

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

KANNUU PTY LTD.,
Patent Owner.

IPR2020-00738
Patent 8,370,393 B2

Before KRISTEN L. DROESCH, MINN CHUNG, and
JESSICA C. KAISER, *Administrative Patent Judges*.

KAISER, *Administrative Patent Judge*.

JUDGMENT

Final Written Decision

Determining All Challenged Claims Unpatentable

35 U.S.C. § 318(a)

ORDER

Granting Petitioner's and Patent Owner's Motions to Seal

Granting Patent Owner's Motion to Strike

37 C.F.R. §§ 42.5(a), 42.71(a), 42.54(a)

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I. INTRODUCTION

On March 17, 2020, Samsung Electronics America, Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–16 of U.S. Patent No. 8,370,393 B2, issued on February 5, 2013 (Ex. 1001, “the ’393 patent”). Paper 1 (“Pet.”). Kannuu Pty Ltd. (“Patent Owner”) filed a Corrected Preliminary Response. Paper 17 (“Prelim. Resp.”). With our authorization (Paper 16), the parties filed additional briefing to address a contractual estoppel issue. Papers 20, 21. Taking into account the arguments presented in these papers, we determined the information presented in the Petition established that there was a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, and we instituted this *inter partes* review as to all challenged claims on September 23, 2020. Paper 22 (“Dec.”).¹

During the course of the trial, Patent Owner filed a Patent Owner Response (Paper 35, “PO Resp.”); Petitioner filed a Reply to the Patent Owner Response (Paper 70, “Pet. Reply”); and Patent Owner filed a Sur-reply (Paper 74, “PO Sur-reply”).² Both parties moved for additional discovery related to objective evidence of nonobviousness. Papers 42, 64. We granted-in-part each of those motions. Papers 68, 71. With our authorization, each party filed an additional brief and responsive brief

¹ Patent Owner filed a request for Precedential Opinion Panel review as well as rehearing of our Decision. Papers 24–26. Those requests were denied. Papers 32, 40.

² The parties filed redacted versions of these papers at Papers 37, 76, and 79, respectively.

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addressing that discovery. Papers 81, 82, 85, 86.³ An oral hearing was held on June 30, 2021, and a transcript of the hearing is included in the record. Paper 96 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–16 of the ’393 patent. For the reasons discussed below, we hold that Petitioner has demonstrated by a preponderance of the evidence that claims 1–16 are unpatentable.

II. BACKGROUND

A. *The ’393 Patent (Ex. 1001)*

The ’393 patent describes a user interface to electronically display and select items presented on a device screen. Ex. 1001, code (57); *see id.* at 3:5–23. By way of background, the ’393 patent describes that “applications on computing devices [] require selection [of items] from a list,” e.g., “selecting a contact from an address book, selecting a record from a database, selecting a word from a dictionary, etc.” *Id.* at 1:28–32. In past systems, to find an item to select, a user “enter[ed] several of the initial letters of the search term resulting in a smaller subset of the list, then scroll[ed] through the subset to manually point out the desired item,” which was a “cumbersome process.” *Id.* at 1:35–39; *see id.* at 4:21–40. The ’393 patent aims to provide an improved manner of displaying and selecting items. *Id.* at 1:20–24. Figure 5 (reproduced below) shows one embodiment

³ Papers 97 and 99 are redacted versions of Papers 85 and 82, respectively.

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— an “address book application” — for displaying selectable items on a device screen. *Id.* at 4:3–4, 4:41–48.

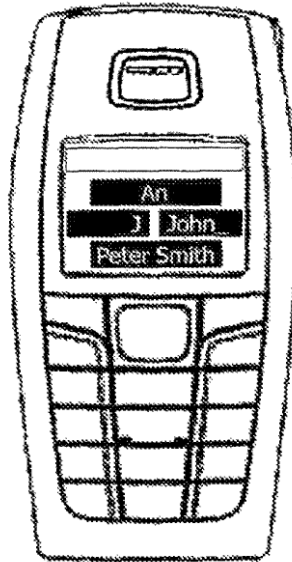


FIGURE 5

As shown in Figure 5, the display of the device presents a user “with 4 strings in a circular menu,” i.e., “An,” “J,” “John,” and “Peter Smith.” *Id.* at 4:44–46. The device also includes a joystick that can be moved “in the directions left, right, up[,] and down.” *Id.* at 4:47–48. The presentation of the “4 strings in [the] circular menu indicat[e] the strings are selected by movements of the joystick in the directions left, right, up and down.” *Id.* at 4:45–48. That is, the displayed strings are selected with “corresponding movements of the joystick.” *Id.* at 3:15–19; *see id.* at 6:23–27.

Further, the strings which are displayed are “parts of item identifiers” corresponding to “database items from a database.” *Id.* at 3:25–36. For example, the string “An” is a partial item identifier corresponding to two database items: “Andrew Jones” and “Anne Parkes.” *See id.* at 6:63–67. If

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the user selects the string “An,” the user is then presented additional partial item identifiers, “drew_Jones” and “ne_Parkes,” corresponding to the “Andrew Jones” and “Anne Parkes” database items, one of which is ultimately selected. *Id.* at 7:15–30; *see id.* at 7:1–14, Fig. 8.

B. The Challenged Claims

Of the challenged claims, claim 1 is independent and is reproduced below.

1. A computer-implemented method of selecting an item from a plurality of items, the method comprising:

displaying, by at least one computer processor, in a first area of a display of a device, a first plurality of portions of item identifiers, wherein the item identifiers correspond to the plurality of items in a database, and the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left right select functionality of an input directional controller of the device;

enabling, by the at least one computer processor, selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device;

displaying, by the at least one computer processor, the selected portion of the item identifier in a second area of the display of the device, wherein the second area of the display is separate from the first area of the display;

displaying, by the at least one computer processor, in response to the selection of the one of the first plurality of the portions of item identifiers and in the first area of the display, a second plurality of portions of the item identifiers, the second plurality of portions of the item identifiers comprising at least two portions of the item identifiers chosen for display based on the selection of the one of the plurality of portions of the item identifiers;

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enabling, by the at least one computer processor, selection of one of the second plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the input directional controller on the input device;

combining by a computer processor, the portion of the item identifier selected from the second plurality of portions of the item identifiers with the portion of the item identifier selected from the first plurality of portions of the item identifiers to create a larger portion of the item identifier; and

displaying by a computer processor, the larger portion of the item identifier in the second area of the display of the device;

wherein the first plurality of portions of item identifiers and the second plurality of portions of item identifiers are orthographic symbols representing at least a writing language; and

wherein the at least two portions of item identifiers chosen for display based on the selection of the one of the plurality of portions of item identifiers are chosen to minimize a number of actuations of the input directional controller that is otherwise necessary to input the item identifier.

Ex. 1001, 7:48–8:35.

C. Related Proceedings

Petitioner and Patent Owner identify a related litigation in the Southern District of New York asserting the '393 patent titled *Kannuu Pty Ltd. v. Samsung Elecs. Co.*, No. 1:19-cv-04297-ER (S.D.N.Y.). Pet. 3; Paper 4, 2.

Petitioner also notes that Patent Owner has asserted U.S. Patent Nos. 8,676,852 (“the '852 patent”), 8,996,579 (“the '579 patent”), 9,436,354 (“the '354 patent”), and 9,697,264 (“the '264 patent”) in the above litigation and that Petitioner filed petitions challenging these patents. Pet. 3–4; Paper

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9, 2; Paper 31, 2. The '264 patent was challenged in IPR2020-00736, and we denied institution in that proceeding. IPR2020-00736, Paper 23. The '354 patent was challenged in IPR2020-00737, and we instituted review in that proceeding. IPR2020-00737, Paper 23. The '579 patent was challenged in IPR2020-00739, and we denied institution in that proceeding. IPR2020-00739, Paper 22. The '852 patent was challenged in IPR2020-00740, and we denied institution in that proceeding. IPR2020-00740, Paper 21.

D. References

Petitioner relies on the following references:

1. “Perlman” (US 2002/0113825 A1; published Aug. 22, 2002) (Ex. 1005);
2. “Pu” (US 7,152,213 B2; issued Dec. 19, 2006) (Ex. 1006);
3. “Krohn” (US 6,593,913 B1; issued July 15, 2003) (Ex. 1007); and
4. “Dostie” (US 2004/0021691 A1; published Feb. 5, 2004) (Ex. 1011).

E. Testimonial Evidence

Petitioner supports its challenge with a declaration from Clifton Forlines, Ph.D. (Ex. 1003, “Forlines Declaration”). Patent Owner cross-examined Dr. Forlines by deposition. Ex. 2027 (“Forlines Dep.”).

Patent Owner has submitted a declaration from Ravin Balakrishnan, Ph.D. (Ex. 2024, “Balakrishnan Declaration”)⁴ in support of Patent Owner’s

⁴ The Balakrishnan Declaration was filed as Exhibit 2024 in this proceeding, although the document on its face is labeled “PATENT OWNER’S EXHIBIT 2023” and “Kannuu Exhibit 2023.”

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Response. Petitioner cross-examined Dr. Balakrishnan by deposition.

Ex. 1028 (“Balakrishnan Dep.”).

F. Grounds Asserted

Petitioner challenges the patentability of the ’393 patent claims on the following grounds:

Claim(s) Challenged	35 U.S.C. §	References/Basis
1–4, 6, 7, 11, 13–16	102 ⁵	Perlman
5	103	Perlman, Dostie
8–10, 12	103	Perlman, Pu
1–4, 6–10, 12–16	102	Pu
5	103	Pu, Dostie
11	103	Pu, Perlman
1–4, 6–16	103	Krohn, Pu
5	103	Krohn, Pu, Dostie

III. ANALYSIS

A. Legal Principles

1. Anticipation

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference.

⁵ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102 and 103 effective March 16, 2013. Because the ’393 patent has an effective filing date prior to the effective date of the applicable AIA amendments, we refer to the pre-AIA versions of §§ 102 and 103.

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See Net MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *accord In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

2. *Obviousness*

A claim is unpatentable under 35 U.S.C. § 103(a) if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in the record, objective evidence of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). In that regard, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418.

B. Preliminary Matters—Patent Owner’s Motion to Strike

Before addressing the merits of Petitioner’s asserted grounds, we address the discovery practice that occurred during the course of the trial and

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Patent Owner’s Motion to Strike (Paper 90). Both parties zealously sought additional discovery related to objective evidence of non-obviousness, an area for which our Trial Practice Guide recognizes “[n]arrowly focused requests for additional discovery . . . may, if appropriate, be permitted.” Consolidated Trial Practice Guide (“Consolidated Practice Guide”)⁶ at 28. In this proceeding, we conducted several conference calls with the parties about requested additional discovery where we worked with the parties to narrow and sometimes resolve disputes.⁷ Ultimately, we authorized each party to file a motion for additional discovery regarding objective evidence

⁶ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

⁷ Relevant to Patent Owner’s requests for additional discovery, we note the following history. The parties had three telephonic meet and confers about Patent Owner’s requested discovery in October and November of 2020 (Ex. 2023, 4:18–23), and when communications ultimately broke down, Patent Owner emailed the Board seeking authorization to file a motion for additional discovery. The Board held a conference call with the parties on December 8, 2020, and during that call and with the Board’s assistance, the parties narrowed their disputes. *Id.* at 20:2–21:2. The Board then asked the parties to confer on the remaining document discovery request to see if the parties could reach an agreement. *Id.* at 34:25–35:6. The parties ultimately resolved their disputes over the remaining request, and Patent Owner withdrew its request for authorization to file a motion for additional discovery.

On December 30, 2020, Patent Owner again approached the Board requesting authorization to file another motion for additional discovery, including follow up document discovery, an interrogatory, and Rule 30(b)(6) and individual depositions. Ex. 3004, 2. On January 5, 2021, the Board held a conference call with the parties, and during that call, Petitioner represented that no responsive documents existed for one of Patent Owner’s requests. Paper 39, 26:6–29:6. As to the remaining requests, we authorized Patent Owner to file a motion for additional discovery. *Id.* at 43:15–24.

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of non-obviousness, and we granted-in-part each of those motions.

Papers 68, 71.

Throughout this proceeding, Patent Owner has argued that Petitioner’s failure to address secondary considerations evidence in the Petition should be fatal to Petitioner’s unpatentability challenges. At institution, we found that the facts at that stage did not support discretionary denial based on Petitioner’s failure to address Patent Owner’s allegations of copying and industry praise in the Petition. Dec. 10–13.

During trial, Patent Owner continues to press this issue based on the documents produced. PO Resp. 9–15. Patent Owner also argues that Petitioner violated its discovery obligations by, for example, not producing certain documents sooner, by representing it had no documents responsive to certain document requests when responsive documents were ultimately produced pursuant to other requests, and generally delaying the timeline of discovery. *See id.* Although Patent Owner’s Response mentions an anticipated motion for sanctions (*see id.* at 15), Patent Owner never sought our authorization to file such a motion. In addressing the additional discovery it did receive from Petitioner, Patent Owner argues that discovery was inadequate because Petitioner’s corporate representative had done an inadequate investigation into the noticed topic as well as the answer to the interrogatory that witness verified. Paper 82, 2–8.⁸

⁸ Patent Owner also says it would have followed up on these deficiencies, but did not based on the Board’s Order that “further requests for additional or follow-up discovery by Patent Owner will not be authorized.” Paper 82, 6 n.4; Paper 68, 12. We note that we never suggested or ordered that either party could not contact the Board about failing to receive discovery the

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Other than the documents subject to Patent Owner’s Motion to Strike, which we address below, we determine that Patent Owner has had a full and fair opportunity to address secondary considerations during this proceeding, and having reviewed the parties’ arguments and evidence submitted during trial, we determine Patent Owner has not been so prejudiced by Petitioner’s failure to address secondary considerations in the Petition to warrant any sort of adverse judgment against Petitioner. Even with the benefit of hindsight, we still find the evidence on secondary considerations was not so clear that Petitioner was required to address it in its Petition. That is not to say that Petitioner did not make Patent Owner’s (and the Board’s) tasks in this proceeding more difficult. We agree with Patent Owner that Petitioner could have been more forthcoming in producing its internal documents that are certainly relevant to Patent Owner’s secondary considerations contentions. On at least two occasions, conference calls with the Board were required to confirm that Petitioner had no documents responsive to Patent Owner’s requests. *See Ex. 2023, 20:2–21:2; Paper 39, 26:6–29:6.*

We also agree with Patent Owner that Petitioner’s conduct around its corporate representative’s deposition was less than ideal. In particular, we authorized Patent Owner to file a motion to strike Exhibits 1058 and 1059 as well as the portions of Petitioner’s briefs with arguments based on Exhibits 1058 and 1059. *See Paper 90.* For the reasons discussed below, we grant this motion.

Board had *already* ordered, but Patent Owner never raised these deficiencies with us until its additional brief addressing the additional discovery produced by Petitioner.

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Certain facts related to that motion are undisputed. It is undisputed that Exhibit 1058 was produced by Petitioner the day before the Board-authorized deposition of Samsung's corporate representative designated to testify about Samsung's 2012–2013 efforts to develop predict-next-letter technology. *See* Paper 90, 2; Ex. 2096 (Deposition of Samsung's Witness); Paper 68 (Order Granting-in-part Patent Owner's Motion for Additional Discovery), 2, 12. It is further undisputed that Exhibit 1058 was originally produced only in the Korean language with Petitioner providing no translation until over a month after the deposition of Petitioner's corporate representative. *See* Paper 90, 2. In authorizing Patent Owner's motion to strike, we were not persuaded by Petitioner's argument that Patent Owner was not prejudiced by the late production of this document, and we determined that it was too late in the proceeding to reopen fact discovery to remedy any such prejudice. *Id.* at 3.

In its Motion to Strike, Patent Owner argues that Exhibits 1058 and 1059 and Petitioner's arguments based on those exhibits are untimely. Paper 93, 2–5. Patent Owner also argues these exhibits are inadmissible as unauthenticated hearsay. *Id.* at 5 (citing Ex. 2096, 111:23–112:23). Petitioner opposes the Motion to Strike. Paper 95. Petitioner contends that it timely uncovered Exhibit 1058 in Petitioner's preparation for the Board-ordered deposition of Petitioner's corporate representative. *Id.* at 1–3. Petitioner also argues Patent Owner did not timely object to Exhibit 1058 during the deposition, and that Patent Owner was not prejudiced because it could have asked Petitioner's corporate representative more questions about the document because that witness speaks and reads Korean. *Id.* at 4.

