

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

GEOSCOPE TECHNOLOGIES PTE. LTD.,
Patent Owner.

IPR2024-00259
Patent 8,406,753 B2

Before PATRICK R. SCANLON, SHEILA F. McSHANE, and
BRIAN D. RANGE, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1, 7, 9, 32, 38, and 40 (the “challenged claims”) of U.S. Patent No. 8,406,753 B2 (Ex. 1001, “the ’753 patent”). Geoscope Technologies Pte. Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 10 (“Prelim. Resp.”).

The Board has authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the petition and the preliminary 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.”

For the reasons stated below, we determine that Petitioner has established a reasonable likelihood that it would prevail with respect to at least one claim, and we institute *inter partes* review as to all of the challenged claims of the ’753 patent and all of the asserted grounds of unpatentability in the Petition.

II. BACKGROUND

A. Related Matters

The parties identify the following matters as related to this proceeding:

Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc., No. 1:22-cv-01331-MSN (E.D. Va.) (filed Nov. 22, 2022) (“Google action”);

Geoscope Technologies Pte. Ltd. v. Apple Inc., No. 1:22-cv-01373-MSN (E.D. Va.) (filed Dec. 1, 2022) (“Apple action”); and

Google LLC v. Geoscope Technologies Pte. Ltd.,
IPR2023-01212 (PTAB).

Pet. 62–63; Paper 7, 2.

Patent Owner additionally identifies the following matters as related to this proceeding:

Google LLC v. Geoscope Technologies Pte. Ltd.,
IPR2023-01209, IPR2023-01210, and IPR2023-01211 (PTAB)
(filed Aug. 10, 2023);

Google LLC v. Geoscope Technologies Pte. Ltd.,
IPR2023-01213 (PTAB) (filed Aug. 9, 2023);

Geoscope Technologies Pte. Ltd. v. Google LLC, No.
24-1003 (Fed. Cir.) (docketed Oct. 2, 2023);

Geoscope Technologies Pte. Ltd. v. Apple, Inc., No.
24-1018 (Fed. Cir.) (docketed Oct. 5, 2023);

Apple Inc. v. Geoscope Technologies Pte. Ltd.,
IPR2024-00031 and IPR2024-00032 (filed Oct. 31, 2023);

Apple Inc. v. Geoscope Technologies Pte. Ltd.,
IPR2024-000255 (PTAB) (filed December 1, 2023); and

Apple Inc. v. Geoscope Technologies Pte. Ltd.,
IPR2024-000259 (PTAB) (filed December 6, 2023).

Paper 7, 2–3.

B. The '753 Patent (Ex. 1001)

The '753 patent, titled “System and Method for Generating A Location Estimate Using Uniform and Non-Uniform Grid Points,” issued March 26, 2013. Ex. 1001, codes (45), (54). The '753 patent “relates to the problem of estimating the location of a wireless mobile device using information from one or more Network Measurement Reports (‘NMRs’) . . . generated by a wireless communications network or the mobile device.” *Id.* at 1:15–23. As background, the '753 patent describes “a need to streamline the [location determination] process in order to efficiently and effectively handle the vast amount of data being sent between the wireless communications network and the large number of mobile devices for which locations are to be determined.” *Id.* at 2:22–26. Accordingly, the '753 patent aims to “overcome[] the limitations of the prior art by estimating the location of a wireless mobile device using . . . one or more pre-existing . . . NMRs . . . [,] which include calibration data for a number of locations within a geographic region.” *Id.* at 2:25–31.

The '753 patent explains that the method of the invention includes providing calibration data for points in a geographic region, with the calibration data including characterizing parameters such as a signal strength measurement. Ex. 1001, 51:16–19, 9:59–63. The method further includes receiving at least one NMR from a mobile device at an unknown location, generating “sets of grid points for the calibration data,” and evaluating the NMRs “with each of the sets of grid points as a function of select ones of the characterizing parameters.” *Id.* at 51:19–27. In the method, “[a] set of grid points . . . as a function of a predetermined criteria” may be selected and the location of the mobile device in the geographic region is determined “as a

function of the selected set of grid points.” *Id.* at 51:27–31. Figure 67 of the ’753 patent, reproduced below, depicts this process.

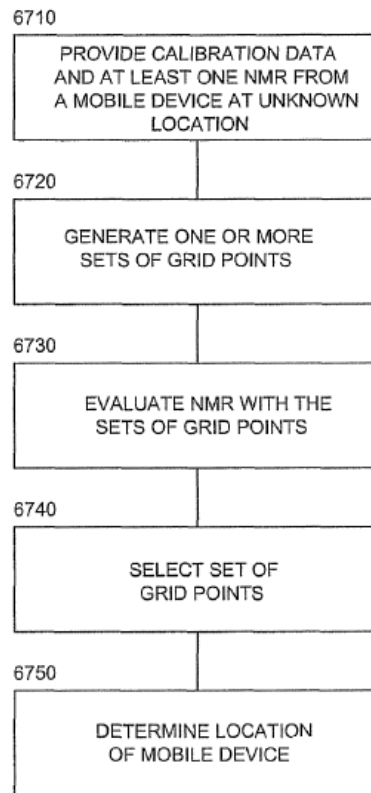


FIG. 67

Figure 67, above, depicts “a flow chart for a method of determining the location of a mobile device in a geographic region according to one embodiment.” Ex. 1001, 51:13–15.

C. The Challenged Claims

Petitioner challenges claims 1, 7, 9, 32, 38, and 40 of the ’753 patent. Pet. 6. Claims 1 and 32 are independent claims. Claim 1 is illustrative of the claimed subject matter and is reproduced below, with bracketed designations added for reference purposes.

