UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

GUZIK TECHNICAL ENTERPRISES, INC.,

Plaintiff and Counterclaim Defendant,

v.

WESTERN DIGITAL CORPORATION, WESTERN DIGITAL TECHNOLOGIES, INC., and WESTERN DIGITAL (FREMONT) INC.,

Defendants and Counterclaim Plaintiffs, and

WESTERN DIGITAL (THAILAND) COMPANY LIMITED and WESTERN DIGITAL (MALAYSIA) SDN.BHD,

Defendants.

Case No.: 11-CV-03786-PSG

ORDER RE: CLAIM CONSTRUCTION, WESTERN DIGITAL'S MOTIONS FOR PARTIAL SUMMARY JUDGMENT, AND GTE'S MOTION UNDER FED. R. CIV. P. 56(D)

(Re: Docket Nos. 131, 132, 137)

In this patent infringement case, Defendants Western Digital Corp., et al (collectively, "Western Digital") bring two partial motions for summary judgment on the grounds of noninfringement and invalidity based on indefiniteness. Plaintiff Guzik Technical Enterprises ("GTE") opposes and also brings its own motion under Fed. R. Civ. P. 56(d). Having considered the parties' papers and arguments, the court GRANTS-IN-PART Western Digital's motions and GRANTS-IN-PART GTE's motion. The court also provides the reasoning for its previous construction of ten claim terms.

I. BACKGROUND

The patents in this case describe hard drive disk test components.[1] Hard drives consist of magnetic disks on which data is written. Those magnetic disks encircle a motor-driven spindle hub that spins the disks. To access the data, the hard drive uses a head-stack assembly ("HSA") that has a head mounted on a pivot-arm module and a magnetic positioner. The module and the positioner move the head above the spinning disk so the head can write data onto or read data from the disk.

The accuracy of the heads in accessing data on the disks is essential to the effectiveness of the hard drive. Increases in the data capacity of the magnetic disks demand even greater precision. GTE purportedly addresses this need with its hard drive testers, which analyze the performance of the heads. GTE apparently sold its testers to Read-Rite Corp. ("Read-Rite"), a head manufacturer. After Western Digital acquired Read-Rite and its manufacturing facilities, Western Digital continued to use GTE's testers and to purchase new generations of its testers.

According to GTE, both Read-Rite and Western Digital were subject to agreements that prohibited reverse engineering, decompiling, disassembling, or deriving source code from GTE's products. GTE alleges that at some point Western Digital violated the agreement and used GTE's products and intellectual property to develop two testers of its own, the EH-300 and the DCT-400. GTE asserts that, like its testers and as protected by its patents, the two Western Digital testers use servo burst feedback and a thermal drift-compensated closed-loop positioning system to determine the accuracy of the heads.

GTE proceeded to file this case in August 2011, in which it alleges Western Digital infringes claims from two of its patents, U.S. Patent No. 6,023,145 ("'145 Patent") and U.S. Patent No. 6,785,085 ("'085 Patent"). GTE specifically claims that Western Digital's products infringe claims 20, 21, 24, 25, 29, 30, 33, 34, 36, and 39 of the '085 Patent and claims 1-19 of the '145 Patent. Western Digital answered and filed a counterclaim alleging that the '145 Patent and the '085 Patent are invalid and that GTE infringes U.S. Patent No. 5,640,089 ("'089 Patent"), U.S.

[1] The court derives these facts from GTE's complaint. *See* Docket No. 1.

Patent No. 5,844,420 ("'420 Patent"), U.S. Patent No. 6,891,696 ("'696 Patent"), and U.S. Patent No. 7,480,116 ("'116 Patent"), all of which Western Digital owns.[2]

A. The Patents

The '145 Patent describes a "head/disk tester compris[ing] a thermal-drift compensated closed-loop positioning system that uses two sources of positioning feedback."[3] The first source, linear encoders, "reflects the position of a magnetic head with respect to the magnetic disk in the absence of thermal drift."[4] The second source, servo burst signals on the disk, "reflects the position of the magnetic head with respect to the magnetic disk in any temperature condition."[5] The purpose of the invention is "to provide a head/disk tester that effects accurate positioning of a magnetic head with respect to [a] magnetic disk in a tester, even in the case of unstable temperature conditions."[6]

The method at the heart of the '085 Patent "provides a reduction in the percentage of the area dedicated to read/write head positioning information on a magnetic recording medium by employing servo bursts of different frequencies."[7] Unlike prior art, which "[i]n general . . . separate servo bursts in space on the disc media," the '085 Patent describes a method of separating the servo bursts by frequency "so that spatial separation is unnecessary."[8]

The invention in the '420 Patent consists of a "novel test fixture and a method for testing a [head gimbal assembly] employing a flex interconnect circuit."[9] The head gimbal assembly ("HGA") is a type of hard drive head, and the '420 Patent describes a fixture and a method of testing HGAs with flex interconnect circuits, which are more difficult to test than HGAs with the

[2] *See* Docket No. 79.

[3] Docket No. 1 Ex. A at 2:54-56.

[4] *Id.* at 2:56-58.

[5] *Id.* at 2:62-64.

[6] *Id.* at 2:41-44.

[7] Docket No. 1 Ex. B at 3:19-22.

[8] *Id.* at 3:37-39, 3:42-43.

[9] Docket No. 79 Ex. A at 1:39-41.

more conventional wire leads with attached paddle boards.[10] The test fixture "clamps" the HGA in such a way that the flex interconnect circuit "is maintained in its most natural position so as to avoid damaging the flex interconnect circuit."[11]

The '089 Patent describes a method of employing a "magnetoresistive element . . . to detect a surface roughness of an object, such as a magnetic recording medium, a photomask blank, [or] a semiconductor wafer."[12] By moving a unit with the magnetoresistive element over the object, an electric signal emerges, and through detection of differences in the signal, the surface roughness of the object can be determined.[13] The invention in the '696 Patent targets disk flutter in hard drives through a structure that reduces the airflow surrounding the disk as it rotates in the hard drive.[14] The structure has an "arcuate raised portion" that creates two distances between the disk and the base on which it spins, which reduces the airflow.[15] The '116 Patent describes a disk drive that allows for the creation of a "servo track address" through the combination of a coarse position identifier and a read signal from the head.[16]

B. The Constructions

On September 25, 2012, the parties appeared for a claim construction hearing, at the end of which the court provided its constructions. The court construed five terms from the '145 Patent, one term from the '116 Patent, and two terms each from the '696 Patent and the '089 Patent, although it did not offer the reasoning behind these constructions at that time:

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[10] *See id.*

[11] *Id.* at 2:67 – 3:1.

[12] Docket No. 79 Ex. B.

[13] *See id.* at 9:33-44.

[14] *See* Docket No. 79 Ex. C at 1:39-46.

[15] *See id.* at 1:59-65.

[16] *See* Docket No. 79 Ex. D at 9:39 – 10:17.

Disputed Term[17]	Court's Construction
'145 Patent	
"second feedback means for determining the position of said magnetic head with respect to said data track of said magnetic disk in varying temperature conditions" (claim 1)	Section 112(f) means-plus-function term Function: "providing feedback for determining the position of said magnetic head, with respect to said data track of said magnetic disk in varying temperature conditions, using servo burst signals on said magnetic disk at predetermined positions radially offset from said track center line." Structure: "servo analyzer, including read element, read amplifier, detector, analog to digital converter and averager"[18]
"means for reading said servo burst at each of said offsets in generating and storing signals representative of each read burst associated with each said offset" (claim 17)	Section 112(f) means-plus-function term Function: "reading said servo burst at each of said offsets and generating and storing signals representative of each read burst associated with each of said offsets" Structure: "servo analyzer, including read element, read amplifier, detector, analog to digital converter, average, and the memory of the position controller"
"closed loop positioner, responsive to said first feedback means and said second feedback means to control said positioning means, whereby said magnetic head is substantially at said desired offset from said track center line" (claim 1)	Plain and ordinary meaning – Section 112(f) does not apply
"means for pre-writing said servo burst signal at a plurality of positions along a track of said magnetic disk, and for detecting the amplitudes of said prewritten burst signals" (claims 6 and 7)	Section 112(f) means-plus-function term Function: "prewriting said servo burst signals at a plurality of positions along a track of said magnetic disks and detecting the amplitudes of said prewritten burst signals" Structure: "gate sequencer, write amplifier, detector and ADC, write element of the head, read element of the head, and encoder of spindle"

[17] *See* Docket No. 123 at 128:17 – 131:14 (providing the constructions).

[18] In the transcript, the term "averager" appears as "aperture." *See id.* The proper term is "averager."

"means for writing in a time succession as said disk rotates two or more servo bursts over a relatively short time, wherein each of said bursts is laterally offset from said track center line by a determined distance" (claim 17) "writing in a time succession as said disk rotates two or more servo bursts over a relatively short time, wherein each of said bursts is laterally offset from said track center line by a determined distance" (claim 19)	Declined to construe on grounds that "relatively short time" language may be indefinite.
'116 Patent	
"the coarse position of the actuator arm"	Plain and ordinary meaning of the term
'089 Patent	
"surface roughness"	"one or more protrusions or irregularities on the surface of the object"
"preparing a magnetic recording medium as said object"	Plain and ordinary meaning
'696 Patent	
"enclosure"	"housing that fully or partially encases"
"arcuate raised portion on the base"	"a curved elevated section that is part of the base"

Western Digital now moves for partial summary judgment on the grounds of noninfringement for all of the claims of the '085 Patent that GTE asserted against it and for claims 1-9, 11-16, and 17-18 of the '145 Patent. Western Digital also moves for summary judgment regarding three claims of the '145 Patent on the grounds of invalidity. GTE opposes both motions and further responds with a Rule 56(d) summary judgment request.

In addition to addressing the summary judgment motions, the court also provides its reasoning for the constructions. Because the outcome of the summary judgment motions turns on the constructions, the court begins with an explanation of its reasoning.

II. CLAIM CONSTRUCTION

A. Legal Standard

"To construe a claim term, the trial court must determine the meaning of any disputed words from the perspective of one of ordinary skill in the pertinent art at the time of filing."[19] This

[19] *Chamberlain Group, Inc. v. Lear Corp.*, 516 F.3d 1331, 1335 (Fed. Cir. 2008).

requires a careful review of the intrinsic record, comprised of the claim terms, written description, and prosecution history of the patent.[20] While claim terms "are generally given their ordinary and customary meaning," the claims themselves and the context in which the terms appear "provide substantial guidance as to the meaning of particular claim terms." Indeed, a patent's specification "is always highly relevant to the claim construction analysis."[21] Claims "must be read in view of the specification, of which they are part."[22]

Although the patent's prosecution history "lacks the clarity of the specification and thus is less useful for claim construction purposes," it "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be."[23] The court also has the discretion to consider extrinsic evidence, including dictionaries, scientific treatises, and testimony from experts and inventors. Such evidence, however, is "less significant than the intrinsic record in determining the legally operative meaning of claim language."[24]

[20] *Id.*; *Phillips v. AWH Corp*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (internal citations omitted).

[21] *Phillips*, 415 F.3d at 1312-15.

[22] *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). *See also Ultimax Cement Mfg. Corp v. CTS Cement Mfg. Corp.*, 587 F. 3d 1339, 1347 (Fed. Cir. 2009).

[23] *Phillips*, 415 F.3d at 1317 (internal quotations omitted).

[24] *Id.* (internal quotations omitted).

B. '145 Patent

1. "second feedback means for determining the position of said magnetic head with respect to said data track of said magnetic disk in varying temperature conditions, said second feedback means being responsive to servo burst signals on said magnetic disk at predetermined positions radially offset from said track center line" (claim 1(f))

Western Digital's Construction	GTE's Construction
Governed by 35 U.S.C. §112(6).[25] **Function**: Determining the position of said magnetic head with respect to said data track of said magnetic disk in varying temperature conditions using feedback responsive to servo burst signals on said magnetic disk at predetermined positions radially offset from said track center line[26] **Structure:** servo analyzer including: read element, read amplifier, detector, analog-to-digital converter, averager, position controller, and spindle encoder.	Governed by 35 U.S.C. §112(6). **Function:** Providing feedback for determining the position of said magnetic head with respect to said data track of said magnetic disk in varying temperature conditions **Structure(s):** Servo analyzer, read element of magnetic head and encoder of spindle in Figure 2.

