IN THE UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

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RICOH COMPANY, LTD.,

OPINION AND ORDER

Plaintiff,

06-C-462-C

v.

QUANTA COMPUTER, INC., QUANTA STORAGE, INC., QUANTA COMPUTER USA, INC., NEW UNIVERSE TECHNOLOGY, INC. and NU TECHNOLOGY, INC.,

Defendants.

- -

Plaintiff Ricoh Company, Ltd. manufactures and sells optical disk drives, including those used to play and record CDs and DVDs. Defendants are competitors that plaintiff is suing for infringement of four patents related to different aspects of the recording process. The case is currently before the court on the parties' cross motions to construe several terms in each patent. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir.1998) (claim construction is first step of patent infringement determination). Two former defendants, Asustek Computer Inc. and ASUS Computer International, filed an opening brief supporting their interpretation of the claims. Because I have since dismissed the

complaint as to those defendants for lack of personal jurisdiction, I have not considered their brief.

As Karl Llewellyn famously demonstrated many years ago, for every canon of construction there is a counter canon. Karl N. Llewellyn, Remarks on the Theory of Appellate Decision and the Rules or Canons about How Statutes Are to Be Construed, 3 Vand. L. Rev. 395 (1949-1950). Although Professor Llewellyn was commenting on the interpretation of statutes, his observation applies no less in the context of the construction of patent claims, as is demonstrated by this case. One the one hand, it is a "bedrock principle" that a patent's claims define the scope of the invention and that examples or limitations present in the specification may not be read in to the claims. E.g., Ventana Medical Systems, Inc. v. Biogenex Laboratories, Inc., 473 F.3d 1173, 1181 (Fed. Cir. 2006); Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 (Fed. Cir. 1988). On the other hand, it is equally well established that the specification is the "single best guide to the meaning of a disputed term." E.g., MBO Labs, Inc. v. Beckton, Dickinson & Co., 474 F.3d 1323, 1329 (Fed. Cir. 2007); Semitool, Inc. v. Dynamic Micro Systems Semiconductor Equipment GmbH, 444 F.3d 1337, 1347 (Fed. Cir. 2006); Vitronics, 90 F.3d at 1582.

These dueling canons form the basis for many of the parties' disputes regarding claim construction. With respect to several terms, one side (usually defendants) seeks to use the

specification to define the claim while the other argues that doing so would be improper. In a recent en banc decision, the Court of Appeals for the Federal Circuit recognized "that the distinction between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice." Phillips v. AWH Corp., 415 F.3d 1303, 1323 (Fed. Cir. 2005). In determining whether a reference in the specification is an interpretation or imported limitation, I have borne in mind the court's instruction that the "manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent." Id.

In their opening briefs, the parties sought constructions for the following terms: "f," "dividing said tracks into a plurality of concentric annual blocks" and "to be accessed" in United States Patent No. 5,063,552; "background process," "starting a formatting process for said optical disc[1] as a background process," "packets having a fixed length," "interrupting . . . and resuming" and "notifying completion" in U.S. Patent No. 6,172,955; "pulse width," "multi-pulse portion" and "the multi-pulse portion having a given duty ratio z = t2/(t2 +t3)" in United States Patent No. 6,631,109; "encoded information," "causing," "run-out blocks / run-in blocks," "maintaining said encoded information" and "maintaining data succession"

[1] Some of plaintiff's patents spell this word "disc" while others use "disk." In this opinion, I have followed the parties' example by using a "k" except in instances in which I am quoting a contrary spelling in a patent.

in United States Patent No. 6,661,755. Because the parties have resolved any disputes regarding the terms "f," "causing" and "run-out blocks / run-in blocks," I have not construed those terms. The remaining terms are construed below.

OPINION

A. U.S. Patent No. 6,631,109

Invention: Using a particular pattern of laser pulses, or "write strategy," to prevent overheating during recording process

Disputed Claims (disputed terms in bold):

> Claim 1:
>
> An optical recording method which records a sequence of data blocks onto a recording layer of an optical recording medium by emitting light to the recording layer of the medium and changing a phase of a recording material of the recording layer, comprising the steps of:
>
> applying a light source driving power to a light source to control emission of a light beam to the recording layer of the medium, the driving power including a sequence of mark and space portions, each mark portion having a **pulse width** that corresponds to a multiple of a period T of a write clock based on a write data modulation method;
>
> setting a multi-pulse waveform of each mark portion of the driving power that includes a front-end portion, **a multi-pulse portion** and a tail-end portion, the front-end portion having a first pulse width t1 with a high-power write level Pw and starting from a middle-power erase level Pe, the multi-pulse portion including a sequence of write pulses each having a second pulse width t2 with the write level Pw and a third pulse width t3 with a low-power base level Pb, **the multi-pulse portion**

having a given duty ratio z = t2/(t2 +t3), and the tail-end portion having a fourth pulse width t4 with the base level Pb and ending at the erase level Pe;

setting a linear velocity of rotation of the medium at a controlled speed;

and controlling the waveform when the linear velocity of rotation of the medium is set in a high-speed range from 5 m/s to 28 m/s, such that the first pulse width t1 of the front-end portion ranges 0.1T to 1T and the fourth pulse width t4 of the tail-end portion ranges 0.2T to 1.3T

1. Pulse width (claim 1)

Plaintiff's construction: No construction needed

Defendants' construction: "the time interval between the leading and trailing edges of the pulse"

Although plaintiff initially argued that no construction was necessary for this term, at the claims construction hearing, it stated that it would not object to a construction that clarified that "width" was measured in time rather than distance. However, plaintiff objects to defendants' proposal specifying that the width is measured using the "edges" of the pulse. In fact, plaintiff objects to including in the construction any explanation of how the width is measured.

