

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

VEVEO, INC.,
Patent Owner.

Case IPR2019-00292
Patent 7,937,394 B2

Before KALYAN K. DESHPANDE, SHEILA F. McSHANE, and
KARA L. SZPONDOWSKI, *Administrative Patent Judges*.

SZPONDOWSKI, *Administrative Patent Judge*.

DECISION

Institution of *Inter Partes* Review
35 U.S.C. § 314(a); 37 C.F.R. § 42.108

I. INTRODUCTION

Comcast Cable Communications, LLC (“Petitioner”) filed a Petition (Paper 2, “Pet.”) to institute an *inter partes* review of claims 1–11 of US Patent No. 7,937,394 B2 (Ex. 1221, “the ’394 patent”). Veveo, Inc. (“Patent Owner”) filed a preliminary response (Paper 9, “Prelim. Resp.”) to the Petition. We have jurisdiction under 35 U.S.C. § 314.

Institution of an *inter partes* review is authorized when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Having considered the Petition, the Preliminary Response, and the associated evidence, we determine that Petitioner has established a reasonable likelihood that it would prevail in establishing that claims 1–11 of the ’394 patent are unpatentable based on the grounds asserted in the Petition. Accordingly, we institute an *inter partes* review as to all challenged claims and all grounds raised in the Petition.

II. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies the following as real parties-in-interest: Comcast Corporation; Comcast Business Communications, LLC; Comcast Cable Communications Management, LLC; Comcast Cable Communications, LLC; Comcast Financial Agency Corporation; Comcast Holdings Corporation; Comcast Shared Services, LLC; Comcast STB Software I, LLC; Comcast of Massachusetts I, Inc.; Comcast of Milton, Inc.; Comcast of

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Southern New England, Inc.; Comcast of Massachusetts/New Hampshire, LLC; Comcast of Needham, Inc.; Comcast of Massachusetts/Virginia, Inc.; Comcast of Boston, Inc.; Comcast of Brockton, Inc.; Comcast of California/Massachusetts/Michigan/Utah, LLC; Comcast of Connecticut/Georgia/Massachusetts/New Hampshire/New York/North Carolina/Virginia/Vermont, LLC; Comcast of Massachusetts II, Inc.; and Comcast of Massachusetts III, Inc. Pet. 1.

B. Related Proceedings

As required by 37 C.F.R. § 42.8(b)(2), each party identifies a judicial matter that would affect, or be affected by, a decision in this proceeding.

Both parties identify *Veveo Inc. v. Comcast Corporation, et al.*, Case No. 1:18-cv-10056-GAO (D. Mass) and *In the Matter of Certain Digital Receivers and Related Hardware and Software Components*, Investigation No. 337-TA-1103 as related proceedings. Pet. 2; Paper 4, 1.

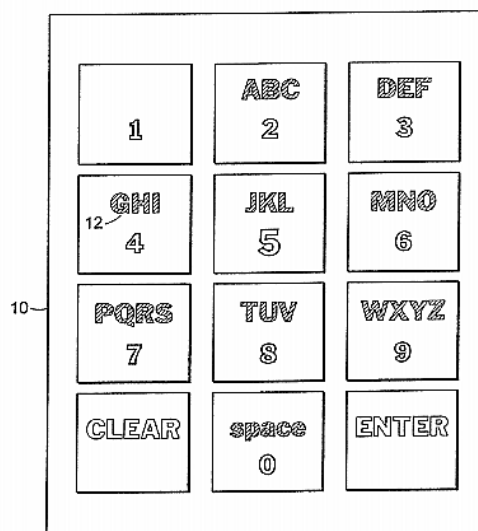
Patent Owner additionally identifies *Veveo Inc. v. Comcast Corporation, et al.*, Case No. 1:13-cv-11885-GAO (D. Mass) and *Veveo, Inc. v. Verizon Services Corp. et al.*, Case No. 1-10-cv-06709 (D. Mass) as related proceedings. Paper 4, 1.

Additionally, Petitioner filed IPR2019-00290, IPR2019-00291, and IPR2019-00293 also requesting *inter partes* review of claims 1–11 of the '394 patent (“the '394 proceedings”). Petitioner also filed IPR2019-00237, IPR2019-00238, and IPR2019-00239 requesting *inter partes* review of claims 1–24 of U.S. Patent No. 7,779,011 (“the '011 patent”) (“the '011 proceedings”).

C. *The '394 Patent*

The '394 patent is a continuation of application No. 11/312,908, filed on Dec. 20, 2005, now the '011 patent, which claims the benefit of U.S. Provisional Patent Application No. 60/711,866 filed Aug. 26, 2005 and U.S. Provisional Patent Application No. 60/716,101, filed Sept. 12, 2005. Ex. 1221, 1:9–23.

The '394 patent is titled “Method and System for Dynamically Processing Ambiguous, Reduced Text Search Queries and Highlighting Results Thereof” and generally describes “identifying an item from a set of items” from a search query entered by a user on a device having a text input interface with overloaded keys. *Id.* at [54], Abstract. An overloaded key has multiple alpha-numeric characters or functions so that the same key can be pressed to enter different characters. *Id.* at 1:44–47. For example, the “2” key can be pressed to enter the number “2” or the letters “A,” “B,” or “C.” *Id.* at 1:47–48. Such a keypad is illustrated below in Figure 1.



PRIOR ART
FIG. 1

The '394 patent explains that text entry using a keypad with overloaded keys can result in an ambiguous text entry, which requires some type of disambiguation action, such as multiple key presses to select a desired character. *Id.* at 1:48–50. These known disambiguation actions may have deficiencies, such as too many key strokes needed to make a text entry. *Id.* at 1:58–62.

The '394 patent processes a search query to identify an item from a set of items, where each of the items has a name comprising one or more words. *Id.* at 2:20–22. Using the text input interface, a user can enter an ambiguous search query that comprises a prefix substring of at least one word in the name of the desired item. *Id.* at 3:33–35; *see* 3:35–37 (“A prefix substring of a word is a variable length string of characters that contains fewer than all the characters making up the word”). A prefix query may be a single-word query that matches a single word term or an abbreviation representing multiple words, or a multi-word prefix query, that matches a multi-word term or an abbreviation representing multiple words. *Id.* at 6:55–63.

The search space containing the searchable items is “initially indexed by performing a many-to-many mapping of the alphanumeric space of terms to numeric strings corresponding to the various prefixes of each alphanumeric term constituting the query string.” *Id.* at 3:50–55. In the numeric string, each alphanumeric character is replaced by its corresponding numeric equivalent. *Id.* at 3:55–59. This allows the system to incrementally retrieve results matching the ambiguous search query as the user types in each character of the query. *Id.* at 3:59–62. The items that match the search query are displayed on the device, preferably in the order of expected

interest to the user, with the characters of the one or more words in the names corresponding to the prefix substring of the search query highlighted. *Id.* at 3:38–46, 5:38–44, 6:31–36.

D. Exemplary Claim

Petitioner challenges claims 1–11 of the '394 patent. Pet. 1. Claim 1, the only independent claim, is reproduced below, with annotations added to the step limitations for reference purposes:

1. A method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, the unresolved keystroke entries being directed at identifying an item from a set of items, each of the items being associated with information describing the item comprising one or more words, the method comprising:

[a] providing access to an index of the items, the index having an association between Subsets of the items and corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings;

[b] for at least one subset of items, determining which letters and numbers present in the information associated with and describing the indexed items of the subset caused the items to be associated with the strings of one or more unresolved keystrokes that directly mapped to the subset;

[c] receiving from a user a search query for desired items composed of unresolved keystrokes, the search query comprising a prefix substring for at least one word in information associated with the desired item;

[d] in response to each unresolved keystroke, identifying and displaying the subsets of items, and information associated therewith, that are associated with the strings of one or more unresolved keystrokes received from the user based on the direct mapping of strings of unresolved keystrokes to subsets of items; and

[e] in response to each unresolved keystroke, as the identified items are displayed, highlighting the letters and numbers present in the one or more words in the information describing the identified items that were determined to have caused the displayed items to be associated with the strings of unresolved keystrokes that are directly mapped to the items so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.

Ex. 1221, 8:44–9:16.

E. Evidence Relied Upon

Petitioner relies on the following prior art references (*see* Pet. 8), as well as the Declaration of Dr. Edward A. Fox (Ex. 1214):

Reference	Exhibit	Patent/Printed Publication	Prior Art
Gross	Ex. 1211	U.S. 2004/0133564 A1 (filed Sep. 3, 2003, published July 8, 2004)	35 U.S.C. § 102(b)
Smith	Ex. 1213	U.S. 6,529,903 (issued Mar. 4, 2003)	35 U.S.C. § 102(b)
Sanders	Ex. 1210	U.S. 7,885,963 (filed Mar. 24, 2003, issued Feb. 8, 2011)	35 U.S.C. § 102(e)
Weeren	Ex. 1225	U.S. 6,501,956 (issued Dec. 31, 2002)	35 U.S.C. § 102(b)

F. The Asserted Grounds

The specific statutory grounds of unpatentability, claims challenged, and prior art relied on for each ground are summarized in the table below.