1. [1pre] A method of determining the location of a mobile device in a geographic region comprising the steps of:

[1a] providing calibration data for each of one or more calibration points in a geographic region, said calibration data having one or more characterizing parameters;

[1b] generating one or more sets of grid points for said calibration data;

[1c] receiving at least one network measurement report from a mobile device at an unknown location in said geographic region;

[1d] evaluating said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters;

[1e] selecting a set of grid points as a function of a predetermined criteria; and

[1f] determining the location of a mobile device in said geographic region as a function of said selected set of grid points.

Ex. 1001, 59:14–31.

D. Asserted Ground of Unpatentability

Petitioner asserts the following challenges to patentability :

Claims Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1, 7, 9, 32, 38, 40	103(a)	Bhattacharya ² , Yost ³

Pet. 1.

III. DISCRETIONARY DENIAL

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

Patent Owner requests that we exercise our discretion under 35 U.S.C. § 314(a) to deny institution. Prelim. Resp. 1–16. Patent Owner generally contends that the two related district court litigations, the Google action and the Apple action, “have already resulted in final judgments based on the district court’s ruling that the asserted claims are unpatentable pursuant to 35 U.S.C. § 101.” *Id.* at 1. Patent Owner asserts that because final judgments have already been reached by the district court’s rulings, institution should be denied in view of the *Fintiv* factors. *Id.* at 2–3.

Under Section 314(a), the Director has discretion to deny institution. *See* 35 U.S.C. § 314(a) (stating “[t]he Director *may not* authorize an inter partes review to be instituted unless the Director determines that the

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the application and provisional application for the ’753 patent were filed before this date, the pre-AIA version of § 103 applies. *See* Ex. 1001, codes (22), (60). Petitioner does not dispute that the filing date of the provisional application applies at this juncture. *See* Pet. 1–2.

² U.S. Publication No. 2006/0211376 A1, published September 21, 2006 (Ex. 1004).

³ U.S. Patent No. 6,560,442 B1, issued May 6, 2003 (Ex. 1008).

information presented in the petition . . . 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”) (emphasis added); 37 C.F.R. § 42.108(a) (stating “the Board will authorize the review to proceed”); *cf. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

The Board’s precedential decision in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”) sets forth six factors that we consider as part of this balanced assessment when determining whether to use our discretion to deny institution:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Fintiv at 6. Recognizing that “there is some overlap among these factors” and that “[s]ome facts may be relevant to more than one factor,” the Board “takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* In determining whether to

discretionarily deny institution under § 314(a), the Board applies the guidance set forth in the USPTO Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (“Guidance Memo”) (June 21, 2022).⁴

The district court in the Google action and the Apple action ruled that Claims 1 and 32 of the ’753 patent are patent ineligible under § 101. Ex. 1023, 19–23; Ex. 2008, 19–23. Patent Owner appealed the district court’s patent ineligibility decisions to the United States Court of Appeals for the Federal Circuit, arguing that claims 1 and 32 of the ’753 patent are patent eligible under § 101. *See* Ex. 1024; Ex. 3001.

We consider the *Fintiv* factors in view of the status of the related district court actions and appeals.

1. Factor 1 - whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

Patent Owner asserts that the Board should exercise its discretion to deny institution because institution would be an “inefficient use of Board resources.” Prelim. Resp. 2. Patent Owner argues that the two district court litigations (the Google and Apple actions) are not just at advanced stages but, in fact, “have ***already resulted in final judgments*** stemming from the district court’s ruling that the asserted claims are unpatentable pursuant to 35 U.S.C. § 101.” *Id.* at 2–3. Patent Owner asserts that there can be no stay because “the district court ***cannot*** stay the litigation given the posture [of the district court case].” *Id.* at 7 (citing *Snap Inc. v. Blackberry Ltd.*, IPR2020-

⁴ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

00391, Paper 8 at 13 (PTAB July 13, 2020); *AviaGames, Inc. v. Skillz Platform, Inc.*, IPR2022-00530, Paper 12 at 12 (PTAB Aug. 9, 2022)).

Petitioner argues that factor 1 is neutral because there has been no request for a stay in the two district court litigations, and “the Board does ‘not attempt to predict’ how an appeals or district court might adjudicate a future motion to stay.” Pet. 56.

As an initial matter, we do not agree with Patent Owner’s arguments that because judgements have been entered in the district court actions, this suggests finality. In a similar instance in *Volvo*, where a district court’s § 101 determination was appealed to the Federal Circuit, the Director determined that the Board had the authority to institute an *inter partes* review and a *Fintiv* analysis should be performed. *See Volvo Penta of the Americas, LLC v. Brunswick Corp.*, IPR2022-01366, Paper 15 at 1–8 (PTAB May 2, 2023). The Director has additionally distinguished the *Fintiv* analysis in *AviaGames* under similar circumstances to those here, where “the district court’s judgment of invalidity under 35 U.S.C. § 101, i.e., a statutory ground that could not have been raised before the Board, does not raise concerns of inefficient duplication of efforts or potentially inconsistent results between the Board and the district court.” *AviaGames*, IPR2022-00530, Paper 14 at 3 (PTAB Mar. 2, 2023) (Decision on Director Review). Further, the Director determined that “the challenged claims have not yet been cancelled and remain in force until the opportunity to appeal has been exhausted,” noting that “[b]y the time an appeal will have concluded, Petitioner will be barred under 35 U.S.C. § 315(b) from bringing a new challenge in an IPR petition.” *Id.* at 3–4.

Fintiv states that “a district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts.” *Fintiv* at 6. In view of the circumstances, we do not discern that the § 101 issues addressed in the Federal Circuit appeal duplicate the obviousness issues addressed here. The timing of the progress of the appeal and any potential remand to the district court is uncertain. Accordingly, given the limited § 101 issues on appeal, we do not discern there are any concerns about duplication of efforts. Moreover, because of the uncertainty of the timing of any remand from the Federal Circuit to the district court to address any obviousness issues, the present circumstances with a pending appeal effectively act as a stay on the assessment of invalidity issues.

