

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

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REMBRANDT DATA STORAGE, LP,

Plaintiff,

v.

SEAGATE TECHNOLOGY LLC,

Defendant.

OPINION and ORDER

10-cv-693-bbc

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REMBRANDT DATA STORAGE, LP,

Plaintiff,

v.

WESTERN DIGITAL CORPORATION,

Defendant.

10-cv-694-bbc

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Plaintiff Rembrandt Data Storage, LP is suing defendants Seagate Technology LLC and Western Digital Corporation for infringement of claims in U.S. Patents Nos. 5,995,342 and 6,195,232, two related patents that plaintiff owns. The '342 patent is titled "Thin Film Heads Having Solenoid Coils" and the '232 patent is titled "Low-Noise Toroidal Thin Film

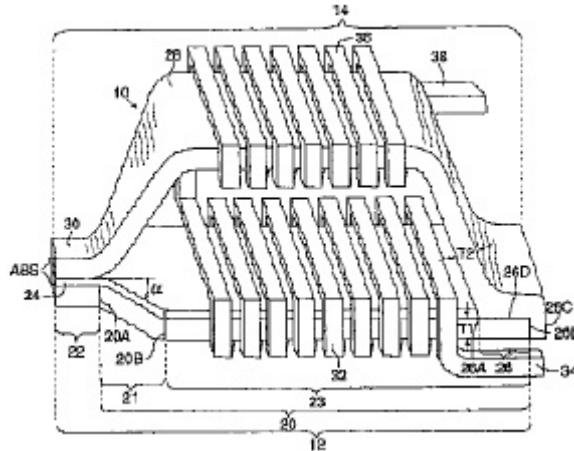
Head with Solenoid Coil.” Both cases are before the court for claim construction. Because several terms are at issue in both cases, all three parties participated in a joint claim construction hearing on August 26, 2011. For the same reason, I am issuing a joint opinion.

Three terms are at issue in both Case No. 10-cv-693-bbc and Case No. 10-cv-694-bbc (“elongated,” “back-closure region”/“back-closure contact area” and “contact pads”); two terms are at issue only in the Seagate case, 10-cv-693-bbc (“top/bottom magnetic pole” and “a thin film head device”/“a thin film head magnetic transducing device”); and three terms are at issue only in the Western Digital case, 10-cv-694-bbc (“transitioning front portion,” “a predetermined length and width” and “extending along substantially the entire width”/“extending along substantially an entire width”). I have construed each of these terms below.

## BACKGROUND

The asserted patents disclose a particular type of thin film head, which is a part of hard disc drive in a computer. The small magnetic head reads and writes data on the disc. The claimed inventions “relat[e] to a low-noise toroidal [thin film head] device having low coil resistance and inductance, especially suitable for very high magnetic recording areal densities and channel frequencies.” ‘342 pat., col. 1, lns. 14-17.

A preferred embodiment looks like this:



In this embodiment, the magnetic core of the thin film head “has a gradual, smooth toroidal (or a horse-shoe) shape with no loose ends, nooks, crevices, or sharp corners.” ‘342 pat., Abstract. Solenoid coils wrap around the magnetic poles, which are separated by a gap layer 24 on one end. The back-closure region 26 “extend[s] along substantially the entire width of” the other end. According to the patent, the invention significantly reduces magnetic noise “by allowing the bottom and top magnetic poles to contact each other along their entire back-side width (of the yoke arms).” ‘342 pat., col. 4, lns. 3-7.

Claim 1 of the ‘342 patent is representative with respect to most of the disputes in these cases. (The disputed terms are in bold.)

A toroidal-magnetoresistive (MR) thin film head (TFH) device comprising:

a substrate;

an inductive toroidal write element comprising:

a bottom magnetic pole disposed over said substrate and including a bottom yoke-arm and a bottom pole-tip portion, said bottom yoke-arm comprising an **elongated** first back portion of a **predetermined length and width**, said back portion having a first back-end;

a non-magnetic gap layer formed over at least said bottom pole-tip portion of said bottom magnetic pole;

a top magnetic pole disposed over said gap layer and substantially overlying said bottom magnetic pole, said top magnetic pole including a top yoke-arm and a top pole-tip portion, said top yoke-arm having an **elongated** second back portion of a **predetermined length and width**, and a **transitioning front portion** extending between said second back portion and said top pole-tip portion, said second back portion having a second back-end;

said first back portion of said bottom yoke-arm and said second back portion of said top yoke-arm being magnetically connected to each other at a **back-closure region extending along substantially the entire width** of at least one of said first and second back-ends such that said bottom magnetic pole and said top magnetic pole combine to form a magnetic core;

and at least one solenoid coil wrapped around at least one of said magnetic poles, said at least one solenoid coil comprising:

a first set of electrically conductive strips disposed below, and being insulated from, said at least one magnetic pole; a second set of electrically conductive strips disposed above, and being insulated from, said at least one magnetic pole;

and said first set of electrically conductive strips  
and said second set of electrically conductive  
strips being joined along the sides of said at least  
one magnetic pole in a manner to form a solenoid  
coil wrapped around said at least one magnetic  
pole;

and a magnetoresistive (MR) read element.

## OPINION

Although two patents are at issue in this case, both sides treat the two patents as one for the purpose of claim construction. That is, the parties treat any intrinsic evidence in one patent as equally applicable to the other patent. No party suggests that a term should be construed one way in the '342 patent but another way in the '232 patent. Because the parties have not distinguished the patents, I will not do so either.

### A. Terms at Issue in Both Cases

#### 1. "Elongated"

**Plaintiff's Proposed Construction:** made longer than any other portion of the magnetic pole

**Defendants' Proposed Construction:** has more length than width

This term modifies the phrases "first back portion," "second back portion" and

“region” in several asserted claims. The key question relates to the proper comparison. In defining the term “elongated,” would a person of ordinary skill in the art compare the portion or region to other parts of the thin film head (as plaintiff suggests) or to itself (as defendants suggest)?