See Pet. 8.

Ground	References	Basis	Claims Challenged
1	Gross, Smith	§ 103(a)	1, 2, 4, 6, 10, and 11
2	Gross, Smith, and Sanders	§ 103(a)	3, 8, 9
3	Gross, Smith, and Weeren	§ 103(a)	7

III. ANALYSIS

A. Discretionary Denial Arguments

Patent Owner argues we should exercise our discretion to deny the Petition under either 35 U.S.C. § 325(d) or § 314(a). Prelim. Resp. 34–49. For the reasons expressed below, we decline to deny the Petition as an exercise of discretion under either statute.

1. Discretionary Denial Under 35 U.S.C. § 325(d)

Our institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“the PTO is permitted, but never compelled, to institute an IPR proceeding”). Pursuant to 35 U.S.C. § 325(d), when determining whether to institute an *inter partes* review, we “*may take into account whether, and reject the petition . . . because, the same or substantially the same prior art or arguments previously were presented to the Office.*” 35 U.S.C. §325(d) (emphases added). In deciding whether to reject a petition on this basis, the Board typically weighs several non-exclusive factors, such as:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, slip op. at 17–18 (Paper 8) (PTAB Dec. 15, 2017) (informative) (“*Becton*”). In view of the record in this case, we determine that the factors weigh against exercising our discretion under § 325(d) to deny institution of *inter partes* review.

Patent Owner asserts that the ’394 patent is the direct continuation of the ’011 patent, shares a common specification, and the ’394 patent references the ’011 patent. Prelim. Resp. 13. Patent Owner argues we should deny the Petition under § 325(d) because the Office previously considered art and arguments during prosecution of the ’011 patent that are substantially similar to those relied upon in the Petition. *Id.* at 33–34. Patent Owner urges that “[n]one of the references asserted by Comcast address the fundamental problem previously recognized by the Office when it allowed these claims following clarification of the ‘highlighting’ feature.” *Id.* at 33. According to Patent Owner, “Comcast’s central theory of

obviousness was considered by the Office during prosecution of the '011 patent, which is directly relevant here.” *Id.* at 34.

During prosecution of the '011 patent, the Office relied on Verbeck¹, Ortega,² and Belfiore.³ *See, e.g.*, Ex. 2012. Patent Owner argues *Becton* factors (a), (b), (c), and (d) weigh in favor of denying the Petition because “Gross is cumulative to Belfiore and is relied upon by Comcast in the same way as Belfiore was relied upon during prosecution of the '011 patent” and “Smith is cited on the face of the '394 patent and cumulative to Verbeck and Ortega and is relied upon by Comcast in the same way as Verbeck and Ortega were relied upon during prosecution of the '011 patent.” Prelim. Resp. 35. Patent Owner also asserts that the Gross reference is “substantially identical to U.S. Publication No. 2004/0143569 to Gross [(“Gross II”)], cited on the face of the '394 patent.” *Id.* at 35, n.10.

Patent Owner argues both Gross and Belfiore “are directed to search query input techniques designed to display visual feedback to the user in the form of ‘highlighting.’” *Id.* at 35. Patent Owner further argues “[t]he Office relied on Belfiore as disclosing: that, in response to each unresolved keystroke, as the identified items are displayed, highlighting words in the searched information that match the search terms entered by the user” and “Comcast relies on Gross in substantially the same way, alleging that it discloses: incremental highlighting that corresponds to search terms.” *Id.*

With respect to Smith, Patent Owner argues Smith, Verbeck, and Ortega are “directed to searching using an overloaded keypad and then

¹ US 2006/0167859 A1; published July 27, 2006. (Ex. 2002).

² US 6,564,213 B1; issued May 13, 2003. (Ex. 2003).

³ US 6,009,459; issued Dec. 28, 1999. (Ex. 2004).

mapping ambiguous keystroke queries to their corresponding terms located in web pages or database objects.” *Id.* at 36. According to Patent Owner, the Examiner “acknowledged that Verbeck does not teach or suggest indexing” and instead “relied on Ortega as disclosing: indexing objects by creating datasets that contain terms, the datasets directly associated with the input of unresolved keystrokes such that when a user enters a keystroke the datasets are accessed to retrieve the object mapped to the keystroke.” *Id.* Patent Owner argues “Comcast relies on Smith in substantially the same way.” *Id.*

We are not persuaded by Patent Owner’s arguments. First, Patent Owner does not present any evidence that the Examiner considered Gross during prosecution of the ’011 patent. Patent Owner’s argument that Gross II, which relies on the same provisional patent applications as Gross, and Smith are cited on the face of the ’394 patent is insufficient to demonstrate that the Examiner relied on or fully considered Gross II and Smith during prosecution of the ’011 or ’394 patents. Moreover, Patent Owner has not provided any substantive analysis or discussion of the similarities between Gross and Gross II. Absent an analysis from Patent Owner, we decline to make a determination that Gross and Gross II are the same or substantially the same. Therefore, we determine that Patent Owner has failed to persuasively demonstrate that the same or substantially the same prior art or arguments were previously evaluated by the Office.

Second, it is axiomatic that references used to examine the patentability of and the references presented in a Petition challenging the same patent will have some similarities. However, Patent Owner has not sufficiently shown that the references are substantially similar to those made

in prosecution or that the references are merely cumulative. Rather, we find that Patent Owner's comparison of the prior art is conclusory with little explanation of the similarities and material differences between the prior art. *See* Prelim. Resp. 35–37. Such arguments are not persuasive. For example, although Patent Owner generally alleges that both Belfiore and Gross describe visual feedback to the user in the form of highlighting, we discern at least one material difference between the highlighting functionality disclosed by Gross and Belfiore that Patent Owner fails to explain. Belfiore discloses that “the returned web pages may include highlighting where the search terms passed to the search engine are highlighted within the returned web pages” (Ex. 2004, 4:8–11), whereas Gross discloses that the highlighting is performed *during an incremental search* where “the content displayed in the view area or pane is auto-scrolled down to the first matching character or character string, which may be highlighted or otherwise emphasized.” Ex. 1211 ¶ 49. Absent further explanation from Patent Owner, we determine that there are substantial differences between Gross and Belfiore.

For the same reasons, we are also unpersuaded by Patent Owner's arguments that Petitioner relies on Gross and Smith in substantially the same way as the Examiner relied on Verbeck, Ortega, and Belfiore. For example, Petitioner relies on the combination of Gross and Smith to teach the claimed index (Pet. 33–41), whereas the Examiner relied solely on Ortega to teach the claimed index, modifying Verbeck to include the claimed index (Ex. 2012, 31–32). However, Patent Owner does not direct our attention to any disclosure in Ortega of a numeric index like that disclosed in Smith, and relied upon by Petitioner. Further, Patent Owner does not provide details on

the relative similarities (or differences) in how the art is combined. *See* Prelim. Resp. 35–37.

For the reasons stated above, we find *Becton* factors (a), (b), (c), and (d) weigh against denying the Petition under § 325(d).

Regarding *Becton* factor (e), Patent Owner argues “Comcast does not address any of the similarities between the art and arguments applied during prosecution of the ’011 patent and the art and arguments raised in its petition” and “has not suggested how the Office may have erred.” Prelim. Resp. 37. We agree that the Petition fails to provide such an analysis. Therefore, we find *Becton* factor (e) weighs in favor of denying the Petition under § 325(d).

Regarding factor *Becton* (f), Patent Owner argues “any additional facts and arguments raised in the petition do not warrant reconsideration here.” Prelim. Resp. 38. We disagree for the reasons set forth above, and therefore, find *Becton* factor (f) weighs against denying the Petition under § 325(d).

All discussed factors, except factor (e), weigh in favor of declining to exercise our discretion to deny institution. Accordingly, weighing all the foregoing factors, we decline to exercise our discretion to deny institution under § 325(d).