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Petitioner further argues that Exhibits 1058 and 1059 are admissible as self-authenticating business records. *Id.* at 5. Petitioner argues that its corporate representative “could have established [Exhibit 1058] was a true and correct copy of a business record had he been asked or had [Patent Owner’s] counsel objected.” *Id.*

We grant Patent Owner’s Motion to Strike, and we view Petitioner’s arguments in opposition as largely disingenuous. Patent Owner alleged copying as a secondary consideration of non-obviousness in its Patent Owner Preliminary Response in June 2020. Paper 13, 34–37. But Petitioner did not produce Exhibit 1058 until the day before the deposition of Petitioner’s corporate representative (almost a year after it knew copying would be an issue in this proceeding). Although that document may have resided with Petitioner’s Korean parent entity Samsung Electronics Co., Ltd. (“SEC”), we do not view that as a justification for Petitioner’s delay. As we noted in our Order granting-in-part Patent Owner’s motion for additional discovery, Petitioner produced SEC documents in this proceeding and relied on other SEC documents to allegedly show independent development in opposing Patent Owner’s motion for additional discovery. Paper 68, 6 (citing Paper 46, 6–8). Patent Owner should not be prejudiced by Petitioner’s decision to delay further investigation into its alleged independent development for almost a year after it knew copying would be at issue in this proceeding. Thus, we agree with Patent Owner that Exhibit 1058 and its translation (Exhibit 1059) were not timely submitted.

We also do not find persuasive Petitioner’s attempt to pass the buck to Patent Owner’s counsel. Petitioner contends, in essence, that Patent

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Owner's counsel is to blame for any prejudice caused by the late production of this document because Patent Owner's counsel failed to ask Petitioner's corporate representative more questions about the document at his deposition, failed to ask that witness questions about the documents' authenticity or admissibility, or, apparently, failed to ask that witness to translate the document in real time. *See* Paper 95, 2, 4.

We note that we already waived any requirement that Patent Owner object to the exhibit at issue prior to the hearing. Paper 90, 3. We are not persuaded to reconsider that waiver based on Petitioner's continued arguments that Patent Owner was required to object during the deposition. Paper 95, 2. As Petitioner itself notes, it was Petitioner that introduced at the deposition the document that it later filed in this proceeding as Exhibit 1058. *Id.* (citing Ex. 2096, 128:9–129:8). And the only testimony elicited by Petitioner's counsel was whether the witness recognized the document and had asked Patent Owner's counsel to see that document earlier in the deposition. Ex. 2096, 128:9–129:8. We are not convinced that Patent Owner's counsel was required to object to this non-substantive testimony about a document or risk waiver of all objections to Petitioner's substantive reliance on that document. Such a rule would clearly unfairly prejudice Patent Owner, and so, to the extent an objection might be viewed as required, we maintain our decision to waive any such rule.

Patent Owner's counsel also was not required to have the witness translate the document into English in real time as Petitioner suggests. *See* Paper 95, 4. Indeed, earlier in the deposition, the witness appeared less than fully confident in his own translation of his own preparation notes.

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Ex. 2096, 15:10–14, 19:6–9 [REDACTED]

[REDACTED]
[REDACTED]). And similarly, Patent Owner’s counsel was not required to ask the witness questions to establish the admissibility of Exhibit 1058, if for no other reason than it is Petitioner, not Patent Owner, who introduced and is attempting to rely on the exhibits at issue.

Here, Petitioner chose to zealously oppose the additional discovery Patent Owner sought. We make no judgment as to this strategy, but that strategy apparently meant that it did not proactively search for documents about independent development sooner and timely make that evidence of record. Having chosen this strategy, Petitioner cannot then change course and sandbag Patent Owner on the eve of the ordered deposition with a foreign language document, all the while blaming Patent Owner for failing to elicit relevant testimony about the document.

Equity weighs strongly in favor of striking Exhibits 1058 and 1059, as well as Petitioner’s arguments relying on those exhibits. Because we determine that Petitioner did not timely produce Exhibit 1058, we need not and do not address whether that exhibit (and Exhibit 1059) would have been admissible evidence (Paper 93, 5) if timely produced. Patent Owner’s Motion to Strike is granted.

We determine no other conduct from the deposition of Petitioner’s corporate representative was so egregious as to warrant the adverse inference Patent Owner requests. Specifically, Patent Owner faults Petitioner for inadequately preparing its corporate representative for his deposition. Paper 82, 1–8. Patent Owner then argues that this is “powerful

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circumstantial evidence that [Petitioner] is withholding evidence that undermines [Petitioner's] arguments, and the Board can draw an adverse inference accordingly.” *Id.* We are not persuaded to draw any sort of adverse inference against Petitioner. Its corporate representative was designated to testify about “Samsung’s⁹ 2012-13 efforts to develop predict-next-letter technology.” To the extent that witness was inadequately prepared, we can account for that in the weight we accord his testimony in considering Petitioner’s arguments that it independently developed the technology at issue. In addition, Petitioner’s corporate representative verified Petitioner’s interrogatory response. Ex. 2098. To the extent that witness’ testimony shows this verification was deficient, we can consider that in assessing the weight of that interrogatory response. Thus, we determine it is unnecessary to draw any adverse inferences against Petitioner based on the deposition of its corporate representative (or any other alleged discovery deficiencies).

We again note that our proceedings must be completed according to a statutory deadline, and we allowed briefing on a motion for additional discovery from each party, granted-in-part each of those motions, and allowed additional briefing from each party to address additional discovery from both parties. Other than the exhibits and arguments stricken, as discussed above, we determine that both parties had a full and fair opportunity to address secondary considerations of non-obviousness before us. With these preliminary matters addressed and the appropriate scope of

⁹ Here, Samsung refers to both Petitioner and Petitioner’s Korean parent entity Samsung Electronics Co., Ltd. (“SEC”). *See* Paper 68, 3.

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the evidence before us determined, we proceed to consider the merits of Petitioner’s unpatentability challenges.

C. Level of Ordinary Skill in the Art

Petitioner asserts one of ordinary skill in the art at the time of the invention would have had “at least an undergraduate degree in electrical engineering, computer science, or physics (or a related field, such as computer engineering, human-computer interaction, or industrial design) and 2–3 years of work experience with input interfaces to electronic devices.” Pet. 12 (citing Ex. 1003 ¶¶ 14–20). Prior to institution, Patent Owner asserted the same. Prelim. Resp. 43–44 (citing Ex. 2003 ¶ 28). In our Decision on Institution, we adopted Petitioner’s and Patent Owner’s identical formulation because it is consistent with the ’393 patent and the asserted prior art. Dec. 17. Neither party asks us to depart from that formulation, and we continue to apply it here.

D. Claim Construction

In an *inter partes* review, we apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2019). In applying this standard, claim terms are generally given their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art, at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the

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prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Furthermore, we expressly construe the claims only to the extent necessary to resolve the parties’ dispute. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Petitioner asserts that “no claim terms require construction for the resolution of this Petition.” Pet. 13 (citing Ex. 1003 ¶¶ 80–81 & n.5). Based on Patent Owner’s arguments in the Preliminary Response, in our Decision on Institution, we determined that the limitations

the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left, right select functionality of an input directional controller of the device . . .

selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device . . . [and]

the up, down, left, right, select functionality of the input directional controller on the input device,

as recited in independent claim 1, are not restricted to “up to four on-screen selection options — namely, up, down, left, right and no additional options on the screen at a specific time” and do not “requir[e] a single press or movement in the process of selecting one of the up to four options presented on the screen.” Dec. 18–20. We invited the parties to further address the proper constructions of those terms during trial. *Id.* at 21.

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In its trial briefing, Patent Owner addresses claim constructions for “the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left, right select functionality of an input directional controller of the device” and “selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device.” PO Resp. 34. In its Reply, Petitioner addresses the construction of the limitations as to whether “there are *no more than* four directional selection options on the input direction controller to select an item identifier.” Pet. Reply 2 (citing PO Resp. 34–35). For purposes of this decision, we determine we need only address the construction of the following claim limitations: (1) “the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left, right select functionality of an input directional controller of the device” and (2) “selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device.” *See Nidec*, 868 F.3d at 1017.¹⁰

1. *“the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left, right select functionality of an input directional controller of the device”*

Regarding “the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left, right select functionality of an input directional controller of the device,” Patent Owner

¹⁰ We address the proper construction of dependent claim 2 in the context of Petitioner’s unpatentability challenges below.

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contends that “the four-directional embodiment” as recited in claim 1 and depicted in Figure 5 allows “*no more than* four directional selection options on the input direction controller to select an item identifier.” PO Resp. 35 (citing Dec. 19–20; *Phillips*, 415 F.3d at 1315). Patent Owner further relies on decisions from the Federal Circuit to support reading a limitation from the specification into the claim, so long as a person of ordinary skill in the art “would understand from the specification that the claim is so limited.” *Id.* at 35–36 (citing *AquaTex Indus., Inc. v. Techniche Solutions*, 419 F.3d 1374 (Fed. Cir. 2005); *Secure Web Conf. Corp. v. Microsoft Corp.*, 640 F. App’x 910, 914 (Fed. Cir. 2016)).

Patent Owner contends the specification of the ’393 patent uses the phrase “left, right, up and down” only twice, and both mentions are “used in connection with Figures 5 and 6.” PO Resp. 38 (citing Ex. 1001, 4:47–48, 6:26–27, Figs. 5, 6). Patent Owner emphasizes the “[left, right, up and down] configuration because it corresponds to the presses of a joystick and only the joystick needs to be used to make selections.” *Id.* (citing Ex. 1001, 5:8–10, 6:22–26). Patent Owner contends that the Figure 5 embodiment is “the only embodiment in the ’393 patent that is relevant to claim 1,” and one of ordinary skill in the art would look to that embodiment to understand the claim limitations. *Id.* at 41–43 (citing Ex. 2024 ¶ 108). Patent Owner argues that Figure 5 depicts only four options corresponding to the up, down, left, right configuration and that the specification similarly limits the description to the “case of a menu driven by a joystick such as that which is commonly found on a mobile phone the system could present *up to 4 word section options* indicated by presses of the joystick in the four directions

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(left, right, up and down) and having a press in of the joystick to indicate ‘more.’” *Id.* at 43–44 (citing Ex. 1001, 6:23–27).

Patent Owner also contends that even if “the specification allows for more than four-directional selection options . . . that broader interpretation was claimed in the ’354 patent, not the ’393 patent,” thus invoking the doctrine of claim differentiation. PO Resp. 38 (citing the ’354 patent). Specifically, Patent Owner highlights similar item identifier location language of the ’354 patent that recites “wherein the further one of more parts of item identifiers being arranged on the display relative to one another and corresponding to *at least* an up, down, left or right position” *Id.* at 38–39 (emphasis added) (citing *Samsung Electronics America, Inc. v. Kannuu Pty, Ltd.*, IPR2020-00737, Ex. 1001, claim 1). Relying on the Declaration of Dr. Balakrishnan, Patent Owner contends the Board’s preliminary construction of the disputed limitations “render[s] superfluous the term ‘at least’ in the ’354 patent.” *Id.* at 40 (citing Ex. 2024 ¶ 100). In other words, because claim 1 of the ’354 patent prefaces the four-directional functionality with the phrase “at least” and claim 1 of the ’393 patent does not, Patent Owner contends the absence of “at least” from the corresponding limitation of the ’393 patent must limit the selection to no more than four positions. *Id.* Patent Owner notes that the phrase “at least” “precedes seven [other] limitations of claim 1 of the ’393 patent.” *Id.* at 40–41. Thus, Patent Owner asserts, the presence of the phrase “at least” in the ’354 patent must, at a minimum, render the non-use of the term in relevant limitations of the ’393 patent ambiguous. *Id.* at 41 (citing Ex. 2024 ¶ 106).

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Patent Owner further supports this assertion by pointing to the deposition testimony of Petitioner’s expert, Dr. Forlines. *Id.* at 41–42 (citing Ex. 2027). Specifically, Patent Owner contends that Dr. Forlines recognizes the phrase “at least” indicates more than the up, down, left or right positions and that Dr. Forlines recognizes some ambiguity in claim 1. *Id.* (citing Ex. 2027, 52:11–18, 52:25–53:5, 95:6–96:24). Because of the purported ambiguities in claim 1, Patent Owner contends the relevant claim limitation must be interpreted in view of the specification, including applicable embodiments, namely Figure 5. *Id.* at 41–42, 44–45 (citing *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 843 F.3d 1315, 1339 (Fed. Cir. 2016); *Bates v. Coe*, 98 U.S. 31, 38 (1878)).

In its Reply, Petitioner disagrees with Patent Owner reading a limitation from the specification into the claims. Pet. Reply 3 (citing PO Resp. 34–35). In particular, Petitioner contends that “[a]bsent [a] clear disavowal or lexicography, it is improper to import a limitation from a described embodiment into the claims,” and that the Federal Circuit has rejected limited constructions even where the patent describes only a single embodiment. *Id.* (citing *Cont’l Cirs. LLC v. Intel Corp.*, 915 F.3d 788, 796–97 (Fed. Cir. 2019)). Petitioner also points to the Board’s preliminary findings that “the presentation of four items on a display is *an embodiment* of the invention, *rather than a limiting definition* for the claim.” *Id.* (citing Dec. 19).

Petitioner also contends that “both the specification and [Patent Owner’s] expert agree that the invention includes embodiments with more than 4 buttons, such as remote controls, PCs, and tablets.” Pet. Reply 2, 5

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(citing Ex. 1001, 5:20–26; Ex. 1028, 55:13–54:20; Dec. 19–20). Petitioner further contends that Patent Owner’s expert, Dr. Balakrishnan, agrees that the claim language “can cover embodiments with *more than four buttons*.” *Id.* at 6–7 (citing Ex. 1028, 48:15–22, 52:10–16). In particular, Dr. Balakrishnan admits “that the claimed ‘select’ functionality could be *a fifth button* separate and apart from the up, down, right, left buttons – resulting in five buttons (not four).” *Id.* at 5 (citing Ex. 1028, 49:20–54:20). Thus, Petitioner argues there is no basis to limit the claims to just four buttons.

Petitioner next addresses the phrase “at least” being present in claim 1 of the ’354 patent. Petitioner contends the specification of the ’393 patent “actually supports embodiments with more than [four] buttons,” because the specifications of the ’393 patent and the ’354 patent are identical. Pet. Reply 6. In other words, if “at least an up, down, left or right position” is supported by the specification of the ’354 patent, then such a configuration must also be supported by an identical specification of the ’393 patent. Petitioner additionally contends that the “non-use” of “at least” in disputed limitation in the ’393 patent “does not change the result.” *Id.* Petitioner contends Dr. Forlines did not place “strong emphasis” on the phrase “at least” to indicate more than four options. *Id.* (citing PO Resp. 41–42). Even if he had, Petitioner contends Dr. Forlines’ testimony does not change the interpretation of the claims. *Id.* (citing Ex. 2027, 50:17–52:19).

In its Sur-reply, Patent Owner contends Petitioner “[c]onflates [the] two separate limitations” to be construed and “focuses exclusively on [the manner of selecting item identifiers with a directional controller] and entirely ignores [the placement of item identifiers on a display].” PO Sur-

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reply 17. Patent Owner further contends Petitioner has incorrectly reframed the issue “as whether the input device can have more than four buttons.” *Id.* at 17–18. Patent Owner notes it “has never argued that the ’393 patent only teaches embodiments with only four buttons,” and that such an argument does not change that the claims are limited to “using the up, down, left, right, select functionality of the directional controller on the input device.” *Id.* Patent Owner reiterates its claim differentiation argument and contends the ’354 patent reciting the phrase “at least” whereas the ’393 patent does not can inform the construction of the claims of the ’393 patent. *Id.* (citing *Clare v. Chrysler Grp., LLC*, 819 F.3d 1323, 1330 (Fed. Cir. 2016); *Serverside Grp. Ltd.v. Tactical 8 Techs., L.L.C.*, 927 F. Supp. 2d 623, 686 (N.D. Iowa 2013)). Lastly, Patent Owner contends Petitioner’s argument that Dr. Forlines did not emphasize the phrase “at least” “makes little sense,” and that Dr. Forlines’ testimony logically leads to the conclusions that “the absence of ‘at least’ in the ’393 patent claims means that there is not the same freedom and that there are only four display positions.” *Id.* at 18–19 (citing Pet. Reply 6 (citing Ex. 2027, 50:17–52:19)).

