

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOSHIBA SAMSUNG STORAGE
TECHNOLOGY KOREA CORPORATION,
Petitioner,

v.

LG ELECTRONICS, INCORPORATED,
Patent Owner.

Case IPR2014-00205
Patent 6,101,162

Before RAMA G. ELLURU, DAVID C. McKONE, and
MICHELLE N. WORMMEESTER, *Administrative Patent Judges*.

WORMMEESTER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Toshiba Samsung Storage Technology Korea Corporation (“Petitioner”) filed a Second Corrected Petition (Paper 5, “Pet.”) requesting an *inter partes* review of claims 1–22 of U.S. Patent No. 6,101,162 (Ex. 1001, “the ’162 patent”). LG Electronics, Incorporated (“Patent Owner”) did not file a Preliminary Response. Pursuant to 35 U.S.C. § 314, we instituted a trial on May 28, 2014, to review whether claims 1–10, 13–15, and 17–22 of the ’162 patent are unpatentable on the following grounds (Paper 9 (“Inst. Dec.”) 34–35):

Reference(s)	Basis	Claim(s) Challenged
Seamons ¹	§ 102	1, 2, 5–7, 13–15, 18
Seamons and Kulakowski ²	§ 103	3, 4, 9, 10
Seamons and Sims ³	§ 103	8, 17
Kulakowski	§ 102	19
Kulakowski and Sims	§ 103	20–22

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 16, “PO Resp.”). Petitioner subsequently filed a Reply to Patent Owner’s Response (Paper 17, “Pet. Reply”). An oral hearing was held on January 7, 2015. A transcript of the hearing has been entered into the record (Paper 26, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). Based on the record before us, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 3–5, 7–10, 13, 17, and 18 of the ’162 patent are

¹ Seamons, US 4,924,327, issued May 8, 1990 (Ex. 1003).

² Kulakowski, US 5,132,853, issued July 21, 1992 (Ex. 1004).

³ Sims, US 6,009,058, issued Dec. 28, 1999 (Ex. 1005).

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unpatentable, but Petitioner has not shown that claims 2, 6, 14, 15, and 19–22 are unpatentable.

B. Related Proceedings

Patent Owner has asserted the '162 patent against Petitioner in *LG Electronics, Inc. v. Toshiba Samsung Storage Technology Corp.*, Case No. 1:12-cv-01063 (D. Del.). *See* Pet. 1; Paper 7 (Mandatory Notices of Patent Owner), 2.

In addition, Patent Owner's U.S. Patent No. 6,477,126 is the subject of Case IPR2015-00204, which also was part of the January 7, 2015, oral hearing.

C. The '162 Patent

The '162 patent, titled "Method and Apparatus for Initializing Rewritable Recording Media," issued on August 8, 2000, from an application that was filed on October 27, 1998.

The '162 patent addresses the problem that the initialization of rewritable recording media takes a long time before user data can be recorded because initializing an entire recording medium must be completed before user data can be recorded. *See* Ex. 1001, 1:23–29. More specifically, the '162 patent describes a method and an apparatus for initializing a rewritable recording medium in which user data can be recorded before initialization of the entire rewriteable recordable medium is completed. *See id.* at [57] (Abstract).

The '162 patent explains that, conventionally, initialization involves a "certification" process in which test data are recorded to an area of the recording medium and then checked to determine whether the data have been recorded correctly. *See id.* at 1:55–58. If data are not recorded

correctly, the disk area is noted in “a specified area of the recording medium.” *Id.* at 1:58–61. The ’162 patent also explains that, conventionally, a disk includes a manager area and a user data area, among other areas. *See id.* at 2:4–15.

The invention of the ’162 patent allows user data to be recorded once the manager area is initialized. *See id.* at 4:37–5:53. More specifically, once the manager area of a disk is initialized and a request to record user data is received, initialization of non-initialized areas is stopped and a determination is made as to whether the user data area on the recording medium where the data are to be recorded has been initialized. *See id.* at 4:52–5:9. If so, the user data are recorded, and then initialization of non-initialized areas of the recording medium continues. *See id.* at 5:32–53. If the user data area where the data are to be recorded, however, has not been initialized, the user data to be recorded are written to the recording medium, the area of the recording medium is certified, and then initialization of non-initialized areas continues. *See id.* at 5:9–30.

D. Illustrative Claims

Claims 1, 5, 13, 17, 18, and 19 are independent. Claims 1, 5, 13, and 19 illustrate the claimed subject matter and are reproduced below:

1. A method of initializing a rewritable recording medium, comprising the steps of:
 - (A) determining whether or not a physical initialization for the recording medium should be performed; and
 - (B) automatically performing the physical initialization for each predetermined physical unit of the recording medium in accordance with a result in the step (A),
wherein the step (A) determines based on position information of a non-initialized area, the information having

been recorded on a predetermined area of the recording medium.

Ex. 1001, 6:49–59.

5. A method of initializing a rewritable recording medium, comprising the steps of:

(A) reading out a position information of a non-initialized area, the information having been recorded on a predetermined area of the recording medium; and

(B) detecting the presence of a recording command for recording a user data on the recording medium;

(C) automatically setting an initialization mode in accordance with a result in the step (B); and

(D) initializing the non-initialized area for each predetermined physical unit in accordance with the initialization mode.

Id. at 7:9–20.