Both parties agreed that this term falls under the rubric of 35 U.S.C. § 112(f). For such means-plus-function terms, the court engages in a two-step process, first to determine the proper function and then to ascertain the structure identified to perform that function.[27] Section 112(f) "does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim."[28] "Correctly identifying the claimed function is critical,

[25] The parties refer to 35 U.S.C. § 112(6) or § 112 ¶ 6. In a prior version of Section 112, the subsections were not labeled and so the means-plus-function paragraph was commonly referred to as ¶ 6. As part of the America Invents Act, Pub. L. 112-29, the statute was amended to enumerate the subsections. The means-plus-function subsection, formerly ¶ 6, is now subsection (f). Consistent with that change, the court uses "Section 112(f)" in its discussion but where it quotes from the parties, it will use their label for the means-plus-function section.

[26] Western Digital offered a different function to GTE in the exchange of their proposed constructions. *See* Docket No. 98 at 4 n.2. After reviewing GTE's brief, it amended its position regarding the structure and the function to "more closely track the language of the claim." *Id.*

[27] *See ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1087 (Fed. Cir. 2003).

[28] *Id.*

because an error in identification of the function can improperly alter the identification of the structure . . . corresponding to that function."[29]

a. Function

GTE asserts that its proposed construction encapsulates the claimed function because at issue is only a "feedback means." According to GTE, construing the function to include only "providing feedback for determining the position" of the magnetic head aligns with the claim language. Western Digital argues that GTE's proffered construction ignores the limitation in the claim language, namely that the "feedback means" must be "responsive to servo burst signals." According to Western Digital, GTE's proposal impermissibly widens the claimed function to include any feedback mechanism.

Western Digital asserts that its construction aligns with the function and the limitations claimed in the '145 Patent. Unlike GTE, which considers the function as a "feedback means," Western Digital frames the function as "means for determining" and thereby argues the function is "determining." GTE objects to Western Digital's construction on two grounds. GTE first opines that Western Digital's proposal, "determining the position," fundamentally changes the claimed function because the claim language states a "feedback means," not "means for determining." GTE also asserts that the addition of the "using feedback responsive to servo burst signals" language is unnecessary because it is not the claimed function. GTE argues that the function is "providing feedback" and that the additional element of the "responsive to servo burst signals" may be necessary to establish infringement but is unnecessary to aid the jury in understanding the term.

The court agrees that the claimed function is a "feedback means," not a "means for determining" as Western Digital argues. The written description provides that the invention uses

[29] *Id.*

"two sources of feedback for head positioning operations,"[30] and that language appears at several other points in the description.[31] Western Digital's construction ignores the "feedback" language in the term and contradicts the description. To that end, the court construes the term as "providing feedback" and not "determining."

But GTE's proposed function is incomplete. As Western Digital highlights, the claimed function is not just "a feedback means for determining the position" of the magnetic head; the claimed function includes a limitation that the "second feedback means" be "responsive to servo burst signals on said magnetic disk at predetermined positions radially offset from said track center line."[32] GTE ignores this second part of the claimed function with its construction. The court, however, must maintain its analytical focus "on the language of the claims themselves."[33] The language provides that the feedback means is "responsive to servo burst signals," not just that it provides feedback generally.

The court thus construes the function as "providing feedback for determining the position of said magnetic head, with respect to said data track of said magnetic disk in varying temperature conditions, using servo burst signals on said magnetic disk at predetermined positions radially offset from said track center line."

b. Structure

Having determined the proper function, the court turns to construing the appropriate structure. The parties agree that a servo analyzer at least in part performs the function of providing the feedback. They dispute whether the disclosed structure is a generic servo analyzer or whether

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[30] Docket No. 1 Ex. A at 5:3-4.

[31] *See, e.g., id.* at 5:44-45, 6:29-30, 6:48-50, 7:7-12, 7:22-23.

[32] *Id.* at 8:54-56.

[33] *ACTV, Inc.*, 346 F.3d at 1088.

the elements of the servo analyzer identified in the patent are also required. At issue is the block diagram of Figure 4, which the '145 Patent describes alternatively as "a functional block diagram of the servo analyzer"[34] and then as showing "a servo analyzer in block diagram form which processes the information from the two feedback sources."[35]

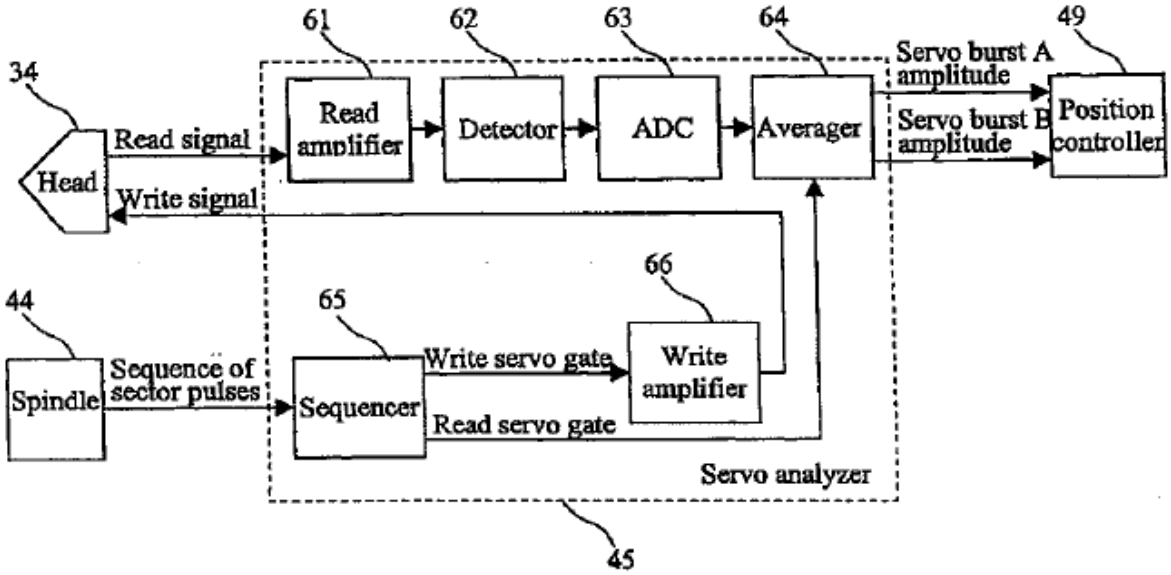

Fig. 4

GTE, which argues that a generic servo analyzer is all that is necessary, points to the language stating "a servo analyzer in block diagram form" with certain components[36] and asserts that the indefinite article reveals that the servo analyzer described is a preferred embodiment. GTE maintains that importing the description of the preferred embodiment into the required structure would be improper. GTE also provides declarations from an expert who states that there are various forms of servo analyzers depending in part on the number of servo bursts to be analyzed but that regardless a person of ordinary skill in the art would understand a servo analyzer to

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[34] Docket No. 1 Ex. 1 at 3:15.

[35] *Id.* at 5:43-45.

[36] Docket No. 1 Ex. 1 at 5:43.

perform the "providing feedback" function.[37] The internal structures may enable the servo analyzer to perform the function but, relying on *Asyst Technologies, Inc. v. Empak, Inc.*,[38] GTE argues that enabling features should not be included in the structure. GTE argues that because a patentee need only disclose a "class of structures . . . identifiable by a person of ordinary skill in the art," the court should construe the required structure as only a servo analyzer rather than the internal components identified in Figure 4 and in the patent language itself.

GTE further asserts that the structure of the '145 Patent supports its proposed construction because dependent claims 4 and 5 prescribes functions that the preferred embodiment performs. Claim 4 describes the "head/disk tester of claim 1, wherein said second feedback means includes a detector that detects the amplitudes of said servo burst signals prewritten on said magnetic disk."[39] Claim 5 in turn teaches the "head/disk tester of claim 4, wherein said second feedback means further includes an averager that samples the amplitudes of said detected servo burst signals and determines an average of said prewritten burst signals."[40] Relying on the doctrine of claim differentiation,[41] GTE argues that because claims 4 and 5 disclose feedback means employing a detector and an average respectively independent claim 1 requires only a generic servo analyzer.

Western Digital argues that the '145 Patent does not describe a generic servo analyzer but rather a servo analyzer with specific structures that permit it to not only read servo bursts but also output the analysis to a position controller. It asserts that the identified structures do not merely enable the servo analyzer but in fact are part of the analyzer and are necessary to allow it to perform the claimed function. Western Digital's expert opines that absent the read amplifier 61,

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[37] *See* Docket No. 94 Ex. 8 at ¶¶ 38-39.

[38] *See* 268 F.3d 1364, 1370 (Fed. Cir. 2001).

[39] Docket No. 1 Ex. 1 at 9:5-8.

[40] *Id.* at 9:9-12.

[41] *See Versa Corp. v. Ag-Bag Intern. Ltd.*, 392 F.3d 1325, 1330 (Fed. Cir. 2004).

detector 62, analog-to-digital converter ("ADC") 63, and averager 64 the servo analyzer could not supply the necessary signal from the read element of the head to the position controller to allow for the invention to work.

Western Digital maintains that the '145 Patent does not in fact disclose a generic servo analyzer, the indefinite article notwithstanding. It further objects to GTE's reliance on claim differentiation given that the '145 Patent discloses only Figure 4 as the embodiment of the servo analyzer to be used in the invention. According to Western Digital, claim differentiation does not unseat the requirements of Section 112(f) that a means-plus-function claim must include a structure identified in the specification.

Because the court identified the function of claim 1 to be "providing feedback . . . using servo burst signals," the court finds that the structure for performing this function requires a servo analyzer with the components identified in Figure 4 and further described in the written description. As shown above, Figure 4 classifies several components within the servo analyzer 45: the read amplifier 61, the detector 62, the ADC 63, the averager 64, the sequencer 65, and the write amplifier 66. The text describes how the servo analyzer provides the feedback to the position controller: "[t]he read element of head 34 generates a read signal which is amplified by read amplifier 61 of the servo analyzer 45"; the signal then gets filtered by the detector 62, which "produces a signal representative of the envelope of the read signal"; the signal gets "sampled and digitized" by the ADC 63; and the averager 64 averages the ADC's digital output, once synchronized with the read servo gate, to "provide[] statistical estimates of the servo burst amplitudes of servo bursts . . . at the outputs of servo analyzer 45."[42]

GTE's argument that this description is only a preferred embodiment and a generic servo analyzer is the only required structure lacks merit. As GTE points out, a patentee need not disclose

[42] Docket No. 1 Ex. 1 5:49 – 6:14.

a specific structure if a generic structure suffices,[43] and if the specification identifies more than one possible structure, the construction should not be limited to a preferred embodiment.[44] GTE points to the generalized "servo analyzer" in Figure 2 and the use of the indefinite article in "a servo analyzer" in describing Figure 4 to support that the specification identifies more than one structure of the servo analyzer, namely a generic servo analyzer and the specific preferred embodiment.