All the intrinsic and extrinsic evidence supports defendants. Because neither side argues that the asserted patents adopt a specialized meaning for the term, I begin with its ordinary meaning. Miken Composites, L.L.C. v. Wilson Sporting Goods Co., 515 F.3d 1331, 1337 (Fed. Cir. 2008). The parties agree that the word “elongated” can mean “has more length than width” or “made longer.” Seagate’s Br., dkt. #51, at 64-65 (citing Oxford English Dictionary (1989); American Heritage Dictionary (1993); Webster’s Third New International Dictionary (1981); Webster’s New Collegiate Dictionary (1979)); Plt.’s Br., dkt. #69, at 16. See also Hrg. Trans., dkt. #80, at 18 (plaintiff’s counsel acknowledging that “elongated” “certainly can mean” that something is “longer than it is wide”). (All citations to the docket are to Case No. 10-cv-693-bbc unless otherwise noted.) Neither of these definitions suggest that “elongated” is defined by comparing two different objects.

In an attempt to align its position with the ordinary meaning of the term, plaintiff includes the phrase “made longer” in its proposed construction, but this is a poor fit. The dictionary definition on which plaintiff relies is another way of saying that the object is stretched out, extended or otherwise increased in length, that is, that the object is made

longer *than itself*. However, plaintiff is not arguing that the portion or region increases in length. Rather, plaintiff's argument is that the portion or region simply *is* longer than other portions. Thus, plaintiff's proposed construction has no support in the ordinary meaning of the word. If the inventor wanted to convey what plaintiff is arguing, he could have used the term "longer" instead of "elongated." As defendants pointed out at the claim construction hearing, if I adopted plaintiff's proposed construction, it would mean that a square-shaped object could be "elongated" as compared to another, smaller square-shaped object. Hrg.Trans., dkt. #80, at 19. That would not conform to the ordinary meaning of the word.

The specification is consistent with a construction of "has more length than width." In each of the figures, the "elongated" portions are longer than they are wide. E.g., '342 pat., Figs. 1A and 3(b). Plaintiff says it is inappropriate to rely on these figures, citing the maxim that courts should not import limitations from the embodiments into the claims, e.g., Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 (Fed. Cir.1988), but that argument is misplaced. The "elongated" limitation is already in the claims; the question is simply what that limitation means. Under Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005), it is appropriate to use the specification to shed light on the meaning, particularly when the embodiments are consistent with the lay meaning of the term.

Further, the other uses of the term "elongated" in the specification support

defendants' proposed construction as well. For example, the figure for "elongated conductor bars" in the '342 patent at col. 12, ln. 20, shows that the bars have more length than width. When I asked plaintiff's counsel at the claim construction hearing whether plaintiff's proposed construction could be applied to other uses of the term "elongated" in the specification, counsel's primary response was that the term could mean different things in different parts of the patent. Hrg. Trans., dkt. #80, at 14-15. However, that view does not take into account the general rule that the same term in the same patent should have the same meaning. Phillips, 415 F.3d at 1314 ("[C]laim terms are normally used consistently throughout the patent.").

Plaintiff advances several arguments relying on the claims and specification, but none are persuasive. First, plaintiff relies on the doctrine of claim differentiation. Karlin Technology Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 971-72 (Fed. Cir. 1999) (under doctrine of claim differentiation, "different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope"); Dow Chem. Co. v. United States, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000) (independent claim should be given broader scope than dependent claim to avoid rendering dependent claim redundant). In particular, plaintiff cites claim 25 of the '232 patent, which depends from claim 1 and discloses "elongated regions" with "a ratio between the width and length" that is "within the range 0.4—0.7." Because claim 25 discloses an embodiment in which the elongated region



has more length than width, plaintiff says, it follows that the term “elongated” in isolation does not impose that limitation.

I agree with defendants that claim 25 does not help plaintiff. If claim 25 disclosed a region that “has more length than width,” this might support a view that “elongated” has a different meaning. But the claim does not do that. Rather, it discloses a particular ratio. Thus, all that can be inferred from claim 25 is that other claims do not require a ratio “within the range 0.4—0.7.”

Second, plaintiff cites two passages from the specification to support a view that the length should be minimized and the width should be maximized:

The length of the yoke arm portion 23 between 20B and 26B (with constant width) ought to be minimized in order to improve device efficiency and to reduce its inductance.

\* \* \*

The width of the yoke arm back portion 23 between onset point 20B and back-end 26B should be optimized with regard to efficiency on one hand, and inductance and coil resistance on the other. The device efficiency improves with the width (increased cross-section for the flux), but inductance and coil resistance also increase with the width.

342 pat., col. 15. lns. 37-39, 54-60.

Plaintiff’s purpose in relying on these passages is not clear. Even if plaintiff were correct that the passages stand for the proposition that “shorter is better,” that would not show that plaintiff’s proposed construction is better than defendants’. In any event, I agree

with defendants that the passage plaintiff cites is about *optimizing* length and width. This is obvious from the proposed ratios that immediately follow the cited passage, in which the arm is longer than it is wide. Id. at lns. 60-62 (“A desirable ratio between the width and the length of the yoke arm is about 0.4—0.7, and more preferably 0.5—0.6.”); See also id. at lns. 40-41 (“However, the length should be sufficient to accommodate all the coil turns and adequate spacings between them.”). Thus, these passages do not undermine defendants’ proposed construction.

