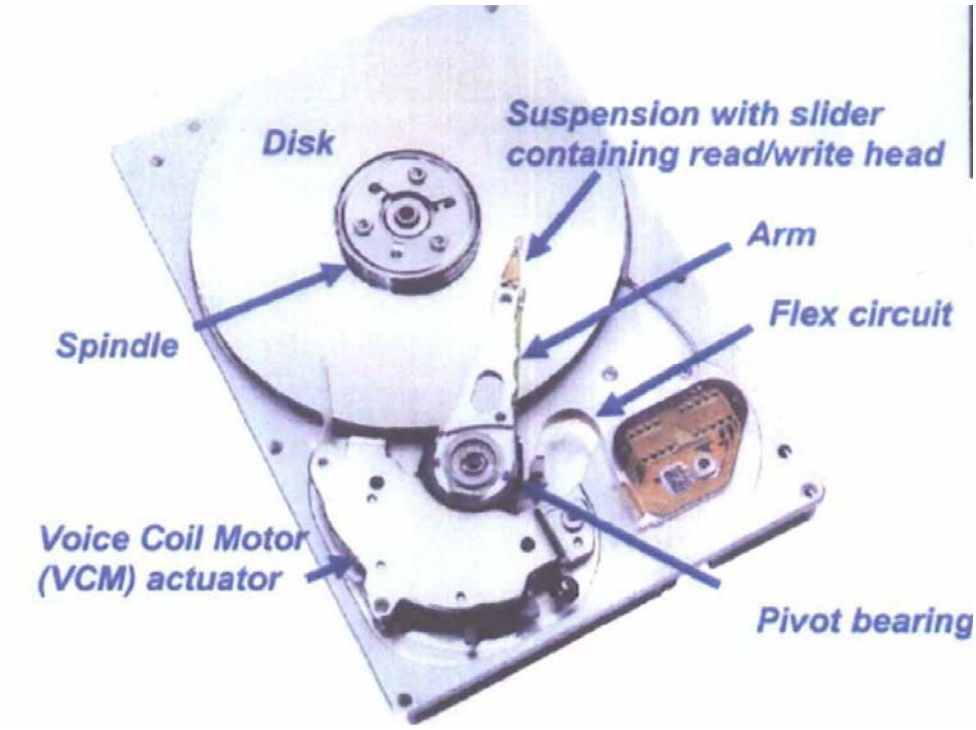


Manufacturers typically use standardized attachments to connect the disk drive to the motherboard. This standardization allows disk drive manufacturers to sell the same types of disk drives to many different computer manufacturers, and also allows computer manufacturers to buy drives from many different disk drive manufacturers. Two common standardized attachments are the "Advanced Technology Attachment," or "ATA," and the "Small Computer System Interface," or "SCSI." The ATA and the SCSI are both "device-to-device" interfaces "between [the] host systems and storage devices." A2176 ¶¶ 24-25; A4684-86. In other words, the ATA and SCSI are interfaces that allow the disk drive to interact with the computer processor. *See* Goel, *supra*, at 33.

The disk drive itself "consist[s] of platters coated with a magnetic substance, and a sensor attached to an arm which scans over the platters as

they rotate." A64. The disk drive stores data inside the drive in tiny magnetized spots arranged in concentric circles, called "tracks," on the surface of the "platters" (or "disks"). A1379 ¶¶ 18-19. A typical disk drive has multiple disks, each containing many thousands of tracks. A4510-11.

To retrieve stored information, and store new information, the disk drive has an "arm" that moves, or "seeks," between different tracks. A1379-80 ¶ 18-20. At the end of the arm is a "read/write head," which contains a magnetic sensor and, as the name suggests, actually does the reading and writing of the information on the disk. The arm moves over the disk to the appropriate track, powered by a motor called the voice coil motor. A1379 ¶ 18. The flex circuit connects the stationary electrical components of the drive to the arm. Another motor, called the spindle motor, spins the disk while the arm moves over it, so that the arm can read or write along the appropriate tracks. Overall, the process is comparable to (although far more complex than) the working of a record player, which has a head mounted on the end of an arm that "reads" music from the tracks of a spinning vinyl record. A4328 ¶ 30. An image of the basic parts of a disk drive is reproduced below:



As the district court explained, "[t]he spinning of the platters and movement of the arm introduce vibrations into the disk drive." A64. The "[p]erformance of hard drives can be increased by spinning the platters or moving the arm more rapidly," but "at the cost of increased vibration." *Id.* These vibrations can create acoustic noise, which may be audible to the person using the computer. Because of this trade-off between speed and vibration, faster disk drives tend to be noisier, while slower disk drives tend to be quieter.

B. The '473 Patent

After suing Seagate and Compaq in 2000, Convolve obtained the '473 patent in 2001. In 2002, Convolve amended its complaint to allege that Seagate and Compaq infringed the patent. A4264-97.

1. The Patent Claims And Specification

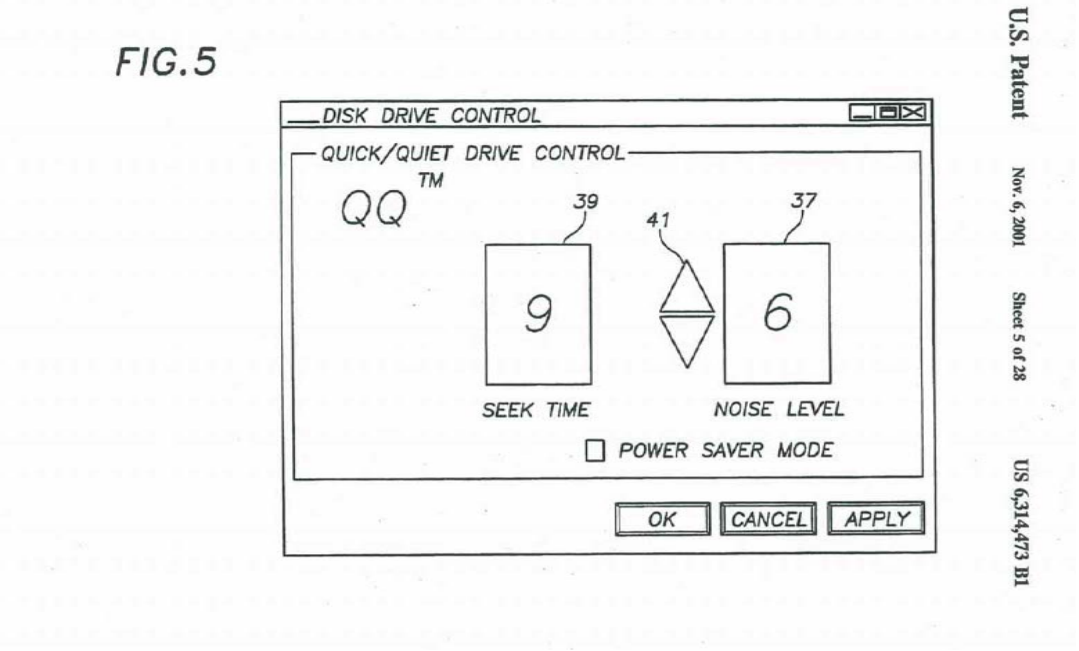
The patent claims a user interface, which allows a user to choose whether to run the drive in a quiet but slower mode, or in a louder but faster mode. A149 Col.43, ll.15-32. Claim 10 is representative:

> 10. Method of controlling operation of a data storage device, comprising:
>
> providing a user interface for controlling one of a seek time of the data storage device and a seek acoustic noise level of the data storage device;
>
> operating the user interface so as to alter settings of one of the seek time and the seek acoustic noise level of the data storage device in inverse relation; and
>
> outputting commands to the data storage device causing the data storage device to alter seek trajectory shape by shaping input signals to the data storage device to reduce selected unwanted frequencies from a plurality of frequencies in accordance with the altered settings. A154 Col.2 ll.23-35.