After having reviewed the claim language, the arguments, and the evidence, we determine that the item identifiers in the limitation at issue are not limited to the up, down, left, right select functionality of the input directional controller. We have considered the additional requirements as asserted by Patent Owner, but do not find them supported by the evidence as discussed below. Turning first to the claim language, we address the limitations discussed in our Institution Decision that include the recited instances of the “up, down, left, right select functionality of the input

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directional controller” — in particular, whether such limitations are limited to “no more than four directional selection options on the input direction controller to select an item identifier,” as argued by Patent Owner (PO Resp. 35). Claim 1 recites “portions of item identifiers [are] displayed in a position corresponding to an up, down, left, right select functionality of an input directional controller of the device.” Ex. 1001, 7:55–58. As we found in our Institution Decision, claim 1 uses the transitional term “comprising,” and does not include language restricting the number of displayed items to four. Dec. 19. In particular, the claim does not recite the display of only “up to four” items as argued by Patent Owner, nor does it recite any other language restricting the upper limit of items that may be displayed.

We also are not convinced by Patent Owner’s argument that its proposed construction is supported by reference to the directional select functionality limitation recited in claim 1 of the ’354 patent under the doctrine of claim differentiation. PO Resp. 38–43; PO Sur-reply 18–19. As the Federal Circuit has explained, the doctrine of claim differentiation “is based on the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope.” *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1369 (Fed. Cir. 2007). The doctrine is applied to resolve ambiguity when a claim would otherwise be superfluous. *See id.* at 1369–70 (“To the extent that the absence of such difference in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant.”). Patent Owner seeks to inform the construction of independent claim 1 of the ’393

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patent with independent claim 1 of the related '354 patent. PO Resp. 38–43; PO Sur-Reply 18–19. We agree with Patent Owner that independent claims of related patents can be used under the doctrine of claim differentiation to inform the interpretation of claim language, although we note the doctrine is not as strong across related patents as it would be if the different claim limitations appeared in the same patent. PO Sur-reply 18 (citing *Clare*, 819 F.3d at 1330; *Serverside*, 927 F. Supp. 2d at 686); *see also* Tr. 18:7–19:2 (Judge Kaiser: “Do you agree with Patent Owner that as a general matter, claim differentiation can be appropriate to consider for claims of cross-related patents?” Ms. Ducca: “It is not the claim differentiation that we normally think of when you have two claims -- for example, a dependent claim -- two different dependent claims that show two different aspects of it, but it is definitely evidence that you can look at.”).

The Federal Circuit, however, “has declined to apply the doctrine of claim differentiation where the claims are not otherwise identical in scope.” *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1238 (Fed. Cir. 2016); *see also Andersen*, 474 F.3d at 1370 (holding that another “reason for not applying the doctrine of claim differentiation in this case is that the [] claims are not otherwise identical . . . [i]nstead, there are numerous other differences varying the scope of the claimed subject matter”). Here, independent claim 1 of the '354 patent recites a similar method of selecting database items from a database as recited in independent claim 1 of the '393 patent. *Compare* Ex. 1001, 7:49–8:35, *with* US. Pat. 9,436,354, 7:41–8:13. Claim 1 of the '354 patent, however, is not commensurate in scope with claim 1 of the '393 patent because claim 1 of the '393 patent further includes

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limitations covering directional select functionality related to both the display of the first item identifiers and the enabling of selection of those item identifiers by using the directional select functionality. Claim 1 of the '354 patent likewise has limitations related to the highest ranked parts of item identifiers that claim 1 of the '393 patent does not have.

We have considered Patent Owner's reliance on the doctrine of claim differentiation and the language of claim 1 of the '354 patent, but we find that this doctrine does not counsel in favor of Patent Owner's proposed construction here. In particular, the claims at issue are from related patents, not the same patent, and have other differences in scope. In addition, claim 1 of the '354 patent indicates that the specification provides support for more than four items on a display. In claim 1 of the '393 patent, Patent Owner chose to use the transitional phrase "comprising" without explicitly limiting the number of display options to no more than four. Stated another way, the facts here do not show the use of "at least" in claim 1 of the '354 patent as compared to the absence of "at least" in claim 1 of the '393 patent would have put a person of ordinary skill in the art on notice that claim 1 of the '393 patent was limited to no more than four items on the display.

Turning next to the specification, we do not agree with Patent Owner that the only relevant embodiment of the invention recited in claim 1 is the embodiment depicted in Figure 5. PO Resp. 41–43. The embodiment shown in Figure 5 is "a representation of an opening joystick based selection menu using the present invention." Ex. 1001, 4:3–4. The specification, however, elaborates on the different selection menus by describing different presenting options. *Id.* at 6:13–7:45. Importantly, "[t]he number of options

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presented depends on the mode by which the options are being selected.” *Id.* at 6:15–17. For instance, a touch screen may present the selection options “in a 3 by 2 grid to be selected by a stylus (FIG. 9) – in this case the system would be generating up to 5 word sections at a time.” *Id.* at 6:17–19. The specification also describes a “case of a menu driven by a joystick,” which “could present up to 4 word section options indicated by presses of the joystick in the four directions (left, right, up and down).” *Id.* at 6:22–25. Thus, the specification appears to leave open the particular “select functionality of an input directional controller” and does not restrict such an input directional controller to the specific joystick embodiment as shown in Figure 5 and as argued by Patent Owner. While the case of a menu driven by a joystick does “present up to 4 word section options,” other described input directional controllers do not. Therefore, the presentation of four items on a display is an embodiment of the invention, rather than a limiting definition for the claim.

For the foregoing reasons, we determine “the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left, right select functionality of an input directional controller of the device” is not limited to “*only* an up, down, left, and right select functionality,” and we do not adopt Patent Owner’s proposed construction of this claim limitation, and we determine no further construction of this claim limitation is necessary.

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2. *“selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device”*

Regarding the “selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device,” Patent Owner contends “[t]he intrinsic evidence is clear that one of the up, down, left, and right buttons (or directions) are only pressed (or activated, with ultimate selection by a select button) once in the process of selecting one of the up to four options presented on the screen.” PO Resp. 45. Patent Owner again contends that “[b]ecause there is only one embodiment that is applicable to the [four]-directional controller [] in claim 1, [one of ordinary skill in the art] would consult this embodiment to understand the limitations of claim 1.” *Id.* (citing Ex. 2024 ¶ 114). Regarding Figure 5, Patent Owner acknowledges the Board’s preliminary finding that the embodiment “[d]oes not describe that selections are affirmatively made via a single press or movement.” *Id.* at 45–46 (citing Dec. 20; Ex. 1001, 4:45–48, 6:22–27). In response, Patent Owner contends the single press selection “is the only logical possibility in the event there are no more than a single up, down, left, right selection option presented to the user,” even if the specification does not explicitly describe a single press selection. *Id.* at 46 (citing Ex. 2024 ¶ 116).

Referring to Figure 5, Patent Owner contends that because “there are no more than four potential options for selection,” any direction chosen with a joystick or directional pad (d-pad) will automatically select (or indicate for selection by a select key) the corresponding on-screen option, “unless the ‘more’ key is selected present more options.” *Id.* Thus, Patent Owner

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concludes, “it is logically and physically impossible to press one of the [] up, down, left or right keys multiple times in this embodiment to select different predictive text options.” *Id.* at 47 (citing Ex. 2024 ¶ 118).

Patent Owner next addresses the Board’s preliminary finding that the term “indicated” as described in the specification “does not describe that selections are affirmatively made via a single press of movement.” PO Resp. 47 (citing Dec. 20). Relying on Dr. Balakrishnan’s testimony, Patent Owner contends “the term ‘indicated by presses of the joystick’ precisely means that an item is selected, or indicated (e.g., highlighted) for selection followed by the press of an optional select key.” *Id.* at 48 (citing Ex. 2024 ¶ 120). For support, Patent Owner points to earlier portions of the specification describing an embodiment of the current invention that streamlines the conventional method of selecting a contact from an address book of a mobile telephone. *Id.* at 48–49 (citing Ex. 1001, 4:44–67). Some pertinent portions of the specification relied upon by Patent Owner include the following: (1) “the user is presented with *4 strings in a circular menu indicating the strings are selected by movements of the joystick in the directions left, right, up and down (FIG. 5);*” (2) “[i]f the user sees the word section . . . they want to select *they move the joystick in the indicated direction to select that word section, appending it to the name thus far specified;*” and (3) “[i]f the word section the user desires is not presented, *they activate the “more” function, in this case a press in of the joystick to be presented with the next most likely set of four options.*” *Id.* at 48–49 (citing Ex. 1001, 4:44–67). Relying on these disclosures, Patent Owner contends

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“the use of ‘indicating’ is directly related to ‘selecting’ in the context of moving or pressing the joystick.” *Id.* at 49 (citing Ex. 2024 ¶ 121).

Patent Owner addresses a phrase cited by the Board in the Institution Decision that describes “[i]n the case of a menu driven by a joystick . . . the system could present up to 4 word section options *indicated by presses* of the joystick in the four directions . . . and having a press in of the joystick to indicate ‘more.’” PO Resp. 49 (emphasis added); *see* Dec. 20 (citing Ex. 1001, 6:22–27). Patent Owner contends that “‘indicated,’ in view of the specification’s previous disclosures, ‘must be interpreted as either a direct selection or an indication (e.g., highlighting of a cell) followed by a press of the selected key or one of the presented options.’” *Id.* (citing Ex. 2024 ¶ 122). Patent Owner also notes that Dr. Forlines similarly interpreted the term “‘indicated’” to mean “‘selection itself [or] highlighting to be selected.’” *Id.* (citing Ex. 2027, 112:2–3).

Patent Owner further contends that “one press of the input controller . . . button, either alone or followed by a press of the ‘select’ key selects each individual option” because there are only up to four selections of item identifiers. *Id.* at 50 (citing Ex. 2024 ¶ 123). Patent Owner asserts that multiple presses of an indicator, e.g., left-left-left, are not employed in the ’393 patent and that repeatedly pressing a directional indicator “would either select a newly presented option (in response to the previous selection) or would remain on the same option (in the event of highlighting for selection by a select key).” *Id.* (citing Ex. 2024 ¶ 124). Patent Owner argues “the relevant claim terms of the ’393 patent would not cover a method that allows movement the cursor multiple times through multiple on-

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screen predictive text options aligned in the same direction.” *Id.* (citing Ex. 2024 ¶ 124).

In its Reply, Petitioner focuses its arguments on the contention that the construction of the limitations at issue should not be limited to one specific embodiment of the invention when the language of the claim is not so limiting. Pet. Reply 3–4. In principle, Petitioner’s Reply with regard to whether the selection of an item identifier requires more than one press or action is the same as discussed above. *See* Tr. 21:21–22:11 (Judge Kaiser: “I want to ask you one other thing, which is I believe earlier in your presentation you characterized as -- you know, the disputes between the party as being one claim construction dispute. But I think there’s actually a second claim construction dispute as to Claim 1 of the ’393 Patent, which is about selecting. And [in] particular, whether multiple button presses can be used to select one of the -- one of the options. So I wanted to ask you about -- do you agree that that’s a second dispute as to Claim 1 of the ’393 Patent? And if so, how -- ask you to address that.” Ms. Ducca: “Yeah. I agree that the Patent Owner has tried to -- tried to frame it as a different dispute, but ultimately, it is exactly the same dispute. What it comes down to is whether you can have more than four buttons.”).

In its Sur-Reply, Patent Owner first addresses Petitioner’s Reply with respect to claim construction and contends Petitioner “[c]onflates [the] two separate limitations” to be construed and “focuses exclusively on [the manner of selecting item identifiers with a directional controller] and entirely ignores [the placement of item identifiers on a display].” PO Sur-reply 17.

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After having reviewed the claim language, the arguments, and the evidence, we determine that the limitations in question do not require “that one of the up, down, left, and right buttons . . . are only pressed . . . once in the process of selecting one of the up to four options presented on the screen” as argued by Patent Owner (PO Resp. 45). We have considered the additional requirements as asserted by Patent Owner, but do not find them supported by the evidence as discussed below.

Patent Owner’s interpretation appears to depend upon Patent Owner’s assertion that “there are no more than four potential options for selection.” *See* PO Resp. 46 (explaining the single press selection “is the only logical possibility *in the event there are no more than a single up, down, left, right selection option presented to the user*” (emphasis added)). Claim 1 recites “enabling . . . selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device.” Ex. 1001, 7:59–62. As discussed above, the claims do not require the specific select option of “no more than four options” as argued by Patent Owner. Patent Owner also relies again upon the embodiment depicted in Figure 5 to contend that because there are only four potential options for selections, any direction indicated by the joystick or d-pad will automatically select the corresponding on-screen option. PO Resp. 46.

We have reviewed the portions of the specification cited by Patent Owner (i.e., Figure 5 and the associated description) and find that they do not require limiting the indicating via directional indicators left, right, up and down to necessarily select an item identifier. Specifically, Patent Owner

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emphasizes language in the specification such as “the user is presented with *4 strings in a circular menu indicating the strings are selected by movements of the joystick in the directions left, right, up and down (FIG. 5),*” and “[i]f the user sees the word section . . . they want to select *they move the joystick in the indicated direction to select that word section, appending it to the name thus far specified.*” PO Resp. 48 (citing Ex. 1001, 4:44–67).

Although this disclosure provides support for the indicating movement to also be the selecting action, it does not limit indicating to also selecting. A non-limiting, exemplary embodiment in a specification does not mean that the claim language should be read as importing and requiring that one embodiment. *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (only when “the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction’” is the scope of a claim properly restricted to that of a disclosed embodiment).

Accordingly, we determine “selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device” is not limited to “one of the up, down, left, and right buttons (or directions) are only pressed (or activated, with ultimate selection by a select button) once in the process of selecting one of the up to four options presented on the screen,” and no further construction of this claim limitation is necessary.

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3. *Other claim terms*

We determine we need not explicitly construe any other claim terms in order to resolve the patentability challenges. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

E. Asserted Anticipation by Perlman

1. *Overview of Perlman (Ex. 1005)*

Perlman describes “data input techniques,” and, in one particular example, “an apparatus and method for entering alphanumeric characters and selecting data using a remote control device.” Ex. 1005 ¶ 2. Perlman describes “a group of directional and functional buttons 101 arranged in a ‘star’ pattern [which] are configured on the remote control device 100, and a corresponding set of buttons 110 [which] are displayed on the television/computer display 105.” *Id.* ¶ 14. Figures 1a and 2 are reproduced below.

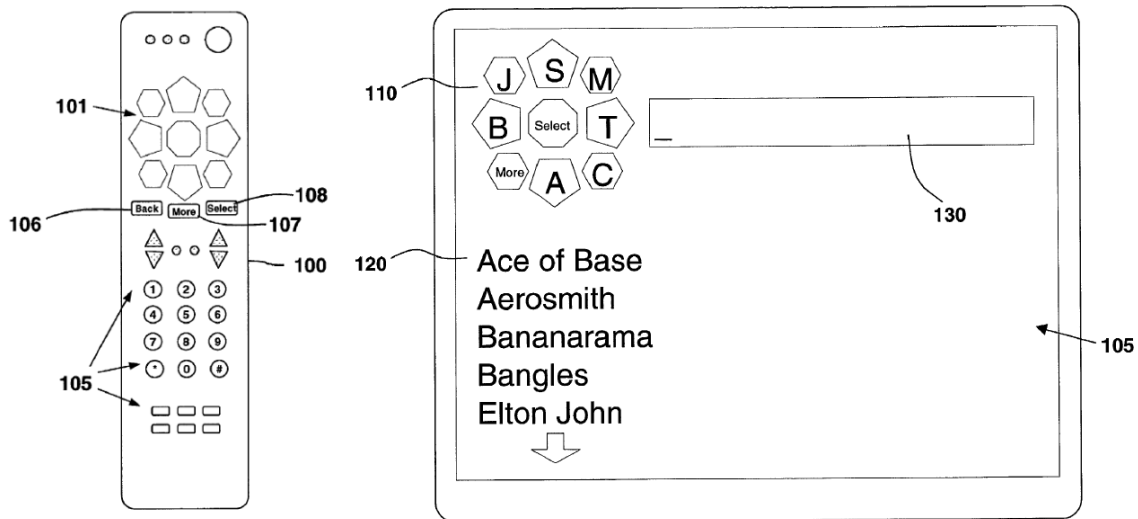


FIG. 1a

FIG. 2

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Figures 1a and 2 respectively show a “remote control device” (Ex. 1005 ¶ 9) and a corresponding “graphical user interface” on an electronic display (*id.* ¶ 10). As shown above, Figure 1a shows remote control device 100 with directional and functional buttons 101. Ex. 1005 ¶ 14. Figure 2 shows a graphical user interface including “character-mapped buttons 110,” “database list 120 . . . of available multimedia content,” and “text box 130” in which user “letter selections will appear.” *Id.* ¶ 17. The remote control device’s directional and functional buttons 101 correspond to the user interface’s character-mapped buttons 110. *Id.* ¶ 14. The user interface’s character mapped buttons 110 “correspond to the most common first letters of words in the database list 120.” *Id.* ¶ 17.