Third, plaintiff cites a passage regarding an embodiment with a pole that is only long enough to accommodate a single coil turn. ‘342 pat., col. 25, lns. 54-60. Again, it is difficult to see how this helps plaintiff’s position at all. The passage may suggest that the back portion of the pole in that embodiment is short, but it says nothing about the relationship between the width and the length of the pole. As defendants point out, the pole in that embodiment is shorter *and* narrower, id. at lns. 60-62, so there is little reason to assume that the width is greater than the length.

Fourth, plaintiff cites the use of the word “relatively” in the following passage: “Each magnetic pole 12, 14 comprises a relatively large yoke arm 20, 28 and a relatively small pole-tip 22, 30.” ‘342 pat., col 9, lns. 15-17. The passage is unhelpful for several reasons: it is discussing concepts of “large” and “small,” not “long” and “short”; the passage is related to the “yoke arm” as a whole rather than the “back portion” in particular; and, perhaps most

important, the passage does not purport to define “elongated.” Again, if the inventors were trying to convey a “relative” concept, they could have used the word “longer” instead of “elongated.”

Fifth, plaintiff says that adopting defendants’ proposed construction would exclude a tapered embodiment in which the width of the back portion is wider than it is long. MBO Labs., Inc. v. Becton, Dickinson & Co., 474 F.3d 1323, 1333 (Fed. Cir. 2007). Plaintiff relies on two portions of the specification to support this argument:

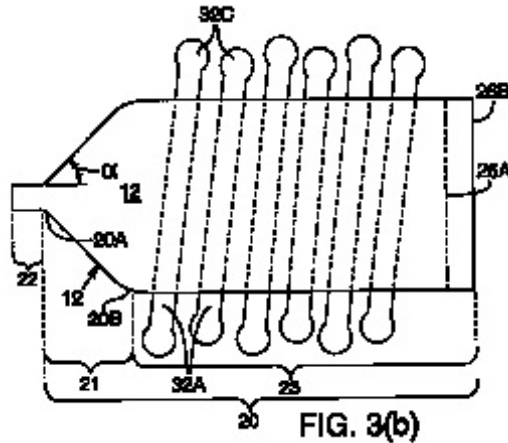
In another embodiment, the essentially constant width back portion of the pole is replaced with other, non-constant width shapes (not shown), such as a tapered width from a wider back-end to a narrower onset point. The taper angle of the tapered back portion of the pole of such embodiment would not exceed the angle  $\alpha$  of the fan-like transition region 21.

‘342 patent, col. 9, lns. 27-33.

A desirable value for  $\alpha$  is between 30–60°, and preferably 40–50°.

Id. at col. 15, ln. 67 - col. 16, ln. 2.

According to plaintiff, if  $\alpha$  is 30° - 60° with respect to a tapered embodiment, this will lead to a back portion that is wider than it is long. The problem with plaintiff’s argument is that it conflates two unrelated portions of the specification. The first cited passage discloses a tapered embodiment but does not assign a particular value for  $\alpha$ . The second passage assigns a value to  $\alpha$ , but it is in the context of a discussion of Figure 3(b), which is not a tapered embodiment:



Because plaintiff identifies no reason to believe that  $\alpha$  in the context of the tapered embodiment has a value that would undermine defendants' proposed construction, this argument is not persuasive.

Finally, plaintiff turns to case law. At the claim construction hearing, it cited Playtex Products, Inc. v. Procter & Gamble Co., 400 F.3d 901, 907 (Fed Cir. 2005), in which the court rejected the district court's construction of the term "substantially flattened" as "flat."

The court went on to say:

The disputed claim term is clearly a comparative term. Comparison requires a reference point. Therefore, to flatten something, one must flatten it with respect to either itself or some other object. In the context of the claim, the term "flattened" requires a comparison between the diametrically opposed surfaces and something else. The only antecedent basis in the claim is the

tubular barrel. '178 patent, col. 6, II. 3-9. Playtex, therefore, claimed something flatter than a tubular barrel, but not necessarily something flat.

Id. at 908-09. It is not entirely clear how plaintiff believes this case supports its proposed construction. Simply because the court of appeals concluded that one term in the context of one patent required a comparison between two objects, it does not follow that the result in this case should be the same. Obviously, the terms at issue in the two cases are different. In Playtex, the court relied heavily on the intrinsic evidence to conclude that “flattened” in the context of that patent should be construed in relation to another object. In this case, however, *no* evidence supports plaintiff’s proposed construction.

In fact, plaintiff has failed to explain what purpose its proposed construction would serve, that is, why it matters to the invention whether the back end portion is longer than other parts of the pole. With respect to defendants’ proposed construction, the specification suggests that “[a] desirable ratio between the width and length of the yoke arm,” such as 0.4 to 0.7, is a way to “optimiz[e] . . . efficiency on the one hand, and inductance and coil resistance on the other.” ‘342 pat., col. 15, lns. 54-62. However, even when I asked plaintiff’s counsel at the hearing what benefit is provided by a back end portion that is longer than other portions of the pole, counsel did not have a helpful answer. Counsel stated that the back portion must be long enough to accommodate the coil turns. Hrg. Trans., dkt. #80, at 10. This may suggest that the back portion must be a particular length, but it suggests

nothing about the relationship between the size of the back portion as compared to any other portion.

Accordingly I am adopting defendants' proposed construction of the term "elongated" to mean "has more length than width."