As the specification states, the "user interface" satisfies the "need for a way by which an end-user can control operation of a disk drive," by

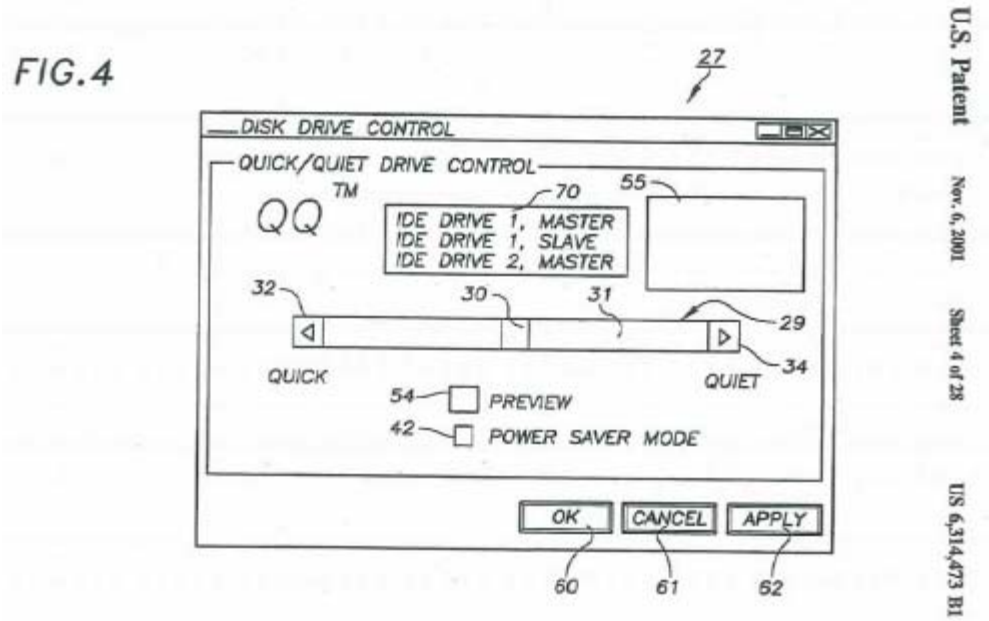
providing a "simple way to control operation of the disk drive, which permits the user to select operational parameters, such as seek time and acoustic levels." A129 Col.4 ll.1-5. Through the user interface, the user can select his desired "trade-off between seek time and noise level, meaning that as seek time increases, noise level decreases and vice versa." A131 Col.7 ll.32-34.

The specification includes several figures representing "user interfaces." These include figure 5, reproduced below, which contains an "entry box 37 into which a noise level value is entered and display box 39 which displays a corresponding numerical value of the seek time," as well as "up/down arrows [41] which are used for selecting the various noise level values":



A131 Col.7 ll.38-43. In other words, the computer's user can change the relative levels of noise and speed through the user interface that appears on his computer screen, by clicking on the up or down arrows with a mouse, then clicking the "apply" button. *See* A132 Col.9 ll.1-7.

The specification also has several additional examples of a "user interface," including figure 4, reproduced below. This graphical user interface "comprise[s] a sliding bar 30 which moves along a continuum 31 between a relatively high noise level/low seek time ('Quick') end 32 and a relatively low noise level/high seek time ('Quiet') end 34." A130 Col.6 ll.62-65. "By moving sliding bar 30," the user can "vary both the seek time and noise level parameters simultaneously." A131 Col.7 ll.3-5.



Again, the computer's user can change the relative levels of noise and speed through the interface appearing on his computer screen. In this instance, the user clicks on the sliding bar with a mouse and moves it towards the "quick" or "quiet" end of the continuum, then clicks the "apply" button. *See* A132 Col.9 ll.1-7. The specification also explains that alternative types of user interfaces, other than graphical user interfaces, can be used. A132 Col.9 ll.32-44. For instance, the user interface can be an "electro-mechanical switch," which the user can physically flip to a "quick" mode position or a "quiet" mode position. A132 Col.9 ll.38-42.

2. The 2008 Reexamination And Amendments

The patent claims repeatedly use the term "seek acoustic noise," for instance requiring that the user interface provide a means to control the "seek time" and the "seek acoustic noise" in "inverse relation." *See, e.g.*, A154. As originally granted in 2001, however, none of the claims contained the term "seek acoustic noise"; instead, the claims covered "acoustic noise" generally.

The claims were amended in 2008 to overcome the Patent and Trademark Office's (PTO's) rejection in a reexamination. The PTO held that the claims were invalid "as being anticipated by U.S. Patent 5,982,570 issued to Koizumi" in 1999 ("Koizumi patent"). A4729. The Koizumi patent describes a method "by which a user can select arbitrarily one of at least two modes, which are a quick mode (high speed transfer-high speed access mode) for effecting seek and data read/write and a silent mode (low speed-low power consumption-low noise mode)." A4711 Col.5 ll.16-20. In the quick mode, "both the [read/write] head and the disk [are] at the highest speeds," while in the quiet mode, "both the head and the disk [are] at the lowest speeds," reducing noisy vibrations. A4712 Col.7 ll.17-21.

In a First Office Action, the PTO held that Koizumi anticipated the '473 patent because "Koizumi expressly discloses a user interface … allowing a user to select between quick and silent seek modes." A4729. The PTO found that "it is clear from Koizumi that noise level and seek time are inversely related," because "when a user wishes to effect read/write of signals at a high speed with one disk device, he can read/write in a state where the quick mode (both the head and the disk at the highest speeds) is selected, and on the contrary, when he wishes to reduce noise and power consumption, he can read/write in a state where the silent mode (both the head and the disk at the lowest speeds) is selected." A4730-31. Furthermore, Koizumi's "disclosed system includes a display, i.e., graphic user interface (GUI) for presenting the various operation mode selections." A4733. Also, as in the '473 patent, "the seek trajectory shape is changed" in the Koizumi patent when the acoustic mode is altered. A4736.