To select characters, “the user may press a remote control button 101 with a mapped character as indicated on the graphical user interface” and then the “selected character will then be typed/displayed in the text box 130.” *Id.* ¶ 23. Further, “the list of entries 120 will continuously change to reflect the user’s character selections. For example, if ‘B’ is typed . . . a ‘B’ will appear in the text box and only those [database] entries having ‘B’ as a first character will be listed.” *Id.* ¶ 25; *see id.* at Fig. 3. “As the user continues to select characters, only those multimedia programs/files with titles which begin with the selected characters will be displayed in the list 120.” *Id.* ¶ 17. Further, “[o]nce the user selects a first character, a new set of characters are mapped to the character-mapped buttons 101, 110 which correspond to the most common second letters of words in the database list 120.” *Id.*; *see id.* at Fig. 3.

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2. *Analysis*

Petitioner contends claims 1–4, 6, 7, 11, and 13–16 are unpatentable as anticipated by Perlman. Pet. 26–39. We have reviewed the evidence and arguments provided by the parties and are persuaded that Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 6, 7, and 13–16 are unpatentable as anticipated by Perlman, but Petitioner has not demonstrated by a preponderance of the evidence that claim 11 is unpatentable as anticipated by Perlman.

Claim 1

Claim 1 recites:

displaying, by at least one computer processor, in a first area of a display of a device, a first plurality of portions of item identifiers, wherein the item identifiers correspond to the plurality of items in a database, and the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left right select functionality of an input directional controller of the device.

Ex. 1001, 7:51–58. Petitioner contends that “Perlman describes a GUI with character-mapped buttons 110 in a ‘star’ configuration corresponding to the same ‘star’ configuration on a remote control input device to a television.” Pet. 27 (citing Ex. 1005 ¶¶ 14, 16, Figs. 2–8). Petitioner further contends that the “‘star’ configuration includes at least an up, down, left right select functionality of the remote control, which is an input directional controller of the associated television.” *Id.* at 28 (citing Ex. 1005 ¶¶ 14, 22).

Petitioner also contends the GUI’s star configured character-mapped buttons show corresponding “characters ‘B’, ‘J’, ‘S’, ‘M’, ‘T’, ‘C’, and ‘A’ (or

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group of letters, in some embodiments)” which “are portions of item identifiers, wherein the item identifiers correspond to a plurality of items in a database.” *Id.* at 29 (citing Ex. 1005 ¶ 17).

Patent Owner contends Perlman does not disclose this limitation because “Perlman only discloses a user interface with more than four different options when there are more than four potential characters for selection.” PO Resp. 51 (emphasis omitted); *see* PO Sur-reply 19–20. Patent Owner distinguishes Perlman’s approach as being more flexible whereas the ’393 patent takes a more simple approach. PO Resp. 52–53. Patent Owner also argues that “the large number of options in Perlman would counsel against from reducing the number selection options to as few as four.” *Id.* at 54 (citing Ex. 2024 ¶ 135).

We determine Petitioner has shown Perlman discloses this limitation of claim 1. As shown in Figures 1b and 2 of Perlman reproduced above, Perlman displays a star configuration of characters that correspond to positions on a remote control, including the up, down, left, right select functionality of the remote control. *See* Ex. 1005 ¶¶ 14, 16, 17, 22, Figs. 1b, 2. Patent Owner’s arguments that Perlman does not disclose this limitation are based on a claim construction that we do not adopt (i.e., that claim 1 is limited to no more than four directional selection options on the input controller).

Claim 1 further recites “enabling, by the at least one computer processor, selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device.” Ex. 1001, 7:59–62. Petitioner

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contends that, in Perlman, a “user may select a letter from the GUI by using the character-mapped buttons (at least the up, down, left, right, and select functionality) of the star configuration of the remote control device.” Pet. 29 (citing Ex. 1005 ¶ 17). Patent Owner argues that Perlman does not disclose this limitation for the same reasons as the prior limitation, which we rejected as discussed above. PO Resp. 54–55; PO Sur-reply 19–20. Perlman discloses that “the user selects letters via the displayed character-mapped buttons 110.” Ex. 1005 ¶ 17. We determine Petitioner has shown Perlman discloses this limitation of claim 1.

Claim 1 also recites “displaying, by the at least one computer processor, the selected portion of the item identifier in a second area of the display of the device, wherein the second area of the display is separate from the first area of the display.” Ex. 1001, 7:63–66. Petitioner contends that Perlman describes that the “user’s selection is displayed in text box 130, which is a different area of the GUI than the area corresponding to character-mapped buttons 110.” Pet. 30 (citing Ex. 1005 ¶ 17). We agree with Petitioner that Perlman discloses this limitation (Ex. 1005 ¶ 17), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites

displaying, by the at least one computer processor, in response to the selection of the one of the first plurality of the portions of item identifiers and in the first area of the display, a second plurality of portions of the item identifiers, the second plurality of portions of the item identifiers comprising at least two portions of the item identifiers chosen for display based on the selection of the one of the plurality of portions of the item identifiers;

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Ex. 1001, 8:1–9. Petitioner contends that Perlman describes that “[a]fter the user selects a letter (e.g., the character ‘B’), a new set of portions of item identifiers are automatically mapped to the character-mapped buttons of the ‘star’ configuration GUI and displayed for another user selection.” Pet. 31–32 (citing Ex. 1005 ¶ 17, Figs. 2–5). We agree with Petitioner that Perlman discloses this limitation (Ex. 1005 ¶ 17, Figs. 2–5), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites “enabling, by the at least one computer processor, selection of one of the second plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the input directional controller on the input device.” Ex. 1001, 8:10–14. Petitioner contends that Perlman’s “user may continue to select portions of item identifiers to complete a word or phrase corresponding to a multimedia program or title.” Pet. 32–33 (citing Ex. 1005 ¶¶ 17, 25–26, Figs. 2–5). Further, Petitioner contends that “[a]t least the up, down, left, right, and select functionality may be used within the ‘star’ configuration.” *Id.* at 33 (citing Ex. 1005, Figs. 2–5). Patent Owner argues that Perlman does not disclose this limitation for the same reasons as the prior contested limitations, which we find unpersuasive as discussed above. PO Resp. 55; PO Sur-reply 19–20. We agree with Petitioner that Perlman discloses this limitation (Ex. 1005 ¶¶ 17, 25–26, Figs. 2–5).

Claim 1 also recites “combining by a computer processor, the portion of the item identifier selected from the second plurality of portions of the item identifiers with the portion of the item identifier selected from the first plurality of portions of the item identifiers to create a larger portion of the

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item identifier.” Ex. 1001, 8:15–21. Petitioner contends that Figures 2–5 of Perlman show “the selected portions [of item identifiers] are [combined] in text box 130 (Figure 2) to form a larger portion of the multimedia program or title.” Pet. 33 (citing Ex. 1005 ¶¶ 17, 25–26). We agree that Perlman discloses this limitation (Ex. 1005 ¶¶ 17, 25–26, Figs. 2–5), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites “displaying by a computer processor, the larger portion of the item identifier in the second area of the display of the device.” Ex. 1001, 8:21–23. Petitioner contends that Figures 2–5 of Perlman show “the selected portions [of item identifiers] are combined in text box 130 (Figure 2) to form a larger portion of the multimedia program or title.” Pet. 33 (citing Ex. 1005 ¶¶ 17, 25–26). We agree that Perlman discloses this limitation (Ex. 1005 ¶¶ 17, 25–26, Figs. 2–5), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 also recites “wherein the first plurality of portions of item identifiers and the second plurality of portions of item identifiers are orthographic symbols representing at least a writing language.” Ex. 1001, 8:25–28. Petitioner contends in Perlman, the “first portions and second portions [of item identifiers] are alphanumeric letters or characters within the English alphabet, which are orthographic symbols representing the English language.” Pet. 33–34 (citing Ex. 1005 ¶¶ 4, 17, 35–36). We agree that Perlman discloses this limitation (Ex. 1005 ¶¶ 4, 17, 35–36), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites “wherein the at least two portions of item identifiers chosen for display based on the selection of the one of the

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plurality of portions of item identifiers are chosen to minimize a number of actuations of the input directional controller that is otherwise necessary to input the item identifier.” Ex. 1001, 8:29–35. Petitioner contends that the “data input techniques described in Perlman are used to minimize a number of actuations of the input directional controller that is otherwise necessary to input the item identifier.” Pet. 34 (citing Ex. 1005 ¶¶ 4–6) (emphasis omitted). We agree that Perlman discloses this limitation (Ex. 1005 ¶¶ 4–6), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

For the reasons discussed above, we determine Petitioner has shown by a preponderance of the evidence that claim 1 is anticipated by Perlman.

Claim 2

Claim 2 depends from claim 1 and additionally recites “iterating the selections until an item identifier is completed.” Ex. 1001, 8:36–38. Petitioner contends Perlman discloses this limitation because “[a] user can continue selecting additional letters until the multimedia program or title is completed.” Pet. 35 (citing Ex. 1003 ¶ 102; Ex. 1005 ¶¶ 17, 25, 26).

Patent Owner contends that this claim limitation requires that the up, down, left, and right positions must be filled prior to alternative key locations for each and every iteration. PO Resp. 55–57 (citing Ex. 2027,

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94:14–24,¹¹ 98:6–10,¹² 146:25–147:6; Ex. 2024 ¶¶ 138, 254–55, 261; Ex. 1005 ¶ 21). Petitioner disputes Patent Owner’s proposed interpretation of claim 2 because that claim recites “iterating the selections” but does not recite iterating the specific displaying steps of claim 1. Pet. Reply 10–11. Patent Owner contends that at each selection for claim 2, the limitations of claim 1 (or at least some of the limitations of claim 1) must be performed. PO Sur-reply 20–24 (citing Ex. 2027, 79:6–11, 88:14–24, 92:6–10).

We do not agree with Patent Owner’s interpretation of claim 2. Claim 2 does not explicitly recite iterating all of the steps of claim 1 or even iterating the displaying steps of claim 1. Instead, claim 2 requires all of the method steps of claim 1 be performed and additionally “iterating the selections until an item identifier is completed.” As to selections, claim 1 recites “enabling, by the at least one computer processor, selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device” and “enabling, by the at least one computer processor, selection of one of the second plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the input directional controller on the input device.” In other words, claim 1 recites selecting two portions of item identifiers; claim 2 recites continuing the selection (e.g., from a third

¹¹ This citation appears to be a typographical error with Patent Owner intending to cite Ex. 2027, 88:14–24. *See* PO Sur-reply 22.

¹² This citation appears to be a typographical error with Patent Owner intending to cite Ex. 2027, 92:6–10. *See* PO Sur-reply 22.

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plurality of portions of the item identifiers, a fourth plurality of portions of the item identifiers, etc.) until the item identifier is completed.

As intrinsic evidence supporting its interpretation of claim 2, Patent Owner relies only on the language of claim 2 itself. PO Resp. 55–57; PO Sur-reply 20–24. We agree with Patent Owner that a person of ordinary skill in the art would understand that displaying is required to allow continued iteration of selections as recited in claim 2. We do not agree, however, that such displaying requires the up, down, left, right positions be filled prior to alternative key locations, such as the diagonal position in Figure 5 of Perlman (*see* PO Resp. 56). That requirement appears in neither the language of claim 1 nor the language of claim 2.

We also do not find the extrinsic evidence on which Patent Owner relies helpful. Patent Owner relies on Dr. Forlines’ deposition testimony, but in the cited testimony, Dr. Forlines was being questioned about limitations of claim 1 (Ex. 2027, 88:14–24, 92:6–10), or about claim 2 of the related ’354 patent (PO Sur-reply 21 n.71 (citing Ex. 2027, 79:6–11)). We note that claims 1 and 2 in the challenged patent and the related ’354 patent (at issue in IPR2020-00737) have a number of differences. Even taking those differences into account, we determine Dr. Forlines’ testimony as to claim 2 of that related patent is unclear as to what steps he viewed as necessary to iterate in the context of that claim. *See* Ex. 2027, 77:11–81:7. We have also considered the portions of Dr. Balakrishnan’s Declaration on which Patent Owner relies. Other than the language of claim 2 itself, Dr. Balakrishnan does not provide any support for his opinion that claim 2 “requires that at each selection, the limitations of Claim 1 are satisfied.”

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Ex. 2024 ¶ 138.¹³ As discussed above, we do not agree that the plain language of claim 2 supports Patent Owner’s interpretation.

We find Petitioner has shown Perlman discloses the additional limitation of claim 2. Pet. 35 (citing Ex. 1003 ¶ 102; Ex. 1005 ¶¶ 17, 25, 26). Referring to Figure 2, Perlman discloses:

As the user selects letters via the displayed character-mapped buttons 110, the user’s letter selections will appear in a text box 130, and the database list 120 will change to reflect the user’s selections. Initially (i.e., before the user has selected a character), the alphanumeric characters mapped to the character-mapped buttons 101, 110 correspond to the most common first letters of words in the database list 120. Once the user selects a first character, a new set of characters are mapped to the character-mapped buttons 101, 110 which correspond to the most common second letters of words in the database list 120 which begin with the first-selected character. As the user continues to select characters, only those multimedia programs files with titles which begin with the selected characters will be displayed in the list 120.

Ex. 1005 ¶ 17. Paragraphs 25 and 26 of Perlman further explain this process in reference to Figures 3–6 where the user continues to select letters until only one possible entry remains. *Id.* ¶¶ 25, 26.

For the reasons discussed above, we determine that Petitioner has shown by a preponderance of the evidence that claim 2 is anticipated by Perlman.

¹³ The remaining portions of Dr. Balakrishnan’s Declaration which Patent Owner cites deal with the operation of Perlman, rather than the construction of claim 2 of the challenged patent. *See* Ex. 2024 ¶¶ 254–55, 261.

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Claim 3, 4, 6, 7, 11, and 13–16

Petitioner provides further analysis detailing where it contends each additional limitation of dependent claims 3, 4, 6, 7, 11, and 13–16 is taught in Perlman. Pet. 35–39. Other than its arguments as to claim 1, Patent Owner does not address Petitioner’s anticipation challenge to these dependent claims. *See* PO Resp. 57; PO Sur-reply 24.

Claim 3 depends from claim 1 and further recites “wherein the selected two portions of item identifiers are chosen based on at least one predetermined criterion.” Ex. 1001, 8:39–41. Petitioner contends Perlman discloses this limitation. Pet. 35–36 (citing Ex. 1003 ¶ 103; Ex. 1005 ¶ 19). In particular, Petitioner points to character incidence and user preference as the recited predetermined criteria. *Id.* We agree that Perlman discloses this limitation. Ex. 1005 ¶ 19.

Claim 4 further depends from claim 3 and additionally recites:

wherein the at least one predetermined criteria is at least one of a frequency of selection of items associated with the pluralities of portions of the item identifiers, a recency of selection of the items associated with the pluralities of portions of the item identifiers, or a likelihood of selection of the items associated with the pluralities of portions of the item identifiers.

Ex. 1001, 8:42–49. Petitioner contends that Perlman discloses the additional limitation of claim 4. Pet. 36. Specifically, Petitioner refers to Perlman’s disclosure of selecting portions of item identifiers based on the “most common” first/second/third letters of words in the database and based on user preferences, including playback frequency. *Id.* (citing Ex. 1005 ¶¶ 17, 19). We agree that Perlman discloses this limitation. Ex. 1005 ¶¶ 17, 19.