13. A method of recording data on a rewritable recording medium, comprising the steps of:

(A) reading out a position information of a non-initialized area, the information having been recorded on a predetermined area of the recording medium; and

(B) choosing and setting a recording mode for recording a user data on a basis of the position information of the non-initialized area and a position information to be recorded with the user data; and

(C) recording the user data for each predetermined physical unit in accordance with the recording mode.

Id. at 8:1–11.

19. A method for recording data on a rewritable recording medium, comprising:

reading from the medium position information of initialized areas and non-initialized areas of the medium;

determining from the position information whether a manager area has been completely initialized;

initializing the manager area prior to writing to the medium if the manager area has not been completely initialized;

receiving a recording command specifying a recording area on the medium;
determining whether the recording area has been initialized; and
writing data to the recording area if the recording area has been initialized.

Id. at 8:59–9:6.

II. ANALYSIS

For the challenged claims, Petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e). We begin our analysis with claim construction.

A. Claim Construction

We construe claims in an unexpired patent by applying the broadest reasonable interpretation in light of the specification. *See* 37 C.F.R. § 42.100(b); *Office Patent Trial Practice Guide*, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012); *In re Cuozzo Speed Techs., LLC*, No. 2014-1301, 2015 WL 448667, at *5–8 (Fed. Cir. Feb. 4, 2015). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). On the other hand, a “claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer” and clearly set forth a definition of the claim term in the specification. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

As to claim elements recited in means-plus-function⁴ format, the United States Court of Appeals for the Federal Circuit stated: “Section 112, ¶ 6 recites a mandatory procedure for interpreting the meaning of a means- or step-plus-function claim element. These claim limitations ‘shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.’” *Al-Site Corp. v. VSI Int’l, Inc.*, 174 F.3d 1308, 1320 (Fed. Cir. 1999); *see also In re Donaldson Co., Inc.*, 16 F.3d 1189, 1193–94 (Fed. Cir. 1994) (“[P]aragraph six applies regardless of the context in which the interpretation of means-plus-function language arises, i.e., whether as part of a patentability determination in the PTO or as part of a validity or infringement determination in a court.”). Accordingly, we construe a means-plus-function limitation by determining what the claimed function is and identifying the structure or materials disclosed in the specification that correspond to the means for performing that function. *See Kemco Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1360 (Fed. Cir. 2000).

In our Decision on Institution, we construed certain claim terms as follows:

Claim(s)	Claim Term	Construction
1	physical initialization	a process that divides the entire area of a recording medium into each sector unit to give an address and detect a defect area to register it into

⁴ Section 4(c) of the Leahy-Smith America Invents Act (“AIA”) re-designated 35 U.S.C. § 112, ¶ 6, as 35 U.S.C. § 112(f). Pub. L. No. 112-29, 125 Stat. 284, 296 (2011). Because the ’162 patent has a filing date before September 16, 2012 (effective date of § 4(c)), we will refer to the pre-AIA version of § 112.

Claim(s)	Claim Term	Construction
		a specified area
3, 4, 9, 10, 19	manager area	an area on the recording medium being initialized
17, 18	means for reading out a position information of a non-initialized area recorded on a predetermined area of a loaded recording medium	Function: reading out a position information of a noninitialized area recorded on a predetermined area of a loaded recording medium Corresponding structure: drive connected to a computer
17	means for setting a recording mode for recording a user data on a basis of the position information of the non-initialized area and a position information to be recorded with the user data	Function: setting a recording mode for recording a user data on a basis of the position information of the non-initialized area and a position information to be recorded with the user data Corresponding structure: drive connected to a computer
17	means for recording the user data for each predetermined physical unit in accordance with the recording mode	Function: recording the user data for each predetermined physical unit in accordance with the recording mode Corresponding structure: drive connected to a computer
18	means for detecting the presence of a recording command for recording a user data on the recording medium	Function: detecting the presence of a recording command for recording a user data on the recording medium Corresponding structure: drive connected to a computer

Claim(s)	Claim Term	Construction
18	means for setting an initialization mode in accordance with a detected result as to the presence of the recording command	Function: setting an initialization mode in accordance with a detected result as to the presence of the recording command Corresponding structure: drive connected to a computer
18	means for initializing the non-initialized area for each predetermined physical unit in accordance with the initialization mode	Function: initializing the non-initialized area for each predetermined physical unit in accordance with the initialization mode Corresponding structure: drive connected to a computer

Inst. Dec. 7–19. For purposes of our analysis, Petitioner does not challenge these constructions (Tr. 25:7–18), nor does Patent Owner (*id.* at 81:24–82:25). Based on the complete record now before us, we maintain our prior constructions.

B. Anticipation by Seamons

Petitioner argues that Seamons anticipates claims 1, 2, 5–7, 13–15, and 18 of the '162 patent. Pet. 14. We have reviewed the Petition, the Patent Owner Response, and Petitioner's Reply, as well as relevant evidence discussed in each of those papers. Based on our review, we conclude that Petitioner has established by a preponderance of the evidence that claims 1, 5, 7, 13, and 18 are anticipated by Seamons. We conclude, however, that Petitioner has not established by a preponderance of the evidence that claims 2, 6, 14, and 15 are anticipated by Seamons.