Patent Owner argues that the panel decisions in *Snap* and *AviaGames* found that factor 1, as well as factors 2–6, favor the exercise of discretionary denial. Prelim. Resp. 7–8 (citing *Snap*, IPR2020-00391, Paper 8; *AviaGames*, IPR2022-00530, Paper 12). Other panel’s decisions are not binding, but more importantly, the earlier cases did not have the benefit of the guidance provided by the Director’s decisions in *Volvo* and *AviaGames*. *Volvo*, IPR2022-01366, Paper 15; *AviaGames*, IPR2022-00530, Paper 14 (remanded to the panel only on the issue of whether the challenge’s merits were compelling).

In *AviaGames*, the Director stated that, “[i]f the Board finds the record does not rise to this high standard [compelling, meritorious challenge], the Board will exercise discretion to deny institution.” *AviaGames*, Paper 14 at 5. This statement, however, neither endorsed nor disparaged the panel decision’s analysis of the *Fintiv* factors. Rather, the Director declined to

revisit the panel’s analysis of the *Fintiv* factors and instead indicated the procedure going forward with the assumption that the analysis of those factors would be unchanged. We again emphasize that the Director explained that the *AviaGames* district court’s invalidity determination “does not raise concerns of inefficient duplication of efforts or potentially inconsistent results between the Board and the district court.” *Id.* at 3. We view the Director’s analysis regarding duplication of efforts as applicable on the facts here, and that analysis directly impacts our assessment of the *Fintiv* factors. Moreover, the Director’s analysis was unavailable to the original *AviaGames* panel.

Thus, for the reasons discussed above, we determine that this factor weighs against the exercise of discretionary denial.

2. Factor 2 - proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision

Patent Owner asserts that the district court has completed its consideration of the ’753 patent and reached its final decision in September 2023 in both the Google and Apple actions, which is months before the Board would even institute review, much less before we issue a final written decision here. Prelim. Resp. 8. Patent Owner refers to *AviaGames*, where the panel found that this factor weighed heavily in favor of denying institution. *Id.* (citing *AviaGames*, IPR2022-00530, Paper 12 at 12–13). Petitioner contends that “[n]o hearing date has been set and it is unclear if the case will ever be remanded to the District Court” in the Apple action. Pet. 56–57.

At this time, there is no district court trial date scheduled in both the Apple and Google actions. Further, the date of any potential trial related to obviousness challenges is uncertain if there is a remand after appeal, but it is

likely that any potential trial would occur after the completion of this proceeding.

Accordingly, we determine that this factor weighs against the exercise of discretionary denial.

3. Factor 3 - investment in the parallel proceeding by the court and the parties

Patent Owner asserts that the Apple action has been concluded as a result of the § 101 ruling by the district court. Prelim. Resp. 9. Patent Owner argues that prior to the § 101 ruling, the parties had already made substantial investment in the litigation. *Id.* at 10. Patent Owner contends that the district court had already issued a claim construction order and fact and expert discovery had been completed, including the conclusion of extensive written discovery, depositions of fact and expert witnesses, and expert reports addressing invalidity issues for the '753 patent. *Id.* Patent Owner further asserts that the Petition was not filed until after the investment of significant resources in the related Apple litigation. *Id.*

Petitioner asserts that it was diligent in filing the Petition, and that, “from the time Geoscope asserted five patents against Apple, Apple has diligently worked on addressing the validity of the asserted patents” by hiring counsel, conducting prior art searches, engaging an expert, and preparing this Petition, as well as several other petitions. Pet. 57. Petitioner also contends that “with the appeal process just beginning, significant investment is still needed in parallel litigation.” *Id.*

The parties in the district court proceedings have invested significant resources prior to the § 101 ruling, including the completion of claim construction and fact and expert discovery. *See* Ex. 2011. Petitioner filed the Petition in early December, 2023, and asserts diligence, but provides

general statements on the issue. Weighing these issues, we determine that this factor slightly favors discretionary denial.

4. Factor 4 - overlap between issues raised in the petition and in the parallel proceeding

Petitioner argues that the district court in the Apple action found that the independent claims of the '753 patent were patent ineligible under § 101. Pet. 58. Petitioner asserts that because any appeal of the district court's holding would be limited to §101 issues, which cannot be raised here, "there is no overlap of issues in this IPR proceeding and parallel litigation." *Id.*

Patent Owner refers to *AviaGames* and its determination that the challenged patent had already been found patent ineligible by another tribunal, which weighed in favor of exercising discretion. Prelim. Resp. 13 (citing *AviaGames*, IPR2022-00530, Paper 12 at 14). Patent Owner also argues that Petitioner disregards that it raised §§ 102 and 103 issues in the related litigation, and a substantial record on those issues has been developed. *Id.* Patent Owner contends that "even if there is no overlap between the § 101 issues on appeal and the §§ 102/103 issues raised here, that is immaterial," because, in *AviaGames*, the Board found that this factor weighs in favor of exercising discretion despite that fact. *Id.* at 13–14. Patent Owner argues that the Director left the *AviaGames*'s analysis of the *Fintiv* factors intact. *Id.* at 14.

Although the Director did not directly address the findings on the *Fintiv* factors in *AviaGames*, we find the decision is informative as to how the factors should be viewed. *AviaGames*, IPR2022-00530, Paper 14. As discussed *supra*, the decision by the Director states that, similar to the circumstances here, "the district court's judgment of invalidity under 35 U.S.C. § 101, i.e., a statutory ground that could not have been raised before

the Board, does not raise concerns of inefficient duplication of efforts or potentially inconsistent results between the Board and the district court.” *Id.* at 3. In this light, we are disinclined to adopt the panel’s view in *AviaGames* that this factor weighs in favor of exercising discretion. *See discussion of factor 1, supra.*

We consider, however, that, as discussed for factor 3, the parties have invested significant resources in related litigation where Patent Owner alleges that obviousness issues were raised. But neither party provides any evidence about the extent of the overlap between the specific issues and prior art asserted in the related litigations and those at issue here. Given the lack of evidence, we can make no determination on the extent of the overlap.