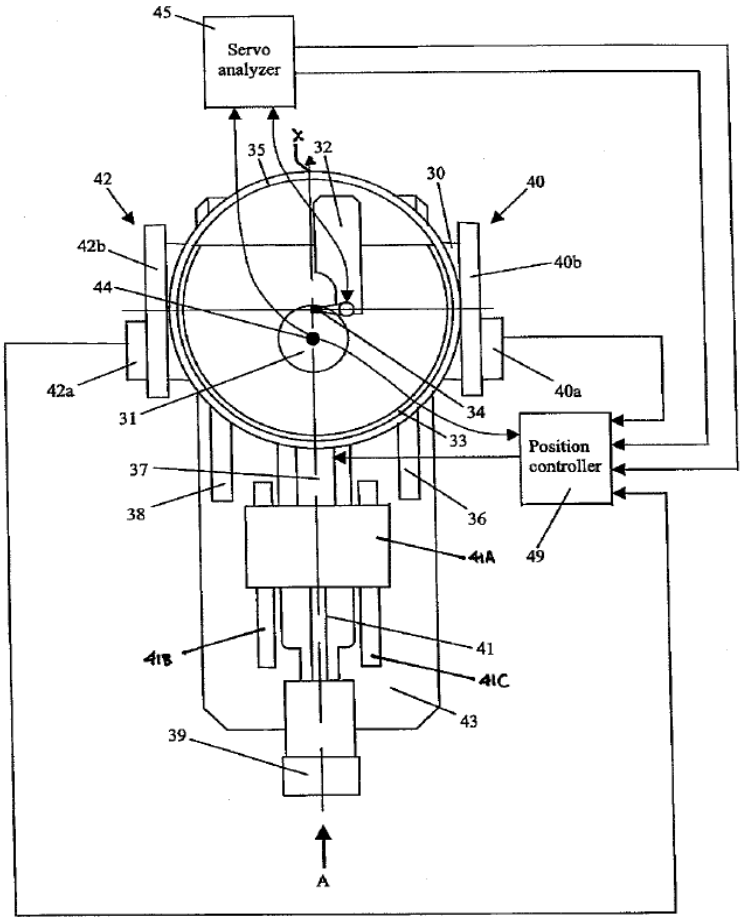

Fig. 2

[43] *See Telcordia Tech., Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1377 (Fed. Cir. 2010).

[44] *See Micro Chem., Inc. v. Great Plains Chem. Co., Inc.*, 194 F.3d 1250, 1258-59 (Fed. Cir. 1999) ("When multiple embodiments in the specification correspond to the claimed function, proper application of § 112 ¶ 6 generally reads the claim element to embrace each of those embodiments.").

GTE, however, conflates the two rules. It is true that where a patentee identifies only a generic structure that an ordinary person skilled in the arts nevertheless would understand to perform the function, the generic structure is sufficient.[45] But GTE provides no case law to support that where a patentee specifically describes the components of an otherwise generically-labeled structure identified earlier in the patent the court is obligated to interpret the two drawings as two different structures.

At least one court in fact held the opposite. The patent at issue in *Faroudja Laboratories, Inc. v. Dwin Electronics, Inc.* included a figure identifying the specific components of a "field comparator" that was referenced generally in the specification and in an earlier figure.[46] The patentee argued that the proper structure should be just a generic "field comparator" rather than the field comparator composed of the internal components identified.[47] The court disagreed, noting that the generic identification of a "field comparator" was insufficient to disclose alternative embodiments of the structure.[48] Noting that "interpretation of a means-plus-function element requires [the] court to consult the structure disclosed in the specification, which often, . . . describes little more than the preferred embodiment,"[49] the court found that the single disclosed embodiment – the field comparator with specific internal components – was the proper structure for the Section 112(f) claim.[50] This court sees no reason to depart from that logic.

GTE's reliance on *Asyst* likewise is misguided. In *Asyst*, the Federal Circuit opined that devices that enable a structure to perform the claimed function should not be included in construing

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[45] *See Telcordia*, 612 F.3d at 1377.

[46] *See* 76 F. Supp. 2d 999, 1012-13 (N.D. Cal. 1999).

[47] *See id.*

[48] *Id.* at 1013.

[49] *Id.* (quoting *Signtech USA, Ltd. v. Vutek, Inc.*, 174 F.3d 1352, 1356 (Fed. Cir. 1999)).

[50] *See id.*

the required structure; only devices that "actually perform" the function constitute the structure.[51] GTE argues that the internal components identified in Figure 4 only enable the servo analyzer to perform the "second feedback means" function, but that logic is imprecise. To use *Asyst*'s example, an electrical outlet may not be part of a toaster because it only enables the toaster to work, but the heat coils inside of the toaster that also "enable" the toaster to work do not become separate from the structure because they perform that duty. In other words, the relevant inquiry is whether a component is part of the structure performing the function, and all that *Asyst* provided was that "enabling" did not make a component part of the structure – the component must in some way perform the function. Here, the fact that the various components also perform derivative functions as part of their overall role in allowing the servo analyzer to "provide feedback . . . using servo burst signals" does not mean they are separate devices. As identified in the patent text and in Figure 4, the components are part of the servo analyzer performing the function that is claimed.

The claim differentiation argument likewise is unavailing. Section 112(f) requires identification of a structure to perform the function. Here, the structure identified is the servo analyzer, accompanied by the description of the internal components that allow the servo analyzer to provide feedback through the use of servo burst signals. Claims 4 and 5 may specifically identify the components necessary to perform the function of claim 1, but a "means-plus-function limitation is not made open-ended by the presence of another claim specifically claiming the disclosed structure which underlies the means clause or an equivalent of that structure."[52] Although "an interpretation of a claim should be avoided if it would make the claim read like another one,"[53] the specification identifies only one structure to perform the function of claim 1: a

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[51] *See* 268 F.3d at 1371.

[52] *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991).

[53] *Id.* (internal citations and quotations omitted).

servo analyzer with particular components. And claims 4 and 5 can be reconciled with claim 1 because they exclude any equivalents to the structure identified in claim 1.[54]

The servo analyzer and its identified internal components are necessary but not sufficient structures. The read element of the head also must be included in the structure that performs the "second feedback means" function. The read element is the component that provides the servo burst signal to the servo analyzer, where the signal is then processed through the various internal components and then sent to the position controller.[55] In its announced construction, the court included the read element as part of the servo analyzer. Having reviewed the patent further, the court clarifies that the read element is properly part of the head but is also essential to the structure that performs the function.

As to Western Digital's argument that the position controller should be included in the structure, the court notes that Western Digital's premise relies on the function being defined as "determining" rather than "providing feedback." Western Digital admitted at the hearing that the position controller is properly understood to be an instrument that determines the position of the head. Because the function of "second feedback means" is "providing feedback" and not "determining," including the position controller would add a device to the structure that does not perform the function.

The court also notes that the parties agreed that the spindle encoder 44 was a necessary component to the structure. In its construction, the court did not include the spindle encoder 44 because, unlike the servo analyzer's internal components which perform the function, the spindle encoder in fact only enables the servo analyzer and the read element to "provide feedback . . . using servo bursts." The spindle encoder 44 "generates a sequence of sector pulses at uniform time

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[54] *See id.* (explaining that Section 112(f) claims literally allow for the identified structure and equivalents but dependent claims that identify the specific structure are limited to that structure).

[55] *See* Docket No. 1 Ex. 1 5:35-40.

intervals," which are then applied to the sequencer 65. The sequencer 65 "generates two control signals, 'write servo gate' and 'read servo gate,'" and the "read servo gate" in turn synchronizes the averager 64 with the servo bursts. Unlike the other internal components identified in Figure 4 of the servo analyzer that collectively perform the function of "providing feedback" from the servo bursts, the read servo gate instead "enables" those components to perform the function by acting as a control feature to ensure the averager 64 is synchronized. Even if the read servo gate were essential to performing the function, the spindle encoder 44 is further removed because it does not generate the read servo gate – it only enables that signal by providing pulses to the sequencer 65. Like the electrical outlet in *Asyst*, the spindle encoder may allow the servo analyzer to perform the function, but it is not performing the function itself – providing feedback using servo bursts.

The court thus finds that the structure identified to perform the function claimed in claim 1 is "the read element of magnetic head and servo analyzer, including read amplifier, detector, analog to digital converter and averager."

2. "means for reading said servo bursts at each of said offsets, and generating and storing signals representative of each read burst associated with each of said offsets" (claim 17)

Western Digital's Construction	**GTE's Construction**
Governed by 35 U.S.C. §112(6). **Function**: Reading said servo bursts at each of said offsets, and generating and storing signals representative of each read burst associated with each of said offsets **Structures:** Servo analyzer including: read element 34, read amplifier 61, detector 62, analog-to-digital converter 63, averager 64, position controller 49 and spindle encoder 44.	Governed by 35 U.S.C. §112(6). **Function:** for reading said servo bursts at each of said offsets, and generating and storing signals representative of each read burst associated with each of said offsets **Structures:** servo analyzer 45, the read element of the magnetic head 34, and the position controller 49 in Figure 2

The parties agree that this term is governed by Section 112(f), and they also agree about the function of the claim. The court concurs that the proper function is "reading said servo bursts at

each of said offsets, and generating and storing signals representative of each read burst associated with each of said offsets."

In arguments that mirror their dispute about claim 1, the parties disagree about the proper structure for the function. GTE once again argues that only a generic servo analyzer, the read element of the magnetic head 34, and the position controller 49 are necessary. Western Digital continues to assert that the internal components of the servo analyzer 45, specifically the read amplifier 61, detector 62, analog-to-digital converter 63, and averager 64, as well as the position controller 49 and spindle encoder 44 are necessary.

Claim 17 describes a "[s]ystem for generating and storing signals for positioning a magnetic read/write head with respect to a data track on a magnetic disk, said data track having width T and extending along a circular track center line disposed about a disk axis, comprising:

A. a base,

B. a disk support assembly affixed to said base for rotatably supporting said magnetic disk about said disk axis,

C. a head support assembly affixed to said base, including a magnetic read/write head, said read/write head having a write width T, and including an associated positioning assembly for selectively positioning said head to a nominal locations with respect to said track center line,

D. a controller for successively positioning said read/write head to one or more positions characterized by an associated desired offset with respect to said track center line, including:

i. means for writing in a time succession as said disk rotates two or more servo bursts over a relatively short time, wherein each of said bursts is laterally offset from said track center line by a predetermined distance, and

ii. means for reading said servo bursts at each of said offsets, and generating and storing signals representative of each read burst associated with each of said offsets."[56]

[56] *See* Docket No. 1 Ex. A at

The patent discloses only one structure for reading and generating "signals representative of each read burst," namely the servo analyzer 45 coupled with the read element of magnetic head 34. As the court explained at length above, the disclosed servo analyzer includes the internal components provided in Figure 4 and described in the text. The court adopts the same reasoning here and likewise includes the read amplifier, detector, ADC, and the averager in its construction of the structure for the "means for reading" function.

The parties both included the position controller 49 as part of the necessary structure. The court disagrees. The identified functions indicate that the position controller is not the correct structure. At issue are "reading" the bursts, "generating" signals representative of the bursts, and "storing" those signals. The combination of the servo analyzer 49 and the read element of the magnetic head 34 perform the first two functions of "reading" the bursts and then "generating" the signals. The memory 82 within the position controller 49 actually stores the signals representing the servo bursts: "[w]hen the positioning error goes to zero, the controller 71[57] saves the ratios of the amplitudes for the servo bursts A and B . . . into an array of the memory 82 for all sectors." The proper structure, therefore, is not the position controller generally but the memory 82 of the position controller.

The structure for the "means for reading" function is "read element of magnetic head 34,[58] servo analyzer, including read amplifier 61, detector 62, analog-to-digital converter 63, averager 64, and the memory of the position controller 82."

[57] The '145 Patent describes two controllers: (1) the position controller 49 that "is used to perform . . . positioning operations" of moving the head 34 to "different (radial) offsets with respect to a track center line"; and (2) a controller 71 within the position controller 49 that "moves switches 76 and 81" and "saves the ratios of the amplitudes for the servo bursts . . . into an array of the memory 82 for all sectors."

[58] As with claim 1, the court initially construed the servo analyzer to include the read element of the magnetic head, and as it did with claim 1, the court clarifies here that the read element appears on the head not in the servo analyzer.

3. "closed-loop positioner responsive to said first feedback means and said second feedback means to control said positioning means" (claim 1)

Western Digital's Construction	GTE's Construction
Governed by 35 U.S.C. §112(6). **Function**: Using both first and second feedback means to provide feedback in the same closed loop **Structure:** Controller 71, three adders 72, 73, and 80, proportional integral derivative (PID) closed loop control unit 74, amplifier 75, position averager 78, divider 79, memory 82, scaler 77, and two switches 76 and 81.	This phrase should be construed to have its plain and ordinary meaning, which is facially apparent from the text of the phrase as drafted. No construction is necessary or required.

Western Digital asserts that "closed-loop positioner" is a means-plus-function term that requires construction of both the function and the structure. GTE disagrees that Section 112(f) applies and further argues that the term requires no construction because its plain and ordinary meaning is sufficient.