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Claim 6 depends from claim 1 and further recites “wherein the item identifiers are text strings.” Ex. 1001, 8:55–56. Petitioner contends Perlman discloses this limitation. Pet. 37 (citing Ex. 1003 ¶ 105; Ex. 1005 ¶¶ 25, 26, 29). As Petitioner points out, Perlman discloses item identifiers as text strings, such as Ace of Base and Bangles. Ex. 1005 ¶¶ 25–26. We agree that Perlman discloses this limitation.

Claim 7 depends from claim 1 and further recites “wherein the item identifiers are words.” Ex. 1001, 8:57–58. Petitioner contends Perlman discloses this limitation. Pet. 37 (citing Ex. 1003 ¶ 106). As discussed above, Perlman discloses item identifiers as words, such as Ace of Base and Bangles. Ex. 1005 ¶¶ 25–26. We agree that Perlman discloses this limitation.

Claim 11 depends from claim 8 and further recites “wherein the computing device is a television.” Ex. 1001, 8:66–67. Petitioner contends Perlman teaches the additional limitation of claim 11. Pet. 37 (citing Ex. 1003 ¶ 107; Ex. 1005 ¶¶ 14, 19). Petitioner, however, does not assert that claim 8 (from which claim 11 depends) is anticipated by Perlman. *See id.* at 6. Because Petitioner has not alleged that Perlman anticipates claim 8, we determine Petitioner has not shown Perlman anticipates claim 11.

Claim 13 depends from claim 1 and further recites “wherein the item identifiers are a meaningful units comprised of one or more orthographic symbols.” Ex. 1001, 9:3–5. Petitioner contends Perlman discloses this limitation. Pet. 38 (citing Ex. 1003 ¶ 108). Perlman discloses item identifiers as letters, groups of letters, and words. Ex. 1005 ¶¶ 17, 29, 33–34. We agree that Perlman discloses this limitation.

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Claim 14 depends from claim 1 and further recites “wherein the first plurality of portions of item identifiers and the second plurality of portions of item identifiers are alphanumeric symbols.” Ex. 1001, 9:6–9. Petitioner contends Perlman discloses this limitation. Pet. 38 (citing Ex. 1003 ¶ 109). Petitioner contends that Figures 6 and 7 of Perlman show that the same set of buttons are shared between numbers and characters. *Id.* (citing Ex. 1005 ¶¶ 30–32). We agree that Perlman discloses this limitation.

Claim 15 depends from claim 1 and further recites “wherein the first plurality of portions of item identifiers and the second plurality of portions of item identifiers are ideographic symbols.” Ex. 1001, 10:1–4. Petitioner contends Perlman discloses this limitation. Pet. 38–39 (citing Ex. 1003 ¶ 110). Petitioner relies on Dr. Forlines’ testimony that a person of ordinary skill in the art would have understood that Perlman’s non-alphanumeric, graphical other types of symbols include ideographic symbols. *Id.* (citing Ex. 1003 ¶ 110; Ex. 1005 ¶ 14). We agree that Perlman discloses this limitation.

Claim 16 depends from claim 1 and further recites “wherein the second plurality of portions of item identifiers comprises at least four portions of item identifiers.” Ex. 1001, 10:5–7. Petitioner contends Perlman discloses this limitation. Pet. 39 (citing Ex. 1003 ¶ 111). Petitioner argues Perlman expressly discloses selecting and displaying at least four portions of item identifiers. *Id.* (citing Ex. 1003 ¶ 111; Ex. 1005 ¶¶ 14, 23, 28, Fig. 2). We agree that Perlman discloses this limitation.

For the reasons discussed, we determine Petitioner has shown by a preponderance of the evidence that claims 1–4, 6, 7, and 13–16 are

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unpatentable as anticipated by Perlman, but Petitioner has not shown by a preponderance of the evidence that claim 11 is unpatentable as anticipated by Perlman.

F. Asserted Anticipation by Pu

1. Overview of Pu (Ex. 1006)

Pu describes a “user interface for data input . . . through a data entry means such as a shuttle control system.” Ex. 1006, code (57). A shuttle control system can be “implemented as a single joystick-like central key that can be pivoted in an up, down, right or left direction.” *Id.* at 6:27–29. “The data that is entered is selected from a predefined list” and that “list is presented to the user in an arrangement that statistically reduces the number of keystrokes required for data entry.” *Id.* at 2:49–52. Figure 3c of Pu is reproduced below.

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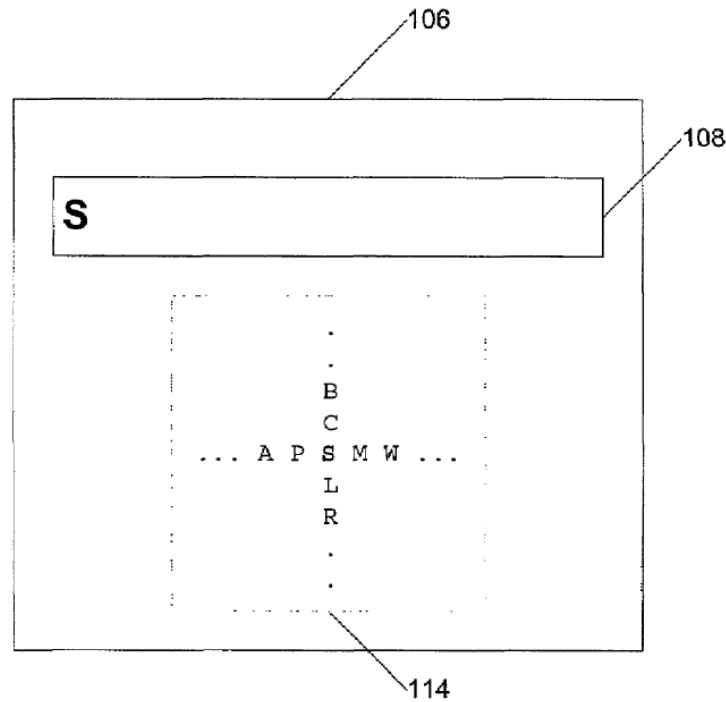


FIG. 3C

Figure 3c shows an exemplary “selection list arrangement” that uses “a four-direction shuttle control system . . . as the data entry mechanism.” Ex. 1006, 7:59–65. As shown, the “letter S appears in the middle of the arrangement in selection list 114.” *Id.* at 7:65–66. Other “letters appear up, down, right, and left, respectively,” e.g., ‘C,’ ‘R,’ ‘M,’ and ‘P.’ *Id.* at 8:1–3. Further, to select the up, down, right, or left letters, the user can move a cursor in the corresponding direction by pressing the shuttle key in the appropriate direction. *See id.* at 6:54–61.

Furthermore, Pu describes that the letter options presented in the selection list options correspond to entries in a database. *Id.* at 19:54–55; *see id.* at 13:16–17. For example, “where the device is expecting textual input from a user in the form of a name of a particular city within the states

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of California or Nevada,” the device “has access to a database comprising a predefined list of all cities within those two states.” *Id.* at 5:13–17. In that way, the letter options in the selection list correspond to possible database entries. For example, the letter ‘S’ may correspond to database entry “SAN_DIEGO.” *See id.* at 8:15–21, 10:29–36. As the user selects options, e.g., ‘S,’ then ‘A,’ then ‘N,’ etc., the displayed selection list is respectively updated with letter options corresponding to possible database entries. *See id.* at 8:28–65, Fig. 4C. The user then continues to select letter options until, ultimately, a database entry is selected. *See id.* at 9:45–10:36.

2. *Analysis*

Petitioner contends claims 1–4, 6–10, and 12–16 are unpatentable as anticipated by Pu. Pet. 49–65. We have reviewed the evidence and arguments provided by the parties and are persuaded that Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 6–10, and 12–16 are unpatentable as anticipated by Pu.

Claim 1

Claim 1 recites:

displaying, by at least one computer processor, in a first area of a display of a device, a first plurality of portions of item identifiers, wherein the item identifiers correspond to the plurality of items in a database, and the first plurality of portions of item identifiers is displayed in a position corresponding to an up, down, left right select functionality of an input directional controller of the device.

Ex. 1001, 7:51–58. Petitioner states that Pu “shows a ‘display area’ 108 and a ‘selection list’ 110.” Pet. 49 (citing Ex. 1006, Figs. 3A–3C). Petitioner

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asserts that the “choices presented in the selection list are portions of item identifiers corresponding to a plurality of items in a database” and the selection list “includes portions corresponding to all valid first letters of the [entries] in the database.” *Id.* at 50–51 (citing Ex. 1006, 5:11–17, 12:42–13:23, Fig. 2). Petitioner also asserts that Pu’s selection list can be used “with a four directional shuttle control system where the item identifiers are displayed in a position corresponding to an up, down, left right select functionality of an input directional controller of the device” and a “user uses the four directional shuttle control system to select as item identifier from the displayed list.” *Id.* at 51 (citing Ex. 1006, 6:18–48, 7:59–8:4).

Patent Owner argues that Pu does not disclose this limitation. PO Resp. 65–68. Patent Owner contends that claim 1 “means that only the up, down, left, and right positions may include a predictive text option for selection,” but Pu discloses a selection in the center. *Id.* at 65–67 (citing Ex. 1006, Fig. 3C, 2:8–16, 6:18–47). Patent Owner also argues that Pu’s shuttle system allows potentially many choices (i.e., up to twenty-six selections if the first desired character is a letter). *Id.* at 67 (citing Ex. 2024 ¶ 158). As with Perlman, Patent Owner argues Pu chooses flexibility in its approach over simplicity. *Id.* at 67–68 (citing Ex. 2024 ¶¶ 159–161); PO Sur-reply 26.

We determine Petitioner has shown Pu discloses this limitation of claim 1. As shown in Figure 3c of Pu reproduced above, Pu discloses a selection list for use with a four directional shuttle system where item identifiers are displayed in positions corresponding to the up, down, left, and right positions on the input controller. *See* Ex. 1006, Fig. 3C, 6:18–48,

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7:59–8:4. Patent Owner’s arguments that Pu does not disclose this limitation are based on a claim construction that we do not adopt (i.e., that claim 1 is limited to no more than four directional selection options on the input controller).

Claim 1 further recites “enabling, by the at least one computer processor, selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device.” Ex. 1001, 7:59–62. Petitioner contends that, in Pu, a “user may select a displayed letter using the four directional shuttle control system.” Pet. 52 (citing Ex. 1006, 7:59–8:4).

Patent Owner contends that this limitation requires that “each of the up, down, left, and right buttons are only pressed once to select an option—and no more—in the process of selecting one of the up to four predictive text options presented on the screen,” but Pu’s shuttle system “allows the buttons to be depressed multiple times to search through a large list of potential options.” PO Resp. 68 (citing Ex. 2024 ¶¶ 162–63); PO Sur-reply 27. We determine Petitioner has shown Pu discloses this limitation of claim 1. Pu discloses that a user can select item identifiers (e.g., the letters in Figure 3C) by using the up, down, left, and right keys. Ex. 1006, 7:59–8:4, Fig. 3C. Patent Owner’s arguments that Pu does not disclose this limitation are based on a claim construction that we do not adopt (i.e., that claim 1 is limited to selection with one and only one press of the up, down, left, or right buttons).

Claim 1 also recites “displaying, by the at least one computer processor, the selected portion of the item identifier in a second area of the display of the device, wherein the second area of the display is separate from

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the first area of the display.” Ex. 1001, 7:63–66. Petitioner contends that Figures 3A and 3C of Pu show that a “user’s selection is displayed in display area 108 . . . separate from selection list 110 (Figure 3A) or selection list 114 (Figure 3C).” Pet. 52–53 (citing Ex. 1006, 7:59–8:4). We agree with Petitioner that Pu discloses this limitation (Ex. 1006, Fig. 3A, 7:59–8:4), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites

displaying, by the at least one computer processor, in response to the selection of the one of the first plurality of the portions of item identifiers and in the first area of the display, a second plurality of portions of the item identifiers, the second plurality of portions of the item identifiers comprising at least two portions of the item identifiers chosen for display based on the selection of the one of the plurality of portions of the item identifiers;

Ex. 1001, 8:1–9. Petitioner contends that “[a]fter the user selects a portion (e.g., the letter ‘S’)” using Pu’s user interface, “a new set of portions are selected and automatically displayed in the selection lists.” Pet. 54 (citing Ex. 1006, 13:31–63, 13:52–14:7, Figs. 3A–3C). We agree with Petitioner that Pu discloses this limitation (Ex. 1006, 13:31–63, 13:52–14:7, Figs. 3A–3C), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites “enabling, by the at least one computer processor, selection of one of the second plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the input directional controller on the input device.” Ex. 1001, 8:10–14. Petitioner contends that “[j]ust as the user selected a first letter corresponding to [an

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entry] in the database, a second letter can be ‘selected by the user’ . . . so that a word (*e.g.*, a city name) can be inputted.” Pet. 55–56 (citing Ex. 1006, 7:59–8:4, 13:28–51, Fig. 14). Patent Owner argues that Pu does not disclose this limitation for the same reasons as the prior contested limitations. PO Resp. 68; *see* PO Sur-reply 26–27. We agree with Petitioner that Pu discloses this limitation (Ex. 1006, 7:59–8:4, 13:28–51, Fig. 14).

Claim 1 also recites “combining by a computer processor, the portion of the item identifier selected from the second plurality of portions of the item identifiers with the portion of the item identifier selected from the first plurality of portions of the item identifiers to create a larger portion of the item identifier.” Ex. 1001, 8:15–21. Petitioner contends “all of the portions [of selected letters] are combined in the display area to create a larger portion of the item identifier corresponding to the ‘SAN DIEGO’ entry in the database.” Pet. 56–57 (citing Ex. 1006, 10:18–32, Figs. 4C, 5C, 6C, 7C, 8C, 9C, 10). We agree with Petitioner that Pu discloses this limitation (Ex. 1006, 10:18–32, Figs. 4C, 5C, 6C, 7C, 8C, 9C, 10), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites “displaying by a computer processor, the larger portion of the item identifier in the second area of the display of the device.” Ex. 1001, 8:21–23. Petitioner contends “the selected portions are combined and displayed in the text field to form a larger portion of [a] city name.” Pet. 57 (citing Ex. 1006, 13:38–51). We agree with Petitioner that Pu discloses this limitation (Ex. 1006, 13:38–51), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

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Claim 1 also recites “wherein the first plurality of portions of item identifiers and the second plurality of portions of item identifiers are orthographic symbols representing at least a writing language.” Ex. 1001, 8:25–28. Petitioner contends that Pu’s “first portions and second portions are alphanumeric letters or characters within the English alphabet, which are orthographic symbols representing the English language.” Pet. 58 (citing Ex. 1006, 14:16–24). We agree with Petitioner that Pu discloses this limitation (Ex. 1006, 14:16–24), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

Claim 1 further recites “wherein the at least two portions of item identifiers chosen for display based on the selection of the one of the plurality of portions of item identifiers are chosen to minimize a number of actuations of the input directional controller that is otherwise necessary to input the item identifier.” Ex. 1001, 8:29–35. Petitioner contends that Pu’s “data input techniques . . . are used to ‘reduce data input keystrokes’ and minimize a number of actuations of the input directional controller that is otherwise necessary to input the item identifier.” Pet. 58 (citing Ex. 1006, 1:8–13, 2:46–57). We agree with Petitioner that Pu discloses this limitation (Ex. 1006, 1:8–13, 2:46–57), and Patent Owner does not argue otherwise (*see generally* PO Resp.; PO Sur-reply).

For the reasons discussed above, we determine Petitioner has shown by a preponderance of the evidence that claim 1 is anticipated by Pu.

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Claim 2

Claim 2 depends from claim 1 and additionally recites “iterating the selections until an item identifier is completed.” Ex. 1001, 8:36–38. Petitioner contends Pu discloses iterating its selections until an item identifier (e.g., a city name) is completed. Pet. 58–59 (citing Ex. 1003 ¶ 137; Ex. 1006, 13:38–51). Above in the section addressing the Perlman anticipation ground, we discuss in detail the construction of the additional limitation of claim 2, and we agree that Pu discloses this additional limitation. Ex. 1006, Fig. 14, 13:38–14:7.