2. Discretionary Denial Under 35 U.S.C. § 314(a)

Patent Owner asserts that the Board should exercise its discretion under 35 U.S.C. § 314(a) and deny institution because: (1) Petitioner has attempted to gain a tactical advantage by delaying the Petition filing until after trial at the ITC; and (2) multiple petitions have been filed so this is a redundant proceeding. Prelim Resp. 39–49. In Patent Owner’s view,

General Plastic Industrial Co. v. Canon Kabushiki Kaisha, Case IPR2016-01357, slip op. at 9–10 (PTAB Sept. 6, 2017) (Paper 19) (precedential as to § II.B.4.i) (“*Gen. Plastic*”) weighs against the institution of the Petition. *See id.* at 39. 42–43. Patent Owner, however, does not identify the specific *General Plastic* factors that weigh in favor of denying institution of *inter partes* review. *See id.* at 39–49. Instead, it appears Patent Owner argues the ITC proceedings issue based on an alleged abuse of process, which is a general consideration in *General Plastic*. *See id.* at 42–49. As to the issue raised on multiple petitions, Patent Owner references the Board’s Order (Paper 11), which refers to the Board’s ability to meet statutory factors and the speedy resolution of proceedings (factors 6 and 7), and we address those issues below. Our Decision focuses on factors 6 and 7 because no other *General Plastic* factors are raised or argued by Patent Owner.

a. Parallel ITC Proceeding

Patent Owner argues Petitioner has attempted to gain an unfair tactical advantage by delaying its filing of this *inter partes* review until after trial at the ITC. Prelim. Resp. 42. Specifically, Patent Owner argues “[b]y waiting until a full record had been developed before the ITC, Comcast seeks to gain a tactical advantage; namely, using Rovi’s rebuttal as a roadmap for its challenge and advancing claim construction positions that it lost before the ITC in an attempt to re-litigate the same issues.” *Id.*; *see also id.* at 45–46. Patent Owner argues “[b]efore the ITC, Comcast has already attempted to prove invalidity based on references attributed to, among others, Gross, Smith, King, and Payne.” *Id.* at 44. According to Patent Owner, “Comcast here advances essentially the same theories of unpatentability that it has before the ITC after receiving the benefit of previewing all of Rovi’s rebuttal

and its expert's testimony," which "results in unfairness to Rovi [that] is evident in how Comcast specifically tailored its multiple-petition challenge to address certain flaws identified by Rovi in the ITC action." *Id.* Patent Owner also argues Petitioner has ignored evidence of secondary considerations presented in the ITC hearing. *Id.* at 46–49.

Although we recognize that Petitioner waited until after the hearing in the ITC (*see* Ex. 2020) to file its Petition, we are not persuaded to exercise our discretion to deny the Petition because there is insufficient persuasive evidence of overlap between the ITC proceeding and this proceeding. For example, Patent Owner generally asserts that Petitioner "advances essentially the same theories of unpatentability that it has before the ITC" (Prelim. Resp. 43) and "the related ITC action is at a very advanced stage and has significant overlap in terms of the asserted art, expert testimony, and claim language at issue" (*id.* at 46). The record before us, however, does not include evidence showing Petitioner's theories and arguments on invalidity with respect to Gross and Smith as to the '394 patent, Petitioner's expert testimony regarding Gross and Smith and the '394 patent, and/or Patent Owner's alleged evidence of objective indicia of nonobviousness in the ITC proceeding.

Moreover, Patent Owner's ITC post-hearing reply brief indicates that claims 1 and 9 of the '011 patent, *not the '394 patent*, were challenged over the combination of Gross and Smith in the ITC proceeding. Ex. 2008, 14–21. Patent Owner, therefore, has not presented evidence in the record showing the validity of the '394 patent was challenged over Gross and Smith in the ITC proceeding. Moreover, even if the challenges to the '011 patent in the ITC proceeding were relevant to this Petition, a point not explained by

Patent Owner, Petitioner’s ITC post-hearing reply brief provides an incomplete view of the theory and arguments made on invalidity over the Gross and Smith references, leaving us to speculate as to the degree of overlap between the two proceedings. *Id.* at 14–21. The ITC proceeding also involves different claims (independent claims 1 and 9) of a different patent (the ’011 patent) than those that are challenged in this Petition (claims 1–11 of the ’394 patent). *See id.* Accordingly, based on the record before us, we determine there is not a substantial overlap between the ITC proceeding and this Petition. Furthermore, we are the first and only tribunal fully considering the merits of all of Petitioner’s challenges. *See* Trial Practice Guide 10 (stating that “the merits” should be considered as part of a balanced assessment in whether to deny institution under § 314(a)). In considering those merits on the record before us, for the reasons expressed below, we find Petitioner’s proposed grounds to be sufficiently strong to weigh in favor of not denying institution based on §314(a).

We also find this proceeding distinguishable from *NHK Spring Co. v. Intri-Plex Technologies, Inc.*, Case IPR2018-00752 (PTAB Sept. 12, 2018) (Paper 8) (precedential) (“*NHK*”) for similar reasons to those discussed above. In *NHK*, the Board found that the “same prior art . . . and arguments” were being advanced in a parallel district court proceeding and that a decision was expected to issue in the short term. *Id.* at 19–20. For those reasons, the Board determined in *NHK* that institution of *inter partes* review would not “provide an effective and efficient alternative to district court litigation,” and that factor (“inefficient use of Board resources”) weighed in favor of exercising discretion to deny institution of *inter partes* review. *Id.* at 20 (citing *Gen. Plastic* at 16–17). The facts before us in this

proceeding, however, are different. Here, based on the evidence before us, we determine that there is not substantial overlap of the obviousness issues before us with those before the ITC. Furthermore, as noted above, the ITC proceeding only concerns independent claims 1 and 9 of the '011 patent, whereas the claims challenged in the Petition are claims 1–11 of the '394 patent. As such, we determine that the facts before us are distinguished from those in *NHK*.

Accordingly, based on the record before us, we have weighed all of the factors for exercising our discretion to deny institution of *inter partes* review and we are not persuaded we should deny institution under § 314(a) on the basis of the ITC proceeding.

b. Multiple Petitions

Patent Owner further argues the four petitions against the '394 patent are cumulative to each other and would result in redundant proceedings. Prelim. Resp. 39. Patent Owner argues “Comcast fails to explain why any of the distinctions it raises [between the four petitions] are even material.” *Id.* at 41.

On April 26, 2019, we issued an Order requiring that Petitioner provide a Notice ranking the four petitions in the '394 proceedings in the order in which Petitioner wishes the panel to consider the merits, in the event that the Board uses its discretion to institute any of the petitions. Paper 11 (hereafter, “Order”). The Order also required Petitioner to provide a succinct explanation of the differences between the petitions in each set of proceedings, why the differences are material, and why the Board should exercise its discretion to consider instituting more than one petition. *Id.* at 4. We also provided Patent Owner the opportunity to respond. *Id.*

Pursuant to our Order, Petitioner filed a Notice Ranking Petitions and requests we consider the Petition in the instant proceeding second and the petition in IPR2019-00290 first. Paper 12, 1, 3 (hereafter, “Notice”). Petitioner points out that Patent Owner may be able to antedate one of the references in IPR2019-00290, but contends the prior art asserted in this Petition cannot be antedated. *Id.* at 3. Patent Owner filed a Response to Notice Ranking Petitions and does not take a position on the relative strength of the petitions beyond what is set forth in the Preliminary Responses. Paper 13, 5 (hereafter “Response to Notice”). Nor does Patent Owner assert that it will not try to antedate the reference in IPR2019-00290. *See generally id.*

Here, we agree with Patent Owner that when a patent is challenged by multiple petitions at the same time, as is the case for the collective group of petitions filed against the ’394 patent, this may place an unfair burden on the patent owner and can undermine the Office’s ability to complete proceedings in a timely manner. *See Office Patent Trial Practice Guide*, August 2018 Update, 83 Fed. Reg. 39,989, 10 (August 13, 2018), <https://go.usa.gov/xU7GP>; *cf. Gen. Plastic* at 16 (requiring the Board to consider ability to meet statutory deadlines as an institution factor); 37 C.F.R. § 42.1(b) (“[The rules] shall be construed to secure the just, speedy, and inexpensive resolution of every proceeding.”); *see also* Prelim. Resp. 39–42; Response to Notice. Consistent with this reasoning, and for the reasons set forth in a consolidated decision in IPR2019-00291 and IPR2019-00293 issued concurrently with this Decision, we deny institution of *inter*

partes review in IPR2019-00291 and IPR2019-00293, which also challenge the '394 patent.