2. "Back-closure region" and "back-closure contact area"

**Plaintiff's Proposed Constructions:**

back-closure region: the region where the back of the top magnetic pole and the back of the bottom magnetic pole are connected to one another

back-closure contact area: the area within the backclosure region where the top and bottom magnetic poles are connected by intimate physical contact

**Defendants' Proposed Constructions:**

back-closure region: a via-free region where the back of the top and bottom magnetic poles are in intimate physical contact with one another

back-closure contact area: a via-free area where the back of the top and bottom magnetic poles are in intimate physical contact with one another

In their original briefs, the parties' dispute for this term was whether contact between the magnetic poles occurs through a structure called a "via." However, at the claim construction hearing it became clear that the parties did not agree on the meaning of "via," so I asked for supplemental briefing on that question. The parties have responded with gusto, filing an additional 100 pages of argument on the meaning of a single word. In their

briefs, defendants decline to provide a universal definition. Instead, they argue that it is sufficient to define “via” as including the “structures described by the patentees in the intrinsic evidence as being types of vias.” Dft. Western Digital’s Br., dkt. #84, at 1. See also Dft. Seagate’s Br., dkt. #81, at 1 (“[T]he dispute here can be easily resolved by adopting a construction of ‘via’ that includes the structures that the inventors explicitly acknowledge were ‘vias’ in the prior art.”). However, the proposed constructions of defendants are not identical. Seagate proposes a construction of “a structure (such as a pillar) connecting a first layer with a second layer through an opening in an intermediate insulating layer or layers,” dkt. #81, at 2; Western Digital says that a via is (1) “a hole in an intermediate insulating layer or layers that allows a first layer and a second layer to directly contact each other”; *or* (2) “a pillar connecting a first layer with a second layer through an opening in an intermediate insulating layer or layers.” Dkt. #84, at 2. Plaintiff says that it is unnecessary to include any reference to a “via” in the construction of “back-closure region” or “back-closure contact” area. However, if a construction is needed, its proposed construction is “a connection between two poles that accommodates only a small fraction of the back-width of the poles.” Dkt. #87, at 1.

The key disputes in the parties’ supplemental briefs are whether a via may be “a pillar” and whether it may be “a hole.” Ultimately, the question is whether a thin film head necessarily falls outside the scope of the ‘342 and ‘232 patents if it uses a pillar or a hole to

connect the top and bottom magnetic poles.

The claims themselves do not define a back-closure region or contact area as “via-free.” However, defendants rely on various passages from the specification and the prosecution history to support the inclusion of a “no via” limitation. To prevail on that argument, defendants must meet a demanding standard. “Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.” Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1358 (Fed. Cir. 2004). To narrow the plain language of a claim, a disclaimer must be clear and unmistakable. Cordis Corp. v. Boston Scientific Corp., 561 F.3d 1319, 1329 (Fed. Cir. 2009).

With respect to the specification, defendants cite passages in which the inventors were critical of prior art that included a “back-via” and they cite cases in which the court of appeals interpreted a claim to exclude a feature that the patentee disparaged when describing the prior art. E.g., Hearing Components, Inc. v. Shure Inc., 600 F.3d 1357, 1367 (Fed. Cir. 2010); Gemtron Corp. v. Saint-Gobain Corp., 572 F.3d 1371, 1378 (Fed. Cir. 2009); Edwards Lifesciences LLC v. Cook Inc., 582 F.3d 1322, 1332-33 (Fed. Cir. 2009). The problem with this argument is that the inventors made it clear in the specification that they had one particular structural criticism of the “back via”:

*Since the back-via accommodates only a small fraction of the back-width of the yoke*



*arms*, it restricts the magnetic flux there, causing a full or a partial saturation (during write operations), and thereby impairing the device efficiency and overwrite capability. The magnetic layer inside the via consists of multiple domains in various orientations which are subject to extreme levels of stress and stress gradients. These increase the device susceptibility to magnetic noise, due to magnetic domain wall movements, through magnetostrictive interaction.

'342 pat., col. 2, lns. 24-29 (emphasis added). As an example of a problematic "back-via," the inventors cited figures in U.S. Patent No. 4,190,872:

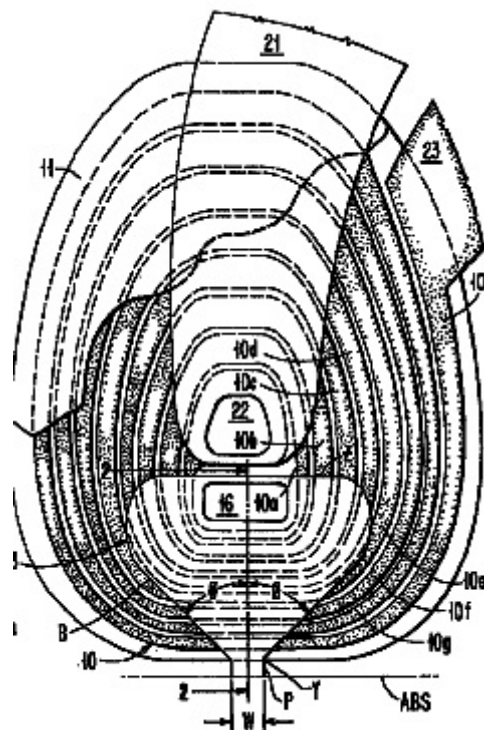


FIG. 1

The “via” is identified at number 16. At the hearing, plaintiff described the problem with this prior art as creating a “bottleneck”:

The issue [the inventor] had with the prior art vias is they made a bottleneck; they're very thin. And so what you do is you've got a pretty big pole, and a pretty big pole, and then you have this tight little via connection site, and it's as if you have a six-lane bridge and you decide in the middle you're going to bring it down to two lanes. You're going to cause problems. You're going to cause noise.

Hrg. Trans., dkt. #80, at 33.

In the Summary of the Invention, the specification explains how “the present invention” solves the “noise” problem: “the TFH device's magnetic noise is significantly reduced by *allowing the bottom and top magnetic poles to contact each other along their entire back-side width (of the yoke arms)*, and by eliminating all other open branches and loose ends in the magnetic circuit. *The larger contact area between the poles at their back-side* also decreases the magnetic circuit reluctance, thereby improving the device efficiency.” ‘342 pat., col. 4, lns. 3-10. (None of the parties ask the court to read in a “no open branches” or “no loose ends” limitation into the claims, so I do not consider that question.)