Patent Owner addresses claim 2 separately as to anticipation by Pu for the first time in its Sur-reply. *Compare* PO Resp. 68–69, *with* PO Sur-reply 27–28. Although we need not address this late argument, we note that it is essentially the same as Patent Owner’s argument as to claim 2 for the Perlman anticipation ground, and we reject that argument for the reasons discussed above addressing the Perlman anticipation ground.

Accordingly, we determine Petitioner has shown by a preponderance of the evidence that claim 2 is anticipated by Pu.

Claims 3, 4, 6–10, and 12–16

Petitioner also provides further analysis detailing where it contends each additional limitation of dependent claims 3, 4, 6–10, and 12–16 is taught in Pu. Pet. 59–65. Other than its arguments as to claim 1, Patent Owner does not address Petitioner’s anticipation challenge to these dependent claims. *See* PO Resp. 68–69; PO Sur-reply 28.

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Claim 3 depends from claim 1 and further recites “wherein the selected two portions of item identifiers are chosen based on at least one predetermined criterion.” Ex. 1001, 8:39–41. Petitioner contends Pu discloses this limitation. Pet. 59 (citing Ex. 1003 ¶ 138; Ex. 1006, 2:53–57, 11:14–23, 11:55–65, 12:42–13:3). In particular, Petitioner points to predefined lists and relative frequency as examples of the recited predetermined criteria disclosed in Pu. *Id.* We agree that Perlman discloses this limitation. Ex. 1006, 2:53–57, 11:14–23, 11:55–65, 12:42–13:3.

Claim 4 further depends from claim 3 and additionally recites:

wherein the at least one predetermined criteria is at least one of a frequency of selection of items associated with the pluralities of portions of the item identifiers, a recency of selection of the items associated with the pluralities of portions of the item identifiers, or a likelihood of selection of the items associated with the pluralities of portions of the item identifiers.

Ex. 1001, 8:42–49. Petitioner contends that Pu discloses the additional limitation of claim 4. Pet. 60. Specifically, Petitioner refers to Pu’s disclosure of selecting portions of item identifiers based on the relative frequency. *Id.* (citing Ex. 1003 ¶ 139; Ex. 1006, 2:53–57, 11:14–23, 11:55–65). We agree that Pu discloses this limitation. Ex. 1006, 2:53–57, 11:14–23, 11:55–65.

Claim 6 depends from claim 1 and further recites “wherein the item identifiers are text strings.” Ex. 1001, 8:55–56. Petitioner contends Pu discloses this limitation. Pet. 60 (citing Ex. 1003 ¶ 140; Ex. 1006, 12:57–13:15). Petitioner points to SAN_DIEGO as an example of a text string item identifier disclosed in Pu. *Id.* (citing Ex. 1006, 12:57–13:15). We agree that Pu discloses this limitation.

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Claim 7 depends from claim 1 and further recites “wherein the item identifiers are words.” Ex. 1001, 8:57–58. Petitioner contends Pu discloses this limitation. Pet. 60–61 (citing Ex. 1003 ¶ 141; Ex. 1006, 12:57–13:15). As discussed above, Pu discloses item identifiers as words, such as SAN_DIEGO. We agree that Pu discloses this limitation.

Claim 8 depends from claim 1 and additionally recites “wherein the database is stored in a memory of a computing device.” Ex. 1001, 8:59–60. Petitioner contends that Pu discloses the additional limitation of claim 8. Pet. 61. Specifically, Petitioner refers to Pu’s disclosures about how its predefined lists are stored (e.g., fixed storage drive, storage capacity of the computer system or device). *Id.* (citing Ex. 1003 ¶ 142; Ex. 1006, 5:18–25, 12:42–56, 13:4–15). We agree that Pu discloses this limitation. Ex. 1006, 5:18–25, 12:42–56, 13:4–15.

Claim 9 depends from claim 8 and further recites “wherein the computing device is a remote server.” Ex. 1001, 8:61–62. Petitioner contends that Pu discloses the additional limitation of claim 9. Pet. 61–62. Specifically, Petitioner refers to Pu’s disclosures that the predefined lists “may be ‘obtained from a data warehouse on the Internet’” or Pu’s database may be “remotely located on a server device.” *Id.* (citing Ex. 1003 ¶ 143; Ex. 1006, 5:18–25, 12:42–56). We agree that Pu discloses this limitation. Ex. 1006, 5:18–25, 12:42–56.

Claim 10 depends from claim 8 and additionally recites “wherein the computing device is a mobile phone.” Ex. 1001, 8:63–64. Petitioner contends that Pu discloses the additional limitation of claim 10. Pet. 62. In particular, Petitioner relies on Pu’s disclosures related to “intelligent

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devices” such as “automobile computers (‘auto PCs’), major home appliances, personal digital assistants (‘PDAs’), telephones, cellular telephones, internet phones, pagers, portable computers, navigational devices, and the like.” *Id.* (quoting Ex. 1006, 1:15–26, 2:17–25, 5:1–10). Petitioner also points to a telephone keypad embodiment in Pu’s Figures 11–13. *Id.* (citing Ex. 1006, 10:37–64). We agree that Pu discloses this limitation. Ex. 1006, 1:15–26, 2:17–25, 5:1–10, 10:37–64.

Claim 12 depends from claim 8 and further recites “wherein the computing device is a personal portable appliance.” Ex. 1001, 9:1–2. Petitioner contends that Pu discloses the additional limitation of claim 12. Pet. 62. Petitioner relies on the same disclosures discussed above for claim 10, and argues a person of ordinary skill in the art would understand that “[a]t least PDAs, cellular telephones, pagers, portable computers, and navigational devices would qualify as ‘personal portable appliances.’” *Id.* (citing Ex. 1003 ¶ 145). We agree that Pu discloses this limitation. Ex. 1006, 1:19–23, 5:1–10; Ex. 1003 ¶ 145.

Claim 13 depends from claim 1 and further recites “wherein the item identifiers are a meaningful units comprised of one or more orthographic symbols.” Ex. 1001, 9:3–5. Petitioner contends Pu discloses this limitation. Pet. 63 (citing Ex. 1003 ¶ 146). Pu discloses item identifiers and portions of item identifiers as letters. Ex. 1006, 4:28–38, 14:16–24. We agree that Pu discloses this limitation.

Claim 14 depends from claim 1 and further recites “wherein the first plurality of portions of item identifiers and the second plurality of portions of item identifiers are alphanumeric symbols.” Ex. 1001, 9:6–9. Petitioner

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contends Pu discloses this limitation. Pet. 63 (citing Ex. 1003 ¶ 147).
Petitioner contends Pu discloses an alphanumeric keypad for use as the input device. *Id.* (citing Ex. 1006, 5:1–10). We agree that Pu discloses this limitation.

Claim 15 depends from claim 1 and further recites “wherein the first plurality of portions of item identifiers and the second plurality of portions of item identifiers are ideographic symbols.” Ex. 1001, 10:1–4. Petitioner contends Pu discloses this limitation. Pet. 63–64 (citing Ex. 1003 ¶ 148). Petitioner relies on Dr. Forlines’ testimony that a person of ordinary skill in the art would have understood that Pu’s disclosures about letters in the English alphabet include ideographic symbols. *Id.* (citing Ex. 1003 ¶ 148; Ex. 1006, 4:28–38, 14:16–24). We agree that Pu discloses this limitation.

Claim 16 depends from claim 1 and further recites “wherein the second plurality of portions of item identifiers comprises at least four portions of item identifiers.” Ex. 1001, 10:5–7. Petitioner contends Pu discloses this limitation. Pet. 64–65 (citing Ex. 1003 ¶¶ 149–50). Petitioner argues Pu expressly discloses at least four portions of item identifiers in selection list 114 of Figure 3C. *Id.* (citing Ex. 1006, Fig. 3C, 7:59–8:4). We agree that Pu discloses this limitation.

For the reasons discussed above, we determine Petitioner has shown by a preponderance of the evidence that claims 1–4, 6–10, and 12–16 are unpatentable as anticipated by Pu.

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G. Asserted Obviousness over Perlman and Dostie and Asserted Obviousness over Pu and Dostie

1. Overview of Dostie (Ex. 1011)

Dostie describes a data entry system for “a user [to] rapidly enter and search for data, such as text.” Ex. 1011, code (57). In Dostie, “the user enters a character sequence” and “a mechanism for character prediction visually informs the user of which set of characters on the digital keyboard are most likely to have the character that the user wishes to next enter as part of the text.” *Id.* In particular, “as the user forms a character sequence (partial text entry), the character sequence is used to search a dictionary for a set of completion candidates that begin with the character sequence.” *Id.* Further, the “data entry system retrieves completion candidates from the dictionary by determining which completion candidates in the dictionary are more likely to be the ones that the user is attempting to type.” *Id.* Such likely word completion candidates are determined using “a [candidate] tree structure 21 containing a plurality of nodes” and “[c]ompletion candidates are stored in nodes 23 within the tree structure 21.” *Id.* ¶ 88. Further, those completion candidates have “preference values (or weight or frequency values) for ranking completion candidates relative to each other.” *Id.* ¶ 85.

2. Analysis

Petitioner contends dependent claim 5, which depends from claim 3 which, in turn, depends from claim 1, is unpatentable as obvious over Perlman and Dostie and over Pu and Dostie. Pet. 40–44, 65–67. Above, we have determined that Petitioner has shown by a preponderance of the

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evidence that claims 1 and 3 are anticipated by Perlman and anticipated by Pu.

Claim 5 additionally recites that “the predetermined criterion is a ranking of the pluralities of portions of the item identifiers in relation to a hierarchical classification of the pluralities of portions of the item identifiers.” Ex. 1001, 8:50–53. Petitioner contends that Dostie “shows a dictionary organized in a hierarchical tree structure where character or word completion candidates are stored in the nodes of the hierarchical tree structure” and a “‘preference value’ . . . can be associated with each node within the tree for ‘ranking completion candidates relative to each other.’” Pet. 40–41 (citing Ex. 1003 ¶¶ 112–117; Ex. 1011 ¶¶ 85, 88–90, Figs. 4, 14).

Petitioner contends that it “would have been obvious to incorporate Dostie’s dictionary trees and rankings based on hierarchical classifications into Perlman because it was well known at the time of Perlman to conduct database searches using hierarchical trees like the ones described in Dostie.” *Id.* at 42 (emphasis omitted) (citing Ex. 1003 ¶¶ 116–117). Petitioner asserts that Dostie “provides express motivation to incorporate its candidate trees into systems like Perlman in order to ‘rapidly predict potential completion candidates’ and ‘provide[] a mechanism for supporting enhanced data entry techniques such as character prediction.’” *Id.* (citing Ex. 1011 ¶ 97). Petitioner further asserts that “using hierarchical search trees to search a database,” i.e., Dostie’s technique, provide “well-known benefits” that yield “predictable results.” *Id.* at 43.

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Patent Owner contends a person of ordinary skill in the art would not have been motivated to combine Perlman and Dostie. PO Resp. 58–63¹⁴; PO Sur-reply 25–26. Relying on the Federal Circuit’s decision in *Apple Inc. v. Voip-Pal.com, Inc.*, Patent Owner argues that Perlman is not “deficient” and so a person of ordinary skill in the art would not have had a motivation to modify Perlman with Dostie’s hierarchical trees. PO Resp. 58–60 (citing *Apple Inc. v. Voip-Pal.com, Inc.*, 976 F.3d 1316, 1324–26 (Fed. Cir. 2020)). We disagree with Patent Owner’s characterization of that case as holding that “there is not a motivation to combine when a reference is not ‘deficient.’” *Id.* at 58. In that case, the petitioner argued that a person of ordinary skill in the art would have combined the teachings of two references because that person would have viewed one of them as less intuitive and less user friendly. *Apple*, 976 F.3d at 1325. In other words, the petitioner in *Apple v. Voip* argued that the reason to combine resulted from a deficiency in one reference. *See id.* In that case, the Board found no support for that alleged deficiency because the petitioner’s expert’s testimony was conclusory and provided insufficient reasoning. *Id.* The Federal Circuit found the Board had held the petitioner to the proper evidentiary standard. *Id.* The Board had also considered the petitioner’s argument that one of the references was less intuitive and less user friendly, but the Board credited the patent owner’s expert’s testimony that the reference’s operation was not

¹⁴ Patent Owner relies on its arguments against the Perlman-Dostie combination for the Pu-Dostie combination. PO Resp. 70. Thus, we address only Patent Owner’s arguments regarding whether a person of ordinary skill in the art would have been motivated to combine Perlman and Dostie.

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inadequate or unintuitive. *Id.* The Federal Circuit found no error in the Board’s decision to credit the opinion of the patent owner’s expert. *Id.*

Thus, we do not view *Apple v. Voip* as creating a rule that a reference must be “deficient” as to a certain feature for there to be an adequate reason to combine that reference with another, as Patent Owner appears to argue. PO Resp. 58; PO Sur-reply 25. Rather, we view that case as applying the well-established principle that obviousness requires articulated reasoning with some rational underpinning to the specific alleged motivation in that case, i.e., an alleged deficiency with one reference. *See Apple*, 976 F.3d at 1325. Because the petitioner had not shown the alleged deficiency in *Apple v. Voip*, the petitioner had not shown an adequate reason for combining the two references. *See id.*

Here, Petitioner does not contend that Perlman is deficient in some way that the combination with Dostie is intended to solve. Rather, Petitioner contends that “[i]t would have been obvious to incorporate Dostie’s dictionary trees and rankings based on hierarchical classifications into Perlman because it was well known at the time of Perlman to conduct database searches using hierarchical trees like the ones described in Dostie.” Pet. 42 (citing Ex. 1003 ¶¶ 116–117) (emphasis omitted). Dr. Forlines provides detailed testimony explaining why a person of ordinary skill would have understood that using Dostie’s trees and hierarchical classifications in Perlman’s searches of its database would have been efficient. Ex. 1003 ¶ 117. Indeed, Dr. Forlines provides testimony explaining why a person of ordinary skill in the art would have understood that Perlman itself suggests using hierarchical search trees. *Id.* (citing Ex. 1006 ¶ 27). Dr. Forlines

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provides similarly detailed testimony explaining why a person of ordinary skill in the art would have been motivated to combine Dostie with Pu. Ex. 1003 ¶ 154. We credit this testimony as being based on rational underpinnings (i.e., a detailed explanation of how the types of hierarchical trees in Dostie were well known as a way to improve searching the types of databases disclosed in Perlman and Pu).

For example, Dr. Forlines testifies that a person of ordinary skill in the art would have understood that Perlman itself suggests using hierarchical search trees, as taught in Dostie, because Perlman’s search of “database items matching the first N letters of the user’s input” was typically performed using a hierarchical search tree. Ex. 1003 ¶ 117. Dr. Forlines’ testimony is supported by evidence of record. For example, in his description of what was known to a person of ordinary skill in the art at the time of the priority date of the ’393 patent (Ex. 1003 ¶¶ 39–60), Dr. Forlines discusses Schroeder,^{15, 16} which, according to Dr. Forlines, describes a search function based on a “hierarchical ‘dictionary tree’” to select auto-completion words matching the characters being input by the user. Ex. 1003 ¶ 53 (citing Ex. 1008, 1:46–53, 6:16–7:55, Fig. 6).¹⁷

¹⁵ U.S. Patent No. 5,797,098, filed July 19, 1995, issued Aug. 18, 1998 (Ex. 1008, “Schroeder”).

¹⁶ Schroeder is cited on the face of the ’393 patent. Ex. 1001, code (56).

¹⁷ See also *Yeda Research v. Mylan Pharm. Inc.*, 906 F.3d 1031, 1041 (Fed. Cir. 2018) (“The Board has recognized that non-prior art evidence of what was known . . . ‘can be relied on for their proper supporting roles, e.g., . . . how one with ordinary skill in the art would have understood a prior art disclosure.’”) (quoting *Dominion Dealer Sols., LLC v. AutoAlert, Inc.*, 2014 WL 5035359, at *5 (PTAB Oct. 6, 2014)); *Ariosa Diagnostics v. Verinata*

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Patent Owner argues that Perlman “describes a system that does all of its operations on the original database items and does not ‘pre-process’ or otherwise create a derivative list or tree to be used for facilitating selection from the list of text indices.” PO Resp. 59.¹⁸ Patent Owner states “[t]here are advantages and disadvantages to different methods of processing the database items, and creating an interim, derivative list or tree is just one method.” *Id.* According to Patent Owner, because Perlman is not “deficient,” “there would not be a motivation to change the processing method.” *Id.* Patent Owner also points to differences between Perlman and Dostie (e.g., differences in input devices and types of data sets). *Id.* at 60–61. Patent Owner appears to contend that Dostie’s method is “sensible” only in methods directed to long lists, such as dictionaries, and not in the methods of Perlman or Pu. *Id.* at 61–62. Dr. Balakrishnan testifies that another type of data structure (a radix-tree) would have been preferable to Dostie’s tree structure for use in Pu and Perlman. Ex. 2024 ¶ 149.¹⁹ Thus, Patent Owner

Health, Inc., 805 F.3d 1359, 1365 (Fed. Cir. 2015) (“Art can legitimately serve to document the knowledge that skilled artisans would bring to bear in reading the prior art identified as producing obviousness.” (citing *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362–63 (Fed. Cir. 2013))).