"[A] claim term that does not use 'means' will trigger the rebuttable presumption that § 112 ¶ 6 does not apply."[59] That presumption "can be overcome if it is demonstrated that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function."[60] But the presumption against applying means-plus-function requirements on terms that do not employ the "means" language is "a strong one that is not readily overcome."[61]

The determination of whether the claim has sufficient structure to avoid Section 112(f) treatment is not the same as the inquiry about the specificity of the structure once Section 112(f)

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[59] *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004) (internal citations and quotations omitted).

[60] *Id.* (internal citations and quotations omitted).

[61] *Id.*

attaches.[62] "[I]t is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function."[63] Certain "nonce" words, such as "device" or "element," may suggest that the claim term is really a substitute for "means" and should be interpreted as a means-plus-function term.[64] But that guidance provides only an aid to the central inquiry: "whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of § 112 ¶ 6."[65]

Western Digital asserts that the term "positioner" insufficiently describes the structure of the claim such that Section 112(f) should apply. In support of its argument Western Digital points to the description of the invention and the abstract, which lack the term "positioner" but use "positioning means" to describe how the carriage and the head are moved across the magnetic disk and "positioning system" to describe the nature of the invention. Western Digital also relies on its expert William Messner ("Messner") who submitted a declaration stating that "[w]ithout referring to the structures appearing in the specification, it is unclear how to combine the signals from the first feedback means and the second feedback to achieve the stated goal of keeping head substantially at a desired offset form the data track center line under varying temperature conditions."[66] He further concludes that the determination by GTE's expert Stanley Hendryx ("Hendryx") that "the plain meaning of a 'positioner' is a device that 'positions' an object . . . only

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[62] *See id.* at 1359.

[63] *Id.* at 1359-60.

[64] *See id.* at 1360; *Personalized Media Comm., LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 704 (Fed. Cir. 1998).

[65] *Personalized Media*, 161 F.3d at 704.

[66] Docket No. 98 Ex. 2 at ¶ 52.

describes the function of many potential such devices and does not connote any specific structure to one of ordinary skill in the art."[67]

GTE responds with its expert Hendryx, who states that a person of ordinary skill in the art would understand a "positioner" to be a "device for moving an object into position and automatically keeping it there."[68] GTE also asserts that Western Digital ignores the actual term, which is "closed-loop positioner," not just "positioner." According to GTE, the combination of the two terms provides sufficient information to a person of ordinary skill to determine what class of structures satisfies the claim.

The court finds "closed-loop positioner" discloses sufficient structure to avoid Section 112(f) treatment. As Hendryx notes and as defined by the Oxford English Dictionary,[69] the term "positioner" describes a "device or machine for mechanically moving an object into position and keeping it there."[70] The addition of "closed-loop" to describe the positioner further refines the class of structures necessary to meet the claim. As Hendryx describes, a "closed-loop system is so called because the controlled parameter is sensed and fed back to the controller to be compared with the desired value, [thereby] forming [a] loop."[71] The combination of the two terms reveals that a "closed-loop positioner" discloses a class of structures that position an object and that the positioning is subject to the feedback of the closed loop. "Closed-loop positioner" therefore is

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[67] *Id.*

[68] Docket No. 94 Ex. 8.

[69] The Federal Circuit has endorsed looking to dictionaries to determine whether the term "has achieved recognition as a noun denoting structure, even if the noun is derived from the function performed." *Lighting World*, 382 F.3d at 1360.

[70] Oxford English Dictionary, *available at* http://www.oed.com/view/Entry/148317?redirectedFrom=positioner#eid (last visited July 19, 2013).

[71] *See id.* at ¶ 36.

more akin to "connector assembly,"[72] "digital detector,"[73] and "reciprocating member,"[74] all of which the Federal Circuit has held were sufficiently structural to avoid Section 112(f).

Messner's opinion that "closed-loop positioner" does not denote a "specific structure" to a person of ordinary skill does not require a different result. "The fact that more than one structure may be described by" the term closed-loop positioner or that it "may encompass a multitude of structures, does not make the term . . . any less a name for structure."[75] Western Digital has not overcome the presumption against applying Section 112(f) to this term.

The court further finds that the term does not require construction. Because the structure is defined at least in part by its function, "positioner" does not require further explanation. As for the "closed-loop" modifier, the court finds that no construction is necessary because the parties do not appear to dispute its meaning and because the court finds its meaning is readily available from the term itself.

4. "means for pre-writing said servo burst signal at a plurality of positions along a track of said magnetic disk, and for detecting the amplitudes of said prewritten burst signals" (claims 6 and 7)

Western Digital's Construction	GTE's Construction
Claim 6 Governed by 35 U.S.C. §112(6). **Function:** Prewriting said servo burst signals at a plurality of positions along a track of said magnetic disk, and detecting the amplitudes of said prewritten burst signals **Structure(s):** Indefinite	**Claim 6** Governed by 35 U.S.C. §112(6). **Function:** Prewriting said servo burst signals at a plurality of positions along a track of said magnetic disk and detecting the amplitudes of said prewritten burst signals **Structure(s):** Gate sequencer **65**, write amplifier **66**, detector

[72] *See Lighting World, Inc.*, 382 F.3d at 1360.

[73] *See Personalized Media Comm. v. Int'l Trade Comm'n*, 161 F.3d 696, 704 (Fed. Cir. 1998).

[74] *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002).

[75] *Lighting World, Inc.*, 382 F.3d at 1361.

	62 and ADC **63** in FIG. **4**, write element of the head 34, read element of the head 34, and encoder of spindle **44** in FIG. **2**.
Claim 7 Governed by 35 U.S.C. §112(6). **Function:** prewriting said servo burst signals at a plurality of offsets from the center of a track of said magnetic disk, and detecting the amplitudes of said prewritten burst signals **Structure(s):** Indefinite	**Claim 7** Governed by 35 U.S.C. §112(6). **Function:** pre-writing said servo burst signals at a plurality of offsets from the center of a track of said magnetic disk and detecting the amplitudes of said prewritten burst signals **Structure(s):** Gate sequencer **65**, write amplifier **66**, detector **62** and ADC **63** in FIG. **4**, write element of the head 34, read element of the head 34, and encoder of spindle **44** in FIG. **2**.

The parties do not dispute that the term "means for pre-writing" is a means-plus-function limitation governed by Section 112(f), nor do they dispute the function of the term. Western Digital asserts that the specification fails to provide a structure for the function because the description of the invention disclaims that the disclosed structure for "writing" the servo bursts also "pre-writes" them. GTE responds that Western Digital's interpretation of the '145 Patent is erroneous, and that because "writing" and "pre-writing" the servo bursts are essentially the same, the same structure applies for both functions.

"[A] means-plus-function clause is indefinite if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim."[76] "Whether the written description adequately sets forth the structure corresponding to the claimed function must be considered from the perspective of a person skilled in the art."[77] "The question is not whether one of skill in the art would be capable of implementing

[76] *AllVoice Computing PLC v. Nuance Comms., Inc.*, 504 F.3d 1236, 1241 (Fed. Cir. 2007).

[77] *Telcordia Tech., Inc. v. Cisco Systems, Inc.*, 612 F.3d 1365, 1376 (Fed. Cir. 2010).

a structure to perform the function, but whether that person would understand the written description itself to disclose such a structure."[78]

The parties' dispute centers on the difference, if any, between "writing" the servo bursts and "pre-writing" the servo bursts. GTE argues that the only difference between the two functions is temporal – "writing" occurs during the test whereas "pre-writing" occurs before the test. Because the '145 Patent describes that "[b]efore testing starts, those servo bursts are written in the beginning of each sector," the patent sufficiently links the "pre-writing" function to the structure provided in Figure 4 for "writing" servo bursts.

Western Digital points to the '145 Patent's statement that "the system may be adapted for disks with servo bursts pre-written thereon; in such forms of the invention, the servo burst write operation is not needed." According to Western Digital, this statement reflects a disclaimer that the write operation disclosed in the patent does not perform pre-writing of servo bursts. Because that structure is the only one disclosed in the patent that could possibly perform the function, Western Digital concludes, the means-plus-function term is indefinite.

The statement on which it relies does not serve as the disclaimer Western Digital suggests. The '145 Patent describes two operations of the invention: (1) the head writes the servo bursts immediately before conducting the test during which it reads those bursts; and (2) the head reads servo bursts "pre-written" on the disk. In this second mode, where the servo bursts have been pre-written, the write operation is disabled during the test. But nothing in that statement or in the patent suggests that write operation of the head cannot serve to pre-write the servo bursts when the invention operates in the second mode.

As described in the patent, the functions "pre-writing" and "writing" are identical other than their timing. The patent does not distinguish between the terms in any meaningful way other than

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[78] *Id.* (quoting *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008)).

to distinguish whether the servo bursts are written immediately before the test or at some other earlier time. Because the only difference between the functions is their temporal separation, the court finds that a person of ordinary skill in the art would understand that the write operation structure disclosed in Figure 4 and including the components GTE identified is the structure performing the "means for pre-writing" function. The court thus construes the structure for the "means for pre-writing" function to be "gate sequencer, write amplifier, detector and ADC, write element of the head, read element of the head, and encoder of the spindle."

5. "means for writing in a time succession as said disk rotates two or more servo bursts over a relatively short time, wherein each of said bursts is laterally offset from said track center line by a determined distance" (claim 17) and "writing in a time succession as said disk rotates two or more servo bursts over a relatively short period of time, wherein each of said bursts is written at locations laterally offset from said track center line by a predetermined distance" (claim 19)

Western Digital's Construction	GTE's Construction
Indefinite as to "relatively short time" OR Governed by 35 U.S.C. §112(6). **Function:** writing servo bursts one immediately after another at locations laterally offset from the centerline where the beginning of the servo burst is offset from the track centerline at a predetermined distance **Structures:** Structure: servo analyzer including: sequencer 65, write amplifier 66, write element 34, position controller 49 and spindle encoder 44.	**Function:** writing in a time succession as said disk rotates two or more servo bursts over a relatively short time **Structures:** Gate sequencer 65 and write amplifier 66, in Figure 4, and the write element of magnetic head 34 and encoder of spindle 44 in Fig. 2

Western Digital asserts that the phrase "relatively short time" and "relatively short period of time" renders the term "writing servo bursts" in claims 17 and 19 indefinite. GTE responds that a

person of ordinary skill in the art would understand that "relatively short time" refers to "the reference period of a rotation of the disk."[79]

The court agrees with Western Digital that the term raises indefiniteness issues, and at the hearing it declined to construe the term and invited Western Digital to move for summary judgment on the issue. Because the court addresses that issue in detail below, it provides here only the outcome of that particular construction dispute.

C. '116 Patent

1. "coarse position of the actuator arm"

Western Digital's Construction	GTE's Construction
Plain and ordinary meaning Alternatively, the position of the actuator arm effected by a coarse positioner	Address information identifying a servo track band

The disputed term appears in claims 1 and 3 of the '116 Patent. Claim 1 states:

1. A disk drive comprising:

(a) a disk comprising a plurality of servo sectors having servo bursts for defining a plurality of servo tracks, wherein:

the servo tracks are banded together to form a plurality of servo track bands; and

each servo sector comprises a fine track address that identifies one of the servo tracks;

(b) an actuator arm;

(c) a head attached to a distal end of the actuator arm operable to generate a read signal by reading the disk;

(d) a mechanical position sensor operable to detect a coarse position of the actuator arm; and

(e) control circuitry operable to:

[79] Docket No. 94.

process the coarse position to identify one of the servo track bands;

process the read signal to detect one of the fine track addresses, wherein the detected fine track address identifies a servo track within the identified servo track band; and

combine the identified servo track band with the detected fine track address to generate a servo track address.[80]

GTE argues that the "coarse position of the actuator arm" should be construed to mean "address information identifying a servo track band" because the coarse position of the arm must be processed to identify the servo track band. GTE asserts that this construction will aid the jury in understanding the term "coarse position" in light of the '116 Patent.