1. Seamons

Seamons describes formatting a disk during “disk-idle” periods, rather than formatting a disk all at one time. Ex. 1003, at [57] (Abstract), 1:53–63, 5:61–65. In general, Seamons describes formatting an unformatted disk until a disk request is made, which enables a user to perform computing activities requiring disk activities before the entire disk is formatted. *Id.* at 5:26–32. A status table keeps track of the portions of the disk that have been formatted, those portions that have not yet been formatted, and those portions that “failed the formatting process.” *Id.* at 5:32–36; *see also id.* at 4:41–50 (indicating formatting reserves space on the disk for a bitmap table, which indicates the status of each disk sector). When a request to write data to the disk is received, the system examines the status table to determine whether the portion of the disk to which the write request pertains has been formatted. *Id.* at 8:3–13, Fig. 5. If the portion has not been formatted, the system formats the portion, which involves writing a test pattern of data to the disk, reading the test pattern of data from the disk, and verifying that the test pattern of data was written correctly. *Id.* at 8:13–21, Fig. 5. Once this portion is formatted, the system performs the write request, verifies that the data were written correctly, and updates the status table to reflect that data have been written to the portion. *Id.* at 8:66–9:2.

2. Independent Claims 1, 5, 13, and 18

Petitioner contends Seamons discloses each and every element of independent claims 1, 5, 13, and 18, referring to Figure 5 and other disclosures in the reference, as well as a claim chart in the Petition. *See* Pet. 14–22, 26–32. For example, Petitioner points to disclosures in

Seamons as corresponding to certain elements in claims 1, 5, 13, and 18 as follows:

Element in Claims 1, 5, 13, or 18	Disclosure in Seamons
“rewritable recording medium”	disk
“physical initialization”	formatting
“non-initialized”	untested or unformatted
“predetermined physical unit”	half-track
“position information”	half-track to which the disk request pertains
“predetermined area of the recording medium” or “predetermined area of a loaded recording medium”	reserved space on the disk for various tables
“recording command”	write command
“automatically setting an initialization mode”	steps 52, 53
“choosing and setting a recording mode”	steps 52, 506, 509

See Pet. 14–22, 26–32. We are persuaded by Petitioner’s contentions in this regard.

For example, Petitioner directs us to where Seamons discloses that “an unformatted disk . . . is formatted from a predetermined time after the computer is turned on until there is a disk request from an application program.” Pet. 15 (citing Ex. 1003, 5:28–32); *accord id.* at 20 (same). A disk request may be a read, write, or erase command. *See id.* at 20–21 (citing Ex. 1003, Fig. 5). Upon receiving a disk request, the Seamons process examines a status bitmap to determine the status of the half-track to which the request pertains. *See* Pet. 17 (citing Ex. 1003, Fig. 5), 20–21 (citing Ex. 1003, 8:7–10). “If the half-track status is ‘untested,’ the half-track has never been formatted and the process branches to step 53, where the half-track is formatted.” Pet. 15–16 (citing Ex. 1003, 8:13–16); *accord id.* at 21 (same).

Petitioner also directs us to where Seamons describes half-tracks as being listed in the status bitmap, a table in which the status of each half-track is indicated. *See* Pet. 18 (citing Ex. 1003, 4:42–43); Pet. Reply 5 (citing Ex. 1003, 7:30–31); Tr. 28:1–4. The status bitmap is recorded on a space on the disk reserved for various tables. *See* Pet. 18 (citing Ex. 1003, 4:41–42), 20 (same). As Petitioner further points out, the system in Seamons “will keep track (in the status table referred to above) of which subdivisions (half-tracks or sectors) have, and which have not yet, been formatted.” Pet. 15 (citing Ex. 1003, 5:32–36); *accord* Pet. Reply 4 (same).

a. “position information”

Patent Owner does not dispute that Seamons describes most elements recited in claims 1, 5, 13, and 18. Patent Owner contends with respect to claim 1, however, that “Seamons does not disclose a determination of whether or not physical initialization should be performed ‘based on position information of a non-initialized area’ that has been ‘recorded on a predetermined area of the recording medium.’” PO Resp. 25. Similarly, Patent Owner contends with respect to claims 5, 13, and 18 that “Seamons does not disclose reading out position information that has been recorded on a predetermined area of the disk.” PO Resp. 34, 37. According to Patent Owner,

Seamons discloses determining whether or not formatting for a half-track of the disk should be performed based on (i) *position* information that has not been recorded in the status bitmap (and, therefore, has not been recorded on a predetermined area of the disk) and (ii) *status* information that has been recorded in the status bitmap (and, therefore, has been recorded on a predetermined area of the disk).

PO Resp. 26–27 (emphases added); *accord id.* at 33–34, 37.

Although Patent Owner acknowledges that Seamons discloses a status bitmap recorded on a predetermined area of the disk, (*see* PO Resp. 25 (citing Ex. 1003, 4:41–42, 8:9), 32, 35), Patent Owner argues that the status bitmap includes status information, not position information (*see* PO Resp. 25–26, 32–33, 36). Patent Owner explains that Seamons discloses using position information to look up status information in the status bitmap; accordingly, position information is known before the status bitmap is examined, and it is, therefore, not recorded in the status bitmap, which means it is not recorded on the predetermined area of the disk. *See* PO Resp. 26, 33, 36.