Plaintiff's explanation for this objection is not completely satisfactory. On the one hand, plaintiff says that "[p]eople of ordinary skill in the art know how to measure pulse duration. Engineers do this all the time." Dkt. #186, at 11. In other words, plaintiff

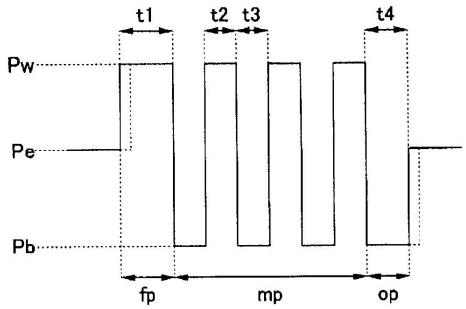
appears to be saying that it is so obvious to one of ordinary skill in the art how to measure pulse width that it is unnecessary to put it in the construction. However, plaintiff also says that "it's easy enough to tell where the edges are" only "when you have an idealized waveform;" a "real waveform doesn't have that kind of edge," suggesting that it will be too difficult to use the edges to obtain a measurement. Similarly, plaintiff acknowledges that experts may disagree about how to measure pulse duration, but suggests "that is a debate [to be resolved by] the jury." Dkt. #186, at 12.

So, is the term too easy to construe or too hard? Plaintiff never gave a straightforward answer to this question. However, regardless whether it is easy or difficult to measure a pulse, surely plaintiff agrees that a pulse (or anything else) is measured from its beginning to its end, which is essentially what defendants propose to include in the construction. Although it may be that the beginning and end are sometimes difficult to discern, this does not mean there is no beginning or end or that the beginning and end are ignored in calculating a measurement.

More open to debate is defendants' choice of the word "edges" to demarcate the beginning and the end. I agree with plaintiff that defendants have not adequately justified this choice. Defendants cite a computer science dictionary as the source of their proposal, but in Phillips the court of appeals cautioned district courts not to rely solely on dictionary definitions because doing so is "unlikely to result in a reliable interpretation of patent claim

scope unless considered in the context of the intrinsic evidence," such as the specification. Phillips, 415 F.3d at 1319. Further, defendants' definition does not come directly from a dictionary; it is one that defendants modified. The dictionary definition cited by defendants states that a "pulse width" is "the time interval between *the points on* the leading and trailing edges of the pulse." Dkt. #175, Exh. F, at 894 (emphasis added). At the hearing, defendants said they decided to drop the reference to "points" in part because the patent teaches waveforms with straight edges. However, their only support for this assertion is one figure shown in the specification:

FIG.4B



Defendants' reliance on this figure is unpersuasive for two reasons. First, a description of one preferred embodiment cannot be read into the claim unless the specification makes it clear that the description relates to the invention as a whole rather than to one example.

SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc., 242 F.3d 1337, 1343 (Fed. Cir. 2001) (limitation from specification could be read into claim when specification made it clear that limitation applied to all embodiments). Defendants have not shown this. Rather, the specification refers to Figure 4B as "an example." '109 Patent, col. 10, ln. 28. Further, defendants point to nothing in the specification suggesting that Figure 4B represents what the waveform actually looks like rather than an idealized or simplified form of it used for purposes of demonstration.

Accordingly, I conclude that defendants have not established that claim 1 of the '109 patent requires the pulse to be measured from its "edges." Further, because neither side advocates a construction using "points on the edges," I am not prepared to adopt that construction at this time. Plaintiff may be right that the precise method of measurement is a question of fact that cannot be resolved as a matter of claim construction. Markman v. Westview Instruments, Inc., 517 U.S. 370, 384 (1996) (claim construction is question of law, not fact). However, because the parties appear to agree that the pulse is measured in time and that the pulse is measured from the beginning to the end, I will incorporate these concepts into the construction of "pulse width."

Court's construction: the time interval between the beginning and the end of the pulse

2. A multi-pulse portion (claim 1)

Plaintiff's construction: " a portion of the waveform with multiple pulses"

Defendants' construction: "the entire region between the front-end portion and the tail-end portion"

The dispute is whether the "multi-pulse" portion of the waveform includes everything between the front-end portion and tail-end portion or whether there may be other (unidentified) portions in the wave. The relevant portion of the claim provides: "a multi-pulse waveform of each mark portion of the driving power that includes a front-end portion, a multi-pulse portion and a tail-end portion." According to defendants, the multi-pulse waveform has three parts and only three parts: a front-end portion, a multi-pulse portion and a tail-end portion. Thus, the multi-pulse portion must encompass everything between the front and tail-end portions.

According to plaintiff, the multi-pulse wave form is not limited to the three portions named in the claim. Plaintiff points out that, under the claim language, a multi-pulse waveform "includes" those three portions. In the context of patent claims (and in ordinary English), use of the word "includes" does not restrict the claim to the named elements. Rather, it means that "the named elements are essential, but other elements may be added and still form a construct within the scope of the claim." Amgen Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1345 (Fed. Cir. 2003) (quoting Genentech, Inc. v. Chiron

Corp., 112 F.3d 495, 501 (Fed. Cir. 1997)).

Defendants have not explained why this general rule would not apply in this case. They say that in all the embodiments discussed in the patent, there are no portions mentioned other than the front-end portion, the tail-end portion and the multi-pulse portion, but they point to no language suggesting that those embodiments limit the claim. Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 906 (Fed. Cir. 2004) (rejecting argument that claim is limited to embodiments, even when all described embodiments include same limitation); Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004) (even patent that describes single embodiment is not necessarily limited by that embodiment). They say also that because the patent does not discuss other portions, the invention must be limited to those or the public is left without sufficient notice regarding what infringes and what does not. The answer to this is that anything that includes those three portions (and the other elements of the claim) infringes, regardless what else is included. Accordingly, I reject defendants' argument that the multi-pulse portion must encompass everything between the front-end portion and the tail-end portion.