Western Digital responds that no construction is necessary because the meaning of the term "coarse position of the actuator arm" is apparent, namely that the term indicates an imprecise measurement of the position of the arm. Western Digital further argues that GTE's proposed construction conflates two separate steps of the claims, "detect[ing]" the coarse position and "process[ing]" the coarse position with the goal of identifying the servo track bands.

The court agrees that GTE's proposed construction conflates two steps of the claim. The claim language reflects that in step (d) the mechanical position sensor "detect[s] a coarse position of the actuator arm"[81] and then in step (e) the control circuitry "process[es] the coarse position to identify one of the servo track bands."[82] From this language, it is clear that the coarse position is the information inputted to the control circuitry to generate the servo track band. Nothing in that language, or in the specification, suggests that the coarse position must be itself "address information" as GTE suggests. Within the descriptions of the various embodiments, the patent describes how the coarse position, as detected by the mechanical position sensor, provides the feedback to the control circuitry, which then generates the address servo track address.[83] That the

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[80] Docket No. 79 Ex. D at 9:39 – 10:17.

[81] *Id.* at 10:6-7.

[82] *Id.* at 10:9-10.

[83] *See, e.g., id.* at 2:25-31, 2:64-66, 4:29-34.

coarse position is used to aid in generating the address does not suffice to convert it into "address information."

The court further finds that the term does not need further construction. The claim language differentiates between the "coarse position" of the actuator arm and the "fine track address" as detected by the "read signal" generated by the head.[84] The two terms – "coarse position" and "fine track address" – are paired throughout the patent to describe how the two data sources are processed by the control circuitry to generate the servo track address.[85] The specification also describes how the mechanical position sensor "may be more or less accurate."[86] Given this pairing, the court finds that a jury would understand from the term itself its meaning and so no construction is necessary.

D. '089 Patent

1. "surface roughness"

Western Digital's Construction	GTE's Construction
One or more protrusions or irregularities on the surface of the object	Protrusions or irregularities extending a sufficient distance from the surface of the object such that physical contact between the magnetoresistive element and the protrusions or irregularities is made during movement of the motion unit along the object

The '089 Patent describes a method and an apparatus for detecting surface roughness through the use of magnetoresistive element. Claim 1, the method claim, states:

> A method of detecting a surface roughness on an object which is a selected one of a nonmagnetic medium and a magnetic recording medium, the method comprising the steps of:
>
> > placing a motion unit which has a magnetoresistive element with said element adjacent said object;

[84] *See id.* at 2:6-10.

[85] *See, e.g., id.* at 2:6-10, 2:25-31, 2:64 – 3:1, 10:9-15, 10:33-38.

[86] *Id.* at 5:18-19.

> moving said motion unit along said object to derive an electric signal which is varied due to a mechanical deformation of the magnetoresistive element caused during moving the motion unit along the object; and
>
> detecting said surface roughness from said electric signal.[87]

Claim 7, the apparatus claim, states:

> A surface roughness detecting device for use in detecting a surface roughness on an object which is a selected one of a nonmagnetic medium and a magnetic recording medium, said detecting device comprising:
>
> > a motion unit which is movable along said object and which includes a magnetoresistive element which varies an electric signal due to a mechanical deformation caused during moving the motion unit over the object, to produce said electric signal; and
> >
> > an electric circuit electrically coupled to said magnetoresistive element for detecting the surface roughness from said electric signal.[88]

GTE asserts that because of Western Digital's disclaimers during examination of the '089 Patent, the term "surface roughness" must be construed as including only protrusions or irregularities "extending a sufficient distance from the surface of the object" that the magnetoresistive element of the invention makes physical contact with the protrusion. To support its position, GTE points to the prosecution history of the '089 Patent. In response to the examiner's concerns, Western Digital indicated that unlike prior art, the '089 Patent teaches that the magnetoresistive element of the head can detect surface roughness through the "collision between the magnetoresistive element and protrusions" that thereby vary the magnetic current.[89] According to GTE, because Western Digital indicated to the examiner that the invention depended on "collisions," the "surface roughness" identified in the claims must include only protrusions that actually collide with the magnetoresistive element.

GTE's proposed construction, however, imports the detection feature of the invention into the definition of the object to be detected. As claim 1 describes, for example, the method of

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[87] Docket No. 79 Ex. B at 9:33-44.

[88] *Id.* at 10:3-15.

[89] Docket No. 93 Ex. 1 at 81-82.

"detecting a surface roughness" requires in part "moving said motion unit along said object to derive an electric signal which is varied due to a mechanical deformation of the magnetoresistive element caused during moving the motion unit along the object."[90] The invention thus requires that for the magnetoresistive element to detect surface roughness, the protrusion it encounters must create a "mechanical deformation." Surface roughness, however, is the object to be detected, and it can exist whether the magnetoresistive element is sensitive enough to detect it. GTE's additional limitation is redundant of the inventive element of the patent.

The specification further supports that "surface roughness" should not be limited. The background of the invention describes that "protrusions, recessions, and/or damages . . . determine a surface roughness on a surface."[91] Western Digital's proposed construction aligns more closely with the patent's specification. The court therefore construes "surface roughness" as "one or more protrusions or irregularities on the surface of the object."

2. "preparing a magnetic recording medium as said object"

Western Digital's Construction	GTE's Construction
Plain and ordinary meaning. Alternatively, if a specific construction is necessary: "readying a magnetic recording medium for use as said object."	Indefinite under 35 U.S.C. § 112(b). Manufacturing an object having surface properties suitable for recording, such as a magnetic tape or a magnetic disk

The disputed term appears in dependent claim 6, which states:

> A surface roughness detecting method as claimed in claim 1, further comprising the steps of:
>
> > preparing a magnetic recording medium as said object;
> >
> > providing said motion unit which comprises a head unit operable as both a recording head and a reproducing head including said magnetoresistive element;
> >
> > putting said recording head into an active state to record a predetermined reference signal on said magnetic recording medium; and

[90] Docket No. 79 Ex. B at 9:39-42.

[91] *Id.* 1:19-21.

> reproducing said predetermined reference signal as a reproduced signal from said magnetic recording medium by driving said reproducing head included in the motion unit to produce said electric signal and to detect the surface roughness from said electric signal.[92]

GTE argues that the term "preparing a magnetic recording medium as said object" is indefinite and should not be construed, and alternatively if it is not indefinite, it should be construed as "manufacturing an object having surface properties suitable for recording, such as magnetic tape or a magnetic disk." For its indefiniteness argument, GTE points out that during the prosecution of the patent, the term "preparing" was used in independent claim 1 in the same manner as in dependent claim 6.[93] The examiner rejected claim 1 in part because "it is not clear in what way the motion unit and object are prepared."[94] Western Digital amended claim 1 to say "placing a motion unit" but did not change claim 6.[95] GTE asserts that, as with the original version of claim 1, claim 6 is not sufficiently specific.

To support its alternative construction, GTE highlights a statement in the background of the invention, which states that to ensure that the head slider and the magnetic recording medium are not destroyed by protrusions on the surface, "the surface roughness of the magnetic recording medium should be precisely tested or monitored after the magnetic recording is manufactured."[96] This statement, GTE asserts, reveals that the '089 Patent in fact teaches a method that begins with the manufacture of a magnetic recording medium.

Western Digital responds that "preparing a magnetic recording medium" does not require construction because its meaning is obvious from the term itself. Western Digital also relies on the prosecution history to argue that "preparing" in claim 6 means essentially the same thing as "placing" in claim 1, given that the two claims used the same term before examination. It further asserts that GTE's alternative construction improperly adds a limitation into the claim.

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[92] Docket No. 79 Ex. B at 9:54-66.

[93] Docket No. 93 Ex. 1 at 78.

[94] *Id.* at 72.

[95] *See id.* at 78.

[96] Docket No. 79 Ex. B at 1:39-42.

The term is not so "insolubly ambiguous" or "not amenable to construction" as to be indefinite.[97] The term "preparing" as used in claim 6 sufficiently notifies a person of ordinary skill that the magnetic recording medium should be readied as the first step in the dependent claim. Claim 6 describes a detection method on a magnetic recording medium using a "reference signal" recorded on the magnetic recording medium.[98] Read in the context of independent claim 1, which provides that "an object which is a selected one of a nonmagnetic medium and a magnetic recording medium,"[99] the term "preparing a magnetic recording medium as said object" in claim 6 sufficiently discloses that the "object" to be used is a "magnetic recording medium" rather than a "nonmagnetic medium" and is not so ambiguous as to be indefinite.

The court rejects GTE's alternative invitation to read into the term a limitation that the magnetic recording medium is "manufactured" as the first step of the method, GTE's site to the background of the invention notwithstanding. In its proper context, that statement merely explains that to prevent destruction of the head slider or the medium, the medium should be tested after it is manufactured. Nothing in that statement suggests that only in the method in dependent claim 6 should a magnetic recording medium be manufactured first and then subjected to the detection method described in the claim.

The court further finds that no construction in fact is needed for this term. As just explained, claim 6 depends on claim 1 and read in that context, the term "preparing a magnetic recording medium as said object" requires no further explanation. It discloses the first step in the method: preparing the magnetic recording medium. Construction would serve only to muddy a term that already makes the inventor's intentions known.

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[97] *Halliburton Energy Serv., Inc. v. M-I LLC*, 514 F.3d 1244, 1249-59 (Fed. Cir. 2008).

[98] *See* Docket No. 79 Ex. B at 9:54-66.

[99] *Id.* at 9:33-35.

E. '696 Patent

1. "enclosure"

Western Digital's Construction	GTE's Construction
Housing that fully or partially encases	A completely surrounding structure

The term "enclosure" appears in claim 1 of the '696 Patent. The relevant part of claim 1 states "a disk drive comprising: an enclosure having a cover and a base."[100] GTE argues that "enclosure" should be construed as a "completely surrounding structure" and points to Figure 1, which shows "a perspective view of a disk drive . . . the cover partially broken away to illustrate internal components."[101] GTE also asserts that for the '696 Patent to successfully perform the invention it describes, the disk drive would necessarily need to be entirely enclosed to ensure the disk drive's proper operation. GTE further argues that because none of the embodiments in the '696 Patent shows a partially enclosed structure, Western Digital's proposed construction is inconsistent with the patent's teaching.

Western Digital contends that the common meaning of the term "enclosure" does not support GTE's argument. Using an analogy to a fence, Western Digital asserts that an enclosure can encase an object with fully and completely surrounding it. Western Digital points to a statement in the background of the invention that provides that "[e]ach of the foregoing disk drive components at least partially is housed within an enclosure that usually includes a base and a cover."[102] Western Digital further argues that GTE seeks to import limitations from the embodiments in contradiction of claim construction principles.

Western Digital's exclusive reliance on the statement in the background section of the patent is misplaced. That statement describes related art, not necessarily the invention itself. Having said that, GTE's argument likewise is an improper interpretation of the patent. GTE relies

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[100] *See* Docket No. 79 Ex. C at 7:7-8.

[101] *Id.* at 2:64-67.

[102] *Id.* at 1:29-31.

on Figure 1, the only figure to display the cover at all, to suggest that the "enclosure" in claim 1 requires a "completely surrounding structure." GTE notably points to no language in the claims or in the rest of the patent that describes "enclosure" as "completely surrounding."

The resolution of this issue depends then on the meaning of the term "enclosure." The court finds Western Digital's proffer – that like a fence an enclosure can encase without entirely sealing its contents – to be more persuasive and to avoid importing any limitations from the embodiments.[103] The court therefore construes "enclosure" as "housing that fully or partially encases."