As discussed above, Seamons discloses half-tracks being listed in a status bitmap. *See* Ex. 1003, 7:30–31; Reply 5; Tr. 28:1–4. We find that this is a disclosure of position information recorded on a predetermined area of a recording medium. Patent Owner does not explain persuasively why this cited disclosure in Seamons does not correspond to the claimed position information. At the oral hearing, Patent Owner argued that the term “listed” could indicate that the position information is represented or reflected in the status bitmap (*see* Tr. 80:16–81:3), but did not point us to any language in the ’162 patent that excludes from the scope of claim 1 information representing or reflecting position information. Moreover, we note, as discussed above, that Seamons further discloses keeping track in the status bitmap of which half-tracks have been formatted as well as which half-tracks have not been formatted. *See* Ex. 1003, 5:32–36; Pet. 21. Patent Owner did not address this cited disclosure in Seamons when it was discussed during the oral hearing. *See* Tr. 85:10–86:24. Based on the cited disclosures in Seamons, we are persuaded that Seamons discloses “position information of

a non-initialized area” that has been “recorded on a predetermined area of the recording medium,” as recited in claims 1, 5, and 13, and the similar limitation in claim 18.

b. “setting an initialization mode”

Claim 5 further recites “automatically setting an initialization mode in accordance with a result [of detecting the presence of a recording command for recording a user data on the recording medium].” As discussed above, Petitioner directs us to where Seamons discloses that the half-track to which the disk request pertains is formatted in response to a disk request, which may be a write or erase command. *See* Pet. 20–21 (citing Ex. 1003, 8:7–10, Fig. 5).

While acknowledging that “Seamons discloses formatting a half-track based on/in response to a disk request pertaining to an untested half-track,” Patent Owner contends that Seamons “does not disclose *setting a formatting mode* in accordance with a result of detecting the presence of a user data recording command because the same formatting mode is used for all disk requests pertaining to untested half-tracks.” PO Resp. 31. Although the formatting can be triggered by either a write or erase command, Patent Owner does not point us to any language in the ’162 patent that requires formatting to be triggered exclusively by a write command. *See* Pet. Reply 9; Tr. 29:13–18 (“And this is a comprising claim. . . . The claim is not limited to formatting triggered only by a write command.”). Accordingly, we are persuaded by Petitioner’s evidence that Seamons discloses “automatically setting an initialization mode in accordance with a result [of detecting the presence of a recording command for recording a user data on the recording medium],” as recited in claim 5.

c. Means-plus-function limitations

Claim 18 recites means-plus-function limitations. As to the recited functions, Petitioner presents arguments similar to those arguments presented with respect to claims 1 and 5. *See* Pet. 30–32 (citing claim charts for claims 1 and 5). For the reasons discussed above, we are persuaded that Seamons discloses the functions recited in claim 18.

As to the corresponding structures, we note Petitioner does not contest our finding that the corresponding structure in the '162 patent for each limitation is a drive connected to a computer. *See* Inst. Dec. 11–19; Pet. 12–13; Tr. 42:17–43:16. Petitioner contends that “the methods of Seamons are carried out ‘in a computer system equipped with a magneto-optical disk drive.’” Pet. 30 (citing Ex. 1003, at [57] (Abstract)). In support, Petitioner directs us to Seamons’s description of an exemplary hardware system with a central processing unit (computer) that is connected to a disk controller, which, in turn, is connected to a disk drive. *See* Pet. 30–32 (citing Ex. 1003, 9:19–39, Fig. 6). Patent Owner does not present any evidence or argument specifically regarding whether Seamons discloses the corresponding structures for the means-plus-function limitations in claim 18. Accordingly, we are persuaded by Petitioner’s evidence that Seamons discloses the structure, which includes a drive connected to a computer, required to perform the functions recited in claim 18.

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that Seamons anticipates claims 1, 5, 13, and 18.

3. *Dependent claim 7*

Claim 7, which depends from claim 5, recites “setting an initialization mode for recording and certifying a certain data for each predetermined physical unit on a basis of the position information of the non-initialized area when the recording command for recording the user data does not exist.” As Petitioner points out, Seamons discloses that formatting involves erasing the untested half-track to which the disk request pertains, writing test data to the half-track, reading the stored test data from the half-track, and verifying (or certifying) that the stored data correspond to the written data. *See* Pet. 23 (citing claim charts for claims 1 and 5); Ex. 1003, 8:16–20. Such formatting can be triggered by commands other than a write command (e.g., an erase command). *See* Pet. 23 (citing claim charts for claims 1 and 5); Ex. 1003, 8:7–10, 8:13–16, Fig. 5. Patent Owner does not present any evidence or argument specifically regarding claim 7. Based on the cited disclosures in Seamons, we are persuaded that Seamons discloses the “setting an initialization mode” step recited in claim 7.

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that Seamons anticipates claim 7.

4. *Dependent claims 2, 6, and 14*

Claims 2, 6, and 14, which depend from claims 1, 5, and 13, respectively, recite that “the predetermined physical unit is one rotation unit region.” Patent Owner contends, “Seamons discloses that the bitmap table may be kept on a half-track or sector basis and, thus, discloses performing formatting or writing for each half-track (*i.e.*, *one-half* rotation unit) or for each sector (*i.e.*, *one-sixteenth* rotation unit).” PO Resp. 40 (citing Ex. 1003,

4:58–63). Patent Owner further contends that although “Seamons also discloses that the bitmap table may be kept on an undefined ‘other basis,’” Seamons “does not explicitly disclose that the ‘other basis’ is a full track (*i.e.*, one rotation unit region).” PO Resp. 40 (citing Ex. 1003, 4:61–63); *accord* Tr. 89:7–10.