¹⁸ Patent Owner cites to its expert’s declaration with no pin cite. *See* PO Resp. 59 nn.164, 166. Exhibit 2024 is 381 paragraphs long. We assume, however, that Patent Owner intended to cite paragraphs 139–153 of Exhibit 2024, which address this obviousness ground.

¹⁹ Patent Owner also cites Dr. Forlines’ testimony about radix trees, and contends that testimony supports that b-trees as used in Dostie when combined with Perlman’s and Pu’s methods “would yield ‘well-known’ drawbacks.” PO Resp. 63. Dr. Forlines, however, was asked about which type of structure (a radix tree, a [b] tree, a combination, some other type of tree or no tree at all) would perform the prediction in Pu and Perlman as

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contends that combining Dostie’s tree with Pu or Perlman “would yield ‘well-known’ drawbacks.” PO Resp. 63.

We do not agree. We determine Petitioner, as supported by Dr. Forlines’ testimony (which we credit as discussed above), has provided articulated reasoning with rational underpinning to support combining tree hierarchy classifications as taught in Dostie with the methods of Perlman and Pu. Ex. 1003 ¶¶ 116–117; Ex. 1011 ¶ 97. Although Patent Owner, and Dr. Balakrishnan, argue that Dostie’s structure may be preferable in very large lists and other data structures might be even better when used with Perlman’s and Pu’s methods, this does not undercut Petitioner’s showing of motivation to combine. As we stated in our decision on institution, that “a given course of action often has simultaneous advantages and disadvantages . . . does not necessarily obviate motivation to combine.” Dec. 30 (citing *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006)).

Thus, we determine Petitioner has shown that the combination of Perlman and Dostie and the combination of Pu and Dostie each teach the additional limitation of claim 5 and Petitioner has provided a persuasive rationale to combine these references’ teachings.

H. Asserted Obviousness over Pu and Perlman

Petitioner contends dependent claim 11, which depends from claim 8 which, in turn, depends from claim 1, is unpatentable as obvious over Pu and

quickly as possible. Ex. 2027, 202:14–18. Dr. Forlines responded that “a radix tree would be very natural.” *Id.* at 202:17–203:1. We do not see anything in the cited testimony of Dr. Forlines that indicates that the tree structure of Dostie would not also be an obvious type of data structure to use with Pu and Perlman.

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Perlman. Pet. 67–68. Above, we have determined that Petitioner has shown by a preponderance of the evidence that claims 1 and 8 are anticipated by Pu.

Claim 11 additionally recites “wherein the computing device is a television.” Ex. 1001, 8:66–67. Petitioner contends that in Perlman, “a remote control for a ‘television/computer display’ is disclosed as the input device, and the database takes the form of a multimedia database from which the user can playback multimedia content on a television.” Pet. 67 (citing Ex. 1003 ¶ 155; Ex. 1005 ¶¶ 14, 19). Petitioner contends it would have been obvious to combine this teaching of Perlman with Pu because Pu teaches its method “can be applied to any ‘intelligent device,’ ‘home appliance,’ or device where use of standard keyboards are both ‘undesirable and impracticable.’” *Id.* at 67–68 (citing Ex. 1006, 1:15–26). Petitioner contends a person of ordinary skill in the art would have been motivated to apply Pu’s method to a television as taught in Perlman to “achieve greater input efficiency.” *Id.* at 68 (citing Ex. 1003 ¶ 156). Patent Owner relies only on its arguments as to claim 1 when addressing this ground. *See* PO Resp. 70–71; *see generally* PO Sur-reply. We determine Petitioner has shown Perlman teaches the additional limitation of claim 11 and Petitioner has provided adequate reasoning with rational underpinning for why a person of ordinary skill would have to applied the relied upon teaching in Perlman to Pu’s method. *See* Ex. 1005 ¶¶ 14, 19; Pet. 67–68; Ex. 1003 ¶¶ 155–56.

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I. Objective Indicia of Nonobviousness

We next consider evidence of objective indicia of nonobviousness in the record before reaching our conclusion on obviousness as to claims 5 and 11 discussed above. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1328 (Fed. Cir. 2016). Factual inquiries for an obviousness determination include evaluation and crediting of objective evidence of nonobviousness (sometimes also called “secondary considerations”). *Graham*, 383 U.S. at 17 (1966). “For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). Ultimately, “[t]he patentee bears the burden of showing that a nexus exists.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999).

The Board uses a two-step analysis in evaluating nexus between the claimed invention and objective evidence. *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33 at 33 (PTAB Jan. 24, 2020) (precedential). We first consider whether Patent Owner has demonstrated that “its products are coextensive (or nearly coextensive) with the challenged claims,” resulting in a rebuttable presumption of nexus. *Id.* “Whether a product is coextensive with the patented invention, and therefore whether a presumption of nexus is appropriate in a given case, is a question of fact.” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019). 1373.

Finding a presumption of nexus to be absent “does not end the inquiry into secondary considerations”; Patent Owner “is still afforded an

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opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Lectrosonics*, Paper 33 at 33 (quoting *Fox Factory*, 944 F.3d at 1373–74). Patent Owner may do so by demonstrating that the objective evidence is the result of some aspect of the claim (not already in the prior art) or the claimed combination as a whole. *Id.* (citing *In re Kao*, 639 F.3d 1057, 1068–69 (Fed. Cir. 2011); *WBIP*, 829 F.3d at 1331).

Patent Owner argues that objective indicia of nonobviousness, including praise, industry recognition, copying, commercial success, unexpected results, and failure of others, should be accorded substantial weight and demonstrate that the challenged claims are nonobvious. PO Resp. 1–34. Because we have determined the other challenged claims are unpatentable as anticipated, we address secondary considerations only as to the claims we evaluate for obviousness, namely claims 5 and 11. Before we address the weight of the evidence, we must first determine if Patent Owner has demonstrated a presumption of nexus or an actual nexus.

1. Presumption of Nexus

Patent Owner argues that nexus can be presumed because Patent Owner’s product (Kannuu’s proof-of-concept build (“POC”)) and Petitioner’s product (“Samsung Smart TV”) both practice every element of claim 1 and are therefore coextensive with that claim. *See* PO Resp. 26 (citing Exs. 2032 ¶¶ 34–36, 2025 ¶ 12), 29; PO Sur-reply 12–13. As

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evidence, Patent Owner points to the Declarations of Mr. Todd Viegut²⁰ and Mr. Colin Dixon.²¹ *Id.* Patent Owner also relies on the claim chart in Exhibit 2034, which compares claim 5 to the POC and the Samsung Smart TV. PO Sur-reply 12 (citing Ex. 2034, 30); *see* Tr. 75–76. That claim chart does not include any comparisons for claim 11 (or claim 8 from which claim 11 depends). *See* Ex. 2034.

Exhibit 2034 is supported by Mr. Viegut’s testimony. Ex. 2032 ¶ 36. Referring to Exhibit 2034, Mr. Viegut asserts that the POC’s features include the “ranking . . . in relation to a hierarchical classification” of claim 5. *Id.* Mr. Viegut also asserts that Petitioner’s Samsung Smart TV, the model UN55NU7100 presented in Exhibit 2034, “practices the ’393 patent.” *Id.* Patent Owner states “Mr. Viegut presents uncontested evidence of where each element of the claims is found in both the POC and the UN55NU7100,” and therefore, Patent Owner “is entitled to a presumption of nexus because Mr. Viegut’s unrebutted analyses show that the POC and the UN55NU7100 are coextensive or nearly coextensive with the claims.” PO Sur-reply 12–13. Mr. Dixon’s testimony states Patent Owner’s K-Nav technology embodies the patented invention and discusses the similarity between the K-Nav technology and the Samsung Smart TV’s on-screen navigation approach. Ex. 2025 ¶¶ 1, 12.

²⁰ Mr. Viegut was the CEO of Patent Owner from approximately 2010–2015, and at the time of his deposition, Mr. Viegut was a consultant for Patent Owner. Ex. 1031, 10:5–11:15.

²¹ Mr. Dixon testifies that he has been an analyst in the digital video industry since 2005. Ex. 2025 ¶ 2.

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Petitioner argues that a presumption of nexus is inappropriate based on the evidence presented here. *See, e.g.*, Tr. 36–38. With respect to both Patent Owner’s POC product and Petitioner’s Samsung Smart TV product, Petitioner argues that Patent Owner’s nexus arguments should be accorded little weight because they “rest entirely on the testimony of interested witnesses,” namely Kannuu’s former CEO, Mr. Viegut. Pet. Reply 22; Tr. 37. Petitioner further asserts that Mr. Viegut’s testimony is insufficient because it merely “assumes the claims read on both products” and refers to claim charts “prepared by Kannuu’s attorneys.” Pet. Reply 33. Petitioner also argues that Mr. Dixon’s testimony merely compares Patent Owner’s and Petitioner’s products with each other. *Id.* at 34.

We find there is insufficient evidence in the record to support a presumption of nexus based on either Patent Owner’s POC or Petitioner’s product. We address the presumption of nexus with respect to Patent Owner’s product before turning to Petitioner’s Samsung Smart TV product.

(i) Presumption of Nexus: Patent Owner’s product

We are not persuaded that Mr. Viegut’s or Mr. Dixon’s testimony or the claim chart in Exhibit 2034 establish that Patent Owner’s POC product practices each element of claims 5 and 11. As noted above, the claim chart in Exhibit 2034 does not address claim 11 (or claim 8 from which claim 11 depends), and Mr. Viegut’s Declaration also does not address those claims. *See* Exs. 2032, 2034. As to claim 5, Exhibit 2034 parrots the language of that claim and cites Mr. Viegut’s Declaration as support. Ex. 2034, 30 (citing Ex. 2032 ¶ 36). Mr. Viegut Declaration on this point, however, is conclusory and unsupported. Ex. 2032 ¶ 36 (“The predetermined criterion is

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also a ranking of the pluralities of portions of the item identifiers, and further, the ranking is determined in relation to a hierarchical classification of the pluralities of portions of item identifiers as recited by claim 5 of the '393 patent.”).

As such, we determine that a presumption of nexus does not apply to the secondary considerations related to Patent Owner’s POC.

(ii) *Presumption of Nexus: Petitioner’s product*

We next consider whether the evidence establishes a presumption of nexus as to the Samsung Smart TV products.²² As to claim 5, Patent Owner’s claim chart states:

Samsung accessed Kannuu’s Proof-of-Concept Build over 2,500 times in an effort to determine how Kannuu stored and indexed data in a “hierarchical classification” as that term is used in this claim. Ex. 2023,²³ ¶¶372-379 [*sic*]. Because the selected two portions of item identifiers are chosen based on at least one predetermined criterion that is a ranking of the pluralities of portions of the item identifiers, and in view of Samsung’s efforts to determine how Kannuu stored and indexed data— especially given that Samsung contends that “the most efficient way to identify matching prefixes would be to use a hierarchical search tree,” Samsung ‘393 Patent Pet. at 43—the ranking is determined in relation to a hierarchical classification of the pluralities of portions of item identifiers.

Ex. 2034, 30. Again, that claim chart does not address claim 11 (or claim 8 from which claim 11 depends). *See id.* Mr. Viegut testifies: “These features of the proof-of-concept build and others are substantially similar Samsung’s

²² Although Patent Owner provides screenshots from only one model number (Samsung model number UN55NU7100), Patent Owner contends the relevant functionality is present in all of Samsung Smart TV products with Samsung’s SmartHub software. *See* Ex. 2034, 1.

²³ We understand that Patent Owner intended to cite to Exhibit 2024.

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products ability to use the up/down/left/right directional buttons of a remote control to select the next predicted character. As also illustrated, Samsung’s Model UN55NU7100FXZA practices the ’393 patent.” Ex. 2032 ¶ 36 (citing Ex. 2034). Mr. Dixon testifies about similarities between Patent Owner’s technology and Petitioner’s products, but does not address the claims of the ’393 patent. *See, e.g.*, Ex. 2025 ¶ 12. We note that alleged attempts to copy a feature does not show a product actually uses that feature. In addition, Petitioner’s contention that a hierarchical tree is the best way to identify matching prefixes is not sufficient evidence that it is the actual way used in Petitioner’s Samsung Smart TV. *See* Pet. 43 (quoting Ex. 1003 ¶ 117). We find the evidence is insufficient to show that Petitioner’s products practice claims 5, 8, and 11 to establish a presumption of nexus. We note that Petitioner’s Samsung Smart TV is a television, as recited in claim 11, but that does not answer whether the recited database is stored in a memory of that television, as also required by claim 11 (based on its dependency from claim 8).

(iii) *Conclusion: Presumption of Nexus*

Because Patent Owner has not shown that either the POC or the Samsung Smart TV practices claims 5 or 11, we find a presumption of nexus to be inapplicable. As indicated above, our analysis does not end with a finding that Patent Owner is not entitled to the presumption—Patent Owner may still establish a nexus. For the reasons below, we find that Patent Owner has not adequately made such a showing.

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2. *Actual Nexus*

As set forth above, Patent Owner may still prove nexus, absent the presumption, by showing that the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention.

Patent Owner argues that it established a nexus between the evidence (i.e., praise, industry recognition, copying, commercial success, unexpected results, and failure of others) and the merits of the challenged claims. PO Resp. 26, 29; PO Sur-reply 6–17; Tr. 75–76. Petitioner argues that Patent Owner has not met its burden in establishing nexus. Pet. Reply 33. We determine Petitioner has the better position, and we individually address each objective indicia below:

(i) *Praise and Industry Recognition*

With respect to praise, Patent Owner cites several documents showing Petitioner’s praise of Patent Owner’s technology. PO Resp. 16–20 (citing Exs. 2052, 2028, 2029). Similarly, with respect to other industry recognition, Patent Owner cites documents showing various awards won by Patent Owner. *Id.* at 20 (citing Ex. 2028).

Petitioner argues that Patent Owner has not met its burden to show nexus because it did not put forth evidence linking the praise and industry recognition to the features of the claims alleged to be obvious. Pet. Reply 24–25; *see also* Tr. 110 (“[t]he individual praise documents have no relationship at all to the claim feature”).

We agree that Patent Owner fails to sufficiently link the praise and industry recognition to any unique characteristics of the invention of claims 5 or 11. As such, Patent Owner has not met its burden to show nexus

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between praise and industry recognition and the unique characteristics of the claims subject to obviousness grounds.

(ii) *Copying*

Copying requires both similarity to a patented product and access.

Liqwd v. L'Oreal USA, 941 F.3d 1133, 1137 (Fed. Cir. 2019).

In this case, Patent Owner argues that Petitioner's Samsung Smart TV is similar to the patented invention. PO Resp. 24–27. As discussed above with respect to Mr. Viegut's testimony, Mr. Dixon's testimony, and Exhibit 2034, Patent Owner has not shown that Petitioner's product, the Samsung Smart TV, embodies, or is similar to, the product of claims 5 or 11. *See* Ex. 2032 ¶ 36, Ex. 2025 ¶ 12; Ex. 2034. Again, claim 11 requires not only that the computing device be a television but that the recited database is stored in a memory of that television. Absent evidence that the product is similar to claims 5 or 11, Patent Owner cannot show a nexus between the alleged copying and those claims.

(iii) *Commercial Success*

Patent Owner argues that Samsung's products embody the patented inventions, that those products have been a commercial success, and that there is a nexus between the commercial success and the patented inventions. PO Resp. 28–29; *see* Paper 86, 2.

Petitioner argues that Patent Owner provided no evidence that the commercial success of the Samsung Smart TV was due to features of the challenged claims. Pet. Reply 21. Rather, Petitioner argues that the

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commercial success is due to the product's unclaimed television features.
Id. at 37–38; Tr. 115–116.