We have determined to institute *inter partes* review of two Petitions: (1) IPR2019-00290, ranked first by Petitioner, and (2) IPR 2019-00292, ranked second by Petitioner. *See* Notice 1. We have done so in view of the specific circumstances of the cases. Petitioner identifies that in IPR2019-00290 Patent Owner may present arguments to antedate a prior art reference relied on in the ground of unpatentability presented. Notice 3. Patent Owner has not indicated whether it will present arguments and evidence to antedate that prior art reference. *See* Response to Notice. Patent Owner does, however, argue that Petitioner “was not required to rely on art that Veveo can antedate,” and Petitioner’s ranking is a “transparent attempt to steer the Board towards instituting on more than one Petition.” Response to Notice 4. We are not persuaded by Patent Owner’s argument because Petitioner clearly identifies the differences between the prior art references relied on in each Petition (Notice 1–5), and we see no evidence that Petitioner attempts to “steer the Board towards instituting on more than one Petition.” Petitioner further identifies that the Petitions present different arguments and evidence, including different claim construction arguments as applied to the prior art, towards the “determining” step of claim 1. Notice 1–5. We are persuaded that the potential to antedate a reference relied on in a Petition and claim construction arguments resulting in different manner of application of the prior art are material differences between the submitted Petitions, and these differences warrant institution of *inter partes* review of a second petition. In our view, institution of IPR2019-00290 and IPR2019-00292 sufficiently addresses all of the material differences identified by

Petitioner in the Notice. Accordingly, in addition to instituting *inter partes* review in IPR2019-00290 (for which we issue a separate decision), we have determined to institute *inter partes* review of this second petition – IPR2019-00292, which was ranked second by Petitioner.

For the reasons given herein, we conclude in the instant proceeding that Petitioner establishes a reasonable likelihood of prevailing in demonstrating the unpatentability of claims 1–11 of the '394 patent. In view of the denial of two other petitions in the collective group of petitions filed against the '394 patent, we find the circumstances do not warrant denying institution in this proceeding as well.

Accordingly, we decline to exercise our discretion to deny institution under 35 U.S.C. § 314(a).

B. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103(a) if, to one of ordinary skill in the pertinent art, “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.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). The question of obviousness is resolved based on underlying factual determinations, including the “scope and content of the prior art,” “differences between the prior art and the claims at issue,” “the level of ordinary skill in the pertinent art,” and objective evidence of

nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To establish obviousness, a petitioner must “demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (internal quotation marks omitted); *see also KSR*, 550 U.S. at 418 (for an obviousness analysis, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does”). A motivation to combine the teachings of two references can be “found explicitly or implicitly in market forces; design incentives; the ‘interrelated teachings of multiple patents’; ‘any need or problem known in the field of endeavor at the time of invention and addressed by the patent’; and the background knowledge, creativity, and common sense of the person of ordinary skill.” *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354 (Fed. Cir. 2013) (citation omitted). Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’” (citation omitted)).

C. *Level of Ordinary Skill in the Art*

Petitioner asserts a person of ordinary skill in the art “would have had at least a bachelor’s degree in computer science and at least two years of experience in the field of search-query processing spent designing, constructing, and/or testing systems that utilize data and/or information search techniques.” Pet. 16 (citing Ex. 1214 ¶¶ 42–46). Patent Owner does not dispute Petitioner’s proposed level of ordinary skill or propose an alternative. *See generally* Prelim. Resp. Based on the current record, the subject matter at issue, and the prior art of record, we determine that Petitioner’s proposed level of ordinary skill in the art is reasonable. We adopt Petitioner’s proposed level for the purposes of determining whether to institute an *inter partes* review.

D. *Claim Interpretation*

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear.⁴ 37 C.F.R. § 42.100(b); *see In re Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Under that standard, and unless the record shows otherwise, we give claim terms their ordinary and customary meaning, as they would be understood by one of ordinary skill in the art in the context of the patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any

⁴ This Petition was filed on November 12, 2018. A different claim construction standard applies to petitions filed on or after November 13, 2018. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Nov. 13, 2018) (to be codified at 37 C.F.R. pt. 42).

special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner contends the terms “directly mapped,” “letters and numbers,” and “caused said items to be associated with the strings of one or more unresolved keystrokes that are directly mapped to said subset” in claim 1 require construction. *See Pet.* 9–16.

We determine that, at this stage of this proceeding, there is no need to expressly construe these claim terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017), *cert. denied*, 138 S. Ct. 1695 (April 30, 2018) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’”) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

E. Summary of Prior Art

1. Gross (Ex. 1211)

Gross is titled “Methods and Systems for Search Indexing” and generally describes methods and systems for quick and efficient searching. Ex. 1211, [54], Abstract. Gross provides for incremental or reactive searching, which allows search results to be provided and narrowed substantially immediately after each character in a search string is entered by a user, thus providing the user with immediate visual feedback. Ex. 1211 ¶¶ 10, 29.

Gross’s search application includes an index engine that creates indexes of the potential search targets. *Id.* ¶¶ 38, 175. “The index includes a

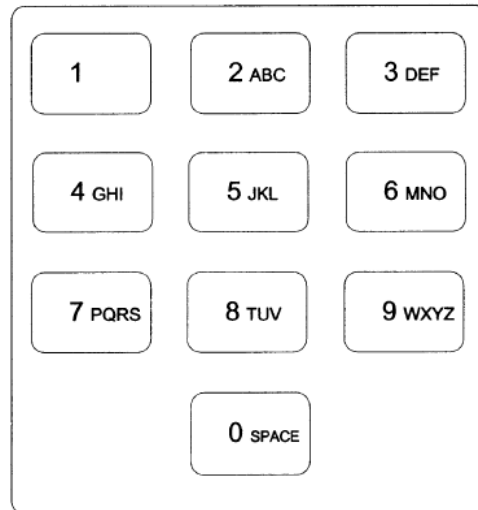
data structure that associates character strings with files, documents, and the like.” *Id.* ¶ 40. “In one example embodiment, for each word or character string found with[in] a file or document, the index stores which field of which documents or files contain that word or character string.” *Id.* In addition to complete words, the index may also store “prefix” entries, such as “d” or “do,” which will enhance the speed of response for the first letter or two of a filtering or search operation. *Id.* ¶ 51. “The ‘d’ prefix entry contains information indicating which documents or files contain a word or character string starting with ‘d.’” *Id.* In response to a query, the search engine accesses the index and locates corresponding matches. *Id.* ¶ 58. The search results are displayed to the user in the list pane or area, and the view area or pane displays the contents of the first item or a selected item from the list area. *Id.* ¶ 48. Gross also teaches that the first matching character or character string in the search results may be highlighted or otherwise emphasized. *Id.* ¶ 49.

2. Smith (Ex. 1213)

Smith is titled “Methods and Apparatus for Using a Modified Index to Provide Search Results in Response to an Ambiguous Search Query” and generally “allows a user to submit an ambiguous search query and to receive potentially disambiguated search results.” Ex. 1213, [54], Abstract.

Smith explains that the data input interface in certain devices, such as wireless telephones, may result in a particular action by a user (e.g., pressing a key) corresponding to more than one alphanumeric character. *Id.* at 1:27–30. For example, pressing the number 2 on a telephone keypad may

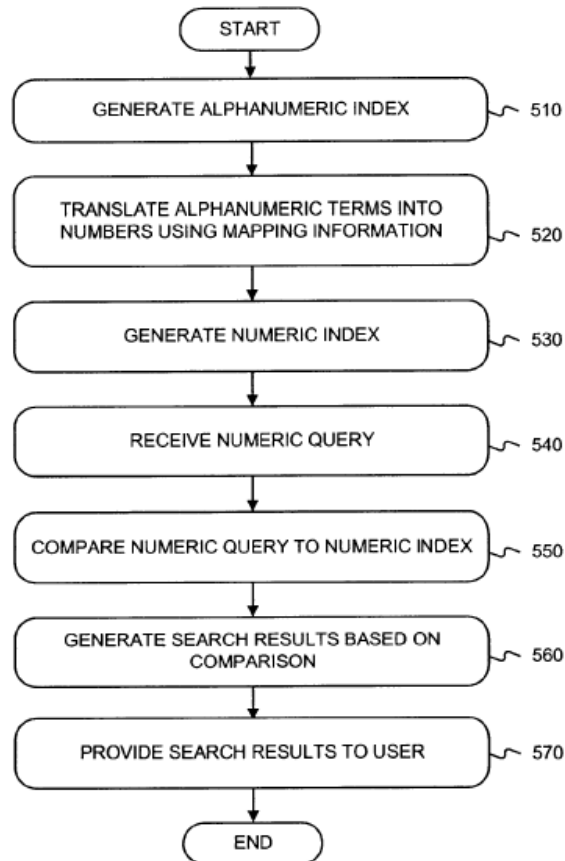
correspond to the number “2” or the letters “A,” “B”, or “C.” *Id.* at Fig. 5B. Such a keypad is illustrated below in Figure 5B of Smith.



Therefore, with conventional search methods, the “user may be required to press multiple keys to select a particular letter,” which can be inefficient. *Id.* at 1:37–39, 1:62–63.