In looking at plaintiff's proposed construction, it is clear that it is just another restatement of the term that adds no additional insight into the meaning. Accordingly, I conclude that this term requires no additional construction.

Court's construction: No construction needed

3. multi-pulse portion having a given duty ratio z=t2/(t2+t3) (claim 1)

Plaintiff's construction: "a multi-pulse portion has a given ratio, z, where z is the result of dividing (i) the pulse width at high power (t2), by (ii) the sum of the pulse width at high power (t2) plus the pulse width at low power (t3)"

Defendants' construction: the entire multi-pulse portion having a given ratio of pulse duration to pulse period equal to z = t2/(t2+t3)

Plaintiff's proposed construction is a primarily a translation of the equation into word form. Defendants' version is substantially different from plaintiff's, but the only part of their own proposed construction for which they advance an argument is the word "entire." Defendants say that, whatever the multi-pulse portion is, the entire portion must have the same "duty ratio." It is not clear whether plaintiff disputes defendants' position because plaintiff combined its argument for this term with its argument for "multi-pulse portion," which also involved the word "entire" but in a different context. To the extent that plaintiff intended to object to inclusion of the word "entire" in the construction of this term, I agree with defendants that the word should be included.

The claim itself does not specify whether the "entire" multi-pulse portion has a given ratio or whether only a part of it does, but in context it is clear the claim implies that all of

the multi-pulse portion has the same ratio. When one says that something has a particular property, the natural inference is that all of it has that property unless it is otherwise specified. For example, if someone says that "the ball is red," this would suggest that *all* of the ball was red, rather than half red and half another color. Or if one made a statement that "the ratio of women to men in the class was three to one," this would mean that if one counted *all* of the women and *all* of the men in the class, there would be three times as many women. If a particular subset of men and women were intended, this would be specified ("the ratio of women in the class with blonde hair to men with blonde hair was three to one"). Similarly, one would expect that the inventor would have specified that only a part of the multi-pulse portion had the given ratio if that is what the inventor intended. The claim says that "the" multi-pulse portion has the ratio, not a part of it.

However, I cannot adopt the rest of defendants' proposed construction. The phrases "pulse period" and "pulse duration" are not included in the claim or anywhere else in the patent and defendants do not otherwise explain why those terms should be introduced. Accordingly, I will adopt plaintiff's construction, with the exception that I will add the word "entire."

Court's construction: "the entire multi-pulse portion has a given ratio, z, where z is the result of dividing (i) the pulse width at high power (t2), by (ii) the sum of the pulse width

at high power (t2) plus the pulse width at low power (t3)"

B. U.S. Patent No. 5,063,552

Invention: Combines positive attributes of two different kinds of optical disk recording and reproduction methods to enhance the efficiency and economy of the process. In particular, the invention uses "annular zones" on the disk to determine the reproduction speed and the rotation speed of the disk.

Claims:

Claim 1:

A method for controlling an information recording and/or reproduction speed "f" and a rotation speed "n" of an optical disk used in an information recording and/or reproduction device, said optical disk having a plurality of tracks in the form of concentric circles or a spiral, said information recording and/or reproduction device being adapted to access said tracks by means of a light beam while rotating said optical disk, thereby to optically record information on or reproduce information from said tracks, said method comprising the steps of:

dividing said tracks into a plurality of concentric annular blocks which are different in radius from each other;

changing said information recording and/or reproduction speed "f" in accordance with the radius of a track **to be accessed** in such a manner that said recording and/or reproduction speed "f" is constant within a block but different as between said blocks depending on the block radii;

and changing said rotation speed "n" of said optical disk in such a manner that f/(n...r) is constant, where ""r" is the radius of said track to be accessed.

1. dividing said tracks into a plurality of concentric annular blocks (claim 1)

Plaintiff's construction: "segregating the tracks into nonoverlapping, ring-shaped regions on an optical disk"

Defendants' construction: "segregating the tracks into non-overlapping, ring-shaped regions on an optical disk, in which no track ever belongs to more than one block"

Plaintiff's construction of this term is nothing more than a restatement of the claim using somewhat simpler words: dividing = segregating; concentric = nonoverlapping; annular blocks = ring-shaped regions. Plaintiff does not seek to further define the word "track," which the parties agree is one spiral on a disk. Defendants do not have a problem with plaintiff's rewording, but they wish to add another phrase, "in which no track ever belongs to more than one block." In other words, defendants argue that once a particular block or region is created, it cannot ever be changed. For its part, plaintiff agrees that a track cannot be included in more than one block *at a time*, but that the blocks may change if the disk is re-recorded. The patent expressly contemplates that the invention will use rewritable disks. '552 Patent, col. 1, lns. 14-18.

Defendants' limitation is found nowhere in the claim itself, so they have an uphill battle in showing that the limitation should be part of the construction. Unfortunately for them, they point to nothing in the specification indicating a requirement that the blocks be permanently fixed. In their briefs and at the claim construction hearing, defendants did not

address head on why a block may not be different with each new recording. Instead, at the claim construction hearing, defendants made the following (somewhat convoluted) argument:

> We know there are tracks on the disk. Those tracks do not change. Those tracks, the positions of those tracks never chang[e] which mean the radius never changes, which means the "f," which is to be changing in accordance with the radius, should not change. And if we were allowed to divide blocks different and at a different times, meaning that a track could, for example, be in zone one at one time and be in zone two at the second time, according to the claim which also requires that the "f" be different between blocks, that you would have two "f"s for the same track and the claim does not allow that. The claim requires that the "f" be changed according to the radius of the track which never changes, and therefore it follows that the "f" never changes and it follows that the block – the division never changes.