We determine Petitioner has the better position. As discussed above, Patent Owner has not shown that Petitioner's Samsung Smart TV embodies the invention of claims 5 or 11. Moreover, Patent Owner has not shown that the commercial success of Petitioner's products was the result of the unique characteristics of those claims rather than due to other considerations (for example, other technological features included in the Samsung Smart TV product, Petitioner's marketing of that product, or simply by virtue of Petitioner's brand name recognition).

(iv) Unexpected Results and Failure of Others

Patent Owner argues that unexpected results and the failure of others show nonobviousness; however, Patent Owner does not tie those arguments or evidence to the specific features of the claims at issue (claims 5 and 11). PO Resp. 29–33. As such, Petitioner has not met its burden to show a nexus between unexpected results and the failure of others and those claims.

(v) Conclusion: Actual Nexus

We find that Patent Owner has not established a nexus between its objective evidence of nonobviousness and claims 5 and 11.

3. Conclusion: Presumption of Nexus/Actual Nexus

On balance, we find that Patent Owner has not established a presumption of nexus or an actual nexus. As such, we determine Patent Owner's evidence of secondary considerations of nonobviousness is entitled to little weight. *See In re GPAC Inc.*, 57 F.3d at 1580. Nevertheless, we weigh Patent Owner's asserted evidence below.

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4. *Weighing Objective Indicia of Nonobviousness*

For the sake of completeness, we address Patent Owner’s contentions relating to objective indicia based on the assumption that Patent Owner established a nexus (which we determine above that Patent Owner has not). Overall, we find Patent Owner’s objective evidence relatively weak.

(i) *Praise and Industry Recognition*

Patent Owner argues that Petitioner’s internal documents demonstrate praise of Patent Owner’s technology. PO Resp. 16–20. For example, Patent Owner argues that Petitioner decided to [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]” *Id.* at 17–18 (citing

Exs. 2028, 2029); *see* PO Sur-reply 1, 6–10. Patent Owner also argues that Petitioner concluded Patent Owner’s predict-next-letter solution offered

[REDACTED]
[REDACTED]
[REDACTED] if the technology was not implemented.

PO Resp. 18 (citing Ex. 2028) (emphasis omitted). Patent Owner further argues Petitioner was aware of Patent Owner’s various industry awards. *Id.* at 20.

Petitioner argues that its alleged praise was based off of “a preliminary review,” that any praise “was met with equal measures of criticism,” and that Patent Owner’s product had been determined as “not viable for its products.” Pet. Reply 26–27 (citing Ex. 2028). Petitioner also

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argues that Patent Owner’s industry awards do not reflect recognition of the industry at large. *Id.* at 29.

Based on our review, the praise or industry recognition cited by Patent Owner appears to be predominantly if not entirely in regards to the front-end user 4-directional key user interface, not the back-end hierarchical classification recited in claim 5 or the types of computing device on which the recited database is stored as recited in claim 11. As such, we agree with Petitioner that this evidence should be afforded little weight. *Merck & Cie v. Gnosis S.p.A.*, 808 F.3d 829, 838 (Fed. Cir. 2015) (affording evidence of copying and industry praise “little weight” where patentee “failed to show an adequate nexus between these objective indicia and the novel features of the asserted claims”). Petitioner’s other arguments (i.e., that praise should be weighed against criticism and that praise based on an incomplete, preliminary understanding should not be given substantial weight) also have merit. Finally, we agree with Petitioner that Patent Owner has not sufficiently shown that its awards actually reflect industry recognition of the subject matter of these claims. For those reasons, we determine Patent Owner’s evidence for praise/recognition to be weak.

(ii) *Copying*

Patent Owner argues that Petitioner copied its technology via its access to its POC. PO Resp. 20–27.

As noted above, copying requires similarity and access. *Liqwd*, 941 F.3d at 1137. We agree that Patent Owner has provided some evidence of access by Petitioner to the POC, and we agree that assuming similarity, this evidence of access would weigh in favor of a finding of copying. PO

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Resp. 23–24 (“Samsung’s 2,500 hits are evidence of reverse engineering, which is consistent with copying.”). In addition, Patent Owner presents some evidence as to the similarities between Patent Owner’s POC and Petitioner’s Samsung Smart TV product. *See* Ex. 2025 ¶ 12. We have also considered Petitioner’s evidence of independent development (*e.g.*, Pet. Reply 30 (citing Ex. 2028)), but we find that evidence undercut by Petitioner’s statements praising Patent Owner’s technology (Ex. 2028).²⁴ Accordingly, we find that, assuming Patent Owner had shown similarity between Petitioner’s Samsung Smart TV product and the claims at issue, Patent Owner has provided some credible evidence of copying.

(iii) *Commercial Success*

Patent Owner argues that Petitioner’s products “incorporating the four directional predict-next-letter feature have been a tremendous commercial success.” PO Resp. 28. However, Patent Owner provides no objective evidence showing the commercial success of Petitioner’s Samsung Smart TV was due to the features of the claims at issue rather than other considerations such as marketing and brand recognition. *Id.* at 28–29; *see also* Pet. Reply 37–38 (arguing “there is *zero evidence* . . . that the commercial success of Samsung’s TVs is in any way attributable to the technology described in Kannuu’s patents”). Patent Owner’s argument is insufficient to show that the features of the patented invention drove the commercial success of Petitioner’s Samsung Smart TV. Because the

²⁴ Again, we note here that we evaluate this evidence assuming Patent Owner had established nexus between Petitioner’s praise and the relevant claims. As noted above, we do not find the evidence supports such a nexus.

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commercial success of Petitioner’s products here is undisputed, we do not evaluate this evidence presuming a nexus was shown. We find that Patent Owner has not provided credible evidence of commercial success as a secondary consideration of nonobviousness.

(iv) Unexpected Results and Failure of Others

Patent Owner argues unexpected results because Petitioner’s internal documents demonstrate skepticism of whether Patent Owner’s technology could work with large databases. PO Resp. 29–30 (citing Ex. 2015). Patent Owner also argues that Mr. Dixon, an industry analyst, observed unexpected results/benefits including “enrichment in TV metadata to facilitate accelerated text entry.” PO Resp. 30; PO Sur-reply 17 (citing Ex. 2025 ¶ 11). Mr. Dixon also testified that Petitioner’s front-end use (up/down/left/right buttons for text entry) was not widely adopted at the time. PO Resp. 31 (citing Ex. 2025 ¶ 6). Mr. Dixon’s testimony, however, does not sufficiently explain how the benefits were “unexpected” and how lack of adoption shows failure of others. As such, we agree with Petitioner that the evidence of unexpected results and failure of others is weak. *See* Pet. Reply 38–39.

(v) Conclusion: Objective Indicia of Nonobviousness

We have considered the evidence in this proceeding regarding objective indicia of nonobviousness. We determine that evidence is entitled to little weight in our obviousness analysis because the evidence does not establish either a presumption of nexus or actual nexus. Even assuming we determined a presumption of nexus or actual nexus existed, we find Patent Owner presents some evidence of copying but weak evidence for all other

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asserted secondary considerations (we do not address commercial success of Petitioner’s products under this assumption).

In weighing the evidence of copying as indicia of nonobviousness, we note that “a showing of copying is only equivocal evidence of non-obviousness in the absence of more compelling objective indicia of other secondary considerations.” *Ecolochem, Inc. v. S. California Edison Co.*, 227 F.3d 1361, 1380 (Fed. Cir. 2000); *see also Cable Elec. Prod., Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1028 (Fed. Cir. 1985) (“more than the mere fact of copying by an accused infringer is needed to make that action significant to a determination of the obviousness issue”), *overruled on other grounds by Midwest Indus., Inc. v. Karavan Trailers, Inc.*, 175 F.3d 1356 (Fed. Cir. 1999). For example, where industry praise for the claimed technology is present, “[c]opying may indeed be another form of flattering praise for inventive features.” *Crocs, Inc. v. Int’l Trade Comm’n*, 598 F.3d 1294, 1311 (Fed. Cir. 2010). We can also consider whether the accused infringer tried to develop the claimed technology but failed and proceeded to copy. *See Friskit, Inc. v. Real Networks, Inc.*, 306 F. App’x 610, 617 (Fed. Cir. 2009) (“Copying by the accused infringer . . . has limited probative value in the absence of evidence of failed development efforts by the infringer, or of more compelling objective indicia of other secondary considerations.”); *Vandenberg v. Dairy Equip. Co., a Div. of DEC Int’l*, 740 F.2d 1560, 1567 (Fed. Cir. 1984) (“The copying of an invention may constitute evidence that the invention is not an obvious one. This would be particularly true where the copyist had itself attempted for a substantial length of time to design a similar device, and had failed.”).

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Here, as discussed above, we determine the evidence for all other asserted secondary considerations, including industry praise, to be weak. And there is no evidence (nor does Patent Owner allege) that Samsung attempted to develop similar technology but failed before proceeding to copy Patent Owner's claimed invention. For example, Samsung noted ways in which its solution was inferior, equal, or superior to Patent Owner's solution, but Samsung never indicated its technology failed. Ex. 2028, SAMSUNG_K_00035621. Based on the complete record, we find that the evidence of copying in this proceeding, when considered with evidence of other asserted secondary considerations, does not suggest nonobviousness sufficiently to overcome the strong showing of obviousness established by Petitioner.

J. Conclusion as to Obviousness: Claims 5, 11

“Once all relevant facts are found, the ultimate legal determination [of obviousness] involves the weighing of the fact findings to conclude whether the claimed combination would have been obvious to an ordinary artisan.” *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 876 F.3d 1350, 1361 (Fed. Cir. 2017). Above based on the full record before us, we provide our factual findings regarding (1) the level of ordinary skill in the art, (2) the scope and content of the prior art, (3) any differences between the claimed subject matter and the prior art, and (4) objective indicia of nonobviousness.

In particular, we find that (1) Petitioner's proposed level of ordinary skill in the art is consistent with the art of record; (2) the combination of Perlman with Dostie or the combination of Pu with Dostie teaches all the limitations of claim 5 and the combination of Pu and Perlman teaches all of

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the limitations of claim 11; (3) one of ordinary skill in the art would have had reasons to combine Perlman with Dostie, Pu with Dostie, and Pu with Perlman in the manner Petitioner proposes; and (4) Patent Owner fails show entitlement to a presumption of nexus or establish an actual nexus, and even assuming the existence of a nexus, Patent Owner presents some evidence of copying but only weak evidence for other objective indicia. Weighing these underlying factual determinations, considering either no nexus or assuming a nexus as discussed above, we determine a preponderance of the evidence supports that claim 5 of the '393 patent is unpatentable as obvious over the combinations of Perlman with Dostie and Pu with Dostie, and claim 11 of the '393 patent is unpatentable as obvious over the combination of Pu and Perlman.

K. Remaining Grounds

For the reasons discussed above, Petitioner has shown, by a preponderance of the evidence, that claims 1–16 of the '393 patent are collectively unpatentable as either anticipated by Perlman, anticipated by Pu, obvious over Perlman and Dostie, obvious over Pu and Dostie, or obvious over Pu and Perlman. In addressing these grounds, we have addressed all of the challenged claims. *See* 35 U.S.C. § 318(a) (requiring the Board to “issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 316(d)"); *see also SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”). Accordingly, we need not and do not

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decide whether Petitioner has shown by a preponderance of the evidence that claims 1–16 are unpatentable as obvious based on additional grounds. *See Boston Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”); *cf. In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (not reaching other grounds of unpatentability after affirming the anticipation ground); *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (holding that once a dispositive issue is decided, there is no need to decide other issues).

IV. MOTIONS TO SEAL

The parties have filed a number of motions to seal in this proceeding. Specifically, Petitioner’s pending motions to seal are at Papers 45, 69, 80, 84, and 94. Patent Owner’s pending motions to seal are at Papers 38, 43, 73, 83, 88, and 92. Neither party has filed oppositions to any of the other party’s pending motions to seal.

A strong public policy exists for making information filed in an *inter partes* review publicly available. 37 C.F.R. § 42.14; *see also* Consolidated Practice Guide at 19. The public’s interest in maintaining a complete and understandable file history is balanced with the party’s interest in protecting its truly sensitive, confidential information. Consolidated Practice Guide

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at 19. A party moving to seal must show “good cause” for the relief requested. 37 C.F.R. § 42.54(a).

To demonstrate “good cause,” the moving party must demonstrate that:

- (1) the information sought to be sealed is truly confidential, (2) a concrete harm would result upon public disclosure, (3) there exists a genuine need to rely in the trial on the specific information sought to be sealed, and (4), on balance, an interest in maintaining confidentiality outweighs the strong public interest in having an open record.

Argentum Pharms. LLC v. Alcon Research, Ltd., IPR2017-01053, Paper 27 at 3–4 (PTAB Jan. 19, 2018) (informative); *see also Corning Optical Communications RF, LLC v. PPC Broadband, Inc.*, IPR2014-00440, Paper 46 at 2 (PTAB Apr. 6, 2015) (requiring a demonstration that information is not “excessively redacted”).

Upon review of the parties’ motions and redactions, we determine that the parties have shown good cause to seal the limited set of requested information. Therefore, the motions to seal are granted.

Redacted Version of Final Written Decision

There is an expectation that information will be made public where the information is identified in a final written decision, and that confidential information that is subject to a protective order ordinarily would become public 45 days after final judgment in a trial, unless a motion to expunge is granted. 37 C.F.R. § 42.56; Consolidated Practice Guide at 21–22. In rendering this Final Written Decision, it was necessary to identify and discuss in detail certain sealed confidential information subject to various

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motions to seal. Accordingly, we enter this Final Written Decision as temporarily protected subject to the Stipulated Protective Order (Paper 58) entered in this proceeding. **The parties are directed to submit a joint proposed redacted version of this Final Written Decision within 14 days of its entry.**

A party who is dissatisfied with this Final Written Decision may appeal the Decision pursuant to 35 U.S.C. § 141(c) and 37 C.F.R. § 90.3(a). Thus, it remains necessary to maintain the record, as is, until resolution of an appeal, if any.

In view of the foregoing, the confidential documents filed in the instant proceeding will remain under seal, at least until the time period for filing a notice of appeal has expired or, if an appeal is taken, the appeal process has concluded. The record for the instant proceeding will be preserved in its entirety, and the confidential documents will not be expunged or made public, pending appeal. Notwithstanding 37 C.F.R. § 42.56 and the Consolidated Practice Guide, neither a motion to expunge confidential documents nor a motion to maintain these documents under seal is necessary or authorized at this time. *See* 37 C.F.R. § 42.5(b); Consolidated Practice Guide at 22.

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V. CONCLUSION²⁵

For the foregoing reasons, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–16 of the '393 patent are unpatentable, as summarized in the following table:

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–4, 6, 7, 11, 13–16	102(b)	Perlman	1–4, 6, 7, 13–16	11
5	103(a)	Perlman, Dostie	5	
8–10, 12	103(a) ²⁶	Perlman, Pu		
1–4, 6–10, 12–16	102(b)	Pu	1–4, 6–10, 12–16	
5	103(a)	Pu, Dostie	5	
11	103(a)	Pu, Perlman	11	
1–4, 6–16	103(a) ²⁷	Krohn, Pu		

²⁵ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

²⁶ Because we hold these claims unpatentable on other grounds, we do not reach this ground.

²⁷ Because we hold these claims unpatentable on other grounds, we do not reach this ground.

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5	103(a) ²⁸	Krohn, Pu, Dostie		
Overall Outcome			1–16	

VI. ORDER

Accordingly, it is:

ORDERED that claims 1–16 of the '393 patent are held to be unpatentable;

FURTHER ORDERED that Petitioner's Motions to Seal (Papers 45, 69, 80, 84, and 94) are *granted*;

FURTHER ORDERED that Patent Owner's Motions to Seal (Papers 38, 43, 73, 83, 88, and 92) are *granted*;

FURTHER ORDERED that all presently protected papers and exhibits in the record, including this Final Written Decision, will remain sealed until further notice from the Board;

FURTHER ORDERED that the parties are directed to submit a joint proposed redacted version of this Final Written Decision within 14 days of its entry;

FURTHER ORDERED that Patent Owner's Motion to Strike is *granted*; and

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

²⁸ Because we hold these claims unpatentable on other grounds, we do not reach this ground.

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