Smith seeks to resolve these problems by “generating a numeric index based on the mapping of a standard telephone handset.” *Id.* at 4:63–65. Smith describes generating an alphanumeric index of terms corresponding to documents to be searched. *Id.* at 5:1–3, Fig. 4A. The alphanumeric terms in the index are then translated into their numeric equivalents using mapping information corresponding to a standard telephone handset. *Id.* at 5:5–7. For example, “the alphanumeric term ‘car’ is translated into the numeric term ‘227’.” *Id.* at 5:10–11. Then, “a numeric index is generated based on the translated terms” that corresponds to each document. *Id.* at 5:20–24. The user’s search query (e.g., “227”) is compared to the numeric index and the corresponding documents are provided to the user as search results. *Id.* at 2:62–64. Figure 5A of Smith, depicted below, illustrates Smith’s

technique for providing search results in response to an ambiguous search query:



3. Sanders (Ex. 1210)

Sanders is titled “Free Text and Attribute Searching of Electronic Program Guide (EPG) Data,” and generally describes a search engine for electronic program guide (EPG) data. Ex. 1210, [54], Abstract. In particular, Sanders describes “stemming,” which is “a process of removing prefixes and/or suffixes from a search term to allow the root of the search term to proxy for the original search term.” *Id.* at 6:43–46. For example, the word “divine” can be stemmed so it matches “divinity,” “divination,” or “diviner.” *Id.* at 6:46–48. Search hits may be ranked so that results can be sorted for display so that the most likely results are presented first. *Id.* at

11:52–55. For example, exact matches of the search term may be ranked higher than hits that only match the text to be searched after stemming. *Id.* at 11:56–62.

4. Weeren (Ex. 1225)

Weeren is titled “Providing Blended Interface for Wireless Information Services” and is generally directed to “a user interface between a wireless communication device and an information service provider.” Ex. 1225, [54], Abstract. The user interface may access and supply information from databases, and is applicable to conventional wired telephones as well. *Id.* at 3:7–10, 5:3–7.

F. Grounds Based on Gross and Smith

Petitioner contends claims 1, 2, 4, 6, 10, and 11 would have been obvious over the combination of Gross and Smith. Pet. 28–64.

1. Claim 1

Upon review of the evidence in the current record and the parties’ contentions at this preliminary stage in the proceeding, we determine that Petitioner has demonstrated a reasonable likelihood, on this record, that the combination of Gross and Smith teaches each limitation of claim 1 and has provided sufficient rationale for combining the prior art.

The preamble of claim 1 recites [a] method of processing unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character, the unresolved keystroke entries being directed at identifying an item from a set of items, each of the items being associated with information describing the item comprising one or more words, the method comprising:

Ex. 1221, 8:44–50. Petitioner contends the combination of Gross and Smith teaches the preamble. Pet. 28–29. Specifically, Petitioner asserts Gross discloses a system for searching, e.g., emails and files, that “includes an index engine with a data structure that associates information regarding files, documents, and the like with character strings.” *Id.* at 29 (citing Ex. 1211 ¶¶ 10, 38, 40; Ex. 1214 ¶ 123). Petitioner explains “[e]ach item is indexed and can be searched by information” and the “[l]etters and words in these various searchable fields are mapped to the search query strings entered by the user.” *Id.* (citing Ex. 1211 ¶¶ 103, 111, 135; Ex. 1214 ¶ 123).

Petitioner contends “Gross explains that indexed strings can be input via a computer-networkable wireless phone, which suggests the use of ‘unresolved keystroke entries . . . from a keypad with overloaded keys.’” *Id.* (citing Ex. 1211 ¶ 60; Ex. 1214 ¶¶ 124–125). However, Petitioner asserts Smith explicitly discloses the “unresolved keystroke entries by a user from a keypad with overloaded keys in which a given key is in fixed association with a number and at least one alphabetic character.” *Id.* at 31 (citing Ex. 1213, 5:7–19, Fig. 5B; Ex. 1214 ¶¶ 126–127). Petitioner explains “[i]n Smith, overloaded key inputs are used to conduct searches using a numeric index that maps the numeric inputs from the overloaded keypad to search results.” *Id.* at 31 (citing Ex. 1213, 1:62–2:22, 5:20–42, Figs. 4A, 5A, 5C).

Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that there is a reasonable likelihood that the preamble is taught by Gross and Smith.⁵ Petitioner’s contentions regarding the rationale

⁵ A preamble does not necessarily limit a claim. On this record, neither party argues whether the preamble limits claim 1.

for combining Gross and Smith, as well as Patent Owner's arguments against the combination, will be addressed below. *See infra* Section III.F.2.

Limitation [a] of claim 1 recites “providing access to an index of the items, the index having an association between subsets of the items and corresponding strings of one or more unresolved keystrokes for overloaded keys so that the subsets of items are directly mapped to the corresponding strings of unresolved keystrokes for various search query prefix substrings.” Ex. 1221, 8:51–57. Petitioner contends Gross in combination with Smith teaches this limitation. Pet. 34.

Specifically, Petitioner contends Gross provides for incremental searching through use of an index that “includes a data structure that associates character strings with files, documents, and [the] like.” *Id.* at 35–36 (citing Ex. 1211 ¶¶ 10–12, 29, 31, 38, 40, 45, 46, 48–51, 58, 103–107, 111, 112, 149; Ex. 1214 ¶¶ 135–138). Petitioner argues Gross describes “for each word or character string found with a file or document, the index stores which fields of which documents or files contain that word or character string.” *Id.* at 36 (citing Ex. 1211 ¶ 40). In support, Petitioner points to paragraph 51 of Gross, which states “in addition to bare or complete words, such as ‘dog,’ common prefixes, such as ‘d’ or ‘do’, are stored as well. The ‘d’ prefix entry contains information indicating which documents or files contain a word or character string starting with ‘d.’” *Id.* (citing Ex. 1211 ¶ 51; Ex. 1214 ¶ 138) (emphasis omitted). Petitioner contends “each alphanumeric character of a search query prefix substring associated with an item is matched, based on direct mapping in the index, to alphanumeric characters being entered by the user.” *Id.* at 37 (citing Ex. 1211 ¶¶ 45–47, 51, 68, 82, 83, 124, 131, 135, 137, 149, 150, 165, 170, 177; Ex. 1214 ¶ 138).

Petitioner explains that although “Gross discloses an alphanumeric index, it does not explicitly disclose an index that maps the index items to numeric key equivalents of queries entered by a user.” *Id.* at 37. However, Petitioner relies on Smith to disclose “an index that maps subsets of items to numeric key equivalents, and uses an alphanumeric index to generate an index for numeric key equivalents.” *Id.* at 37 (citing Ex. 1214 ¶¶ 139–140). Petitioner contends “[o]nce the numeric index is generated, indexed items are directly mapped to the numbers corresponding to overloaded keystrokes.” *Id.* at 37–38 (citing Ex. 1213, 5:20–62, Fig. 5C; Ex. 1214 ¶ 140). Petitioner explains “[t]o create the numeric index, Smith translates alphanumeric terms in an index[.]” *Id.* at 39.

Petitioner contends a POSA would modify “Gross’s index to directly map subsets of items to the numeric key equivalent (i.e., unresolved keystrokes for overloaded keys) that could be entered by a user who was using an overloaded keypad.” *Id.* at 39 (citing Ex. 1214 ¶¶ 141–153); *see also id.* at 42–43. Petitioner explains “[i]n the Gross/Smith combined system’s numeric index, subsets of items associated with words beginning with ‘3’, ‘d’, ‘e’, and ‘f’ would all be directly mapped to ‘3,’ since ‘3’ is the numeric equivalent of ‘d,’ ‘d,’ ‘e,’ and ‘f’ on an overloaded keyboard.” *Id.* at 41 (citing Ex. 1214 ¶ 146). Petitioner further explains “the subsets of items associated with words beginning with ‘do’ would be directly mapped to ‘36,’ so that as the user entered more of the search query (i.e., ‘3’ then ‘36’), the results would be more narrowly filtered.” *Id.* (citing Ex. 1214 ¶¶ 141–152). Therefore, Petitioner argues the Gross/Smith combination

meets the proposed construction of ‘directly mapped’ because ‘each alphanumeric character of a search query prefix substring associated with an item’ (e.g., the characters ‘d,’ ‘do,’ or ‘dog,’

which are associated with items in a subset) ‘is matched with its corresponding numeric key equivalent on an overloaded keypad’ (e.g., the index maps ‘36’ to the items associated with ‘DM,’ ‘DN,’ ‘DO,’ etc.).

Id. (citing Ex. 1214 ¶ 152).

Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that there is a reasonable likelihood that this limitation is obvious over the combination of Gross and Smith.

Limitation 1[b] of claim 1 recites “for at least one subset of items, determining which letters and numbers present in the information associated with and describing the indexed items of the subset caused the items to be associated with the strings of one or more unresolved keystrokes that directly mapped to the subset.” Ex. 1221, 8:58–63. Petitioner contends the combination of Gross and Smith teaches this limitation. Pet. 43.