Referring to disclosure in Seamons that “the table can be kept on a sector or other basis, as may be convenient,” (*see* Ex. 1003, 4:62–63), Petitioner argues that “[i]t cannot be disputed that keeping tables on a full rotation basis is convenient . . . , and as such, initialization using a full rotation unit is inherent from the express teachings of Seamons,” (Pet. Reply 10).

We disagree with Petitioner. “If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is ‘inherent’ in its disclosure.” *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.’” *Id.* (citation omitted). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.” *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1269 (Fed. Cir. 1991). Petitioner acknowledges that there is no evidence in the record regarding whether keeping the table on a full-track basis is always (or necessarily) convenient. *See* Tr. 30:13–15. In fact, Petitioner asserts, “It *can* be a convenient basis.” Tr. 30:16–17 (emphasis added). Accordingly, based on the record before us,

we are not persuaded that the “other basis” in Seamons necessarily corresponds to a “predetermined physical unit” that “is one rotation unit region,” as recited in claims 2, 6, and 14.

For the foregoing reasons, we conclude that Petitioner has not demonstrated by a preponderance of the evidence that Seamons anticipates claims 2, 6, and 14.

5. Dependent claim 15

Claim 15, which depends from claim 13, recites “setting a mode for recording the user data without a certification of a data recorded when a position to be recorded with the user data is already initialized.” Both parties cite disclosure in Seamons that describes performing a write request and then verifying the write request by reading the data back. *See* Pet. 30 (citing Ex. 1003, 8:60–68); PO Resp. 43 (citing Ex. 1003, 8:66–9:2). Petitioner asserts that, for a write request, Seamons discloses that once it is determined that the track is already formatted, the data is written to the track without first certifying recorded test data. *See* Pet. 30 (citing Ex. 1003, 8:60–68, Fig. 5 (steps 52, 506, 509)). Patent Owner contends that “Petitioner’s assertion does not address the actual language of claim 15, which recites ‘without a certification of a data recorded.’” PO Resp. 42. According to Patent Owner, “Seamons discloses a mode for recording user data *with a certification* of the recorded user data.” *Id.* at 43 (citing Ex. 1003, 8:66–9:2). In response, Petitioner argues that Seamons does not certify “a data recorded,” which is separate and distinguishable from “the user data.” Pet. Reply 11; *accord* Tr. 31:24–34:2.

At oral hearing, Patent Owner explained that “a data recorded” refers to the *recorded* user data, which is different than the user data itself.

See Tr. 92:3–6 (“Because what [the computer] record[s] may not be the same as the user data that you want to record. They’re two different things. User data is one thing, the recording is like a copy.”). As discussed above, Seamons discloses recording the user data and then verifying the *recorded* user data, which we find corresponds to “a recorded data.” *See* Ex. 1003, 8:66–9:2. Accordingly, we are persuaded that Seamons does not disclose “setting a mode for recording the user data without a certification of a data recorded when a position to be recorded with the user data is already initialized,” as recited in claim 15.

For the foregoing reasons, we conclude that Petitioner has not demonstrated by a preponderance of the evidence that Seamons anticipates claim 15.

C. Anticipation by Kulakowski

Petitioner argues that Kulakowski anticipates independent claim 19 of the ’162 patent. *See* Pet. 38. We have reviewed the Petition, the Patent Owner Response, and Petitioner’s Reply, as well as relevant evidence discussed in each of those papers, and conclude that Petitioner has not established by a preponderance of the evidence that claim 19 is anticipated by Kulakowski.

1. Kulakowski

Kulakowski describes a data storing disk with a volume table of contents (VTOC) recorded on the radially-outermost track of the disk. Ex. 1004, 4:41–43. The VTOC identifies information about data storage tracks on the disk. *Id.* at [57] (Abstract). For example, the VTOC identifies which of the tracks are formatted and which of the tracks are unformatted. *Id.* at 3:38–42. Kulakowski describes initially formatting a radially-

outermost set of tracks to enable recording and readback operations. *Id.* at 12:24–29. Initial formatting may involve first sensing the disk for a VTOC to determine whether the disk has been formatted. *Id.* at 12:35–38. If no VTOC is sensed, which means the disk has not been formatted, then formatting of the disk is started. *Id.* at 12:37–39. If a VTOC is sensed, then no action is taken. *Id.* at 12:40–42.

As the disk is used, the VTOC is updated to identify which of the tracks are allocated for data storage and which of the tracks are available for allocation. *Id.* at 3:46–49. When the disk is not in use, those tracks identified in the VTOC as being unformatted are formatted. *Id.* at 3:49–53. Such formatting is interleaved between recording and readback operations. *Id.* at 3:57–59.

Kulakowski describes different recording operations. *Id.* at 13:9–34. For example, Kulakowski describes an update write operation, which refers to replacing currently-stored data with new data. *Id.* at 13:10–12. For such operations, the tracks with the currently-stored data are erased, and the new data are written to the disk. *Id.* at 13:10–19. For other recording operations, where the data to be recorded are original, free and erased tracks ready for allocation are either identified or created. *Id.* at 13:23–29. Once identified or created, the tracks are allocated, and the original data are written to the disk. *Id.* at 13:29–34.