Convolve sought reconsideration. It argued, among other things, that the '473 patent was not anticipated by the Koizumi patent because Koizumi could predictably reduce only "spindle acoustics," noise caused by the spindle motor moving the disk. A4790-91. By contrast, Convolve argued, the '473 patent taught how to reduce only "seek acoustic noise,"

noise caused by the voice coil motor moving the seek arm and head. A4789-802. In 2008, the PTO issued a Final Office Action, maintaining its rejection of Convolve's claims. The PTO stated that Convolve's arguments "have been fully considered but they are not persuasive," because "the interpretation set forth [in the motion for reconsideration] cannot be gleaned from the language of the claims as they presently exist in the '473 patent." A2185 ¶ 85; A4927-29.

In a subsequent interview with the PTO, Convolve again argued that "in Koizumi spindle noise was reduced as opposed to the noise resulting from seek operations." A2704. At the interview, "PTO representatives agreed that while in Koizumi the reduced noise appeared to be related to spindle noise, the independent claims of the '473 patent did not clearly make the distinction that the reduced selected unwanted frequencies were specifically directed to targeting the reduction of seek noise as argued by Patent owner." A2704. Therefore, the PTO maintained its rejection of the '473 patent claims as anticipated by Koizumi. A2703-04. However, the PTO noted that "claim amendments clarifying that seek noise is reduced by the input shaped signals would be favorably considered." A2704.

Convolve then amended the rejected claims to add the word "seek" in front of the term "acoustic noise" each time the claims used the term, so that all claims required "seek acoustic noise" specifically to be reduced. A2717-21. The PTO held that the "[a]mended independent claims … are deemed allowable," along with the associated dependent claims. A2711. "As now amended," the PTO stated, "each of the independent claims of the '473 patent commonly requires shaping input signals to alter the seek trajectory to a data storage device such that the … *seek* acoustic noise level for selected unwanted frequencies is reduced." A2712 (emphasis in original). The amended claims were not anticipated by Koizumi, the PTO held, because Koizumi "does nothing to modify the actual *seeks*, thereby reducing the *seek* noise for selected frequencies as now clearly required by [the] independent claims." *Id.*

C. This Litigation

1. Claim Construction

In 2005, the district court construed several terms of the '473 patent, including "user interface." Convolve argued that the term "user" should be construed as "a person *or device* that uses the user interface." A81 (emphasis added). The court rejected this argument, holding that "[p]laintiffs'

construction of 'user' as 'a person or device that uses the user interface' is too broad." *Id.* Convolve's construction, the court held, erroneously "fails to give meaning to the adjective 'user,' which distinguishes the interface from other types of interfaces used in the computing field, for example, an advanced programming interface (API) which allows one software program to 'interface' with another." *Id.* While the term "'interface' typically indicates a means by which anything can interact with a device," the court explained, a "'user interface' requires a user," and therefore requires interaction by "a person," not a device. *Id.*

Convolve further argued "that the term 'user' cannot be limited to 'a person' because this would exclude the situation where a person indirectly uses the interface." *Id.* For instance, "when using a GUI, the user typically positions the cursor on the screen using a mouse," and a "potential infringer could claim that the user is interfacing with the mouse, and the mouse is interfacing with the computer, thereby avoiding infringement." *Id.* "To avoid such pedantic arguments by accused infringers," the court construed the term "specifically to include circumstances where a person has, at some point, dictated what the parameters should be." *Id.*

Accordingly, the Court construed "user interface" to mean "software, hardware, firmware, or a combination thereof that allows a person, directly or indirectly, to alter parameters." A83; A96.

During the claim construction proceedings, the parties did not agree on a construction of the term "acoustic noise." Convolve contended that the term had the broad meaning of "[n]oise in the acoustic spectrum, usually measured in decibels." A392; *see* A1028 (Convolve expert opining that "[t]he acoustic noise level is simply the level of acoustic noise, or the amount of sound."). Convolve's expert remarked that "the control between 'seek time' (quicker) and 'acoustic noise level' (quieter) addresses the acoustic noise created by seeking, and not other noises of the disk drive," but he did not propose that the construction of the term include any such restriction. A1021. Seagate contended that "acoustic noise" meant "sound as perceived by the 'user,'" and that the "acoustic noise level of the data storage device" "does not include electrical noise or audible noise emanating from the spindle motor." A656-57. The district court did not construe the term "acoustic noise." Nor did it construe the term "seek acoustic noise" following the 2008 amendment.

2. The Summary Judgment Ruling

Following this Court's remand to the district court in 2013, the sole remaining claim was infringement of the '473 patent. The district court held that summary judgment of non-infringement was warranted "on the following three independent grounds": first, "the ATA and SCSI interfaces in Seagate's accused disk drives do not satisfy the patent's required 'user interface' element, as construed by this Court"; second, "the commands issued by Compaq's F10 BIOS utility do not satisfy the patent's required 'commands' element"; and third, "Defendants are entitled to intervening rights arising from the substantive December 2, 2008 amendment of certain asserted claims." A24. Based on these holdings, the court did not reach defendants' remaining defenses, including that the '473 patent is invalid on the grounds of obviousness and anticipation.

First, the court rejected Convolve's "contention that the ATA and SCSI interfaces on the disk drives are 'user interfaces' in the context of this case," because Convolve's "interpretation of the 'user interface' limitation … effectively reads the term 'user' out of the claim language." A31-32. "Under Plaintiff's construction," the court explained, "any interface ensnared in the entire communication sequence between the commanding

user and the ultimate implementation of the user's command would separately qualify as a user interface." A34. This interpretation would "expand the 'user' aspect of the term to the point of obsolescence," directly contrary to the *Markman* order's instruction that the "user interface" must be "'distinguish[ed] … from other types of interfaces.'" A34-36.

The court further explained that its inclusion of "the word 'indirectly' in its 'user interface' claim construction" did not "allow for broad constructions of the term 'user interface' in which the interface is several degrees removed from the user." A32. "'Indirectly' does *not* characterize the connection between the user and all subsequent interfaces." A35. The "user interface" must include "the site at which a user actually selects an operating mode, which is the only act taken by a user that is relevant to the claimed method." A36.

Here, "[t]he undisputed facts establish that the ATA and SCSI interfaces on the disk drives cannot, on their own, satisfy the 'user' element of 'user interface,' properly construed," because they are merely "[d]evice-to-device communications involved in the subsequent execution of a user's selected mode." A36, 38. Accordingly, Seagate's disk drives do not meet the "user interface" claim limitation, and do not infringe the patent. A38.

The district court also held that "[e]ven if Plaintiff had cited to evidence sufficient to avoid summary judgment, patent infringement liability is precluded by intervening rights arising from the December 2, 2008 substantive amendment to the asserted claims." A43. The court rejected Convolve's argument that "that the claim amendments were merely clarifying in nature, as it was 'inherent' in the original version of the patent that all '473 claims pertained only to 'seek' acoustic noise." A48. "The PTO Reexaminer certified reissuance of the rejected claims only *after* Plaintiff added the term 'seek' to 'acoustic noise,'" demonstrating that the amendment was necessary to overcome the rejection based on the prior art Koizumi patent. A49.