Petitioner asserts “Gross, combined with Smith, teaches this in conjunction with displaying highlighted search results.” *Id.* at 44. Petitioner argues “Gross discloses highlighting characters that matched keystroke entries during an incremental search,” so, therefore, “highlights each corresponding character of the search results that were determined to have caused the match to the search query.” *Id.* (citing Ex. 1211 ¶¶ 49, 107, 114, 120, 149; Ex. 1214 ¶¶ 164–165). Petitioner explains “[t]he Gross/Smith system, therefore, determines which characters match a string of unresolved keystrokes directly mapped to the subset (e.g., if a user types ‘364,’ the system highlights matching characters ‘dog’).” *Id.* (citing Ex. 1214 ¶¶ 164–165). Petitioner contends “[u]sing Gross’s highlighting technique in the Gross/Smith system results in the ‘determining’ being performed.” *Id.* (citing Ex. 1214 ¶¶ 164–165); *see also* Pet. 45. Petitioner further argues “[a]

POSA with ordinary creativity would have recognized that incorporating Gross's highlighting technique in the Gross/Smith system would require determining which alphanumeric characters to highlight." *Id.* at 44 (citing Ex. 1214 ¶ 165).

Patent Owner argues "[d]etermining' is not inherent in Gross's highlighting functionality and the combination of Gross and Smith otherwise fails to teach or suggest 'determining which letters and numbers . . . caused the items to be associated' and 'highlighting the letters and numbers.'" Prelim. Resp. 25; *see also id.* at 29 ("Gross highlights letters and numbers in a set of search results *without* first making any determination about the association between strings of unresolved keystrokes and information associated with items.") Patent Owner argues "the claims require first determining *which* letters and numbers caused a direct mapping to occur and then highlighting *those letters and numbers* in the results." *Id.* at 26 (emphasis in original). With respect to Gross, Patent Owner argues "Gross has no need to determine which letters and numbers caused a direct mapping to occur because Gross is not concerned with ambiguous keystrokes" and, therefore, "Gross's highlighting does not teach or suggest 'highlighting *the* letters and numbers' determined to have caused the direct mapping to occur." *Id.* at 27. Patent Owner further argues "[n]or does adding Smith make any difference. Smith does not map its indexed items to the corresponding strings of unresolved keystrokes. Rather, Smith maps only entire terms (e.g., 'car') to a numeric equivalent." *Id.* at 28 (citing Ex. 1213, 5:10–14, Fig. 5B) (emphasis omitted). Patent Owner argues "Smith does not map information *describing the item*. Rather, Smith maps terms contained *within* documents." *Id.* (citing Ex. 1213, 4:20–40).

Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that there is a reasonable likelihood that this limitation is obvious over the combination of Gross and Smith. Patent Owner’s arguments that Gross and Smith fail to teach the limitation suffer from the same flaw—nonobviousness cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Petitioner relies on a combination of Gross and Smith to meet the claimed limitation, and Patent Owner’s criticisms of Gross and Smith are not responsive to the proposed ground of unpatentability. Here, Petitioner acknowledges that Gross does not expressly teach, and at most only suggests, the use of “unresolved keystroke entries . . . from a keypad with overloaded keys.” Pet. 29. Accordingly, Petitioner modifies Gross with Smith’s teaching of a set of overloaded keys as the input device. *See id.* at 29–34. Although Gross alone discloses highlighting the characters that matched the keystroke entries, we are satisfied Petitioner has shown that there is a reasonable likelihood that this limitation is obvious over the combined system of Gross and Smith.

Limitation 1[c] of claim 1 recites “receiving from a user a search query for desired items composed of unresolved keystrokes, the search query comprising a prefix substring for at least one word in information associated with the desired item.” Ex. 1221, 8:64–67. Petitioner contends the combination of Gross and Smith teaches this limitation. Pet. 48.

Petitioner contends “Gross’s incremental search queries are prefix substrings (the ‘d’ in ‘dog’), used to pull subsets of items from an index mapping the substring to items with information associated with the items

that match the prefix.” *Id.* at 49 (citing Ex. 1211 ¶¶ 40, 51, 118). Therefore, according to Petitioner, in Gross, “if a user searches for ‘dog,’ the first entered key corresponds to ‘d,’” whereas “[i]n the combined Gross/Smith system, the entered prefix for ‘d’ would be ‘3,’ the unresolved numeric keystroke corresponding to ‘d.’” *Id.* at 49–50 (citing Ex. 1211 ¶ 51; Ex. 1214 ¶¶ 170–171; Ex. 1213, Fig. 5A, 5:33–42).

Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that there is a reasonable likelihood that this limitation is obvious over the combination of Gross and Smith.

Limitation 1[d] recites “in response to each unresolved keystroke, identifying and displaying the subsets of items, and information associated therewith, that are associated with the strings of one or more unresolved keystrokes received from the user based on the direct mapping of strings of unresolved keystrokes to subsets of items.” Ex. 1221, 9:1–9:6. Petitioner contends the combination of Gross and Smith teaches this limitation. Pet. 50–51.

Petitioner asserts “Gross discloses an incremental search system . . . and the Gross/Smith system allows input of search queries via unresolved keystrokes on an overloaded keypad . . . , so the results of the Gross/Smith system are identified and displayed ‘in response to each unresolved keystroke.’” *Id.* at 51 (citing Ex. 1211 ¶¶ 10–12, 29, 30, 35, 51, 103, 111–113, 117–119, 123, 131, 136, 137, 141, 142, 144, 145, 149, 150, 171, 173, 174, 181, 187; Ex. 1214 ¶¶ 173–175). Petitioner argues “the identified and displayed results in Gross are the subsets of items, and information associated therewith (e.g., titles, file paths, dates, genres), associated with strings of one or more keystrokes received from the user based on direct

mapping of strings of keystrokes to subsets of items.” *Id.* at 52–53 (citing Ex. 1211 ¶¶ 40, 51, 58, Figs. 3A–3H; Ex. 1214 ¶¶ 174–177). Petitioner further argues “[i]n the Gross/Smith system, the keystrokes are unresolved keystrokes from an overloaded keypad. In Gross, the results of the search display links to the items themselves, portions of the contents of the items, or information about the items that caused the items to be returned in search results.” *Id.* at 53 (citing Ex. 1211 ¶¶ 31, 48–50, 58, 104–107).

Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that there is a reasonable likelihood that this limitation is obvious over the combination of Gross and Smith.

Limitation 1[e] of claim 1 recites,

in response to each unresolved keystroke, as the identified items are displayed, highlighting the letters and numbers present in the one or more words in the information describing the identified items that were determined to have caused the displayed items to be associated with the strings of unresolved keystrokes that are directly mapped to the items so as to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items,

Ex. 1221, 9:7–9:15. Petitioner contends the combination of Gross and Smith teaches this limitation. Pet. 53–54.

Petitioner contends “Gross discloses that search results ‘may be highlighted or otherwise emphasized.’” *Id.* at 54 (Ex. 1211 ¶¶ 49, 107, 114, 120). Petitioner points to paragraph 114 of Gross, which states “search terms will be highlighted in the list pane or area search results and/or in the view pane or area content display. The highlight can be in the form of a different coloring, the use of different fonts, blinking text, and/or the like.” *Id.* (emphasis in Petition). Petitioner explains:

In the Gross/Smith system, if a [user] wanted to search for “dog,” the user would enter “3” (corresponding to the “d” in “dog”), and then results with the word “dog” in the title, along with other “d” words, are returned with the letter “d” highlighted. Items with words associated with “e,” “f,” and “3” would also be returned, with the “e,” “f,” or “3” highlighted, respectively. Ex. 1214, ¶ 164. The user would next enter “6” (corresponding to the “o” in “dog”), and results with the word “dog” in the title, along with other “do” words, would be returned, with the “do” highlighted. *Id.* The highlighting of the search terms “illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items.” *Id.*, ¶¶ 162-165, 181.

Pet. 54–55.

Other than as set forth above in the discussion of limitation 1[b], Patent Owner does not argue separately Petitioner’s contentions for limitation 1[e] of claim 1. Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that there is a reasonable likelihood that this limitation is obvious over the combination of Gross and Smith.

2. The Combination of Gross and Smith

Upon review of the evidence in the current record and the parties’ contentions at this preliminary stage in the proceeding, we determine that Petitioner has shown sufficiently for purposes of this Decision that a person of ordinary skill in the art would have had reason, with rational underpinning, to combine Gross and Smith in the manner Petitioner proposes.

As discussed above, Petitioner combines Smith’s teaching of an overloaded keyboard for input and a numeric index to provide search results in response to an ambiguous search query by translating alphanumeric terms in an index into their numeric equivalents with Gross’s teaching of an index that includes a data structure associating files, documents, and the like with

character strings, providing for incremental searching and presentation of results substantially immediately after each character in a search string is entered by a user. Pet. 29–34.