2. *Independent claim 19*

Petitioner contends Kulakowski discloses each and every element of claim 19. *See* Pet. 39–42. For example, claim 19 recites “receiving a recording command specifying a recording area on the medium” and “determining whether the recording area has been initialized.” Petitioner

directs us to disclosure in Kulakowski that discusses issuing a write command. *See id.* at 41 (citing Ex. 1004, 13:6–9). Kulakowski describes determining whether the write command is an update write operation, which involves replacing currently-stored data with new data. *See Ex. 1004, 13:9–12.* If the write command is an update write operation, then the target area is erased, and the new data are written to the disk, (*see Ex. 1004, 13:10–19*); if not, then a free and erased track ready for allocation is either located or created, and the original data are written to the disk, (*see Ex. 1004, 13:23–35*).

Patent Owner contends that Kulakowski does not disclose the determining step recited in claim 19. *See PO Resp. 50–51.* Patent Owner explains that, in Kulakowski, only the update write operations specify a recording area (i.e., the target area), and “Kulakowski does not disclose determining whether the target area of an ‘update write operation’ has been initialized.” *Id.* Patent Owner further contends that there is no need to determine whether the target area in Kulakowski has been initialized “because the target area must have been initialized for data to be currently stored there.” *Id.* at 51.

Petitioner argues that “[i]t is well known in the art and inherent in Kulakowski that the VTOC is read when a write command is received to confirm the status of the target area, and in particular in the space management’s determination that the write command is an update write operation.” Pet. Reply 12–13. Petitioner submits that “in the case of an update write operation, the ‘allocated’ status read from the VTOC indicates . . . that the area has been initialized and written to.” Pet. Reply 13; *accord* Tr. 38:7–11. According to Petitioner, “[t]his means that determining the

‘allocated’ status of the target area does in fact determine that the target area has been initialized.” Pet. Reply 13; *accord* Tr. 38:12–14.

We agree with Patent Owner that Kulakowski does not disclose determining whether the target area has been initialized. *See* PO Resp. 50–51. As discussed above, Kulakowski discloses erasing the target area whenever an update write operation is received. *See* Ex. 13:10–13. Petitioner does not point us to disclosure in Kulakowski or other evidence that describes consulting the VTOC whenever an update write command is received. *See* Tr. 40:18 (“It’s not explicitly stated [in Kulakowski], no.”), 40:21–22 (“I don’t believe our expert testimony went into this detail on the VTOC.”). Rather, Petitioner merely asserts, “That’s just well known in the art.” Tr. 38:17–24; *accord* Tr. 39:23–40:23. As Petitioner does not provide any evidence supporting its position, we are not persuaded that Kulakowski discloses “determining whether the recording area has been initialized,” as recited in claim 19.

For the foregoing reasons, we conclude that Petitioner has not demonstrated by a preponderance of the evidence that Kulakowski anticipates claim 19.

D. Obviousness over Seamons and Kulakowski

Petitioner argues that dependent claims 3, 4, 9, and 10 of the ’162 patent would have been obvious over Seamons and Kulakowski. *See* Pet. 32–38. We discuss Seamons and Kulakowski above.

1. Claims 3 and 9

Claim 3, which depends from claim 1, recites two additional steps: “confirming whether or not an initialization of a manager area set to manage a user data recorded on the recording medium has been completed” and

“performing an initialization for each predetermined physical unit of the recording medium on a basis of a position information of the non-initialized area in accordance with a result of the [confirming] step.” Claim 9, which depends from claim 5, recites similar limitations.

As to the performing step, Petitioner points to Seamons for such disclosure, as discussed above. *See* Pet. 35 (citing claims chart for claim 5), 38 (same); Pet. Reply 13. As to the confirming step, Petitioner directs us to Kulakowski’s description of a data storing disk that includes a volume table of contents (VTOC), which identifies information about data storage tracks on the disk. *See* Pet. 33–34 (citing Ex. 1004, at [57] (Abstract)), 37. For example, the VTOC identifies allocated tracks and the data stored on those tracks. *See* Ex. 1004, at [57] (Abstract). The VTOC also identifies tracks that are not formatted. *See id.* Kulakowski teaches sensing the disk for a VTOC to determine whether the disk has been formatted. *See* Pet. 34 (citing Ex. 1004, 12:35–38). If no VTOC is sensed, which means the disk has not been formatted, then initialization of the disk is started. *See id.* (citing Ex. 1004, 12:37–39). Based on the cited disclosures in Kulakowski, we are persuaded that Kulakowski discloses confirming whether or not an initialization of a manager area (VTOC) set to manage a user data recorded on the recording medium has been completed.

Petitioner submits that “[i]t would have been obvious to combine the manager area initialization confirmation of Kulakowski with the teachings of Seamons to better determine the initialization status of the disk.” Pet. 35; *accord* Pet. 38; Pet. Reply 13–14. According to Petitioner,

The motivation for combining Seamons and Kulakowski is that it would have been obvious to combine known prior art elements (the initialization determination of different areas of

the disk, including any manager areas), according to known methods (using the existence of a VTOC), to yield predictable results (a disk drive and technique that determines the initialization status of all areas of the recording medium, including the determination of the initialization status of the manager area).

Pet. 36.

Patent Owner contends that Seamons does not disclose the performing step in accordance with a result of the step (b1), (*see* PO Resp. 52), because “Seamons does not disclose that the half-track formatting is in accordance with a result of confirming whether or not an initialization of the status bitmap (or any other manager area) has been completed,” (PO Resp. 53).

Thus, Patent Owner concludes,

even if Seamons were modified in the proposed manner (*i.e.*, to include the alleged manager area initialization confirmation of Kulakowski), the formatting of Seamons would not be performed “in accordance with a result of [confirming whether or not an initialization of a manager area has been completed],” as required by claim 3.