Thus, the specification supports a view that the claimed invention excludes any device in which the via “accommodates only a small fraction of the back-width of the yoke arms.” However, as plaintiff points out, that limitation is already included in the claims, which require a back-closure region “extending along substantially the entire width” of the back end

of the pole. Thus, the discussion of the prior art in the specification adds nothing.

Next, defendants cite several passages in the specification in which a preferred embodiment is described as having “no vias” or as being a “non-via” apparatus. ‘342 pat., Abstract; id. at col. 4, lns. 9-12. However, as defendants well know, a court cannot import limitations from the embodiments into the claims. In re Omeprazole Patent Litigation, 483 F.3d 1364, 1372 (Fed. Cir. 2007) (“Absent some clear intent to the contrary, this court does not import examples from the specification into the claims.”); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 (Fed. Cir.1988) (“[E]mbodiments and examples appearing in the specification will not generally be read into the claims.”).

Finally, defendants rely on several passages from the prosecution history. The first is a summary provided by the examiner of an interview with the patentees:

The Applicants allege that the prior art does not show a TFH (thin film head) wherein the back end closure region has **no vias** for interconnecting the upper magnetic pole to the lower magnetic pole wherein the upper magnetic pole overlies substantially the entire lower magnetic pole as viewed in plan [sic] from the top, as disclosed in the present invention. The Applicants contend that their invention substantially reduces the amount of “popcorn” noise associated with vias of TFHs. The Applicants intend to formally submit an after-final amendment with new limitations reciting the TFH structure that results in stabilized magnetic domains of the TFH, particularly with respect to the back closure region of the TFH.

Dkt. #77-6, exh. F, at \*18 (emphasis added).

Even if I assume that this summary represents a statement by the patentees, it

includes the same qualification as the passage from the specification. That is, although the passage includes the phrase “no vias,” the larger context is “no vias . . . wherein the upper magnetic pole overlies substantially the entire lower magnetic pole.” Again, this limitation is already in the claims, so there is no need to read it in.

Defendants cite two other passages from the same document titled “Remarks” in which the patentee distinguished two pieces of prior art:

- (d) Because the TFH device disclosed in Mallary et al. (US 5,195,005) (shown in FIG. 4) has five (5) vias through the insulation, through which vias the magnetic material passes, it is an extremely noisy device; vias are notorious in the art as a major source of magnetic noise. The vias and their associated noise problem for the TFH device disclosed in **Mallary et al. (US 5,195,005) is contrasted with the seamless, via-free inventive TFH device of the present invention that entirely avoids this noise problem.** The inventive use of a solenoidal coil obviates the need for vias.
- (e) Because the TFH device disclosed in Fontana, Jr. et al. (US 5,164,869) contains magnetic segments that are tilted relative to the hard axis, and even one segment (26) which is actually perpendicular to the hard axis (the worst situation!), it has a magnetic noise problem. The magnetic segments that are tilted relative to the hard axis and their associated noise problem from **the TFH device disclosed in Fontana, Jr. et al. (US 5,164,869) is contrasted with the inventive TFH device which has two poles disposed one over the other, with no side branches or vias,** and wherein all the flux lines in both poles are confined along a single hard axis direction (i.e., perpendicular to the ABS). Elimination of flux lines in directions other than the hard axis in accordance with the present invention is advantageous because it improves the frequency response (transfer rate) of the inventive TFH device, and significantly reduces its magnetic noise.

Dkt. #52-12, exh. M, at 264-65.

On their face, these passages seem more problematic for plaintiff because they are statements from the patentees in which they distinguished prior art by saying, “the prior art uses vias, but our invention does not.” However, these statements must be viewed in context. Ecolab, Inc. v. FMC Corp., 569 F.3d 1335, 1343 (Fed. Cir. 2009) (in considering prosecution history disclaimer, words must be viewed “in the context of the prosecution history as a whole”). The question is, what did the patentees mean when they used the word “via”?

In their supplemental briefs, none of the parties suggest that the term “via” has a well-accepted meaning in the art. In fact, defendants’ own views have continued to evolve throughout the briefing of this issue, resulting in diverging proposed constructions from each defendant. This lack of consensus counsels against ascribing a meaning to the term any broader than required by the intrinsic evidence.

As discussed above, the specification describes a via as something that “accommodates only a small fraction of the back-width of the yoke arms.” ‘342 pat., col. 2, lns. 24-25. (The specification uses the term “back-via,” but no party suggests that the distinction is meaningful for the purpose of this dispute.) In fact, this inability to accommodate the back end is the *only* structural problem that the patentees associate with vias in the specification and the prosecution history. Defendants do not suggest that all pillars and holes connecting

two layers present this same problem and they point to nothing in the specification or prosecution history in which the patentees criticized the use of pillars or holes generally as a means to connect the poles.