Petitioner contends “[i]t would have been obvious to combine Gross’s search system using a wireless phone with Smith’s search system to efficiently search using a keypad with overloaded keys.” Pet. 32 (citing Ex. 1213, 2:1–3; Ex. 1214 ¶¶ 128–132); *see also id.* at 42. Petitioner explains “Smith converts alphanumeric indexes (as described by Gross) to numeric indexes useful for when a user has an overloaded keypad.” *Id.* at 32. “A POSA would have been motivated to combine Gross with Smith’s more efficient input and indexing method to improve the speed and efficiency of Gross’s searching using an overloaded keypad.” *Id.* (citing Ex. 1214 ¶ 128); *see also id.* at 33–34, 43. Petitioner further argues the combination “would reduce the keystrokes necessary to find matching items, compared to pressing each key of an overloaded keypad multiple times to enter a single alphanumeric character, and thus improve a user’s search experience.” *Id.* at 34 (citing Ex. 1214 ¶ 129). Petitioner asserts that “[a]ll claimed elements were known in the prior art, and a POSA would have combined them by known methods ‘with no change in their respective functions,’” and, therefore, “[t]he combination . . . does no more than yield predictable results.” *Id.* at 32 (citing Ex. 1214 ¶ 129); *see also* Pet. 42.

Patent Owner argues “combining Smith’s numeric index into Gross would introduce several additional processing steps, contradicting Gross’s stated goal of providing ‘quick and efficient searching.’” Prelim. Resp. 29–30 (citing Ex. 1211, Abstract). According to Patent Owner, Gross’s search system stores “‘common prefixes, such as ‘d’ or ‘do’ in an index, which

allows it to map keystroke queries to search results without the need for any translation processing,” so “adding another layer of indexing to Gross from Smith would add expensive translation processing steps.” *Id.* at 30. Patent Owner further asserts “[a] POSA would therefore understand that adding any indexing steps, and associated translation, from Smith into Gross would introduce inefficiencies and slow down its searching and highlighting processes,” and, therefore, “the combination lacks rational underpinning.” *Id.* at 31 (citing *KSR*, 550 U.S. at 418). Patent Owner also argues “the indexing scheme in Smith . . . admittedly results in some degree of sustained ambiguity,” while “Gross’s one-to-one mapping of input to highlighting is designed [to] avoid highlighting characters in a way that, as Comcast puts it, would ‘undesirably confuse the user.’” *Id.* (citing Pet. 45). Therefore, Patent Owner argues “the proposed combination would not work and Gross would be rendered inoperable for its intended purpose of providing fast search results and highlighting search results based on a one-to-one mapping.” *Id.* (citing *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326 (Fed. Cir. 2009) (explaining that an obviousness combination cannot render the art being combined inoperable for its intended purpose); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

At this stage, Patent Owner’s arguments that the modification introduces inefficiencies and ambiguities are not persuasive. Even if the modified system is not as efficient, merely because some other alternative may be more effective does not mean that a person of ordinary skill in the art would not have been motivated to make the proposed combination. *See In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (“[J]ust because better alternatives exist in the prior art does not mean that an inferior combination

is inapt for obviousness purposes.”); *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (“[O]ur case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.”).

Moreover, Patent Owner’s arguments that the modification will “introduce several additional processing steps,” and “adding another layer of indexing would add expensive translation processing steps” lack evidentiary support. Dr. Fox provided testimony that “a POSA would have found the modification to be a straightforward application of Smith’s teaching to Gross.” Ex. 1214 ¶ 128; *see also* ¶ 130 (“a POSA would have recognized, from Smith’s description of a numeric index and comparing a numeric query to the numeric index, how to modify Gross’s system (e.g., by modifying Gross’s software) to use numeric indexes and numeric queries.”). Dr. Fox also testified that the combination does not require a change to Gross’s or Smith’s functions. *Id.* ¶ 128. At this time, Patent Owner provides only attorney argument on this issue without supporting expert testimony. We, therefore, decline to afford less weight to Petitioner’s arguments, which are based on expert testimony, as compared to Patent Owner’s attorney arguments.

In summary, based on the record at this preliminary stage, we are persuaded by Petitioner’s showing for all recitations in claim 1. Also, we are persuaded that Petitioner has offered articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified and combined the teachings of the asserted art in the manner proposed by Petitioner. Accordingly, for the reasons given and on the record before us, we determine that Petitioner has shown a reasonable likelihood that it would

prevail in establishing that claim 1 is obvious over the combination of Gross and Smith.

3. Claim 2

Claim 2 depends from claim 1 and recites “wherein highlighting the letters and numbers comprises highlighting by coloring, bolding, italicizing, underlining, or changing to a different font, or some combination thereof.” Ex. 1221, 9:17–20. Petitioner relies on Gross, which states “highlighting can be in the form of a different coloring, the use of different fonts, blinking text, and/or the like.” Pet. 56 (citing Ex. 1211 ¶¶ 114, 49, 107; Ex. 1214 ¶ 184). Patent Owner does not argue separately Petitioner’s contentions for claim 2. Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that the further recitations in claim 2 are taught by Gross.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 2 of the ’394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross and Smith.

4. Claim 4

Claim 4 depends from claim 1 and recites “wherein the search query is processed by a server system remote from said user.” Ex. 1221, 10:5–6. Petitioner relies on Gross for the teaching the limitation of this claim, particularly its disclosure that its system may be implemented by a server-based search application. Pet. 57–59 (citing Ex. 1211 ¶¶ 8, 35, 80, 173–185, Figs. 1, 5, 6; Ex. 1214 ¶¶ 185, 186). Patent Owner does not argue separately Petitioner’s contentions for claim 4. Based on the record at this preliminary

stage, we are persuaded by Petitioner's showing that the further recitations in claim 4 are taught by Gross.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 4 of the '394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross and Smith.

5. Claim 5

Claim 5 depends from claim 1 and recites "wherein the search query is processed by a device operated by said user." Ex. 1221, 10:7–8. Petitioner relies on Gross for the teaching of the limitation of this claim, and particularly Gross's disclosure that its system may be implemented by a "client-based search application . . . where indexing and searching are implemented on the user's terminal 104." Pet. 60–61 (citing Ex. 1211 ¶¶ 38, 58, 60–62, 112, 113, 118, 123, 145, Fig. 1; Ex. 1214 ¶¶ 188–190). Patent Owner does not argue separately Petitioner's contentions for claim 5. Based on the record at this preliminary stage, we are persuaded by Petitioner's showing that the further recitations in claim 5 are taught by Gross.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 5 of the '394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross and Smith.

6. Claim 6

Claim 6 depends from claim 5 and recites "wherein the device is a cell phone." Ex. 1221, 10:9–10. Petitioner relies on Gross for the teaching of the limitation of claim 8, and specifically that Gross discloses a user terminal that "can be a personal computer, an interactive television, a networkable

programmable digital assistant, a computer networkable wireless phone, and the like . . .” Pet. 61 (citing Ex. 1211 ¶ 60; Ex. 1214 ¶ 189). Petitioner contends “[a] POSA would have known that some computer networkable wireless phones were used in cellular networks (i.e., a ‘cell phone’).” *Id.* at 61–62 (citing Ex. 1214 ¶¶ 191, 192). Patent Owner does not argue separately Petitioner’s contentions for claim 6. Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that the further recitations in claim 6 are taught by Gross.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 6 of the ’394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross and Smith.

7. Claim 10

Claim 10 depends from claim 1 and recites “wherein at least some items of the set of items are product items.” Ex. 1221, 10:17–18. Petitioner relies on Gross and Smith the teaching of the limitations of claim 10. Pet. 62. Specifically, Petitioner points to Gross’s teaching of using “command words such as ‘shop,’ which allows a user to ‘find[] the lowest online price for the product named in the following term,’” as well as Gross’s teaching of searching for books or movie show times. *Id.* (citing Ex. 1211 ¶ 153). Petitioner also points to Smith’s teaching that “an index may contain information about product items such as ‘wine,’ ‘champagne,’ ‘bar items,’ and other such information.” *Id.* at 63 (citing Ex. 1213, 4:18–25; Ex. 1214 ¶ 196). Patent Owner does not argue separately Petitioner’s contentions for claim 10. Based on the record at this preliminary stage, we are persuaded by

Petitioner's showing that the further recitations in claim 10 are taught by Gross and Smith.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 10 of the '394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross and Smith.

8. Claim 11

Claim 11 depends from claim 1 and recites "wherein identifying and displaying the subsets of items comprises identifying the subsets of items by reference to the index of the items." Ex. 1221, 10:19–21. Petitioner relies on Gross for its teachings, and specifically on Gross's teaching that "the subsets of items are identified using the index and are subsequently displayed." Pet. 64 (citing Ex. 1211 ¶¶ 38, 40, 51, 60, 103, 111, 135; Ex. 1214 ¶ 199). Patent Owner does not argue separately Petitioner's contentions for claim 11. Based on the record at this preliminary stage, we are persuaded by Petitioner's showing that the further recitations in claim 11 are taught by Gross.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 11 of the '394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross and Smith.