Dkt. #186, at 91. As claim 1 indicates, "f" is the reproduction speed.

If I understand it correctly, defendants' argument has several premises on which their conclusion relies: (1) the position of each track on a disk is constant; (2) because the position of the tracks is constant, the radius for that track is constant; (3) because the radius is constant, the reproduction speed is constant; (4) because the reproduction speed is constant, the blocks must be permanently fixed. Defendants' logical procession is far from self evident. In particular, the fourth and final premise appears to be a non sequitur. The patent says only that the reproduction speed, or "f" is constant within a particular block. It is silent (and therefore neutral) on the question whether the virtual boundaries must be drawn the same way each time the disk is rewritten. Because the patent does not prohibit

the invention in claim 1 from changing the blocks with respect to each recording, I cannot read in the limitation that defendants propose. Although one could argue that no construction of this term is needed, I will adopt plaintiff's construction because it is written in language that a jury might find a bit more accessible than the language of the claim itself.

Court's construction: "segregating the tracks into nonoverlapping, ring-shaped regions on an optical disk"

2. to be accessed (claim 1)

Plaintiff's Construction: No construction needed

Defendants' Construction: "intended for access in the future"

Although plaintiff insists that this term requires no construction, it objects vigorously to defendants' proposal and argues that "to be accessed" simply refers to a "class" of tracks. Although plaintiff is right that the claim is referring to a particular class of tracks, I agree with defendants that "to be" in the context of claim 1 refers to a future event. The part of the claim in which this term appears states: "changing said information recording and/or reproduction speed 'f' in accordance with the radius of a track **to be accessed** in such a manner that said recording and/or reproduction speed 'f' is constant within a block but different as between said blocks depending on the block radii." The claim is unambiguous:

the device first sets the reproduction speed and later accesses the track. In its own brief, plaintiff concedes that the "the track to be accessed" is "whatever track the drive *is going to access*," dkt. #174, at 12 (emphasis added), which indicates a future action. It may be the immediate future, but it is the future nonetheless.

As with a number of the proposed constructions, the dispute appears to be less about the actual construction and more about trying to predict what the other side will argue in the context of an infringement or invalidity analysis. Time and again, the parties admit their constructions are more or less the same, but each side just *knows* that the other side is going to attempt to use its proposed construction for an improper purpose farther down the road. In this case, plaintiff believes defendants' proposed construction "is another effort by the defendants to read a permanence limitation into this method by requiring future behavior to be the same as present behavior." Dkt. #174, at 12. If this is defendants' intent, it is not apparent from their submissions or from the proposed construction itself. It is not at all clear how reading "to be" to indicate a future event requires a "permanence limitation." In any event, as discussed in Section B.1., I have rejected defendants' view that the blocks on a disk cannot change each time the disk is re-recorded. Thus, although I adopt defendants' construction, it may not have the implications they believe it should.

Court's construction: "intended for access in the future"

C. U.S. Patent No. 6,172,955

Invention: Allowing a disk to be recorded before formatting is completed by making the formatting a background process during recording

Disputed Claims:

_____Claim 8:

_____A formatting method for formatting a rewritable optical disc, data being recorded on said optical disc by using a fixed packet write method, said formatting method comprising the steps of:

starting a formatting process for said optical disc as a background process, the formatting process being performed so as to fill a recording area of said optical disc by **packets having a fixed length**;

enabling execution of at least one of a recording process and a reproducing process by **interrupting** the formatting process and resuming the formatting process after the at least one of the recording process and the reproducing process is ended;

and ending the formatting process after the recording area to be formatted has been filled by the packets having the fixed length.

Claim 9:

A formatting method for formatting a rewritable optical disc, data being recorded on said optical disc by using fixed packet write method, said formatting method comprising the steps of:

starting a formatting process for said optical disc as a background process, the formatting process being performed so as to fill a recording area of said optical disc by **packets having a fixed length**;

enabling execution of another process while the formatted process is being performed;

and ending the formatting process after the recording are to be formatted has been filled by the packets having the fixed length, wherein the step of enabling comprises the step of **notifying completion** of the formatting process before the formatting process is completed.

1. Background process (claim 8)

Plaintiff's Construction: "a process performed automatically while a foreground process, such as reading to or writing from the disc, is not being performed"

Defendants' Construction: "a process performed by the optical disc drive so that another process can be accepted while the background process is being performed"

Although plaintiff argues vigorously in favor of its own proposed definition, the parties' constructions are not that far apart. The parties appear to agree that a "background process" is a lower priority than a foreground process and that the background process stops while the foreground process is running. At the claim construction hearing, defendants offered no argument on this term.

Plaintiff disputes defendants' use of the word "accepted," which plaintiff says is ambiguous and allows the drawing of an inference that the two processes are occurring simultaneously. One problem with plaintiff's argument is that "accepted" is the word used throughout the patent to describe this process. However, I agree with plaintiff that using the word "accepted" without further clarification leaves the construction ambiguous. Further,

defendants did not make an argument in their briefs or at the hearing for keeping that word in the definition, suggesting that they do not object to its omission.

In their response brief (but not at the hearing), defendants included a short discussion questioning plaintiff's use of the word "automatically" because it does not appear in the claim or in any other part of the patent. Dkt. #183, at 7. In defending the inclusion of "automatically," plaintiff says that "background process" is a term of art in the computer science field and that "automatically" commonly appears in those dictionary definitions. Again, however, it is not enough to point to a dictionary to support a particular construction because dictionaries, even technical ones, do not speak directly to the invention at hand. Phillips, 415 F.3d at 1318-19. The key question is whether the patent itself adopts a dictionary definition or whether it adopts a meaning more tailored to the particular invention. Because plaintiff neither makes a showing that the patent incorporates that definition nor makes any other argument for its inclusion, I will omit it from the construction.