Accordingly, we determine that this factor is neutral.

5. Factor 5 - whether the petitioner and the defendant in the parallel proceeding are the same party

Petitioner here is the same as the named party in the Apple action. Accordingly, factor 5 weighs in favor of exercising our discretion to deny institution.

6. Factor 6 - other circumstances that impact the Board’s exercise of discretion, including the merits

Petitioner asserts that the merits of the Petition are compelling. Pet. 59. Patent Owner argues that the merits of Petitioner’s challenges are lacking. Prelim. Resp. 15. Patent Owner further asserts that because the challenged patent has been found invalid in the district court, this weighs in favor of denying institution. *Id.* at 15–16.

As discussed below, we determine that the merits of the Petition meet the standard for institution.

Accordingly, we determine that this factor is neutral.

7. Conclusion

The weight of factors 1 and 2 outweigh the remaining factors. Thus, based on our assessment of the *Fintiv* factors, we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny *inter partes* review.

IV. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art:

would have had at least a Bachelor's degree in electrical engineering, computer science, or a similar discipline, and at least two years of experience in the field working with working with navigation and/or geolocation systems.

Pet. 6–7 (citing Ex. 1003 ¶ 8). Petitioner also contends that additional education could compensate for less work experience and *vice versa*. *Id.* at 7. For the purposes of the Preliminary Response, Patent Owner adopts Petitioner's asserted level of ordinary skill in the art. Prelim. Resp. 26.

For the purposes of this Decision, we adopt the assessment offered by Petitioner, except for the inclusion of “at least,” as it is consistent with the '753 patent and the prior art before us. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

B. Claim Construction

In this *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2022). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of ordinary skill in the art in question at the time of

the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “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 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).

The parties agreed to the construction of some terms of the ’753 patent and district court issued claim constructions for some terms that were disputed. Ex. 1020; Ex. 1025. Petitioner uses the district court’s construction or the agreed-upon construction for the terms “calibration data,” “calibration points,” “grid point,” “network measurement report,” and the order of the “providing,” “generating,” “evaluating,” and “selecting” steps of claim 1. Pet. 7–9 (citing Ex. 1020; Ex. 1025). Petitioner proposes that all terms should be interpreted consistent with the *Phillips* standard. *Id.* at 7.

Patent Owner “does not dispute Petitioner’s statement on claim construction for the purposes of this Preliminary Response” and “reserves the right to present arguments on the constructions should the Petition be instituted.” Prelim. Resp. 26.

For the purposes of this Decision, we will use the district court’s claim constructions and those agreed-upon by the parties in the litigations, where the adoption of those constructions have been agreed to by the parties at this juncture in this proceeding. We determine that we need not expressly construe any other claim terms at this juncture. *See Realtime Data, LLC v.*

Iancu, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those 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))).

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter 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. *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 evidence, objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).⁵

D. Obviousness of Claims 1, 7, 9, 32, 38, and 40 Over Bhattacharya and Yost

Petitioner contends that claims 1, 7, 9, 32, 38, and 40 would have been obvious over the combination of Bhattacharya and Yost. Pet. 9–54. To support its contentions, Petitioner provides explanations as to how the combination of the prior art discloses each claim limitation and for the motivation to combine the references. *Id.* Petitioner also relies upon the Sundaresan Declaration (Ex. 1003) to support its positions.

⁵ No evidence of objective indicia of nonobviousness is presented by Patent Owner. *See generally* Prelim. Resp.

We begin our discussion with brief summaries of Bhattacharya and Yost, and then address the evidence and arguments presented.

1. Bhattacharya (Ex. 1004)

Bhattacharya generally relates to “[a] process and machine for estimating the location of a wireless terminal” that is “based on the observation that the signal strength of a signal from a transmitter is different at some locations” so “the location of a wireless terminal can be estimated by comparing the signal strength it currently observes against a map or database that correlates locations to signal strengths.” Ex. 1004, code (54). Figure 2, reproduced below, is an illustrative embodiment of Bhattacharya’s system. *Id.* ¶ 28.