2. "arcuate raised portion on the base"

Western Digital's Construction	GTE's Construction
A curved elevated structure that is part of or connected to the base	A curved elevated section that is part of the base

The term "arcuate raised portion on the base" also appears in claim 1 of the '696 Patent. The relevant section states:

> an arcuate raised portion on the base substantially parallel to the disk and spaced apart from the disk by a second clearance distance that is less than the first clearance distance, at least a portion of the disk superposed over at least a portion of the arcuate raised portion, wherein the arcuate raised portion subtends a central angle of at least about 180 degrees.[104]

The parties dispute whether the "arcuate raised portion" must be a part of the base or whether it can be merely connected to the base. Western Digital, who proposes that connection to the base is sufficient, argues that the embodiments and the specification make clear that the inventive feature of the '696 Patent is the difference in the distances from the raised portion to the disk and from the base to the disk. That difference aids in stabilizing the disk, thereby avoiding disk flutter and track misregistration ("TMR").[105] Because that is the inventive feature, Western

[103] *See* Oxford English Dictionary, *available at* http://www.oed.com/view/Entry/61738?redirectedFrom=enclosure#eid (last visited July 19, 2013) (defining "enclosure" as "[t]he action of surrounding or marking off (land) with a fence or boundary," "[a]n encompassing fence or barrier," "[a]n outer covering or case," and "[a] space included within or marked off by boundaries.")

[104] *Id.* at 7:20-26.

Digital asserts, the patent requires the raised portion only to be "on the base," and an arcuate portion "connected to" would also be "on the base." GTE responds that Western Digital's construction ignores the embodiments, language in the description of the invention that indicate the "arcuate portion" is part of the base, and the use of similar language in subsequent claims.

The claim language "arcuate portion on the base" does not offer a solid answer to this dispute, because as the parties point out "portion" suggests "part of" but "on" suggests that separation between the "arcuate portion" and the base may be permissible. The intrinsic evidence, however, better supports GTE's proposed construction. Figure 3 reflects that the arcuate portion 136 is part of the base 30 – the slanted lines continue through both parts of the structure.

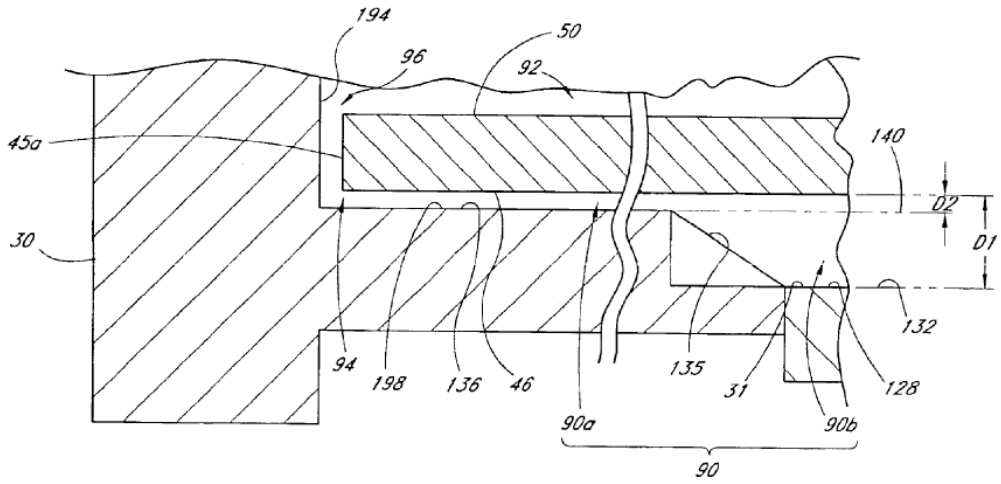

FIG. 3

The description of the invention also supports that the arcuate portion 136 in fact is part of the base, noting that "[i]n general, where the base 30 includes an arcuate raised portion 136, at least a portion of the disk 45 is superposed over at least a portion of the arcuate raised portion."[106] This statement not only reveals that the inventor contemplated that the arcuate portion was part of the base but also that the inventor used the term "portion" when referencing parts of a whole.

[105] *See id.* at 1:38-49.

[106] *Id.* at 5:66 – 6:1.

Considering that Western Digital has pointed to nothing in the specification, the embodiments, or the claim language other than the preposition "on" in claim 1 suggesting that the arcuate portion can be separate from the base, and that several statements within the patent support that the arcuate portion in fact is part of the base, the court construes "arcuate raised portion on the base" as "a curved elevated section that is part of the base."

III. SUMMARY JUDGMENT

Western Digital brings two motions for summary judgment: (1) for noninfringement of several claims of the '085 Patent and the '145 Patent; and (2) for invalidity for indefiniteness of claims 17 and 19 of the '145 Patent. GTE in turn moves under Fed. R. Civ. P. 56(d). The court considers the indefiniteness argument first and then addresses the noninfringement and Rule 56(d) motions.

A. Legal Standard

Summary judgment is appropriate only if there is "no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law."[107] The moving party bears the initial burden of production by identifying those portions of the pleadings, discovery and affidavits which demonstrate the absence of a triable issue of material fact.[108] If, as here, the moving party is the defendant, he may do so in two ways: by proffering "affirmative evidence negating an element of the non-moving party's claim," or by showing the non-moving party has insufficient evidence to establish an "essential element of the non-moving party's claim."[109] If met by the moving party, the burden of production then shifts to the non-moving party, who must then provide specific facts showing a genuine issue of material fact for trial.[110] The ultimate burden of persuasion, however,

[107] *See* Fed. R. Civ. P. 56(a).

[108] *See* Fed. R. Civ. P. 56(c)(1); *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986).

[109] *Celotex Corp.*, 477 U.S. at 331.

[110] *See id.* at 330; *T.W. Elec. Service, Inc. v. Pac. Elec. Contractors Ass'n*, 809 F.2d 630, 630 (9th Cir. 1987).

remains on the moving party.[111] In reviewing the record, the court must construe the evidence and the inferences to be drawn from the underlying evidence in the light most favorable to the non-moving party.[112]

Patent infringement is a two-step process: first, the court must construe the asserted claims; then, the court must compare the accused products with the construed claims and determine whether the products contain each limitation of the claims, either literally or equivalently.[113] A product literally infringes if it contains each element and limitation of the patent claim as construed.[114] A product may also infringe under the doctrine of equivalents, which applies if the element in the accused device performs substantially the same function, in substantially the same way, to obtain substantially the same result as the element claimed in the patent.[115]

Under Fed. R. Civ. P. 56(d), if the party opposing summary judgment cannot, for specified reasons, present facts essential to justify its opposition to the motion, "the court may (1) defer considering the motion or deny it; (2) allow time to obtain affidavits or declarations or to take discovery; or (3) issue any other appropriate order."[116] This requires the nonmoving party to show "(1) the specific facts that they hope to elicit from further discovery, (2) that the facts sought exist, and (3) that these sought-after facts are 'essential' to resist the summary judgment motion."[117] A district court should continue the motion if there is "a good faith showing by affidavit that the

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[111] *Id.*

[112] *See Anderson*, 477 U.S. at 248; *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986).

[113] *See Freedman Seating Co. v. American Seating Co.*, 420 F.3d 1350, 1356-57 (Fed. Cir. 2005).

[114] *See id.* at 1357.

[115] *See Abbott Laboratories v. Sandoz, Inc.*, 566 F.3d 1282, 1296-97 (Fed. Cir. 2009).

[116] *See* Fed. R. Civ. P. 56(d).

[117] *See McCormick v. Fund American Cos.*, 26 F.3d 869, 885 (9th Cir.1994).

continuance is needed to obtain facts essential to preclude summary judgment,"[118] and where there has been no meaningful opportunity for discovery before a move for summary judgment. [119]

B. Indefiniteness of Claims 17 and 19 of the '145 Patent

As it noted earlier, the court declined to construe terms from claims 17 and 19 because of its concern that the phrase "relatively short (period of) time" was indefinite and invited Western Digital to move for summary judgment. Claim 17 provides, in part:

> D. a controller for successively positioning said read/write head to one or more positions characterized by an associated desired offset with respect to said track center line, including:
>
> i. means for writing in a time succession as said disk rotates two or more servo bursts over a relatively short time, wherein each of said bursts is laterally offset from said track center line by a predetermined distance, and
>
> ii. means for reading said servo bursts at each of said offsets, and generating and storing signals representative of each read burst associated with each of said offsets.

Claim 19, in turn, states:

> Method for positioning a magnetic read/write head with respect to a data track on a magnetic disk, said read/write head having a write width T, and said data track having width T and extending along a circular track center line disposed about a disk axis, comprising the steps of:
>
> A. writing in a time succession as said disk rotates, two or more servo bursts on said disk over a relatively short period of time, wherein each of said bursts is written at locations laterally offset from said track center line by a predetermined distance,
>
> B. positioning said read/write head to a plurality of desired offsets with respect to said track center line, and at each of said offsets, reading said servo bursts in succession and determining an amplitude value representative of said bursts at each of said desired offsets,
>
> C. storing said amplitude values in connection with said respective ones of desired offsets, and

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[118] *See State of Cal. ex rel. Cal. Dep't of Toxic Substances Control v. Campbell*, 138 F.3d 772, 779 (9th Cir.1998) (citing *McCormick v. Fund American Cos.*, 26 F.3d 869, 885 (9th Cir.1994)).

[119] *See Kremen v. Cohen*, Case No. 5:11-05411-LHK, 2012 WL2919332 at *5 (citing *Burlington N. Santa Fe R. Co. v. Assiniboine & Sioux Tribes of Fort Peck Reservation*, 323 F.3d 767, 773 (9th Cir.2003)).

D. in a closed loop manner, using the respective ones of said stored values to reposition said magnetic read/write head to selected ones at said desired offsets.

The court now affirms its earlier suspicion that claims 17 and 19 are invalid on indefiniteness grounds.

"A claim is indefinite if its legal scope is not clear enough that a person of ordinary skill in the art could determine whether a particular composition infringes or not."[120] "[W]here an accused infringer shows by clear and convincing evidence that a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification, and the prosecution history, as well as her knowledge of the relevant art area," the accused infringer satisfies the "exacting standard" of showing indefiniteness.[121] "Only claims not amenable to construction or insolubly ambiguous are indefinite."[122] As relevant to these claim terms, "[w]hen a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree."[123]

At both claim construction and in its motion for summary judgment, Western Digital has argued that the phrase "relatively short" has a multiplicity of meanings, that it is unconnected to any reference point in the '145 Patent, and that as a result a person of ordinary skill in the art would be unable to determine the requirements for the invention. GTE responds that the term is not indefinite because the patent teaches a person of ordinary skill in the art to understand that "relatively short time" refers to "the reference period of a rotation of the disk."[124]

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[120] *Geneva Pharm., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003).

[121] *Halliburton Energy Serv., Inc. v. M-I LLC*, 514 F.3d 1244, 1249-59 (Fed. Cir. 2008).

[122] *Id.* (internal quotations omitted).

[123] *Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984).

[124] Docket No. 94. Because the parties' respective summary judgment positions overlap with their claim construction positions, and because they reference the claim construction positions in their summary judgment motions, the court draws from papers and evidence submitted in both disputes.

The language in the '145 Patent on which GTE relies does not provide a sufficient definition of "relatively short time." GTE points, for example, to the text of claim 19 itself to argue that "relatively short time" refers to one rotation of the disk. The relevant language provides "writing in a time succession as said disk rotates, two or more servo bursts on said disk over a relatively short period of time." GTE argues that the phrase "writing in a time succession as said disk rotates" "directly links" the disk's rotation to the writing of the servo bursts. GTE misreads the claim language. The first "time" reference – "time succession" – reveals that the servo bursts must be written sequentially in time and that the sequence occurs simultaneously with the disk's rotation. The second "time" reference – "relatively short period of time" – provides the duration of the operation. Claim 19 thus instructs only that while the disk rotates, the servo bursts must be written sequentially in time, and that the process must happen within a "relatively short period of time." The language does not supply a relationship between the duration of the process and the number of rotations of the disk.

GTE next points to the detailed description of the invention, particularly the statement that "as a disk rotates past a radially extending reference axis, the spatial position of servo bursts and a data track can be expressed as a function of time (which corresponds to the rotation of the disk)."[125] According to GTE, this sentence reveals that "relatively short period of time" also refers to the rotation of the disk. GTE again conflates two different uses of the term "time." The statement GTE points to describes only how the size and dimension of a servo burst (i.e., the burst's length along the track center line) can be a function of time. In other words, the rate of rotation of the disk and a defined period of time combine to provide the size of each servo burst signal. But as explained already, "relatively short period of time" describes the total duration of

[125] Docket No. 1 Ex. A at 4:28-31.

the write operation for the servo bursts, not the size of each individual servo burst, as the "function of time" phrase describes.