I conclude that this is another term that needs no construction. Again, the parties noted two important aspects of a background process: (1) it can be interrupted by other, higher priority processes; and (2) it is not performed while the high priority process is being performed. These two ideas are already incorporated into the claim itself, which makes clear that the background process is "interrupted" by the request for a recording or reproducing

process and that the background process "is resumed" once the other process is finished.

Court's Construction: No construction needed

2. starting a formatting process for said optical disc as a background process (claims 8 and 9)

Plaintiff's Construction: "Starting formatting of an optical disc, which an optical disc drive does as a background process"

Defendants' Construction: "initiating or beginning a formatting operation for said optical disc, in which a recording operation or a reproducing operation can be accepted while the formatting operation is being performed"

This term represents the strongest example of the parties' tendency to make much ado about nothing. Plaintiff admitted when addressing this term at the hearing that "the distinction between parties' position[s] is not obvious from looking at their proposed constructions." Dkt. #186, at 42. I will take this one step further by saying that the substance of the parties' respective definitions is essentially identical, with the only difference being that defendants propose replacing the word "starting" with "initiating or beginning." However, during the hearing, defendants conceded that "I think everyone pretty much knows what starting means." Dkt. #186, at 55.

If the parties' constructions are the same, what is the dispute about? Both in its briefs and at the hearing, plaintiff devoted much argument to the question whether the formatting process must remain in the background at all times. However, nothing in plaintiff's proposed construction reflects the answer to this question and I am not going to invent a construction when neither side advanced one, particularly because the term addresses the "starting" of a formatting process, not any other part. Plaintiff argues also that this term should not be construed to require that the formatting process begin as a background process. On its face, this proposal is directly contrary to the claim language. Plaintiff does not explain how "starting a formatting process . . . as a background process" can be read to mean that the formatting process does *not* start as a background process. In any event, plaintiff does not propose a construction that reflects its understanding. Accordingly, I conclude that this term cannot be construed further at this time.

Court's construction: No construction needed

3. packets having a fixed length (claims 8 and 9)

Plaintiff's construction: "packets each containing the same number of user data blocks"

Defendants' construction: "a CD-RW data structures having a fixed number of user data blocks and a fixed number of linking blocks"

The difference between the parties' constructions with respect to this claim is much clearer. Defendants' proposal inserts a number of concepts that are not found in the claim, which immediately raises red flags. In particular, defendants seek to limit the packets to "CD-RW data structures" that have a fixed number of "linking blocks." In support of its CD-RW limitation, defendants cite a line in the specification that states, "[a] minimum unit for recording information on an optical disc such as a CD-R or a CD-RW is defined as a packet." '955 patent, col. 1, lns. 21-22. (Because the patent encompasses rewritable disks only, '955 patent, col. 1, lns. 10-14, defendants excluded CD-R disks from their proposed construction.) However, as plaintiff points out, it is clear from the use of the phrase "such as" that the reference is illustrative, not restrictive. JVW Enterprises, Inc. v. Interact Accessories, Inc., 424 F.3d 1324, 1335 (Fed. Cir. 2005) (examples are not limitations). Defendants point to nothing else in the claims or in the specification that would prohibit claims 8 and 9 from including rewritable DVDs.

Defendants also fail to show that "packets having a fixed length" means that the packets included a fixed number of "linking blocks," a term not used in the patent. The specification does refer to "link blocks," though exactly what they are is not disclosed. "Link blocks" are included in the packet. E.g., '955 Patent, col. 1, lns. 22-24 ("Each packet comprises at least one user data block, five link blocks . . . "). But the specification does not define a "packet having a fixed length" as a packet having a fixed number of link blocks.

Rather, the specification states that "[t]he number of user data blocks within a packet is referred to as a packet length or packet size" and that "[i]n the fixed packet write method [which is the method described in claims 8 and 9], a number of user data blocks within a track is set to a fixed number." '955 patent, Col. 1, lns. 58-61 (emphasis added). Thus, although a packet includes link blocks, link blocks are not used to determine the packet's length. Because the length is determined using the data blocks only, a packet having a fixed length must have a fixed number of data blocks, but the number of link blocks is not so restricted.

Court's construction: "packets each containing the same number of user data blocks"

4. interrupting[2] (claim 8)

Plaintiff's construction: stopping temporarily or suspending the execution of a program or process upon receipt of an interrupt signal at any time, so that another program or process can be performed

Defendants' construction: temporarily stopping a formatting operation

[2] The parties offered the term "interrupting . . . and resuming" for construction, but I have omitted "resuming" because the parties' briefs and arguments at the hearing made it clear that the meaning of "resuming" is not in dispute.

For this term, it is plaintiff that proposes the much more complicated construction. While defendants propose the ordinary, non-technical meaning of "interrupting," plaintiff seeks to include the purpose of the interruption ("so that another program process can be formed"), its timing ("at any time") and that the interruption occurs as the result of an "interrupt signal."

As an initial matter, it seems unusual to include the *purpose* of the interrupting in the *definition* of interrupting because it limits the term's meaning to a particular type or subset of interrupting that is not suggested by the word alone, at least its ordinary meaning. In any event, including the purpose of the interruption in the construction would be redundant because the surrounding claim language shows that the formatting process is interrupted in order to "enabl[e] the execution" of another process. There is no need to repeat this in the construction of a particular term in the claim.

With respect to plaintiff's proposal that the interruption occur "at any time," the language of the claim itself does not limit the timing of the interruption, so this part of plaintiff's proposal should be adopted unless defendants can point to something in the specification restricting the interruption to a particular time. Because defendants did not object to this part of plaintiff's construction in their briefs or at the hearing, I will adopt it.