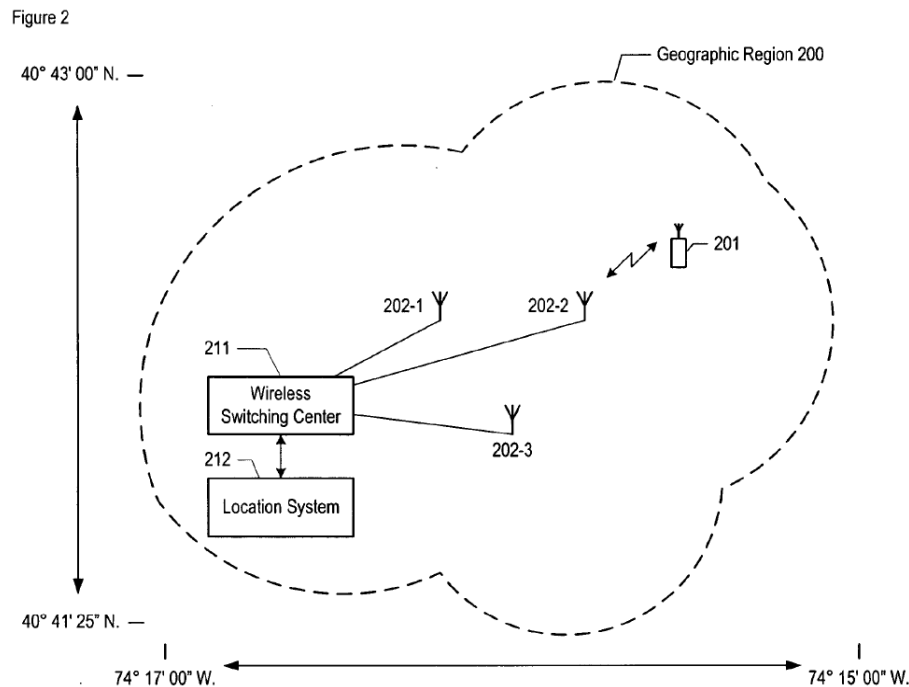


Figure 2, above, depicts a map and shows wireless switching center 211, location system 212, base stations 202-1, 202-2, and 202-3, and wireless terminal 201. Ex. 1004 ¶ 51. Location system 212 is a “data processing system that is capable of estimating the location of wireless terminal 201”

that involves receiving reports that “contain reported signal-strength measurements from wireless terminal 201 for the base stations that are on wireless terminal 201’s list of neighboring base stations.” *Id.* ¶¶ 59–60. Figure 4, reproduced below, depicts the tasks performed in estimating the location of wireless terminal 201 in geographic region 200. *Id.* ¶ 30.

Figure 4

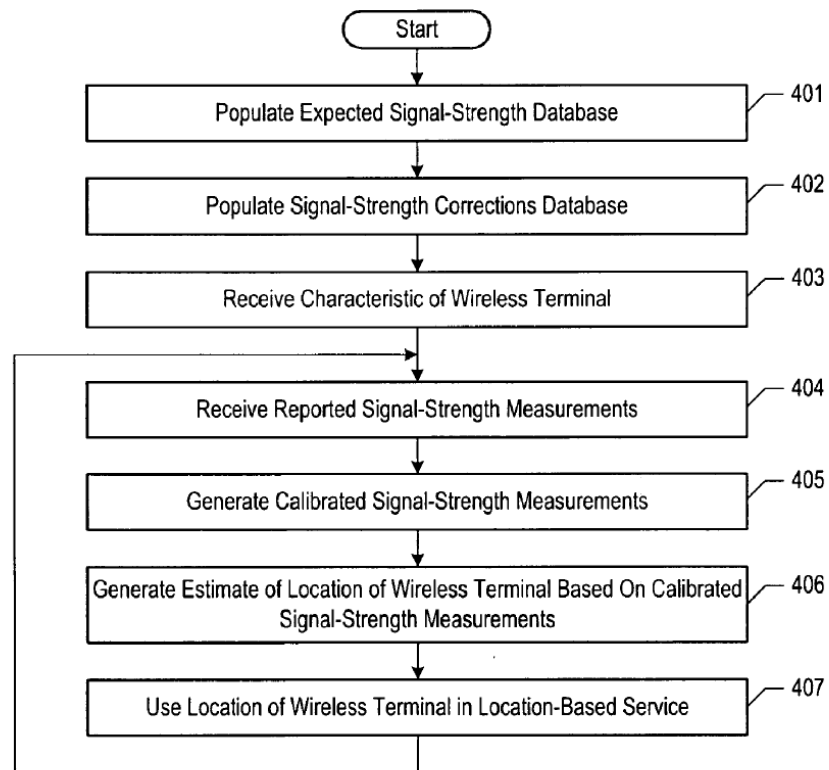


Figure 4, above, depicts the steps performed for estimating the location of wireless terminal 201 by populating an Estimated Signal-Strength Database and Signal-Strength Database; receiving the characteristic of wireless terminal 201; receiving the reported signal-strength of wireless terminal 201; generating calibrated signal-strength characteristics based on reported signal-strength measurements and the characteristic of wireless terminal

201; generating the current estimate of the location of wireless terminal 201; and using the estimated location in a location-based service. *Id.* ¶¶ 72–84.

As a subtask of task 401 in Bhattacharya, “a rectangular grid of X by Y tessellated squares is overlaid onto geographic region 200” as shown in Figure 6, reproduced below. Ex. 1004 ¶¶ 105–106.

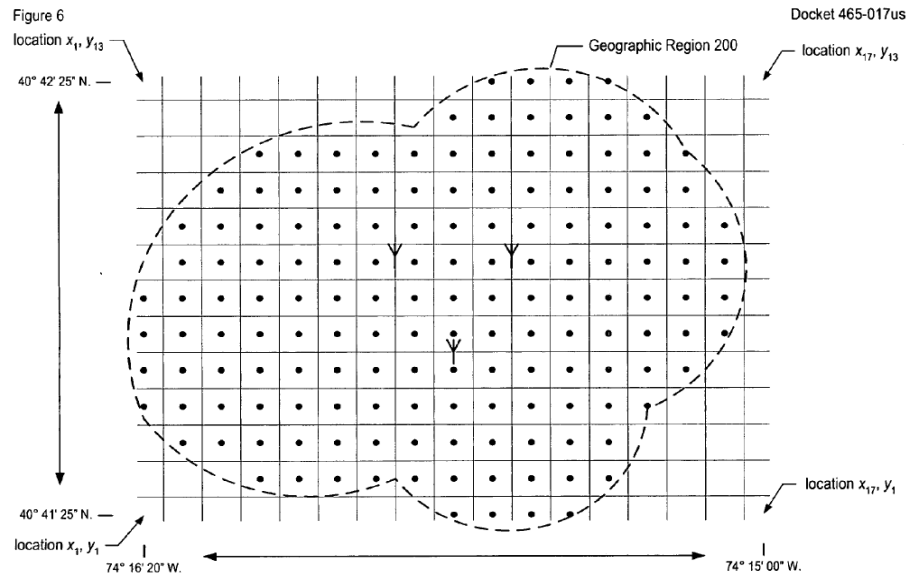


Figure 6, above, depicts a map of how geographic region 200 is partitioned. Ex. 1004 ¶ 30. As depicted in Figure 6, “the center of each square represents a location.” *Id.* ¶ 106. In the system, “expected signal-strength functions $E(1,x,y,t)$, $E(2,x,y,t)$, $E(3,x,y,t)$ ” are generated based on a combination of theoretical radio-frequency propagation models and empirical signal-strength measurements. *Id.* ¶¶ 112–117. Expected signal strength generally decreases as a function of the distance from the transmitter, however, “the topography of [a] region and the presence of buildings, trees, and other radio-frequency obstacles severely alter” the signal strength and “with time as the atmospheric and meteorological

conditions change,” so expected signal-strength functions is also a function of time. *Id.* ¶¶ 113–114.