GTE maintains that, because the size of servo bursts can be expressed as functions of time, the patent nevertheless adequately discloses that "relatively short period of time" means something shorter than a single rotation of a disk. This argument fails for several reasons. It relies on the "two or more servo bursts" in claims 17 and 19 referring in fact to two or more servo bursts set at the same lateral offset, rather than referring to two or more servo bursts set at two or more different lateral offsets. In the first scenario, the write operation might be able to be completed within one rotation. But in the second scenario, the parties agree that the write operation would take at least three rotations.[126] The inventiveness of claims 17 and 19 lies in this second scenario, with the servo bursts written at different lateral offsets, and given that at least claim 19, a method claim, describes only one write operation, at least claim 19 would appear to require an interpretation that the "two or more servo bursts" refers to servo bursts set at different lateral offsets. Figure 3 further underscores that the two bursts involved sit at different lateral offsets.

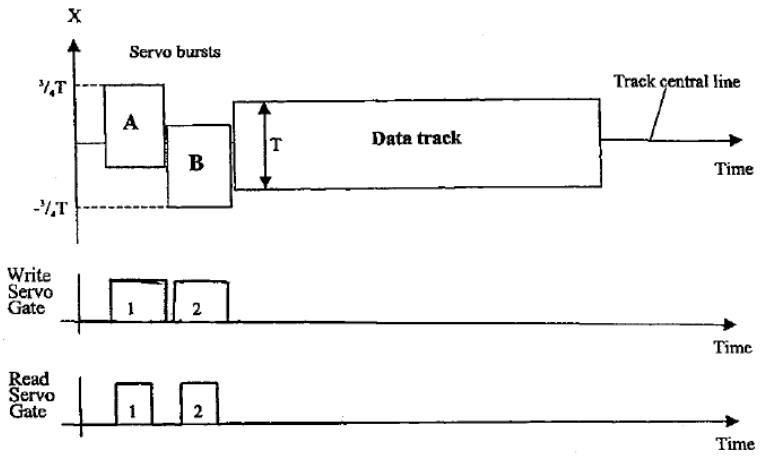

Fig. 3

[126] One rotation to write servo burst A, a second rotation to reset the head, and a third rotation to write servo burst B. *See* Docket Nos. 132, 134.

Even if "relatively short period of time" refers to something shorter than a rotation of the disk, the patent fails to disclose how much shorter falls within "relatively short." It provides no reference for the necessary rate of rotation or the time to write the servo bursts. Tying the duration of the write operation to the disk rotation still fails to provide a person of ordinary skill in the art any admonition about what ratio within the disk rotation is infringing and what ratio is not.[127]

To the extent that GTE argues that one rotation equals a "relatively short period of time," rather than some period of time less than one rotation, the court is not persuaded. If the two metrics were equal, the inventor could just as easily have used "one disk rotation" or "three disk rotations." The inventor instead used "relatively short period of time" without providing sufficient information within the patent to disclose the meaning of that phrase.

GTE expert Hendryx also fails to support that the phrase in fact refers to one rotation of the disk. Hendryx states that the term "in the context of these claims is well understood by a person of ordinary skill in the art . . . [to] refer[] to the duration of a time interval and that duration is less than some reference duration."[128] The reference duration, in turn, "is the period of rotation of the disk."[129] To support his opinion, Hendryx looks to the function itself and argues that the claim describes that "the head is positioned to a desired offset of a track for a desired servo burst pattern and then a servo burst is written in each sector as the disk rotates, writing in all sectors in one rotation."[130] Because "[t]here are typically 200 sectors in a track in such testers," Hendryx asserts, a person of ordinary skill would understand that a servo burst "would be written every 1/200 of the

[127] *See Halliburton*, 514 F.3d at 1251.

[128] Docket No. 94 Ex. 8 ¶ 68.

[129] *Id.*

[130] *Id.* ¶ 69.

period of rotation of the disk, which is well understood to be a relatively short time compared to the period of rotation of the disk."[131]

Hendryx may be right that a person of ordinary skill in the art would think that 1/200 of a period of rotation of the disk is a "relatively short period of time," but his opinion fails to connect the reference time duration to the rotation of the disk. Given that the inventiveness of the patent relies on servo bursts set at different offsets, Hendryx's opinion that the reference is one rotation, rather than three further undermines his explanation. And again, if the reference duration was the rotation of the disk, the inventor could have said so.

As Western Digital expert Messner observes, the term "could mean many things such as the time of one servo sector passage; the rise time or time constant of the read/write circuit or the 'seek time' or 'access time' necessary to move the read/write head to a new location or track; one immediately after another as proposed by Western Digital or even a time interval whose duration is less than the period of rotation of the disk as proposed by GTE."[132] Messner further explains that "one skilled in the art would not be able to understand which of these potential meanings . . . is envisioned by the '145 Patent."[133]

Given the tenuous link between the phrase "relatively short period of time" and the rotation of the disk, and given that even if that connection were stronger nothing in the patent elucidates how much shorter than one rotation the period of time must be, the court finds that "relatively short period of time" is indefinite and renders claims 17 and 19 invalid.[134]

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[131] *Id.*

[132] Docket No. 98 Ex. 2 ¶ 77.

[133] *Id.* ¶ 78.

[134] *Cf. Storm Prods., Inc. v. Ebonite Int'l, Inc.*, 638 F. Supp. 2d 1307, 1312 (D. Utah 2009), *aff'd* 374 Fed. Appx. 983 (Fed. Cir. 2010) (concluding that "relatively small number of bowling balls" was indefinite).

C. Noninfringement of the '085 Patent and the '145 Patent

Western Digital next moves for summary judgment on the grounds of noninfringement for claims 20 and 29 of the '085 Patent and claims 1-9 and 11-18 of the '145 Patent. GTE opposes the motion and responds with a request under Rule 56(d) to deny summary judgment until GTE can perform further discovery. Most of the underlying arguments in Western Digital's motion overlap with those raised by GTE's Rule 56(d) request, save for one issue regarding claims 20 and 29 of the '085 Patent. The court begins with its resolution of that issue before turning to whether more discovery is warranted before determining Western Digital's motion.

1. Claims 20 and 29 of the '085 Patent

Western Digital asserts that its testers do not infringe claims 20 and 29, which depend on claims 19 and 28 respectively, because they do not include a "magnetic disc medium" with the components required by claims 19 and 28. Claim 19 provides:

> A system for positioning a read/write head with respect to a track on a magnetic disc medium, wherein the disc medium includes a servo burst pattern having (i) a first servo burst disposed on the track, characterized by a first frequency, and (ii) a second servo burst disposed on the track, characterized by a second frequency, said magnetic disc medium comprising:
>
> > a multi-frequency filter for receiving a composite readback signal from the read/write head and for separating the composite readback signal into a first readback signal corresponding to the first servo burst and a second readback signal corresponding to the second servo burst;
> >
> > an envelope detector for providing a first amplitude signal corresponding to an amplitude of the first readback signal, and for providing a second amplitude signal corresponding to an amplitude of the second readback signal;
> >
> > a comparator for comparing the first amplitude signal to the second amplitude signal, and for providing an error signal corresponding to a difference between the first amplitude signal and the second amplitude signal;
> >
> > a servo control system for receiving the error signal and generating a drive signal therefrom; and,

> a positioner assembly, coupled to the read/write head, for adjusting the position of the read/write head with respect to the track, as a function of the drive signal.[135]

Claim 20 describes "[a] system according to claim 19, further including a band pass filter for receiving the readback signal from the read/write head, filtering an out-of-band noise component from the readback signal so as to produce a filtered readback signal, and providing the filtered readback signal to the multi-frequency filter."[136]

Claim 28 in turn provides:

> A system for positioning a read/write head with respect to a track on a magnetic disc medium, wherein the disc medium includes a servo burst pattern having (i) a first set of servo bursts adjacently disposed on the tracks along a first axis perpendicular to the centerlines, wherein each of the first set of servo bursts is disposed on an individual track, from the inside track edge to the outside track edge, and a frequency characteristic associated with each of the servo bursts alternates between a first frequency and a second frequency for consecutive servo bursts, and (ii) a second set of servo bursts adjacently disposed on the tracks along a second axis perpendicular to the centerlines and parallel to the first axis, wherein each of the second set of servo bursts is disposed on two adjacent tracks, from the centerline of one track to the centerline of a next adjacent track, and a frequency characteristic associated with each of the second set of servo bursts alternates between the first frequency and the second frequency for consecutive servo bursts, said magnetic disc medium comprising:
>
> > a multi-frequency filter for receiving a composite readback signal from the read/write head and for separating the composite readback signal into a first readback signal corresponding to servo bursts characterized by the first frequency and a second readback signal corresponding to servo bursts characterized by the second frequency;
> >
> > an envelope detector for providing a first amplitude signal corresponding to an amplitude of the first readback signal, and for providing a second amplitude signal corresponding to an amplitude of the second readback signal;
> >
> > a comparator for comparing the first amplitude signal to the second amplitude signal, and for providing an error signal corresponding to a difference between the first amplitude signal and the second amplitude signal;
> >
> > a servo control system for receiving the error signal and generating a drive signal therefrom; and,

[135] Docket No. 1 Ex. B at 14:19-46.

[136] *Id.* at 14:47-52.

> a positioner assembly, coupled to the read/write head, for adjusting the position of the read/write head with respect to the track, as a function of the drive signal.[137]

Claim 29 describes "[a] system according to claim 28, further including a band pass filter for receiving the readback signal form the read/write head, filtering an out-of-band noise component from the readback signal so as to produce a filtered readbackg signal, and providing the filtered readback signal to the multi-frequency filter."[138]

GTE responds in its opposition to Western Digital's motion for summary judgment that the references in the preambles to a "magnetic disc medium comprising" the various components are merely clerical errors that the court can correct even in the absence of a certificate of correction from the USPTO. GTE asserts that instead of "magnetic disc medium comprising," the court should read claims 19 and 28 to say "system comprising." GTE argues that the specification supports this correction and that nothing in the prosecution history suggests that the inventor sought to describe a magnetic disc medium with the various components identified in claims 19 and 28.

Both district courts and the USPTO have the ability to correct errors in patents, but the scope of that power differs. Pursuant to 35 U.S.C. § 255, the USPTO may correct through issuance of a certificate of correction, "a mistake of a clerical or typographical nature, or of minor character . . . if the correction does not involve such changes in the patent as would constitute new matter or would require re-examination." This authority "is not limited to obvious errors," but in fact "extends even to broadening corrections, so long as it is clearly evident from the specification, drawings, and prosecution history how the error should appropriately be corrected."[139] The USPTO's correction, however, applies only prospectively.[140]

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[137] *Id.* at 15:51 – 16:23.

[138] *Id.* at 16:24-29.

District courts, on the other hand, may apply corrections retroactively, but their authority is limited to situations where (1) "the correction is not subject to reasonable debate based on consideration of the claim language and the specification" and (2) "the prosecution history does not suggest a different interpretation of the claims."[141] Courts are further limited to correcting "an obvious error in a patent claim"[142] that involves only "minor typographical and clerical errors in patents."[143] "[M]ajor errors" on the other hand "are subject only to correction by the PTO."[144] The court must make the determination of the presence of an error – and any correction – "from the point of view of one skilled in the art."[145] Further weighing on the court's consideration is the underlying purpose of patents, namely that they serve as notice of the metes and bounds of the intellectual property into which others may not trespass. Accordingly, "post-issuance judicial corrections which have a retroactive effect must be carefully scrutinized."[146]

The court first must ascertain whether the "magnetic disc medium" language presents an error that it has the authority to correct, namely whether the correction GTE suggests is of the

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[139] *Novo Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1356-57 (Fed. Cir. 2003).

[140] *See* 35 U.S.C. § 255 ("Such patent, together with the certificate, shall have the same effect and operation in law on the trial of actions for causes thereafter arising as if the same had been originally issued in such corrected form."); *see also Novo Indus.*, 350 F.3d at 1356 (noting that Section 255 "deal[s] only with the authority of the PTO to make prospectively effect corrections, and the PTO was given no authority to correct the claims retroactively").