PO Resp. 53.

We find Patent Owner’s arguments unpersuasive. As discussed above, Petitioner relies on the combination of Seamons and Kulakowski—not on Seamons alone—for disclosing the steps recited in claim 3. *See* Pet. Reply 13. Thus, even if Seamons does not teach determining whether an initialization of a manager area has been completed, (*see* PO Resp. 53), we are persuaded by Petitioner’s contention that Kulakowski teaches this limitation, (*see* Ex. 1004, at [57] (Abstract), 12:35–38).

Further, Petitioner explains that combining Seamons and Kulakowski would yield the predictable result of determining the initialization status of all areas of the disk, including the manager area, which, in turn, would provide a way to better determine the initialization status of the disk. *See* Pet. 35–36; Pet. Reply 13–14. Patent Owner does not persuasively rebut Petitioner’s proffered reasoning, which has a rational underpinning, in support of Petitioner’s obviousness argument. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Moreover, the “combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416. Accordingly, we are persuaded that Petitioner has established by a preponderance of the evidence that one would have had reason to combine the manager area initialization confirmation of Kulakowski with the teachings of Seamons because such combination appears to be merely a “predictable use of prior-art elements according to their established functions.” *See id.* at 417.

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 3 and 9 would have been obvious over Seamons and Kulakowski.

2. *Claims 4 and 10*

Claim 4, which depends from claim 3, recites “determining in accordance with whether or not the position information of the non-initialized area includes [a] manager area set in the recording medium in advance.” Claim 10, which depends from claim 9, recites a similar limitation. As discussed above, Kulakowski describes the disk as including a VTOC that indicates which tracks on the disk are unformatted.

See Ex. 1004, at [57] (Abstract); Pet. 36. The VTOC is recorded on the radially-outermost track of the disk. *See* Ex. 1004, 4:41–43.

Kulakowski discusses initially formatting a set of the radially-outermost tracks. *See id.* at 12:24–29. Initial formatting may be carried out by first sensing the disk for a VTOC. *See id.* at 12:35–37. If no VTOC is sensed, which means the disk has not been formatted, then formatting of the disk starts. *See id.* at 12:37–38. Petitioner points us additionally to Kulakowski’s discussion of analyzing tracks, identifying in the VTOC which tracks are available for formatting, and then formatting those tracks. *See* Pet. 37 (citing Ex. 1004, 3:49–54). This process occurs when the disk is not being used, and it is repeated until all tracks have been analyzed and formatted. *See* Pet. 37 (citing Ex. 1004, 3:49, 54–57). Patent Owner does not present any evidence or argument specifically regarding claims 4 and 10. Based on the cited disclosures in Kulakowski, we are persuaded that Kulakowski discloses the determining step recited in claims 4 and 10.

Petitioner submits it would have been obvious to combine Seamons and Kulakowski for the same reasons presented with respect to claim 3. For the reasons discussed above, we are persuaded that one of ordinary skill would have had reason to combine Seamons and Kulakowski.

Accordingly, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 4 and 10 would have been obvious over Seamons and Kulakowski.

E. Obviousness over Seamons and Sims

Petitioner argues that claims 8 and 17 of the ’162 patent would have been obvious over Seamons and Sims. *See* Pet. 43–45. We discuss Seamons above.

1. Sims

Sims describes formatting rewritable compact optical disks. Ex. 1005, at [57] (Abstract). Specifically, Sims describes initially formatting a small portion of a disk for immediate use, and then incrementally formatting the rest of the disk. *Id.* at [57] (Abstract), 7:20–22. If the data for recording are not known at the time of formatting, the disk is formatted with an arbitrary pattern. *Id.* at 7:47–49. If, on the other hand, the data for recording are known at the time of formatting, the disk is formatted with the data for recording. *Id.* at 7:49–51, 7:23–26. Thus, recording and formatting may occur simultaneously. *Id.*

2. Claim 8

Claim 8, which depends from claim 5, recites “setting an initialization mode for recording and certifying a user data inputted along with the recording command for each predetermined physical unit on a basis of the position information of the non-initialized area when the recording command for recording the user data exists.” As discussed above, Seamons discloses that formatting a track to which a disk request pertains involves writing test data to the track and verifying that the stored data correspond to the written data. *See* Ex. 1003, 8:16–20. Petitioner directs us to Sims’s description of formatting such a track with user data rather than test data. *See* Pet. 43 (citing Ex. 1005, 7:23–26 (“When the host computer commands data writing (804) that exceeds the capacity of the formatted program area, the drive formats new frames with the new data (806).”), Fig. 8). Based on the cited disclosures in Seamons and Sims, we are persuaded that the combined teachings of the references suggest the setting step recited in claim 5.

Petitioner submits that “[i]t would have obvious to combine the formatting using user data as disclosed in Sims with the teachings of Seamons to more efficiently initialize and record data on the recording medium.” Pet. 44. According to Petitioner,

The motivation for combining Seamons and Sims is that it would have been obvious to combine known prior art elements (disk drives that initialize the recording medium during user operations), according to known methods (initialize using user data), to yield predictable results (a disk drive that initializes uninitialized areas of the recording medium using user data during a user operation to reduce overall initialization and data recordation time).

Pet. 45.