G. Grounds Based on Gross, Smith, and Sanders

Petitioner contends claims 3, 8, and 9 would have been obvious over the combination of Gross, Smith, and Sanders. Pet. 64–72.

1. Claim 3

Claim 3 depends from claim 1 and recites “wherein the items of the subsets of items displayed are ordered when displayed such that items having single-word and multi-word term matches between the information associated with and describing those items and the unresolved keystrokes of the search query received from the user are displayed before items having single-word or multi-word abbreviation matches.” Ex. 1221, 9:21–10:4. Petitioner relies on Sanders to teach the limitations in claim 3. Pet. 65.

Petitioner explains that “Gross contemplates ordering displayed items according to relevancy to the user.” *Id.* at 66 (citing Ex. 1214 ¶ 204; Ex. 1211 ¶ 81). Petitioner explains that Sanders, like Gross, discloses “that search results can ‘be ranked so that hit results can be sorted for display in such a way as to present the most likely results first.’” *Id.* (Ex. 1210, 11:52–57). Petitioner asserts that “Sanders discloses that one way of ranking the search results is by ranking exact matches before matches of stemmed (i.e., abbreviated) words.” *Id.* (Ex. 1210, 11:59–62; Ex. 1214 ¶ 207). Petitioner contends “a POSA would have understood that Sander’s description of ranking exact matches of search terms before stemming matches shows ordering items having single-word or multi-word term matches before items having single-word or multi-word abbreviation matches.” *Id.* at 67 (citing Ex. 1214 ¶¶ 207–209).

Petitioner contends it would have been obvious to modify the Gross/Smith combination with Sanders “to generate additional search results

and rank those additional search results in a way most useful to the user.” *Id.* at 68 (citing Ex. 1214 ¶¶ 210–215). According to Petitioner, although “[i]ncluding additional search results based on abbreviations (stemming) would improve the chances of finding the user’s desired item, [it] may increase the number of irrelevant results as well,” and, therefore, “a POSA would have been motivated to incorporate Sanders’s stemming and ranking techniques in order to rank exact matches above additional matches based on stemming, as taught by Sanders.” *Id.* (citing Ex. 1210, 11:59–62, Ex. 1214 ¶¶ 210–215). Petitioner also argues “a POSA would have understood that applying Sanders’s ordering criteria to the Gross/Smith combination was simply the application of a known technique to prior art ready for the improvement.” *Id.* at 69 (Ex. 1214 ¶ 215).

Patent Owner does not argue separately Petitioner’s contentions for claim 3. Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that the further recitations in claim 3 are taught by Sanders. Also, we are persuaded that Petitioner has offered articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified and combined the teachings of Gross, Smith, and Sanders in the manner proposed by Petitioner.

In summary, for the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 3 of the ’394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross, Smith, and Sanders.

2. Claim 8

Claim 8 depends from claim 5 and recites “wherein the device is a remote control device for a television.” Ex. 1221, 10:13–14. Petitioner relies on Gross, Smith, and Sanders for the teachings of the limitations of claim 5. Pet. 69. Specifically, Petitioner identifies that Gross “teaches that searching may be done via a network of interactive televisions . . . [b]ut . . . does not explicitly recite a ‘remote control device for a television.’” *Id.* at 70 (Ex. 1211 ¶¶ 32, 60; Ex. 1214 ¶ 217). Petitioner points to Sanders, which describes “that a user might use ‘a digital television system in which the user has limited inputting capability,’ and that the user might enter a search string ‘using a remote control with relatively few keys to actuate.’” *Id.* (citing Ex. 1210, 4:23–34; Ex. 1214 ¶ 218).

Petitioner contends “[a] POSA would have recognized that televisions commonly have remote control devices, particularly the interactive televisions described by Gross” and “that a remote control device, as described by Sanders, would have an overloaded keypad, as described by Smith.” *Id.* (citing Ex. 1214 ¶ 218). Petitioner asserts that “modifying Gross to allow a user to enter search queries to an interactive television by using a remote control would improve the user experience by giving the user more options for how to interact with an interactive television (e.g., compared to a television without a remote control).” *Id.* (citing Ex. 1214 ¶ 218).

Patent Owner does not argue separately Petitioner’s contentions for claim 8. Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that the further recitations in claim 8 are taught by Gross, Smith, and Sanders. Also, we are persuaded that Petitioner has

offered articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified and combined the teachings of Gross, Smith, and Sanders in the manner proposed by Petitioner.

In summary, for the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 8 of the '394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross, Smith, and Sanders.

3. Claim 9

Claim 9 depends from claim 1 and recites “wherein at least some items of the set of items are television content items.” Ex. 1221, 10:15–16. Petitioner relies on Gross, Smith and Sanders for the teachings of the limitations of claim 9. Pet. 71. Petitioner asserts that Gross discloses that a user can search for content items, services, and movie times and that the searching may be done via a network of interactive televisions, but “does not explicitly disclose searching for ‘television content items.’” *Id.* (citing Ex. 1211 ¶¶ 32, 50, 164; Ex. 1214 ¶ 1221). Petitioner contends Sanders teaches an electronic program guide database that is capable of receiving and recording television broadcasts that allows users to search for and watch television content items. *Id.* at 72 (citing Ex. 1210, 2:65–3:19; Ex. 1214 ¶ 222).

Patent Owner does not argue separately Petitioner’s contentions for claim 9. Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that the further recitations in claim 9 are taught by Gross, Smith, and Sanders. Also, we are persuaded that Petitioner has offered articulated reasoning with a rational underpinning as to why one of

ordinary skill in the art would have modified and combined the teachings of Gross, Smith, and Sanders in the manner proposed by Petitioner.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 9 of the '394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross, Smith, and Sanders.

H. Grounds Based on Gross, Smith, and Weeren

Petitioner contends claim 7 would have been obvious over the combination of Gross, Smith, and Weeren. Pet. 73.

Claim 7 depends from claim 5 and recites “wherein the device is a desk phone.” Ex. 1221, 10:11–12. Petitioner relies on Weeren for the teachings of the limitations of claim 7, and specifically, that Weeren teaches an information retrieval system that is usable by a wireless phone or a desk phone. Ex. 1225, 5:3–22. Petitioner asserts

[b]ecause Weeren teaches that desk phones may be used to access such information and services, including ‘phone directories, locator services, retrieval services, or other information services,’ . . . a POSA would have been motivated to access the search system of Gross and Smith, which also provides such information services, to be operable with a desk phone as a client.

Pet. 73 (citing Ex. 1225, 5:16–17; Ex. 1211 ¶¶ 103, 111, 126, 128, 129, 131, 153, 155, 156; Ex. 1214 ¶¶ 225, 226). According to Petitioner, such a modification would “beneficially expand the number of devices from which the information and services provided by the search system would be available.” *Id.* at 74 (citing Ex. 1214 ¶ 227). Further, Petitioner explains the combination is “nothing more than the ‘mere application of a known technique’ (accessing search services via a desk phone) to the Gross/Smith

system, which was ‘ready for the improvement’” and “would have yielded predictable results because a desk phone was a known alternative to a wireless phone.” *Id.* at 74 (citing Ex. 1214 ¶ 227; Ex. 1211 ¶ 60, Ex. 1225, 5:3–22).

Patent Owner does not argue separately Petitioner’s contentions for claim 7. Based on the record at this preliminary stage, we are persuaded by Petitioner’s showing that the further recitations in claim 7 are taught by Weeren. Also, we are persuaded that Petitioner has offered articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have modified and combined the teachings of Gross, Smith, and Weeren in the manner proposed by Petitioner.

For the reasons given and on the record before us at this time, we determine Petitioner has shown a reasonable likelihood that it would prevail in establishing that dependent claim 3 of the ’394 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Gross, Smith, and Weeren.

IV. CONCLUSION

For the foregoing reasons, we determine Petitioner has demonstrated a reasonable likelihood of establishing the unpatentability of claims 1–11 of the ’394 patent based on the grounds asserted in the Petition. At this preliminary stage, no final determination has yet been made with regard to the patentability of any challenged claim or any underlying factual or legal issues. Any findings of fact and conclusions of law are not final, but are made for the sole purpose of determining whether Petitioner meets the threshold for initiating review. Any final decision shall be based on the full trial record, including any response timely filed by Patent Owner. Any

arguments not raised by Patent Owner in a timely-filed response shall be deemed waived, even if they were presented in the Preliminary Response.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to challenged claims 1–11 of the '394 patent for all grounds raised in the Petition.

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, the trial commencing on the entry date of this Decision.

Case IPR2019-00292

Patent 7,937,394 B2

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