Even in the passages defendants cite from the prosecution history, the patentees made it clear that their concern was with a particular structural problem. In distinguishing Fontana (which the parties seem to agree did not disclose a “via” of any kind), the patentees emphasized that the claimed invention “has two poles disposed one over the other.” In distinguishing Mallary, the patentees explained that “[t]he inventive use of a solenoidal coil obviates the need for vias.” How? Plaintiff provided the following explanation in its supplemental brief:

The inventors explained that their inventive use of solenoidal coils (as opposed to the prior art pancake coils) eliminated the need for vias because the solenoidal coils would be wrapped around either the top or bottom pole (or both poles), rather than wrapped around the back-closure region. See, e.g., ‘342 patent at col. 3:11-17 (“The long planar spiral coil turns of the conventional TFH device . . . are inefficient in coupling the magnetic flux in the core since they only wrap around a short fraction or segment of the core length (around the back-via).”); ‘232 patent at col. 2:54-58 (same); ‘342 patent at col. 4:63-65 (“In the conventional spiral coil all windings are wrapped over a short segment of the magnetic core (at the back-via).”); ‘232 patent at col. 4:17-19 (same); ‘342 patent at col. 10:36-39 (“All the turns of the spiral coil are wrapped over a short length of the magnetic core (at the back-via) thereby impairing the effective coupling between the coil and the magnetic core.”); ‘232 patent at col. 6:57-60 (same). Because one of skill in the art no longer needed to utilize pancake coils in the back region, one could make this region substantially as wide as either or both of the two poles. Thus, the patentees’ statement that their “inventive use of a solenoidal coil obviates

the need for vias.”

Dkt. #87, at 8.

Defendant Western Digital does not respond to this argument. Defendant Seagate’s only response is that “solenoid coils obviate the need for any kind of via, not just [the] vias” disclosed in the ‘872 patent that were criticized in the specification. Seagate’s Br., dkt. #89, at 10-11. Seagate does not cite any evidence for this proposition, but I need not determine whether it is true. The point is that the specification and prosecution history of the asserted patents teach that the solenoid coil fixes a problem caused by a particular type of structure, that is, a pancake coil wrapped around a small via. Thus, even the passages including the alleged disclaimers support an interpretation of “via” that is limited to a particular structural problem and not to any “pillar” or “hole” that connects the two poles.

In their supplemental briefs, the parties dispute whether the vias disclosed in Mallory were limited to the vias criticized in the specification or whether the Mallory vias included pillars. Although both sides go to great lengths to prove one view or the other, the bottom line is that Mallory did not give an express identification of the type of via disclosed. And, perhaps more important, the patentees never describe Mallory as disclosing pillar-type vias. Thus, there is no reason to believe that the patentees were distinguishing their invention from all prior art using pillars.

This conclusion is consistent with the decision of the examiner, who allowed claim

I (which includes the “back-closure region” limitation) even *before* the patentees made the statements about vias that defendants cite from the prosecution history. Dkt. #52-13, exh. M. 214. If the examiner had viewed the invention as excluding all pillars and holes, then it is unclear why he would approve a claim that did not include that limitation at a time when the patentees had not yet made any representations about the presence or absence of vias in the invention. Defendants do not point to any statements from the examiner suggesting that approval of the claims was contingent on a view that the invention did not include a “hole” or a “pillar” in the back-closure region.

In sum, I conclude that the patentees defined a “via” in a way that is already reflected in the claims, that is, as a structure that does not “exten[d] along substantially the entire width” of the back end of the magnetic pole. Because including a “no via” limitation would be redundant and potentially confusing, I decline to adopt defendants’ proposed construction. Further, because the parties do not develop arguments with respect to any other aspect of the meaning of “back-closure region” and “back-closure contact area,” I decline to provide a construction of those terms, except to say that they may include a hole or a pillar, so long as the remaining limitations of the claim are met.

### 3. “contact pads”

**Plaintiff’s Proposed Construction:** enlarged ends of the conductive strips that facilitate



connection of the conductive strips

**Defendants’ Proposed Construction:** ends of the conductive strips that facilitate connection of the conductive strips

In their briefs and at the claim constriction hearing, the parties limited their arguments to the question whether contact pads have enlarged ends, so I will do the same. Because plaintiff has not shown that the claim language, the specification or the prosecution history require an “enlarged” limitation with respect to the term “contact pads,” I decline to read one in.

Plaintiff cites one passage of the specification that refers to “the enlarged ends 32C of the conductor bars 32A provide terminals or contact pads (allowing for adequate misalignment) for connection with the conductors 32B.” ‘342 pat., col. 12, lns. 24-27. However, this passage comes from a description of one preferred embodiment and does not purport to define the term “contact pads.” If anything, the use of the word “enlarged” as a modifier for contact pads suggests that the inventor did not view contact pads as inherently enlarged. See also id. at lns. 20-24 (“To construct the lower portion of winding 32, a pattern of elongated conductor bars 32A with *enlarged* staggering terminals or *contact pads* 32C are first formed in the undercoat layer 18, as shown in FIG. 3(a).”) (Emphasis added).

Much of plaintiff’s argument relies on its view of how the invention works. In particular, plaintiff says that contact pads need to be large to insure a good electrical

connection. This is a red herring because plaintiff's proposed construction does not require the contact pads to be a particular size, just larger than the conductive strips. Plaintiff never explains why the relative size of the pads to the strips is important. In any event, plaintiff cites no authority for the proposition that a court may add a limitation simply because doing so would better serve the purpose of the invention. E-Pass Techs., Inc. v. 3Com Corp., 343 F.3d 1364, 1370 (Fed. Cir. 2003) ("The court's task is not to limit claim language to exclude particular devices because they do not serve a perceived 'purpose' of the invention.").

Finally, plaintiff says that the "contact pads" element becomes meaningless without an "enlarged" limitation because otherwise pads are simply the ends of conductive strips, which are already claimed. However, this assumes that the only possible distinguishing feature of the contact pads is their size. As both sides recognize in their proposed constructions, the distinguishing feature of the contact pads is that they facilitate an electrical connection. Size could be one way this occurs, but the claims do not limit other ways.