The biggest dispute surrounding this term is whether the claim requires that the "interrupting" occur in response to an "interrupt signal." It is plaintiff that must make a case

to include this term because the claim does not include a reference to an "interrupt signal." In fact, as defendants point out, there is no mention of an "interrupt signal" anywhere in the entire patent.

At the hearing, plaintiff modified its position somewhat by saying that the precise words "interrupt signal" are not important, but rather what matters is that the construction include the idea that the formatting process is suspended in response to a read or write request. In support of this position, plaintiff cited several passages in the specification:

• "the background formatting means may include means for interrupting the formatting process when a request for recording user data is made," '955 Patent, col. 3, lns. 20-23;

• "the background formatting means may include means for interrupting the formatting process when a request for reproducing data recorded in a designated area is made," '955 Patent, col. 3, lns. 40-43;

• "the controller 9 serves to interrupt the formatting operation when a request is made for reproducing user data recorded in a designated area during the formatting operation in the background process," '955 Patent, col. 7, lns, 11-13.

Plaintiff is correct that in each of these passages, there is a reference to "interrupting . . . when a request is made," but these references do not *define* "interrupting" to mean that the process is stopped in response to a request. In other words, the references suggest that

the interruption occurs after a request, but they do not suggest that the making of a request is inherent in the meaning of "interrupting" as it is used in the patent. They are separate concepts.

Further, even if I concluded that each of the cited references defined "interrupting" in the manner suggested by plaintiff, it would not necessarily follow that "interrupting" has the same meaning in claim 8. This presents another question whether the specification is being used to interpret the claim or to import limitations into the claim. The first two citations say only that the background formatting process "may" include a means for interrupting when a request is made; it does not require it. The third citation is in the context of a discussion of one of the preferred embodiments; it does not purport to be a requirement for all embodiments.

It would have been easy enough for the inventor to include plaintiff's suggested limitation in the claim itself. Rather than its current form, the relevant portion of claim 8 could have stated (as plaintiff's references in the specification do), that the device "enabl[es] execution of at least one of a recording process and a reproducing process by interrupting the formatting process *in response to a request* . . . ." The omission of this phrase strongly suggests that it is not part of the claim and should not be read back into it.

Notably, claims 10 and 12 of the '955 patent *do* include language that interrupting occurs "when a request . . . is made." '955 Patent, col. 13, lns. 52-53, 66-67. Plaintiff

believes that claims 10 and 12 support its position, but I think it is just the opposite. The presumption in claim construction is that inventors choose their words carefully. Phillips, 415 F.3d at 1314 ("Differences among claims can also be a useful guide in understanding the meaning of particular claim terms."). The inventor's decision to expressly state in claims 10 and 12 that the interruption occurs in response to a request indicates that the omission in claim 8 was purposeful. Also, if "interrupting" in the context of the '955 patent inherently means that it occurs in response to a request, as plaintiff says, there would be no need to include the additional language in claims 10 and 12, unless the term means one thing in claim 8 and another in claims 10 and 12. This would conflict with the presumption that the same term has the same meaning throughout the patent, Phillips, 415 F.3d at 1314, a presumption that plaintiff has not even attempted to overcome.

Accordingly, I will adopt defendants' proposal, with the proviso that the interruption may occur at any time.

Court's construction: temporarily stopping a formatting operation, which may occur at any time

5. notifying completion (claim 9)

Plaintiff's construction: "providing notice that the formatting process is complete, when

in actuality it is not"

Defendants' construction: "outputting a message to the host computer that the formatting process is complete, when in actuality it is not"

The dispute is whether it is the "host computer" that must be notified. Defendants say "yes"; plaintiff says that it does not matter who or what gets notified so long as someone or something is notified. For this term, the claim language supports plaintiff because there is no indication in the claim itself that the host computer, or any other particular entity, must receive the notification.

Defendants make several related arguments why a "host computer" limitation should be read into the claim. First, they say that when the specification addresses the issue of notification, it is always notification to the host computer. Each of these references is nearly the same: "the controller 9 outputs . . . a message to a host computer so as to notify a user (the host computer) that the formatting process has been completed." '955 Patent, col. 8. lns. 7-10, 33-35; col. 9, lns. 3-6, 54-58; col. 10, lns. 33-37; col. 11, lns. 39-43. However, as plaintiff points out, each of these references is in the context of a discussion of a preferred embodiment, which cannot be used to limit the claim. In arguing to the contrary, defendants cite Andersen Corp. v. Fiber Composites, LLC, 474 F.3d 1361, 1367 (Fed. Cir. 2007), in which the court held that particular "statements are not descriptions of particular embodiments, but are characterizations directed to the invention as a whole." Anderson

does not help defendants because, in that case, the specification included statements that were not limited to particular embodiments but discussed a restriction that was "require[d]" by the invention as general matter. Id. That is not the case here.

Second, defendants say that the purpose of the invention suggests that it is the host computer being notified in claim 9. Defendants write: "If the notification is not provided to the host computer, the host computer will believe that the drive is busy formatting and will not accept read or write requests, defeating the purpose of the invention." Dkt. #183, at 10-11. As I understand defendants' argument, it is that (1) the host computer decides whether to "accept" a read or write request; (2) the host computer cannot accept such a request unless it knows that drive is finished formatting; and therefore (3) if the host computer does not receive notice of completion of formatting, it cannot read or write a disk.

In my view, this argument falls apart at its second premise. The point of the invention is to allow other, higher priority processes to be performed even after formatting has started. Thus, the host computer does not need notice that formatting has finished in order to accept another request. If defendants intended to make a different argument, they have not made it clear.