2. Yost (Ex. 1008)

Yost is directed to a method for locating the concentration of mobile radio traffic in a coverage area. Ex. 1008, code (57). In Yost, signal strength measurements are made at test sites within the coverage area and compared with signal strength measurements taken from operating mobile radios. *Id.* There are three phases to the location estimation method: “a calibration phase, a capture phase and a data analysis phase.” *Id.* at 6:36–40. During the calibration phase, the network manager obtains calibration data for all mobile radio frequencies within the coverage area 50. *Id.* at 6:40–42. During the capture phase, signal strength measurements are made from all mobile radios within the coverage area 50. *Id.* at 6:42–44. In the data analysis phase, there is a comparison of captured data from the mobile radios with the calibration data. *Id.* at 6:45–47. Yost’s method includes determining whether conditions have changed which would require obtaining a new set of calibration data. *Id.* at 7:22–27. The calibration data containing the measured and recorded signal strength measurements are averaged and a standard set of signal strength measurements is determined, “which would apply across the coverage area of interest.” *Id.* at 7:28–33.

3. Discussion

a. Claim 1

Below we consider the claim 1 limitations in turn.

i. Preamble [1pre]

Petitioner asserts that Bhattacharya discloses “a technique for estimating the location of a wireless terminal.” Pet. 31 (citing Ex. 1004 ¶ 1).

Patent Owner presents no arguments specifically related to the preamble. *See generally* Prelim. Resp.

We have reviewed the evidence and arguments, and on this record, we preliminarily determine that Petitioner has presented sufficient evidence that Bhattacharya teaches the preamble of claim 1.⁶

ii. Limitation [1a]

Petitioner asserts that Bhattacharya and Yost teach this limitation. Pet. 32–35. Petitioner contends that Bhattacharya describes an embodiment where “the location of a wireless terminal can be estimated by comparing the signal strength it currently observes against a map or database that correlates locations to signal strengths.” *Id.* at 32 (citing Ex. 1004 ¶ 14). Petitioner asserts that the referenced database is Bhattacharya’s Expected Signal-Strength Database that “is populated with the expected signal strengths of three signals at each location in geographic region.” *Id.* at 33 (citing Ex. 1004 ¶ 85). Petitioner asserts that in Bhattacharya the expected signal strength at each location is generated by taking empirical measurements at various locations, and that Bhattacharya’s empirical measurements taken at various locations and used to generate the expected signal strength at each location is the claimed calibration data for calibration points in a geographic area. *Id.* at 33–34 (citing Ex. 1003 ¶ 74; Ex. 1004 ¶¶ 119–123). Petitioner refers to Yost as describing a known method of collecting empirical measurements, described by Bhattacharya, that includes transporting testing devices around a geographic area and measuring the

⁶ We need not determine whether the preamble of claim 1 is limiting because Petitioner has shown on a preliminary basis that the prior art teaches the preamble.

signal strength for each. *Id.* at 34 (citing Ex. 1008, 5:12–27, 5:50–60, 7:6–21).

Petitioner asserts that Bhattacharya describes that the empirical measurements may include signal strength measurements at a location. Pet. 34 (citing Ex. 1004 ¶¶ 115–117). Petitioner contends that the signal strength measurement is the claimed characterizing parameter. *Id.* Petitioner also refers to the location where the measurement is taken and the time of the measurement as characterizing parameters. *Id.* at 34–35 (citing Ex. 1004 ¶¶ 115–117).

Patent Owner presents no arguments specifically related to this limitation. *See generally* Prelim. Resp.

We have reviewed the evidence and arguments, and on this record, we preliminarily determine that Petitioner has presented sufficient evidence that Bhattacharya teaches limitation [1a].

iii. Limitation [1b]

Petitioner asserts that Bhattacharya and Yost teach this limitation. Pet. 35–38. Petitioner refers to Bhattacharya’s disclosure of empirical data that is used to generate the expected signal-strength functions, as well as its description of a rectangular grid of squares with the center of each square representing a location. *Id.* at 35 (citing Ex. 1004 ¶¶ 106, 115–117). More specifically Petitioner asserts that “Bhattacharya describes that ‘rectangular grid of X by Y tessellated squares is overlaid onto geographic region 200 (see FIG. 6) and the center of each square represents a location,’” which is consistent with the manner that the ’753 patent describes the generation of grid points. *Id.* (citing Ex. 1003 ¶ 76; Ex. 1004 ¶ 106). Petitioner asserts Bhattacharya describes associating expected signal-strength functions with

each of the grid points and that “once the expected signal-strength functions have been associated with them, the point at the center of each of these grid squares is a ‘grid point.’” *Id.* at 35–36 (citing Ex. 1003 ¶ 77; Ex. 1004 ¶¶ 106–117, 120⁷). Petitioner contends that “[t]he collection of all the generated expected signal-strength functions for each of the grid points makes up the ‘Expected Signal-Strength Database.’” *Id.* at 36 (citing Ex. 1003 ¶ 77; Ex. 1004 ¶¶ 78, 85–86, 105).