Although I agree with defendants that the contact pads do not need to be larger than the conductive strips, I decline to adopt the rest of defendants' proposed construction at this time. At the hearing, counsel for plaintiff stated that he anticipates further disagreement at summary judgment over the meaning of the word "facilitate." Hrg.Trans., dkt. #80, at 85. However, neither side developed an argument regarding that word, even though both

sides included it in their proposed constructions. This seems to be an example of a problem I have noted in other cases: “Far too often, construing claim terms in a vacuum leads to additional disputes about the meaning of the court's construction at summary judgment or to revision when the context of the dispute is revealed.” Cheese Systems, Inc. v. Tetra Pak Cheese, 2011 WL 3739475, \*1 (W.D. Wis. 2011). It is unfortunate that the parties were unable to present all of their disputes about claim construction to the court to minimize the issues remaining for resolution at summary judgment. In any event, because the parties did not develop an argument about any issue regarding the term “contacts pad” other than the proposed “enlarged” limitation, that is the only issue I can resolve in the context of this opinion.

B. Terms in *Seagate*, No. 10-cv-693-bbc Only

1. “Top/bottom magnetic pole”

**Plaintiff’s Proposed Construction:** the upper/lower of two magnetic poles

**Seagate’s Proposed Construction:** no proposed construction

The dispute for this term is whether the phrase “top/bottom magnetic pole” simply defines the relationship between the two poles (one is higher than the other) or means that there are no other poles above the “top” pole or below the “bottom” pole. Plaintiff argues vigorously in favor of its proposed construction, but it is ultimately unpersuasive. Terms like

"top" and "bottom" are not synonyms for "upper" and "lower." Plaintiff points to nothing in the claim language, the specification or the prosecution history that changes the meaning of "top" and "bottom" in the context of the patent. If the inventors were concerned only with the relationship between two poles, it would have been easy enough for them to use the words "upper" and "lower" rather than "top" and "bottom." Miken Composites, LLC v. Wilson Sporting Goods, 515 F.3d 1331, 1337 (Fed. Cir. 2008) ("Had the patentee, who was responsible for drafting and prosecuting the patent, intended something different, it could have prevented this result through clearer drafting.").

Plaintiff relies on the presence of the word "comprising" in the asserted claims and the canon of construction that "[c]omprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501 (Fed. Cir. 1997). Plaintiff is correct that the canon supports a view that "[t]he claimed invention . . . is not limited to two poles," Plt.'s Br., dkt. #69, at 38, but the canon does not support plaintiff's proposed construction. Although the invention may encompass a device that includes three (or more) poles, that does not change the meaning of "top" or "bottom." That is, however many poles a device has, the "top" pole must be the highest and the "bottom" pole must be the lowest. If anything, the inventor's use of the word "comprising" undermines plaintiff's proposed construction because it suggests that the inventor should

have anticipated a device with more than two poles and thus should have used language that took that possibility into account. Plaintiff is stuck with the language in the claim.

Plaintiff cites TI Group Automotive Systems (North America), Inc. v. VDO North America, L.L.C., 375 F.3d 1126, 1138 (Fed. Cir. 2004), for the proposition that the word “bottom” can mean “lower,” but this is misleading. The court did not reject a construction of “lowest” in favor of “lower,” but stated that the district court had construed “at the bottom of the reservoir” too narrowly by limiting it to “the bottom *surface* of the reservoir” rather than a larger portion of the reservoir. Accordingly, TI Group is not instructive.

2. “A thin film head device” and “a thin film head magnetic transducing device”

**Plaintiff’s Proposed Constructions:**

a thin film head (TFH) device: no construction necessary

a thin film head (TFH) magnetic transducing device: no construction necessary

**Seagate’s Proposed Constructions:**

a thin film head (TFH) device: a toroidal thin film head device

a thin film head (TFH) magnetic transducing device: a toroidal thin film head magnetic transducing device

The initial dispute with respect to this term was whether “a thin film head (TGH) device” and “a thin film head (TFH) magnetic transducing device” must be toroidal. However, in its response brief, defendant Seagate narrowed the issue to whether the “write

element” of the thin film head must be toroidal. Seagate Br., dkt. #73, at 32. At the hearing, plaintiff did not dispute this narrower proposal. In fact, counsel acknowledge that, “with every claim in [the] ‘232 [patent], it talks about an upper and lower pole being connected in the back-closure region, so there’s going to be inherently within the claim somewhere a toroid.” Hrg.Trans., dkt. #80, at 101. See also id. at 102 (“I’m not sure if we’re really arguing about anything.”). Claim 36 of the ‘342 patent (the only claim in the ‘342 patent that does not include an express “toroidal” limitation) is the same as the ‘232 patent in this respect.

Counsel stated, “I don’t know what mischief defendants are going to make” with their proposed construction, id. at 101, but that is not a substantive objection. Because the parties agree that all of the claims require a toroidal write element, I am adopting that construction.

### C. Terms in Western Digital, 10-cv-694-bbc Only

#### 1. “Transitioning front portion”

**Plaintiff’s Proposed Construction:** a fan-like portion of the yoke arm

**Western Digital’s Proposed Construction:** a front portion that narrows in width

The original dispute for this term was whether “transitioning” means “narrows in width.” However, in its response brief, plaintiff says that it “is willing to agree that the

transitioning front portion is a front portion that narrows in width and that it is narrower at the top pole-tip portion than the second back portion.” Dkt. #69, at 38.

The only remaining dispute relates to changes that Western Digital made to claim language surrounding the term “transitioning front portion.” (Western Digital's modified "extending *between* said second back portion *and* said top pole-tip portion," to "extends *from* said second back portion *to* said top pole-tip portion.") At the hearing, defendant's counsel's only explanation for its change is that the “jury is not going to understand” the claim language. Hrg.Trans., dkt. #80, at 106. However, in the context of claim construction, sufficient unto the day is the evil thereof. Because the parties do not identify any issues of infringement or invalidity that will be resolved by tinkering with the claim language, I decline to do so now. O2 Micro Intern. Ltd. v. Beyond Innovation Technology Co., Ltd., 521 F.3d 1351, 1361-62 (Fed. Cir. 2008) (“District courts have an obligation to construe terms when it is necessary to resolve a genuine and material legal dispute between the parties.”). If either party believes that changes are necessary to help the jury better understand a claim, that party may include a proposal in its motions in limine.