In addition, plaintiff disputed the accuracy of defendants' first premise at the hearing, saying that it is not necessarily the case that the host computer controls the reading and writing process; it could be a network, a controller or a program on the drive. Dkt. #186,

at 51. Defendants disputed this claim, saying that "any request to the drive would have to come through a host computer." Dkt. #186, at 60. Defendants may be correct as a matter of fact and they may present evidence on this question at the summary judgment stage if they believe it is relevant to an issue of infringement or invalidity. However, defendants point to nothing in the claim itself that requires the host computer either to control the recording process or to receive notification that formatting is complete. Accordingly, I conclude that it would be incorrect to read in a "host computer" limitation into claim 9 as a matter of claim construction.

Both parties include in their proposed constructions the phrase "when in actuality it is not" for the idea that the notification occurs before formatting is actually complete. Again, this part of the construction is redundant because this idea is communicated by the claim itself. '955 Patent, col. 13, lns. 47-49 ("notifying completion of the formatting process before the formatting process is completed"). Because this phrase is unnecessary and redundant, it should not be part of the construction.

This reduces plaintiff's construction to "providing notice that the formatting process is complete," but this does no more than restate the claim using a few additional words. (Defendants replace "notifying" with "outputting a message," but they provided no argument why that phrase was preferable. In any event, I do not think that the phrase adds any clarity to the claim.) Accordingly, I conclude that the term "notifying completion" does not require

any construction.

Court's construction: No construction needed

D. U.S. Patent No. 6,661,755

Invention: Creates a "buffer" during recording process by pausing the recording process when data runs out; this prevents the disk from becoming unusable.

Disputed Claims:

Claim 1:

A method of recording on an optical disc recording media, said method comprising the steps of:

transferring stored input information to an encoder; transferring encoded information to a record circuit;

causing an input buffer to contain less than a threshold amount of said input information;

and when said input buffer contains less than the threshold amount of said input information, pausing said transferring of said encoded information, to stop said record circuit at a first point on said optical disk recording media while **maintaining said encoded information**;

and wherein said record circuit does not write any run-out blocks while paused.

Claim 2:

A method of recording on an optical disc recording media, said method comprising the steps of:

transferring stored input information to an encoder; transferring encoded information to a record circuit;

causing an input buffer to contain less than a threshold amount of said input information;

when said input buffer contains less than the threshold amount of said input information, pausing said transferring of said encoded information, to stop said record circuit at a first point on said optical disk recording media while maintaining said encoded information;

causing said input buffer to contain at least a second threshold amount of information; and resuming said step of transferring said encoded information to said record circuit, to thereby restart said record circuit while **maintaining data succession** across said first point on said optical disc recording media;

wherein said record circuit does not write any run-in blocks during said resuming.

1. Maintaining data succession (claim 2)

Plaintiff's construction: "When recording after the pause, writing to the disc in a manner such that the user's information is readable when the disc is subsequently played back."

Defendants' construction: "maintaining logical continuity of data (i.e., no dummy data) and physical continuity of data, within a tolerance of 2 clock bits, across said first point."

The parties' arguments for this term evolved throughout their briefing and at the hearing. The first dispute is what "data succession" means. Defendants say the invention requires two kinds continuity: "logical continuity" and "physical continuity." At the hearing,

defendants said that "physical continuity" is the "order" of data and "logical continuity" is "sav[ing] all the notes." Dkt. #186, at 85. In their briefs (and in their proposed construction itself), defendants say that "logical continuity" means that there is no "dummy data." Plaintiff says that data succession relates to "logical continuity" only and that logical continuity is the "sequence" of data, dkt. #186, at 102, which appears to be similar to defendants' view of "physical continuity."

The specification defines "data succession" as "continuity of data." '755 Patent, col. 1, ln. 44. It is not restricted to a particular type of continuity and continuity is not defined further. This suggests that continuity is meant in a general sense in that the data picks up where it left off, in all relevant respects.

This makes sense when reading the claim as a whole. According to claim 2, when the buffer becomes low on information, the recording is stopped "at a first point on said optical disk." '755 Patent, col. 9, lns. 5-9. Once the buffer is sufficiently refilled, recording is restarted "while maintaining data succession *across* said first point on said optical disc." '755 Patent, col. 10, lns.1-4 (emphasis added). Thus, the context of "data succession" indicates that it means there is no break in the data at the point the recording is paused; again, the data resumes where it left off.

I decline to read into the claim defendants' distinction between "logical continuity" and "physical continuity." Neither of these terms is found in the patent. As is

demonstrated by the parties' stark differences in understanding those terms, they do nothing to clarify the meaning of the claim; if anything, they make it more complicated. It is sufficient to say that "data succession" is the "the continuity of data."

Also, defendants' suggestion to incorporate the concept of "dummy data" is misplaced. "Dummy data" is mentioned multiple times in the patent, but not as a part of a definition of "data succession." Rather, the patent explains that if dummy data is written, data succession cannot be maintained. '755 Patent, abstract ("a write operation may be paused without writing data dummy data, thereby maintaining data succession"); id. at col. 1, lns. 44-46 ("Continuity of data, or data succession, is lost by inserting and writing dummy data."). In other words, an absence of dummy data is a cause of data succession, but the two concepts are not interchangeable.

The second dispute relates to the meaning of "maintaining." Plaintiff proposes a functional definition, which is that data succession is preserved enough to allow the disk to be read when it is played back. Defendants say that it requires a tolerance of no more than "2 clock bits." In support, defendants point to the following passage in the patent: "It is necessary, as shown in FIG. 6, to write succeeding data within a +/-2 bit clock error." '755 Patent '755, col 6, lns. 17-18.