Moreover, "because the plain language of the original claims ('acoustic noise') ordinarily includes 'seek,' 'spindle,' and other acoustic noise within its scope," the amendment "limiting its claims only to 'seek' acoustic noise (and excluding 'spindle' and other types of acoustic noise), substantively narrowed the scope of those claims." A58. The specification further supported the conclusion that the amendment was substantive, as it was "consistent in referring specifically to 'seek' *time* but only generically to 'noise level.'" A52. Because "[t]he parties do not dispute that Defend-

ants' alleged infringement occurred in 2001 and 2002, long before" the 2008 amendment, intervening rights precluded a finding of infringement as a matter of law. A60.

Finally, the court rejected Convolve's "repeated[] assert[ions] … that this Court should be compelled or persuaded by decisions of a Magistrate Judge in the Eastern District of Texas," noting that the case involved different defendants and could not "have been based on the same facts, circumstances, accused products, and alleged infringing conduct." A44 n.24.

SUMMARY OF ARGUMENT

Seagate's drives do not infringe the '473 patent because they do not have a "user interface," which is a limitation of all asserted claims. A "user interface" is a means for a person to interact with a computer. The ATA and SCSI interfaces on Seagate's drives are device-to-device interfaces, a means for the drives to interact with the computer processor. The word "indirectly" in the claim construction covers situations where a person uses a tool such as a keyboard or mouse to operate the "user interface." The district court correctly rejected Convolve's sweeping interpretation of "indirectly" because it would make *every* interface in the chain of command a "user interface," rendering the "user" limitation meaningless. In short, the

district court rejected Convolve's effort to resurrect its proposed claim construction that had failed. Having chosen not to appeal the claim construction order, Convolve cannot now contend that "user interface" should be read to cover device-to-device interfaces.

In addition, infringement is precluded by the doctrine of intervening rights. Years after the alleged infringement, Convolve substantively amended the patent to overcome the PTO's rejection of the asserted claims as anticipated by prior art. As the district court correctly concluded, this amendment, changing "acoustic noise" to "seek acoustic noise," substantively narrows the scope of the claims by excluding other types of acoustic noise, such as spindle noise. Convolve argues that the district court erroneously applied a "per se" rule that all amendments made to overcome a rejection are substantive, but the court did no such thing. Rather, the court properly examined the entirety of the claim language, specification, and prosecution history, while appropriately looking to the amendment as a '"highly influential piece of prosecution history.'" A50 (quoting *Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1348 (Fed. Cir. 1998)). The district court's judgment should be affirmed.

STANDARD OF REVIEW

This Court reviews grants of summary judgment *de novo*. "Summary judgment is appropriate when the pleadings and admissible evidence proffered to the district court show that there is 'no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.'" *Major League Baseball Props., Inc. v. Salvino, Inc.*, 542 F.3d 290, 309 (2d Cir. 2008) (quoting Fed. R. Civ. P. 56(c)).

Claim construction is an issue of law reviewed *de novo*. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). The district court's "resolution of subsidiary factual matters made in the course of its construction of a patent claim" is reviewed for clear error. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 836 (2015). "Where the parties do not dispute any relevant facts regarding the accused product, ... but disagree over possible claim interpretations, the question of literal infringement collapses into [one of] claim construction," and is an issue of law reviewed *de novo*. *Gen. Mills, Inc. v. Hunt-Wesson, Inc.*, 103 F.3d 978, 983 (Fed. Cir. 1997). Whether intervening rights preclude liability for infringement is an issue of law as well. *Westvaco Corp. v. Int'l Paper Co.*, 991 F.2d 735, 741 (Fed. Cir. 1993).

ARGUMENT

I. SEAGATE'S DRIVES DO NOT INFRINGE THE '473 PATENT BECAUSE THEY DO NOT HAVE A USER INTERFACE.

A. The Accused Seagate Drives Do Not Have A User Interface.

"If any claim limitation is absent from the accused device, there is no literal infringement as a matter of law." *Amgen Inc. v. F. Hoffman-La Roche Ltd.*, 580 F.3d 1340, 1374 (Fed. Cir. 2009). Here, all of Convolve's asserted claims (claims 1, 3, 4, and 7 through 15 against Compaq, and claims 7 through 15 against Seagate) require that the accused device have a "user interface." The accused Seagate drives do not infringe the patent because they lack a "user interface."

The *Markman* order construes "user interface" to mean "software, hardware, firmware, or a combination thereof that allows a person, directly or indirectly, to alter parameters." A96. This construction specifically requires that the "user" of the interface must be "a person," and excludes "other types of interfaces," such as device-to-device interfaces. A81. Convolve had proposed a claim construction to the district court that would have defined "user interface" to include "a person *or device* that uses the user interface." *Id.* (emphasis added). But the district court rejected that construction as too broad, and Convolve has not appealed that ruling.

The ATA and SCSI are both device-to-device interfaces; they connect the disk drive with the computer processor. A2176 ¶ 25; A4686 (ATA and SCSI are interfaces "between host system and storage devices"). The ATA and SCSI are located deep within the host computer. The person using the computer cannot see them, and likely is unaware of their existence. A2176 ¶¶ 24-25; A4684-86. A computer user cannot alter the mode of the disk drives using the ATA or SCSI. Indeed, when handed an accused Seagate disk drive and asked to change its mode, Convolve's expert admitted that he could not do so without "install[ing] it in a computer" and using "some other tool that would facilitate me or facilitate my communication with the drive to alter settings." A2176¶ 29; A4181-82. That is, Convolve's expert conceded that a user cannot change the disk drive settings without "some other tool," *i.e.*, a separate interface with which the person can interact. A2176 ¶ 29; A4658-69, A4673.[2] Seagate's drives lack a "user interface."

[2] Convolve's contentions that "industry standards, Seagate product manuals, and appellees' corporate testimony evidenc[e] how users could use the ATA/SCSI interfaces to switch acoustic and performance seek modes on accused Seagate drives," Br. 37, fails for the same reason. None of this evidence demonstrates, or even suggests, that a person can alter the mode of the accused disk drives using the ATA or SCSI, without "some other tool that would facilitate" the person's "communication with the drive to alter settings." A2176 ¶ 29; A4181-82.

As the district court correctly ruled, Convolve's contrary interpretation of "user interface" is inconsistent with the claim language and specification. Interpreting "user interface" to include device-to-device interfaces is inconsistent with the claim, because it "effectively reads the term 'user' out of the claim language." A31-32. "[A] claim construction analysis must begin and remain centered on the claim language itself, for that is the language the patentee has chosen to particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention." *Source Vagabond Sys. Ltd. v. Hydrapak, Inc.*, 753 F.3d 1291, 1299 (Fed. Cir. 2014) (alterations in original). Therefore, "claims are interpreted with an eye toward giving effect to all terms in the claim," *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006), and any construction that "renders an important claim limitation" "functionally meaningless" should be rejected, *Cat Tech LLC v. TubeMaster, Inc.*, 528 F.3d 871, 885 (Fed. Cir. 2008); *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1141 (Fed. Cir. 2011) (same).