2. “A predetermined length and width”

**Plaintiff's Proposed Construction:** plain meaning; “a” means “one or more”

**Western Digital's Proposed Construction:** a single length and a single width

This term appears in claims 1, 26 and 38 of the '342 patent and claims 38 and 39 of the '232 parent. The dispute is whether "a predetermined length and width" means that the length and width are constant. I conclude that Western Digital has failed to show that it does.

"Constant" is not the lay meaning of the word "predetermined," as even the dictionary definitions cited by Western Digital show. Dft.'s Br., dkt. #78, at 65 (Case No. 10-cv-694-bbc). Rather, these definitions include, "[t]o establish or ascertain definitely, as after consideration, investigation, or calculation," "[t]o limit in scope or extent," "[t]o fix or define the position, form, or configuration." Id. (citing American Heritage Dictionary of the English Language (3rd ed. 1996), and Merriam-Webster's Collegiate Dictionary (10th ed. 1993)). Although an inventor is free to act as his own lexicographer, defendant Western Digital cites nothing in the specification or the prosecution history that defines "predetermined" as "constant." In fact, the word "predetermined" does not appear anywhere in the specification for either patent. Western Digital points out that the specifications discuss "constant-width" embodiments, but that seems to undermine Western Digital's argument rather than support it because it shows that the inventor knew how to describe a constant width when he wanted to do so. Because Western Digital cites no intrinsic or extrinsic evidence that supports its construction, it is not necessary to consider the various canons that plaintiff relies on.



Western Digital's strongest argument is that the term adds nothing to the claim if it is given its ordinary meaning of "determined before." This is because the widths of all structures in the write head *always* will be determined during the fabrication process. Plaintiff did not address this issue in its briefs or at the hearing. Although Western Digital is correct about the canon that terms should not be interpreted in a manner that renders them superfluous, Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1372 (Fed. Cir. 2005), that canon does not give a court license to adopt a construction that has no support. Accordingly, I decline to construe "predetermined" to mean "constant."

3. "Extending along substantially the entire width" and "extending along substantially an entire width"

**Plaintiff's Proposed Construction:** plain meaning

**Western Digital's Proposed Construction:** extending along at least 90% of the entire width

The dispute is whether the word "substantially" means "at least 90%" in the context of the asserted claims. In arguing that it does, defendant Western Digital relies on a passage from the specifications that defines "along substantially their entire width" to mean "at least 90%." '342 pat., col. 9, lns. 33-39. This is persuasive until it is revealed that the passage comes from a discussion of an embodiment, not the invention generally.

Plaintiff relies on the doctrine of claim differentiation because claim 33 of the '232 patent, which depends from claim 1, includes an "at least 90%" limitation. In the absence of stronger evidence to the contrary from the specification, I agree with plaintiff that the doctrine controls.

Because plaintiff does not propose an alternative construction, rejecting defendant's proposed construction leaves the meaning of the term unresolved. Plaintiff is unconcerned, arguing that the term's "plain meaning can be fully understood by a jury." Plt.'s Br., dkt. #69, at 47. In support of that view, plaintiff cites Anchor Wall Systems, Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1310-11 (Fed. Cir. 2003), in which the court stated that "words of approximation, such as 'generally' and 'substantially,' are descriptive terms commonly used in patent claims to avoid a strict numerical boundary to the specified parameter." However, the court did *not* hold that it is the job of the jury to determine for itself the meaning of an unclear term. In fact, the court remanded the case because the district court had failed to provide a construction of the term. Id. at 11. This is consistent with O2 Micro International, 521 F.3d at 1361-62, in which the court stated that the district court *must* construe a term if the parties dispute its scope, even if it is "a common term with a common meaning"; "the court, and not the jury, should resolve claim construction disputes." Id. at 1362 n.3.

Thus, a term like "substantially" may elude a mathematically precise construction, but

the court and the parties still have an obligation to provide guidance to the jury on the meaning of the term. Further, at summary judgment, I will have to determine whether a reasonable jury could find that the accused products meet this limitation, either literally or under the doctrine of equivalents. Plaintiff cannot immunize itself from summary judgment simply by arguing that the court is barred from construing the term.

In Medrad, Inc. v. MRI Devices Corp., 401 F.3d 1313, 1318-19 (Fed. Cir. 2005), the court suggested that the term "substantially" often may be construed in light of the purpose of a particular limitation. Unfortunately, neither side attempted to do this in their briefs, but this is something the parties should consider for later stages of the case.

#### ORDER

IT IS ORDERED that U.S. Patent Nos. 5,995,342 and 6,195,232 are CONSTRUED as follows:

- (a) "elongated" means "has more length than width";
- (b) "back-closure region" and "back-closure contact area" may include a hole or a pillar;
- (c) "contact pads" do not need to be "enlarged";
- (d) "top/bottom magnetic pole" does not mean "the upper/lower of two magnetic poles"; there are no other poles above the "top" pole or below the

"bottom" pole;

(e) “a thin film head (TFH) device” and “a thin film head (TFH) magnetic transducing device” include a toroidal write element;

(f) “transitioning front portion” means “a front portion that narrows in width”;

(g) “a predetermined width and length” does not mean that the width and length are constant;

(h) “substantially” does not mean “at least 90%.”

Entered this 17th day of October, 2011.

BY THE COURT:

/s/

BARBARA B. CRABB

District Judge