Patent Owner contends “one of ordinary skill in the art would not have combined Seamons and Sims in the proposed manner” because “any user data written during the formatting of step 53 of Seamons would subsequently be erased in step 54 of Seamons and, thus, the proposed combination would not result in the increased efficiency alleged by the Petitioner.” PO Resp. 57 (citing Fig. 5 (step 53 (formatting track), step 54 (erasing track))). Patent Owner also contends that “step 55 of Seamons would label the half-track as ‘erased’ before the system of Seamons loops back to step 51 to continue processing the original request, and there would be no way to distinguish between half-tracks formatted with test pattern data and half-tracks formatted with user data.” PO Resp. 57–58.

As discussed above, Petitioner explains that combining Seamons and Sims would yield the predictable result of initializing with user data, which, in turn, would reduce initialization and recordation time. *See* Pet. 35–36; Pet. Reply 13–14. Patent Owner does not persuasively rebut Petitioner’s

proffered reasoning, which has a rational underpinning. *See KSR*, 550 U.S. at 418. Moreover, the “combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416. Accordingly, we are persuaded that Petitioner has established that one would have had reason to combine formatting with user data as described in Sims with the teachings of Seamons because such combination appears to be merely a “predictable use of prior-art elements according to their established functions.” *See id.* at 417.

In addition, we note that “the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.” *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). “Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art[,]” *id.*, who are also persons of ordinary creativity, not automatons, *KSR*, 550 U.S. at 421. As Petitioner points out, “Sims discloses formatting by using ***and keeping*** user data.” Pet. Reply 14. We agree with Petitioner that “the steps of erasing the test data and later writing user data in Seamons can be avoided, resulting in increased efficiency.” *Id.*

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claim 8 would have been obvious over Seamons and Sims.

3. Claim 17

Claim 17 recites means-plus-function limitations. For example, claim 17 recites “means for reading out a position information of a non-initialized area recorded on a predetermined area of a loaded recording medium.” The

parties refer to their respective arguments with respect to a similar limitation recited in claim 18. *See* Pet. 51–52 (citing claim chart for claim 18); PO Resp. 58–59. Patent Owner additionally contends that Sims does not disclose the “means for reading out” limitation recited in claim 17. *See* PO Resp. 59.

Claim 17 also recites “means for setting a recording mode for recording a user data on a basis of the position information of the non-initialized area and a position information to be recorded with the user data” as well as “means for recording the user data for each predetermined physical unit in accordance with the recording mode.” Petitioner refers to its arguments with respect to similar limitations recited in claim 8. *See* Pet. 52–53. Patent Owner does not present any evidence or argument specifically regarding the “means for setting” and “means for recording” limitations recited in claim 17.

Petitioner additionally directs us to Sims’s description of a drive that formats a disk with user data. *See* Pet. 52 (citing Figs. 4, 6, 8, 10, 12). As Petitioner points out, such formatting in Sims involves writing (or recording) the user data to the disk. *See id.* at 44 (citing Ex. 1005, 7:49–56). We note that the drive in Sims formats the disk under host computer command. *See* Ex. 1005, 5:63–65 (describing Fig. 4).

Petitioner also provides a reason for combining Seamons and Sims, referring to its argument for combining the references with respect to claim 8. *See* Pet. 53. Patent Owner does not present any evidence or argument specifically regarding a reason for combining Seamons and Sims.

Based on reasons discussed above with respect to claims 8 and 18, as well as additional cited disclosure in Sims regarding the drive, we are

persuaded that Petitioner has demonstrated by a preponderance of the evidence that claim 17 would have been obvious over Seamons and Sims.

F. Obviousness over Kulakowski and Sims

Petitioner argues that dependent claims 20–22 of the '162 patent would have been obvious over Kulakowski and Sims. *See* Pet. 53–57. We discuss Kulakowski and Sims above.

Claims 20–22 depend from claim 19. As discussed above, we find that Petitioner has not demonstrated by a preponderance of the evidence that Kulakowski discloses “determining whether the recording area has been initialized,” as recited in claim 19. Petitioner does not present evidence or argument regarding whether Sims discloses that limitation. Accordingly, we are not persuaded that Petitioner has demonstrated by a preponderance of the evidence that claims 20–22 would have been obvious over Kulakowski and Sims.

III. CONCLUSION

For the foregoing reasons, we are persuaded that Petitioner has demonstrated by a preponderance of the evidence that: (1) claims 1, 5, 7, 13, and 18 of the '162 patent are unpatentable under 35 U.S.C. § 102 as anticipated by Seamons; (2) claims 3, 4, 9, and 10 are unpatentable under 35 U.S.C. § 103 as obvious over Seamons and Kulakowski; and (3) claims 8 and 17 are unpatentable under 35 U.S.C. § 103 as obvious over Seamons and Sims. We are not persuaded, however, that Petitioner has demonstrated by a preponderance of the evidence that claims 2, 6, 14, and 15 are unpatentable under 35 U.S.C. § 102 as being anticipated by Seamons, that claim 19 is unpatentable under 35 U.S.C. § 102 as being anticipated by Kulakowski, or that claims 20–22 are unpatentable under 35 U.S.C. § 103 as being obvious

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over Kulakowski and Sims. Petitioner has not demonstrated by a preponderance of the evidence that challenged claims 2, 6, 14, 15, and 19–22 of the '162 patent are unpatentable based on the grounds before us.

IV. ORDER

Accordingly, it is

ORDERED that Petitioner has shown by a preponderance of the evidence that claims 1, 3–5, 7–10, 13, 17, and 18 of the '162 patent are *unpatentable*; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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