Here, as the district court explained, Convolve's interpretation of "user interface" would "expand the 'user' aspect of the term to the point of obsolescence." A34. Under Convolve's interpretation, "any interface en-

snared in the entire communication sequence between the commanding user and the ultimate implementation of the user's command would separately qualify as a user interface," *id.*, thereby rendering the term "user" functionally meaningless.

Convolve's interpretation of "user interface" is also inconsistent with the patent specification. *Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 977 (Fed. Cir. 2014) ("In claim construction, this court gives primacy to the language of the claims, followed by the specification"); *see Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1374 (Fed. Cir. 2014) ("Claim language must be viewed in light of the specification, which is the single best guide to the meaning of a disputed term."). The specification includes five figures depicting different "user interfaces" that "can be generated by the invention." A129 Col.4 ll.27-28. All of them are "graphical user interfaces"—they consist of images appearing on a computer screen, with arrows or a sliding bar that a person using the computer may manipulate with a mouse to reach the desired levels of disk drive speed and noise. A103-08 Figs.4-9. With a mouse, the user can click on a button marked "apply," to direct the computer to apply the settings (or "cancel," to direct the computer to cancel the settings). A103-08 Figs.4-9. The specification explains that the "user

interface" may also consist of "mechanical switch(es)," which the person using the computer can physically push to change the disk drive mode between quick mode and quiet mode. A129 Col.4 ll.6-10.

This is not to say that the claim must be construed to cover only graphical user interfaces and mechanical switches. As the district court observed, there is a "spectrum of user interfaces" between a graphical user interface on the one hand and a mechanical switch on the other. A81. But the examples of "user interfaces" given in the specification fully confirm what the claim term "user" by itself requires: the interface covered is "the site at which a user actually selects an operating mode, which is the only act taken by a user that is relevant to the claimed method." A36. The specification never describes as a "user interface" anything even remotely resembling the ATA or SCSI: device-to-device interfaces allowing the disk drive to communicate with the computer processor, inaccessible to (and often unknown to) the person using the computer. Rather, every "user interface" described in the specification reflects the site at which the person using the device can interact with it to change the disk drive settings.

Convolve contends that the ATA and SCSI are "user interfaces" within the meaning of district court's claim construction because "[t]he inclu-

sion of 'indirectly' in the construction of 'user interface' specifically contemplated 'an intermediate device' being placed between the user and the user interface." Br. 35. But, as the district court correctly explained, its "inclusion of the term 'indirectly' in the claim construction" was simply intended to prevent potential infringers from "attempt[ing] to frustrate an otherwise direct relationship 'between the user and the invention' by interposing, or characterizing as an interface, an intermediary structure *before* the site of the user's selection of the operating mode." A35-36 (emphasis added). For instance, the inclusion of "indirectly" was intended to avoid "pedantic arguments" that a graphical user interface is not a "user interface" because the user must "position[] the cursor on the screen using a mouse," such that the "user is interfacing with the mouse, and the mouse is interfacing with the computer." A81. Thus, the definitional term "indirectly" captures situations where an "intermediate device" (such as a mouse or keyboard) is *placed before* "the site at which a user actually selects an operating mode." A36.

By contrast, "[t]he term 'indirectly' was *not* included to independently define as the user interface each subsequent step necessary to execute the selected mode setting." A36. In other words, the term "indirectly" does

not encompass devices *placed after* "the site at which a user actually selects an operating mode," such as devices that relay the user's instruction through the mechanical chain of components (including both software and hardware) to the processor and ultimately execute it in the disk drive. The ATA and SCSI are links in the chain after the site where the user's instruction is input into the system. A person sitting at a computer interacts with a user interface (such as a graphical user interface) to input his or her instruction to put the disk drive into quick or quiet mode, and that user interface transmits the instruction to the next device in the chain, and so on through as many interfaces as are necessary for the input to be transmitted to the processor, which then issues a command through the ATA or SCSI device interface to the drive.

Convolve's contrary interpretation of the claim construction ruling would define as a "user interface" "any interface ensnared in the entire communication sequence between the commanding user and the ultimate implementation of the user's command." A34. This interpretation of "indirectly" in the ruling is far too broad, because it is flatly inconsistent with the intrinsic evidence and with the *Markman* order's holding that the "user" must be a "person" and that a device-to-device interface does not qualify.

If Convolve wanted this Court to include device-to-device interfaces within the scope of the claims, it should have appealed the claim construction ruling, where it lost on that issue. Having chosen not to appeal that ruling, it cannot now ensnare an accused product that contains only a device-to-device interface. Convolve's contention that the ATA and SCSI are "user interfaces" fails as a matter of law, and the district court correctly granted summary judgment on this basis.

B. *Convolve I* Did Not Address The User Interface Limitation.

Convolve next argues that "the district court violated *Convolve I*'s mandate in entering summary judgment in Seagate's favor on the 'user interface' limitation." Br. 41. Convolve, however, failed to raise this argument below. It has therefore waived the argument, and cannot raise it for the first time here. "'[I]t is a well-established general rule that an appellate court will not consider an issue raised for the first time on appeal.'" *In re Nortel Networks Corp. Sec. Litig.*, 539 F.3d 129, 132 (2d Cir. 2008) (per curiam) (alteration in original) (quoting *Bogle–Assegai v. Connecticut*, 470 F.3d 498, 504 (2d Cir. 2006)). "[T]he interests of finality and efficient use of scarce judicial resources, as well as the strong risk of strategic abuse by litigants"

necessitate this important rule. *Lavoie v. Pac. Press & Shear Co.*, 975 F.2d 48, 56-57 (2d Cir. 1992).

In addition, contrary to Convolve's assertion, the district court did not violate *Convolve I*'s mandate when it granted Seagate summary judgment of non-infringement. *See* Br. 41. Convolve contends that this Court found "evidence that Seagate customers 'used the user interface in an infringing way,' because they were instructed by Seagate on how to issue quiet/performance seek mode commands to the drives," and that this finding bars summary judgment on the "user interface" limitation. *Id.*

This contention misinterprets both the mandate rule and *Convolve I*. The mandate rule is part of the "law-of-the-case" doctrine, which "avoid[s] reconsideration of matters once decided during the course of a single continuing lawsuit." 18B Wright & Miller, *Federal Practice and Procedure* § 4478 (2d ed. 2014). Only issues actually decided by the appellate court are covered by the mandate; "[t]he law of the case doctrine is not applicable to issues neither presented nor decided in a former proceeding in the case." *Halpern v. Principi*, 384 F.3d 1297, 1301 (Fed. Cir. 2004) (alterations in original); *see Alpha/Omega Ins. Servs., Inc. v. Prudential Ins. Co. of Am.*, 272 F.3d 276, 281 (Fed. Cir. 2001) ("[T]he law of the case doctrine only applies to is-

sues we actually decided, rather than issues that we could have decided."); Wright & Miller, *supra*, § 4478.3 ("The reach of the mandate is generally limited to matters actually decided.").