Dr. Sundaresan refers to Yost’s descriptions that “the calibration data containing the measured and recorded signal strength measurements are averaged within each of a plurality of small areas (step 82) and a standard set of signal strength measurements is determined (step 84), which would apply across the coverage area of interest” and “[t]he calibration signal strengths measure an average over small areas of a pre-determined size.” Ex. 1003 ¶ 79 (citing Ex. 1008, 7:28–33, 7:50–51). Dr. Sundaresan testifies that a person of ordinary skill in the art would have found that Yost’s small areas of predetermined size are similar to the grids and grid points in Bhattacharya. *Id.* Dr. Sundaresan additionally testifies that by averaging the multiple empirical measurements in a grid square, some of the effects of fast fading could be removed. *Id.* ¶ 80 (citing Ex. 1008, 7:50–56). Dr. Sundaresan testifies that a person of ordinary skill in the art would have found it obvious that expected signal-strength functions for a given grid point “may represent an average of calibration data from multiple locations within the grid square, and not simply represent the storage of the calibration data itself.” *Id.*

⁷ Petitioner refers to paragraph 123 of Exhibit 1004, but the cited quotation appears in paragraph 120.

Patent Owner asserts that neither Bhattacharya nor Yost discloses or teaches this limitation. Prelim. Resp. 26–35. Patent Owner contends that the district court concluded that “grid point” specifically refers to “‘a point associated with representative calibration data for an area’ that is generated based on analysis of calibration data.” *Id.* at 27 (citing Ex. 1020, 20) (emphasis omitted). Patent Owner further states that the “district court explain[ed] that gathering and analyzing calibration data is ‘what must be done to arrive at a grid point or set of grid points.’” *Id.* (emphasis omitted). Patent Owner argues that, as confirmed by the district court’s *Markman* order explaining its adopted construction, “that the claimed grid points are associated with ‘representative calibration data’ necessarily requires them to be generated based on an analysis of the calibration data.” *Id.* (emphasis omitted). Patent Owner alleges that the district court confirmed this understanding by explaining that the presence of the phrase “representative calibration data” in its construction “reflect[s] that the defining characteristic of a NUG [non-uniform grid points] region . . . is that the data points within an area are all ‘statistically very similar’ such that each of the grid points within the NUG region can represent the overall NUG.” *Id.* at 28 (citing Ex. 1020, 20). Patent Owner contends that Petitioner offers no explanation for how calibration data could be defined and associated with the grid point without an analysis of the calibration data. *Id.* at 27.

On this record, Petitioner has presented sufficient evidence that Bhattacharya and Yost teach limitation [1b]. Although Patent Owner states that it does not dispute Petitioner’s adoption of the district court’s constructions for the purposes of the Preliminary Response (Prelim. Resp. 26), Patent Owner’s arguments on the issue of the requirement to analyze the

calibration data essentially are attempts to reargue the claim construction of the term “grid point.” Although Patent Owner states that it does not dispute Petitioner’s adoption of the district court’s constructions for the purposes of the Preliminary Response (Prelim. Resp. 26), Patent Owner’s argument relies on an altered claim construction of “grid point.” More specifically, Patent Owner mischaracterizes the district court’s claim construction order. Instead of concluding that a “grid point” must be generated based on analysis of calibration data, the district court was providing explanation in its discussion of why it declined to adopt Patent Owner’s⁸ proposed construction. Ex. 1020, 19. That is, after noting that Patent Owner cited language from the ’753 patent in support of its proposed claim construction, the district court stated, “[b]ut the [cited] language is drawn . . . more toward what must be done to arrive at a grid point or set of grid points rather than what a grid point is.” *Id.* Accordingly, the district court was providing explanation of why the cited language was not pertinent to the meaning of “grid point” and not indicating that grid points must be generated based on the measured calibration data. The district court determined that the claim term “grid point” should be construed as “a point associated with representative calibration data for an area.” *Id.* at 20. Patent Owner’s argument is an attempt to introduce additional requirements that are not part of the claim construction. For these reasons, we do not find Patent Owner’s argument on this point persuasive.

Patent Owner further argues that the claim language requires that the grid points are generated “for said calibration data,” which is the calibration

⁸ Patent Owner is the plaintiff in the Apple action.

data that was collected in the previous step. Prelim. Resp. 28. Patent Owner asserts that the requirement that the grid points are generated based on analysis of the calibration data is consistent with the construction of the term by the district court. *Id.* (citing Ex. 1001, 2:31–35). Patent Owner contends that Bhattacharya “describes a fundamentally different approach” with Petitioner’s reference to the disclosure of populating an Expected Signal-Strength Database where a rectangular grid of squares is overlain over the geographic area. *Id.* at 29 (citing Pet. 35–38, 51–52). Patent Owner asserts that the “claim limitation requires generating grid points ‘for said calibration data’ and thus, requires more than determining a location or point independent of any calibration data.” *Id.* Patent Owner asserts that Bhattacharya teaches overlaying a grid independent of any calibration data. *Id.* at 30. Patent Owner refers to Bhattacharya’s teaching of overlaying the grid, including its statement that “the size of the squares [in the overlaid grid] is chosen” based on considerations, including the desired resolution with which the wireless terminal can be located, the computational burden of the process, and the margin for errors in estimating the location. *Id.* at 30–31. Patent Owner asserts that “[n]one of these considerations used to define the overlaid grid of Bhattacharya are calibration data.” *Id.* at 31. Patent Owner contends that, as shown in Figure 5 of Bhattacharya, the partitioning of the geographic regions with the grid overlay occurs before the expected signal-strength for each location is generated, which confirms that the overlaid grid of Bhattacharya is not based on an analysis of calibration data. *Id.* at 31–32. Patent Owner asserts that in Bhattacharya there is emphasis on the predefined nature of the overlaid grid, without any reference to that overlaying being based on the calibration data. *Id.* Patent Owner also

compares the analysis of the calibration data in the '753 patent with that alleged for Bhattacharya, asserting that the locations and boundaries of the grid squares are defined independently of calibration data. *Id.* at 32–34. Patent Owner asserts that Yost fails to remedy this deficiency in Bhattacharya. *Id.* at 34.