[141] *Id.* at 1357.

[142] *CBT Flint Partners, LLC v. Return Path, Inc.*, 654 F.3d 1353, 1358 (Fed. Cir. 2011) (citing *I.T.S. Rubber Co. v. Essex Rubber Co.*, 272 U.S. 429, 442 (1926)).

[143] *Novo Indus.*, 350 F.3d at 1357.

[144] *Id.*

[145] *Id.* (quoting *Ultimax Cement Manuf. Corp. v. CTS Cement Manuf. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009)).

[146] *Fujitsu Limited v. Tellabs Operations, Inc.*, Case No. 08 C 3379, 2011 WL 1303358, at *12 (N.D. Ill. Mar. 31, 2011).

"obvious minor typographical and clerical error" form or whether it is a "major error."[147] GTE asserts that a magnetic disc medium cannot contain the components listed in claims 19 and 28, and so a person of ordinary skill in the art would know that "magnetic disc medium comprising" is obviously erroneous. In support of that position, GTE offers a statement from Hendryx, who provides that "a magnetic disc medium is a disc of glass ceramic or metal with a magnetic coating on one or both sides, and that such a disc is a part of the system."[148] According to Hendryx, a person of ordinary skill in the art would understand that "[t]here is no possible interpretation of the term . . . in which a magnetic disc medium would comprise the recited elements, so the drafting error would not be confusing."[149] A person with the requisite skill instead would understand that claims 19 and 28 in fact disclose "a system for positioning a read/write head with respect to a track on a magnetic disk medium that includes the recited components . . . rather than a magnetic disc medium that includes the recited components."[150]

Western Digital maintains that the language does not provide an "obvious error" because it is possible to include other components onto or within a disk, and so the language does not provide notice to a person of ordinary skill in the art that the claim text is wrong. To support its position, Western Digital offers three examples of inventions in which a disk included other components. United States Patent Application Publication US 2006/0062137 describes in part a "compact disk . . . comprising: (a) a compact disk substrate . . . (b) a microprocessor operatively connected to said substrate . . . (c) an optical interface device operatively connected to said substrate and to said microprocessor" and other components.[151] United States Patent No. 7,385,284 describes a device,

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[147] *Novo Indus.*, 350 F.3d at 1357.

[148] Docket No. 198-1 ¶ 15.

[149] *Id.*

[150] *Id.* ¶ 17.

[151] Docket No. 144-2 Ex. B.

such as a CD or DVD, with an "integrated circuit chip," such as an RFID chip, that is incorporated or embedded into the substrate of the CD or DVD.[152] United States Patent Application Publication US 2004/0052202 discloses "an information disk comprising: an annular disk structure having a surface with a metalized data storage area . . . an antenna coupled to said annular disk surface . . .a radio frequency identification processor coupled to said annular disk surface and the antenna; and a protective coating coupled to at least one of the processor or the antenna."[153]

GTE relies on the seeming impossibility of a magnetic disc medium containing the necessary components to argue that the error is clerical, minor, and sufficiently easy for the court to correct. But the inventions that Western Digital offers provide some support that at least on its face, the term "magnetic disc medium" as used in claims 19 and 28 would be not obviously erroneous to a person of ordinary skill in the art. The patent and the patent applications show that it is possible to incorporate other components into or onto disks, and they undermine Hendryx's assertion that the claims as described are inherently impossible such that they provide notice to a person with the requisite skill that a substitution of terms must take place.[154]

GTE also points to the specification and the embodiments within the '085 Patent, which it argues disclose that the magnetic disc medium does not include the components identified in claims 19 and 28. According to GTE, the specification and the embodiments distinguish between the disk and the components that purportedly constitute the system GTE suggests is really

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[152] *See id.* Ex. C.

[153] *Id.* Ex. D.

[154] *Cf. Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009) (adding comma to a formula when the formula without the comma did not correspond to any known mineral); *Nova Measuring Instruments, Ltd. v. Nanometrics, Inc.*, No. C 05-0986 MMC, 2006 U.S. Dist. LEXIS 90736, at *10-11 (N.D. Cal. Dec. 1, 2006) (changing claim language reciting "collecting light reflected from the illuminated water" to "collecting light reflected from the illuminated wafer").

described in claims 19 and 28. That distinction, GTE argues, illustrates that "magnetic disc medium" is a clerical error that the court can replace with "system."

The court acknowledges the inconsistency between the claim language and the specification and embodiments. But internal inconsistency is not enough to show that the claim language is impossible to the point that a person of ordinary skill in the art would recognize the error and in fact interpret the claim language in the manner GTE proffers. The inconsistency suggests that the inventor may have wanted to claim a "system comprising" the components in claims 19 and 28, but the language instead discloses a "magnetic disc medium comprising." The invention perhaps is not what the inventor intended to describe, but it is not so impossible that persons with the requisite skill would necessarily know that the inventor meant "system" instead.

More importantly, the court cannot say that substituting "system" for "magnetic disc medium" is sufficiently minor that it has the authority to undertake the correction. As the Federal Circuit highlighted in *Novo Industries, L.P. v. Micro Molds Corp*, district courts are authorized to correct patents for the purpose of giving effect to the claim language and assuring that the patentee may protect the same scope of the claim as she intended to preserve.[155] But where the error is not obvious, where the clerical error in fact can or should broaden the scope of the claim, the USPTO has the requisite expertise to engage in consideration of the correction.[156] The USPTO, unlike the court, has the experience to examine the patent and to ascertain whether the change that GTE offers conflicts with earlier or later granted patents.

It is true that Western Digital does not offer any other possible corrections to dispute GTE's solution, but that is because Western Digital's argument is more fundamental – that there is not an obvious error in the first place and so any change, even from "magnetic disc medium" to "system" necessarily changes the scope of the '085 Patent's protection. The court agrees. Here, a clerical

[155] *See* 350 F.3d at 1356.

[156] *See id.*

error in fact may have occurred, but that error and its proper substitute is not so obvious that a person of ordinary skill in the art easily could recognize it and more importantly replace it. As a result, the court cannot ascertain whether the substitute GTE offers maintains the proper scope of the claim. The USPTO is the proper entity to make this determination.

Because the court finds that GTE has not met its burden to show that correction of claims 19 and 28 is warranted, the court also finds that Western Digital's motion for summary judgment is well-taken. Claims 20 and 29 depend on claims 19 and 28, and Western Digital has stated, and GTE does not suggest otherwise, that its products do not include a "magnetic disc medium comprising" the components listed in claims 19 and 28. Because Western Digital's testers do not practice the claims, they do not infringe. Summary judgment on claims 20 and 29 of the '085 Patent is GRANTED.

2. Claims 1-9 and 11-18 of the '145 Patent

Western Digital asserts that its testers do not infringe claims 1-9 or 11-18 of the '145 Patent because they do not have the various components and structures required by the claims. For independent claims 1 and 17 (and claims 2-9 and 18, which depend on claims 1 and 17), as explained in detail above, the court construed the means-plus-function term "second feedback means" to require as its structure "the read element of magnetic head and servo analyzer, including read amplifier, detector, analog to digital converter and averager." In its infringement contentions, GTE apparently identified the M8 and M9 servo decoders and their control boxes as the structures within the EH-300 and DCT-400 testers respectively that perform the "second feedback means" function. Western Digital asserts that the M8 and M9 servo decoders and corresponding control boxes do not contain an ADC or an averager, and as support it offers the schematics from the M8 and M9 servo decoders that purportedly reveal that no averager or ADC is present.

GTE responds that even if the M8 and M9 do not themselves contain the averager and the ADC, the testers in fact have both components. Pointing to an RMS detector and an ADC on a separate board, GTE argues that the testers contain the relevant structure and perform the "second feedback means" function. GTE also requests relief under Rule 56(d) so that its expert Hendryx can inspect Western Digital's testers to determine how the identified components perform the feedback function. GTE further argues that Rule 56(d) relief is appropriate because it needs to inspect source code and take Fed. R. Civ. P. 30(b)(6) depositions to navigate Western Digital's testers and obtain further evidence of its infringement theories. Western Digital replies that GTE's theories as presented in its opposition do not comply with its infringement contentions, on which Western Digital relied, and that GTE has failed to show that the new discovery either could allow it to rely on its original theories or support amending its contentions.

As to independent claim 11 and dependent claims 12-16 of the '145 Patent, Western Digital asserts that its testers do not meet the claim limitation because they do not calculate a "ratio of servo burst signals . . . to determine the position of the said magnetic head with respect to said magnetic disk."[157] Western Digital posits that its testers instead use an analog subtractor that subtracts the amplitude of one servo burst from the other and adjusts the head if the difference is greater than zero. The '145 Patent, in contrast, describes calculating a ratio from the two servo bursts – in other words, dividing rather than subtracting. GTE again seeks to defer summary judgment until it has taken more discovery but also posits that the means by which Western Digital's testers determine the position of the head is sufficiently similar to fall under the doctrine of equivalents for claim 11 and dependent claims 12-16.

GTE's and Western Digital's competing requests highlight the bustling intersection of infringement contentions under this district's Patent Local Rules, discovery, and summary judgment. Under Patent L.R. 3-1, early in the case GTE had to proffer infringement contentions to

[157] Docket No. 131-3 Ex. B at 9:54 – 10:12.

Western Digital with the theories of infringement that it could support at that time. Relying on those infringement contentions, Western Digital produced discovery, progressed through claim construction, and then moved for summary judgment once it believed it could assert that its products did not infringe in the manner that GTE had theorized. Western Digital contends that throughout this process, it sought amended contentions from GTE, and that GTE refused. GTE for its part asserts that it could not amend its contentions until it was able to obtain better discovery from Western Digital and that summary judgment is not appropriate not only because of the need for more discovery but because GTE believes its alternative theories of infringement present at least a question of material facts.

The court finds that deferring ruling on Western Digital's motion for summary judgment as to noninfringement of claims 1-9 and 11-18 of the '145 Patent is appropriate. At the time of Western Digital's motion, GTE had not had an opportunity to inspect the testers themselves and it apparently had trouble with interpreting Western Digital's schematics. Through Hendryx's declaration, GTE sufficiently shows that inspecting Western Digital's testers could allow it to uncover facts that could aid it in opposing Western Digital's summary judgment request on the grounds of noninfringement.

The court observes, however, that to the extent that the discovery GTE requires would lead to new theories of infringement, rather than merely supporting the theories in its contentions, amendment at this stage most likely would prove problematic. It is true that while these motions were pending, GTE attempted to amend its infringement contentions.[158] But GTE never offered to the court or to Western Digital its new contentions, and so the court denied the request, albeit noting that it had made no determination about whether the amendments were supported by good

[158] *See* Docket No. 181.

cause or whether they would unduly prejudice Western Digital.[159] Following that denial, GTE has not sought any further leave to amend its contentions. And so, although in its papers, it suggests that amendment of its contentions is likely in light of the discovery it seeks, GTE has not followed through on that assertion. At this point, fact discovery and expert discovery have closed and dispositive motions are set to be heard on August 27, 2013.[160] Amendment at this stage would be very late indeed.

The court shall hear further argument on Western Digital's motion in light of the new discovery GTE has obtained on August 27, 2013. No later than July 30, 2013, GTE may file a brief not exceeding fifteen pages explaining how the discovery it has taken supports its opposition to Western Digital's summary judgment motion. Western Digital may file any response not exceeding fifteen pages no later than August 6, 2013.

IV. CONCLUSION

Western Digital's motions for summary judgment for invalidity of claims 17 and 19 of the '145 Patent and for noninfringement of claims 20 and 29 of the '085 Patent are GRANTED. Pursuant to GTE's Rule 56(d) request, the court defers ruling on Western Digital's motion for summary judgment for noninfringement of claims 1-9 and 11-18 of the '145 Patent until after GTE has provided to the court the evidence it obtained following inspection of Western Digital's testers and source code.

IT IS SO ORDERED.

Dated: July 19, 2013

PAUL S. GREWAL
United States Magistrate Judge

[159] *See* Docket No. 194.

[160] *See* Docket No. 143.