In *Convolve I*, no party challenged the court's construction of "user interface" or asked this Court to decide whether the ATA or SCSI are "user interfaces" within the meaning of the claims. Accordingly, this Court did not decide the issue. "The law of the case doctrine, then, does not apply in this case because the issue presented in the present appeal is not the same as that presented in the previous appeal." *Halpern*, 384 F.3d at 1301.

Instead, in *Convolve I*, this Court addressed the district court's ruling that, "even if the drives conceivably could infringe," Convolve's induced infringement claims failed because "Convolve failed to present evidence of a user who actually altered drive parameters, *i.e.*, who used the user interface in an infringing way." 527 F. App'x at 928-29. It was undisputed "that the drives can be used in a non-infringing way (by not changing the acoustic mode of the drives)," and Convolve therefore had to "point to specific instances of direct infringement." *Id.* at 929. This Court held that, "[w]hile a very close call, we find that Convolve presented enough evidence to preclude summary judgment on its inducement claims," because "Convolve

did not merely demonstrate that the drives are capable of infringing, but provided evidence of specific tools, with attendant instructions, on how to use the drives in an infringing way." *Id*.

That ruling does not mean that the ATA and SCSI are "user interfaces" within the meaning of the claims. Rather, the ruling assumed without deciding that "the drives conceivably could infringe" if users "actually altered drive parameters." *Id*. It did not discuss *how* users might do so, and it therefore did not discuss what would count as the "user interface" through which a user would alter the drive parameters. Convolve's contrary interpretation of the opinion implicitly and baselessly asserts that this Court reached out to decide an issue that had not been decided by the district court and had not been raised on appeal by any party. *See id*. at 932 (declining to consider issues not decided by the district court). The mandate rule did not bar the district court from deciding the "user interface" issue on remand.

C. The Eastern District Of Texas Case Is Not Evidence That Seagate's Drives Have A User Interface.

Finally, Convolve contends that "[t]he EDTX willful infringement verdict against ATA interface drives, at the very least, raises genuine fact

issues precluding summary judgment on the 'user interface' limitation," and that "[t]he district court erred in failing to reasonably infer that the EDTX jury verdict against ATA interface drives evidences that Seagate's accused ATA interface drives also have a '473 patent 'user interface.'" Br. 38-39. This argument is meritless.

First, Convolve chose to bring a separate lawsuit against Seagate and Compaq in the Southern District of New York; it cannot now attempt to bind them to an Eastern District of Texas judgment to which they were not parties. As the district court explained, "it is highly unlikely" that the Texas case involved "exactly the same" arguments, "nor could they have been based on the same facts, circumstances, accused products, and alleged infringing conduct." A44 n.24.

Second, even if the two decisions are in conflict, Convolve provides no support for its extraordinary assertion that disagreement on a question of law by another district court in a separate case somehow creates "genuine fact issues precluding summary judgment" here. Br. 39. The Texas court's claim construction and judgment remain subject to appeal by the defendants in Texas, so deferring to that court's rulings here would inappropriately prejudge this Court's potential review of the Texas case. As the

district court aptly said, there is "no reason to consider the determinations made by the judge or jury in the Eastern District of Texas case applicable, persuasive, or compelling" here. A44 n.24.

In short, Convolve's infringement claim fails as a matter of law because "[t]he undisputed facts establish that the ATA and SCSI interfaces on the disk drives cannot, on their own, satisfy the 'user' element of 'user interface,' properly construed." A38. Summary judgment was properly granted.[3]

II. THE DOCTRINE OF INTERVENING RIGHTS BARS INFRINGEMENT LIABILITY.

A. Defendants Have Intervening Rights Because Convolve Substantively Amended The Patent After The Alleged Infringement To Overcome A Patentability Rejection.

Under the doctrine of intervening rights, "[u]nless a claim granted or confirmed upon reexamination is identical to an original claim, the patent

[3] If this Court affirms the district court on this basis, it need not reach the remaining issues to hold that the grant of summary judgment in favor of Seagate on Convolve's single remaining claim is proper. As the district court remarked, the "user interface" issue is an "independent ground[]" for summary judgment in Seagate's favor. A24. If the accused Seagate drives have no "user interface," Seagate cannot be liable for infringement, and this extraordinarily long-running litigation against it should be ended. The other issues presented in the appeal would, however, remain relevant to the claims against Compaq.

cannot be enforced against infringing activity that occurred before issuance of the reexamination certificate." *Bloom Eng'g Co. v. N. Am. Mfg. Co.*, 129 F.3d 1247, 1250 (Fed. Cir. 1997); *Fresenius USA, Inc. v. Baxter, Int'l, Inc.*, 721 F.3d 1330, 1340 (Fed. Cir. 2013) ("[I]f the original claim is cancelled or amended to cure invalidity, the patentee's cause of action is extinguished and the suit fails."), *cert. denied*, 134 S. Ct. 2295 (2014). The purpose of the doctrine is to "shield those who deem an adversely held patent to be invalid; if the patentee later cures the infirmity by reissue or reexamination, the making of substantive changes in the claims is treated as an irrebuttable presumption that the original claims were materially flawed." *Bloom*, 129 F.3d at 1249. "Thus the statute relieves those who may have infringed the original claims from liability during the period before the claims are validated." *Id.*; *see* 35 U.S.C. §§ 252, 307.

Here, "[t]he parties do not dispute that Defendants' alleged infringement occurred in 2001 and 2002." A60. In 2008, the asserted claims were substantively amended to overcome a patentability rejection by the PTO. As the district court correctly held, "summary judgment of non-infringement for Defendants, pursuant to the intervening rights doctrine, is therefore warranted." *Id.*

In the reexamination proceeding, the PTO rejected the asserted claims of the '473 patent "as being anticipated by U.S. Patent 5,982,570 issued to Koizumi." A4729. The PTO found that "Koizumi expressly discloses a user interface … allowing a user to select between quick and silent seek modes" of disk drives, thereby anticipating the claims. *Id*. "The PTO Reexaminer certified reissuance of the rejected claims only *after* Plaintiff added the term 'seek' to 'acoustic noise,'" A49, on the ground that Koizumi did not disclose how to reduce "seek acoustic noise." A2712.

Prior to the amendment, Convolve argued in a motion for reconsideration that the original claims were patentable because they disclosed only reduction of seek acoustic noise, while Koizumi disclosed only reduction of acoustic noise from the spindle motor. A4789-802. However, the Reexaminer found that this argument was "not persuasive," because "the interpretation set forth [in the motion for reconsideration] cannot be gleaned from the language of the claims as they presently exist in the '473 patent." A2185 ¶ 85; A4927-29. "It was only *after* receiving the proposed amendment that the Reexaminer found that the claimed '473 method of '[reducing] the *seek* acoustic noise level' was '*now clearly required* by [the

reexamined] claims.'" A49. Thus, the amendment was required to find the claims patentable.