In its briefs, plaintiff said that defendants were attempting to improperly import a description of a preferred embodiment into a claim, but the passage is written as more than

a description of an embodiment. First, the passage says that the +/- 2 clock bit level of tolerance is "necessary," indicating that it is a requirement rather than a preference or illustration. Further, it does not say that this level of accuracy is required in FIG. 6 only. Rather it says the requirement is "shown in FIG. 6," suggesting that it is a general requirement of which FIG. 6 provides one demonstration. Thus, this passage from the specification is like the one in Andersen Corp. 474 F.3d at 1367, in which the court held that it was proper to read in a limitation from the specification because the specification stated that the limitation was "require[d]."

At the hearing, plaintiff focused almost exclusively on another argument: the cited passage does not relate to data succession, but to data synchronization, which plaintiff says is not an issue to which the invention is directed. The problem with this argument is that it appears to be directly contrary to the passage, which addresses the tolerance for errors "to write succeeding data." Further, the description of Fig. 6 (the figure that shows the 2 bit clock tolerance level) states that the figure demonstrates how data is written “according to the present invention,” ‘755 Patent, col. 3, ln. 65, so plaintiff is incorrect that the required 2 clock bit tolerance level is not related to the invention.

Accordingly, I will adopt defendants’ proposal with respect to the tolerance level, but I will not adopt their suggestion to include “physical” and “logical” continuity in the construction.

Court's construction: "maintaining continuity of data within a tolerance of 2 clock bits"

2. encoded information (claim 1)

Plaintiff's construction: "information provided by the encoder of the optical disc drive to be sent to the recording circuit of the optical disc drive"

Defendants' construction: No construction needed

Defendants object to plaintiff's proposed construction because they say it imposes a limitation that encoded information must be in the encoder; once it is transferred to the recording circuit, it becomes something else. Plaintiff says that defendants have misread their proposal; "[w]hat matters is that the information has been encoded for writing to the disc (as contrasted with, e.g., information in a different format as sent from a host computer)." Dkt. #181, at 28.

I agree with defendants that plaintiff's use of the phrase "to be sent" suggests that the data cannot be "encoded information" once it is sent. Further, plaintiff provides no support for its construction. Accordingly, I conclude that this claim cannot be construed at this time.

Court's construction: No construction needed

3. Maintaining said encoded information (claim 1)

Plaintiff's construction: "When a recording operation on a recordable or rewritable optical disc is paused, preserving information that was encoded before the pause but not yet written to the disc"

Defendants' construction: "keeping the encoded data in the encoder and the recording circuit so that all encoded data at the time of pausing of the transfer is not lost, replaced or substituted"

The focus of the dispute for this term is what it means to "maintain." Plaintiff objects to two aspects of defendants' proposed construction: (1) it requires that encoded data be kept in the encoder; and (2) it prohibits any data from being lost, replaced or substituted.

With respect to the first part of defendants' construction, the claim itself is silent as to whether data must be "maintain[ed]" with respect to location or whether it is only the form of the data that is kept the same. At the hearing, plaintiff said that specification makes it clear that the claim does not require the data to remain in the encoder and recording circuit, pointing to a figure that shows that the information is kept in the random access memory. Vitronics Corp., 90 F.3d at 1583-84 (claim should be construed to include embodiments). Defendants' only response to this was the following statement: "I would, I guess to some extent, perhaps agree with them, although I would suggest that the [random access memory] that was pointed out as where the data was maintained would probably be considered part of the encoder and the recording circuit." Dkt. #186, at 79. However,

defendant offered no argument why the random access memory should be considered part of the encoder or the recording circuit. In fact, defendants offered no argument in their briefs or at the hearing defending their view on this issue. Accordingly, I reject defendants' suggestion to import a location restriction into the claim.

I may quickly reject the second aspect of defendants' proposed construction because it requires that the data be kept in the exact same form. As is acknowledged by defendants in the context of their proposed construction on "maintaining data succession," the meaning of "maintaining" in the '755 patent allows some room for errors. Thus, any construction requiring perfection is inconsistent with the patent. Further, the patent does not place a specific tolerance level on encoded information, making a functional definition appropriate.

Curiously, plaintiff does not propose such a definition, as it did with respect to "maintaining data succession." Instead, it simply replaces "maintaining" with "preserving," which adds nothing to the understanding of the claim. However, at the hearing, plaintiff agreed that it is seeking a functional definition. Therefore, I will adapt plaintiff's proposed construction for "maintaining data succession" and adopt it for "maintaining encoded information."

Court's construction: "keeping the encoded information such that it is readable when the disc is subsequently played back"

ORDER

IT IS ORDERED that the following terms are construed as follows:

(1) from U.S Patent No. 5,063,552:

- "dividing said tracks into a plurality of concentric annual blocks" means "segregating the tracks into nonoverlapping, ring-shaped regions on an optical disk";
- "to be accessed" means "intended for access in the future";

(2) from U.S. Patent No. 6,172,955:

- "packets having a fixed length" means "packets each containing the same number of user data blocks";
- "interrupting" means "temporarily stopping a formatting operation, which may occur at any time";

(3) from U.S. Patent No. 6,631,109:

- "pulse width" means "time interval between the beginning and the end of the pulse";
- "the multi-pulse portion having a given duty ratio z = t2/(t2 +t3)" means "the entire multi-pulse portion has a given ratio, z, where z is the result of dividing (i) the pulse width at high power (t2), by (ii) the sum of the pulse

width at high power (t2) plus the pulse width at low power (t3)";

(4) from U.S. Patent No. 6,661,755:

- "maintaining said encoded information" means "keeping the encoded information such that it is readable when the disc is subsequently played back";
- "maintaining data succession" means "maintaining continuity of data within a tolerance of 2 clock bits."

Entered this 11th day of May, 2007.

BY THE COURT:
/s/
BARBARA B. CRABB
District Judge