As this Court has held, the PTO's rejection of claims as anticipated by prior art, and the subsequent allowance of those claims only upon their amendment, is a "highly influential piece of prosecution history" in determining whether the claims have been substantively changed. *Laitram Corp. v. NEC Corp.*, 163 F.3d 1342, 1348 (Fed. Cir. 1998). Indeed, "it is difficult to conceive of many situations in which the scope of a rejected claim that became allowable when amended is not substantively changed by the amendment." *Id.* No such extraordinary situation is present here.

Convolve attacks the intervening rights ruling as applying "an improper *per se* rule" that all claim amendments made following a prior art rejection are necessarily substantive. Br. 45. But that distorts the district court's analysis beyond recognition. In fact, the district court correctly relied on the amendment as a '"highly influential piece of prosecution history,'" while also "conducting 'an overall examination of the written description, the prosecution history and the language of the respective claims.'" A45, 50 (quoting *Laitram*, 163 F.3d at 1348); *see* A58 ("[A]n amendment substantively narrows the scope of a patent's claims when a claim term is

changed to exclude situations that were ostensibly included in the original language of the claim."). In light of the claim language, specification, and prosecution history, the district court's ruling that the doctrine of intervening rights applies is plainly correct.

First, the claim language demonstrates that the amendment is substantive. "[T]he plain language of the original claims ('acoustic noise') ordinarily includes 'seek,' 'spindle,' and other acoustic noise within its scope." A58. The amendment added "a new modifier," that "limit[ed] [the] claims only to 'seek' acoustic noise," "excluding 'spindle' and other types of acoustic noise." *Id*. Thus, the amendment "narrow[ed] the scope of the claim[s]," by "chang[ing] the term's meaning from that of the original term to a subset of the original term." *Id*.[4]

[4] Convolve contends that "[t]he district court's resort to its own reading of the plain language of the claims, without regard to how a POSITA would interpret that claim language, was fundamental, reversible error." Br. 49. The district court, however, correctly applied the basic rule that claim terms must be given their "ordinary meaning" to the person of ordinary skill in the art, A55 (citing *3M Innovative Properties Co. v. Tredegar Corp.*, 725 F.3d 1315, 1324-26 (Fed. Cir. 2013)), and correctly held that Convolve failed to show that the "ordinary meaning" of "acoustic noise" to the person of ordinary skill in the art is limited to only "seek acoustic noise." The district court's view of how a person of skill in the art would understand the phrase is entitled to deference from this Court. *Teva*, 135 S. Ct. at 837-38.

The amendment here is very similar to the amendments at issue in *Laitram* and *Institut Pasteur & Universite Pierre et Marie Curie v. Focarino*, 738 F.3d 1337 (Fed. Cir. 2013), both of which this Court held to be substantive. In *Laitram*, the claims were amended to add the term "type quality" before "alphanumeric characters." 163 F.3d at 1347. The Court held that the amendment was substantive, because "the original claims appear to cover a printer or method of printing which generates *any* quality of alphanumeric characters, while the amended claims seem to cover only a printing apparatus or method of printing which generates '*type quality*' alphanumeric characters." *Id.* at 1348. Since "[t]he language of the claims indicates that 'type quality alphanumeric characters' are simply a species of the genus 'alphanumeric characters,'" the amendment narrowed the claim scope. *Id.*

Likewise, in *Institut Pasteur*, the patentee added the term "chromosomal" before "DNA." This Court held that the amendment substantively narrowed the claim scope by excluding "[n]on-chromosomal DNA, such as mitochondrial DNA or DNA in an additional plasmid." 738 F.3d at 1343. Here, similarly, "seek acoustic noise" is simply a "species of the genus" "acoustic noise." The amendment therefore substantively narrows the

scope of the claims, excluding "situations where 'spindle' or other acoustic noise … is targeted by the claimed method." A59.

The specification also demonstrates that the original claims were not limited to "seek acoustic noise." It never uses the phrase "seek acoustic noise"; rather, it is "consistent in referring specifically to 'seek' *time* but only generically to 'noise level.'" A52. This discrepancy "demonstrates that Plaintiff clearly knew how to specify the 'seek' limitation when it so desired," and that "acoustic noise" was not so limited until the patentee changed the claim language. *Id.*

Convolve invites the Court to review the "dead center … of Column 1, [where] the specification defines acoustic 'noise' as caused by seek operations." Br. 48. A patent can, of course, define its own terms. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). But "limitations appearing in the specification will not be read into claims," where they do not appear in the claim language itself. *Intervet Am., Inc. v. Kee-Vet Labs., Inc.*, 887 F.2d 1050, 1053 (Fed. Cir. 1989). Further, this passage provides no help for Convolve. Nowhere in Column 1 (or anywhere else in the specification) does the patent purport to define the term "acoustic noise." And nowhere in the Column 1 (or anywhere else in the specification) does the

patent exclude concern for vibrations and noise caused by the spindle (which, after all, must spin during seeks), which is the reason why the PTO considered the patent invalid in light of Koizumi until the patentee amended the claims to narrow their scope. Column 1 instead simply states that vibrations of the seek arm and head cause delay in reading and writing data onto the disk and "may also cause noise." A128 Col.1 ll.28-36.

Moreover, it would be wrong to focus exclusively on Column 1 of the specification when the unwanted vibrations are discussed elsewhere in the patent. For example, the specification in Column 9 states that "[a]s used herein, the term 'vibrations' can refer to mechanical and/or acoustic vibrations that cause noise," with no limitation to vibrations of the seek arm and head. A132 Col.9 ll.65-67. Indeed, far from stating that the invention is limited to reducing "seek acoustic noise" in disk drives, the specification states that "the invention can be used to control *any* dynamic system," and that "a description will be provided only for a computer disk drive system" merely "for the sake of brevity." A140 Col.26 ll.17-20 (emphasis added); *see* A132 Col.9 ll.50-60 ("[T]he methods described herein can be used to control any type of dynamic system," "reducing acoustic vibrations that result in noise.").

The prosecution history also demonstrates that the claims were substantively amended. As discussed above, the fact that the amendment was made to overcome a patentability rejection is a "highly influential piece of prosecution history" showing that the amendment was substantive. *Laitram*, 163 F.3d at 1348. The PTO's isolated reference to the amendment as "clarifying" does not demonstrate otherwise. *See, e.g., Cobra Int'l, Inc. v. BCNY Int'l, Inc.*, 864 F. Supp. 2d 1328, 1340 (S.D. Fla. 2012) (holding that patent claims had been substantively amended notwithstanding examiner's description of amendment as "clarifying"). As the district court held, "[i]n the context in which the amendment was made, the Reexaminer's characterization is flatly undermined by the PTO's actions rejecting the patent's claims—twice—during the same reexamination." A57. Indeed, "the amendment was deemed necessary by the PTO both to distinguish the '473 patent from prior art (Koizumi) and to permit reissuance of the patent, neither of which factors support a determination that the amendment was merely 'clarifying.'" *Id*.

Convolve also contends that a 2001 amendment, adding the modifier "acoustic" in front of "noise," effectively limited the claims to only "seek acoustic noise," demonstrating that the 2008 amendment was merely clari-

fying. Not so; in 2001, Convolve "expressly stated that it was amending the claims … to specify that the '473 patent targeted 'acoustic noise' and not 'electrical noise,' as in the Rowan patent." A56; *see* A3139 ("The pending independent claims have been amended herein to state explicitly that the noise to be controlled [by Convolve's invention] is acoustic noise as opposed to electrical noise."); A1911 ("[W]ith respect to the seek operation, Rowan addresses electrical noise, while Koizumi is concerned with acoustic noise."). Although Convolve also attempted to distinguish Koizumi and Rowan as reducing the spindle speed, it nowhere stated that the amended claims would be limited to reductions of "seek acoustic noise."

B. The "Inverse Relation" Claim Limitation Does Not Show That The Original Claims Were Inherently Limited To "Seek Acoustic Noise."

Convolve further contends that the original claims must be read as inherently limited to "seek acoustic noise" because a broader interpretation "of acoustic noise … renders illogical to a person of ordinary skill in the art the inverse relation recited in all asserted claims." Br. 49-50. Specifically, Convolve argues that "speeding up or slowing down seeks has zero effect on spindle noise, because the seek arm and spindle are controlled by separate motors involving different technologies." Br. 49 (emphasis omitted).

However, the "inverse relation" between "seek time" and "acoustic noise" in the original claims does not mean that the noise must be "seek noise." Seek time can be in inverse relation to myriad factors, not just seek noise. For instance, the '473 patent specification describes an embodiment where "disk drive *power consumption* and seek time vary inversely along the continuum, meaning that, as the power consumption of the disk drive progressively increases the seek time of the disk drive progressively decreases," and vice versa. A131 Col.8 ll.2-6 (emphasis added).

Similarly, there can be an inverse relation between seek time and many types of disk drive noise, including spindle noise. Koizumi indisputably describes an inverse relation between seek time and noise, disclosing an invention allowing users to "select arbitrarily one of at least two modes, which are a quick mode (high speed transfer-high speed access mode) for effecting seek and data read/write and a silent mode (low speed-low power consumption-low noise mode)." A4711 Col.5 ll.15-21. Yet Convolve argues at length that the noise reduced in Koizumi is spindle noise.

Indeed, Koizumi discloses (among other things), that spindle noise can be reduced in inverse relation to seek time. A4712 Col.7 ll.15-21. Re-

ducing power to the spindle motor will reduce spindle noise, but will also make the disk spin more slowly. *See* A4711 Col.5 ll.15-20. Reducing the rotation speed of the disk will in turn increase the seek time, because it will take longer for the seek arm and head to retrieve information from the disk. *See* A64 ("Performance of hard drives can be increased by spinning the platters or moving the arm more rapidly, at the cost of increased vibration"); A4714 Col.11 ll.3-6 ("When the speed is increased in the seek operation, … increase of electric power required for initial drive of the spindle motor is greater"). Thus, there is nothing "illogical" or "nonsensical" about an inverse relation between seek time and spindle noise. *Cf.* Br. 23, 50.

Convolve additionally contends that the original claims were inherently limited to seek acoustic noise due to "the cause-and-effect relationship—between the 'altered settings in the user interface' and the subsequently-output 'commands … to alter seek trajectory shape'—that is explicitly defined by the 'in accordance with' language in all independent claims." Br. 50. However, the PTO examiner concluded that Koizumi also discloses how to alter seek trajectory shape, because "upon switching from the quick mode to a silent mode," "[t]he result is that the seek trajectory shape is changed, i.e., altered, to become flatter." A4743-44.

Also, nothing in the original claims requires that all or even most of the "inverse relation" between acoustic noise and seek time must be achieved by the altered seek trajectory. Although the original claims require some reduction in "unwanted frequencies" from altering the seek trajectory, they would cover a situation where the predictable "inverse relation" between seek time and acoustic noise is achieved primarily by slowing the spindle motor, as in Koizumi.

Finally, Convolve contends that statements of the parties' experts "are strong extrinsic evidence" that the original claims were inherently limited to seek noise. Br. 52. However, as the district court held, the "statements of their experts in the context of litigation, cannot import limitations into the claims that are not contained in the language of the claims themselves." A53; *see Laitram*, 163 F.3d at 1346, 1349 (finding that intervening rights attached despite "uncontroverted expert testimony" that the amended claim was not a substantive change); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317-18 (Fed. Cir. 2005) (en banc) (expert testimony is "less significant" and "less reliable than the patent and its prosecution history in determining how to read claim terms").

Further, Convolve's contention that the parties were in "harmony" as to the meaning of "acoustic noise" is inaccurate. The parties did not agree to an undisputed construction of the term. A269-70 (parties' joint listing of undisputed claim constructions). And, as the district court found, Convolve's own "proposed construction of 'acoustic noise' … submitted to this Court made no attempt to limit the term to 'seek' acoustic noise," even though Convolve included a "seek" limitation for other claim terms. A54 n.31; *see* A392 (Convolve defining "acoustic noise" as "[n]oise in the acoustic spectrum, usually measured in decibels"); A407 (Convolve defining another claim element using qualified term "seek time," but unqualified term "acoustic noise level").

The original claims were not inherently limited to seek acoustic noise. The amendment was therefore substantive, and the district court correctly granted summary judgment under the doctrine of intervening rights.[5]

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[5] Pursuant to Federal Rule of Appellate Procedure 28(i), Seagate incorporates and adopts Compaq's arguments that the district court's holding that Compaq's accused products do not infringe the '473 patent should be upheld because the processor of the F10 BIOS does not issue "commands" within the meaning of the patent claims, and that the judgment should be affirmed because Convolve has presented no evidence of an "inverse relation" between seek time and acoustic noise in the accused products, as every asserted claim requires.

CONCLUSION

For the foregoing reasons, the Court should affirm the judgment below.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 10th day of March, 2015, I caused the foregoing Brief of Defendant-Appellee Seagate Technology to be electronically filed with the Clerk of the Court for the United States Court of Appeals for the Federal Circuit through the Court's CM/ECF system. Participants in the case who are registered CM/ECF users will be served by the appellate CM/ECF system.

/s/ Carter G. Phillips
Carter G. Phillips

CERTIFICATE OF COMPLIANCE

I certify, pursuant to Federal Rule of Appellate Procedure 32(a)(7)(B) and the Rules of this Court, that the foregoing Brief Of Defendant-Appellee Seagate Technology contains 10,331 words as measured by the word processing software used to prepare this brief, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Federal Circuit Rule 32(b).

I further certify that this brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6). The brief has been prepared in a proportionally spaced typeface using Microsoft Word in Book Antiqua, 14 point.

Dated: March 10, 2015

Respectfully submitted,

/s/ Carter G. Phillips

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