As discussed above, we do not agree with the Patent Owner's arguments that the grid points must be generated based on the calibration data. Limitation [1b] requires only that the sets of grid points be generated and that they be “for the calibration data.” Here, Petitioner relies upon Bhattacharya's teaching of empirical measurements of signal strength at certain locations, which are used to generate the expected signal strength for the teaching of limitation [1a] (*see* Pet. 33; Ex. 1004 ¶ 119), where the rectangular grid of square is overlaid to generate grid points (*see* Pet. 35; Ex. 1004 ¶ 106). Petitioner asserts that the expected signal strengths are associated with the grid points. *See* Pet. 35; Ex. 1003 ¶ 77; Ex. 1004 ¶ 120. At this juncture, we find this showing sufficient for Bhattacharya's teaching of limitation [1b]. As to Patent Owner's argument that in Bhattacharya a grid overlay occurs before the expected signal-strength is generated, we do not find that this is persuasive at this juncture at least because Bhattacharya discloses that its operations can be performed in different orders. Ex. 1004 ¶¶ 72–76.

Patent Owner also asserts that Petitioner does not address the district court's construction of “grid points” in that it requires that it be associated with “representative data for an area.” Prelim. Resp. 34–35. At this juncture, we do not find this argument undermines Petitioner's showing on this issue, which relies in part on the teachings of Yost's averaging of signal

strengths, “which would apply across the coverage area of interest.” *See* Ex. 1003 ¶ 79; Ex. 1008, 7:27–33.

We have reviewed the evidence and arguments, and on this record, we preliminarily determine that Petitioner has presented sufficient evidence that Bhattacharya and Yost teach limitation [1b].

iv. Limitation [1c]

Petitioner argues that Bhattacharya discloses the “process of estimating the location of wireless terminal 201” which includes “receiving the reported signal-strength measurements from wireless terminal 201.” Pet. 38 (citing Ex. 1004 ¶¶ 77–81). Petitioner asserts that “[b]ecause the received signal-strength measurements are being used to estimate the location of wireless terminal 201,” a person of ordinary skill in the art would have understood that the wireless terminal is at an unknown location in the geographic region. *Id.* (citing Ex. 1003 ¶ 81; Ex. 1004 ¶¶ 58–60). Petitioner also relies on Bhattacharya’s disclosure that at “task 404, location system 212 periodically receives a Signal-Strength Measurement Report from wireless terminal 201 at discrete relative time *n*, wherein *n* is a non-negative integer.” *Id.* (citing Ex. 1004 ¶ 91).

Patent Owner presents no arguments specifically related to this limitation. *See generally* Prelim. Resp.

We have reviewed the evidence and arguments, and on this record, we preliminarily determine that Petitioner has presented sufficient evidence that Bhattacharya teaches limitation [1c].

v. Limitation [1d]

Petitioner asserts that in Bhattacharya the location system calibrates the reported signal-strength measurements based on the “calibration function

for the make and model of wireless terminal 201,” to compensate for the signal strength measurement errors made by the wireless terminal, which is an evaluation of a network measurement report. Pet. 40–41 (citing Ex. 1003 ¶ 85; Ex. 1004 ¶¶ 97, 168–169). Petitioner contends that Bhattacharya’s disclosure that its search area reduction, which “reduce[s] the number of candidate locations that must be processed,” serves to teach the evaluation of network measurement report for grid points for select characterizing parameters, that is, signal strength values. *Id.* at 41–43 (citing Ex. 1003 ¶¶ 86–88; Ex. 1004 ¶¶ 171–178).

Patent Owner presents no arguments specifically related to this limitation. *See generally* Prelim. Resp.

We have reviewed the evidence and arguments, and on this record, we preliminarily determine that Petitioner has presented sufficient evidence that Bhattacharya teaches limitation [1d].

vi. Limitation [1e]

Petitioner asserts that Bhattacharya teaches that when it uses its search area reduction it “excludes a candidate location only when the calibrated signal-strength measurements have been substantially different from the expected signal strengths at that location.” Pet. 44 (citing Ex. 1004 ¶ 174). Petitioner asserts that, as part of subtask 1703, where the processor generates expected signal-strength differentials, it does so “for all of the candidate locations not excluded in subtask 1701.” *Id.* at 45 (citing Ex. 1004 ¶ 188). As such, Petitioner asserts that Bhattacharya teaches the selection of grid points as a function of predetermined criteria. *Id.*

Patent Owner presents no arguments specifically related to this limitation. *See generally* Prelim. Resp.

We have reviewed the evidence and arguments, and on this record, we preliminarily determine that Petitioner has presented sufficient evidence that Bhattacharya teaches limitation [1e].

vii. Limitation [1f]

Petitioner asserts that in Bhattacharya, “once processor 301 reduces the number of candidate locations in subtask 1701, it begins the subtasks related to generating the probability that the received signals are associated with each of the remaining candidate locations within the geographic area.” Pet. 45 (citing Ex. 1003 ¶ 92; Ex. 1004 ¶¶ 179–207). As part of the processes, the processor converts the received calibrated signal tuple S and the expected signal tuples E for each of the candidate locations into a set of differentials that are comparisons of adjust signals within each tuple. *Id.* at 46 (citing Ex. 1003 ¶ 93; Ex. 1004 ¶¶ 21–23). Petitioner contends that there is a comparison of the differentials at each location to determine the probability of whether the wireless terminal is at the remaining candidate locations. *Id.* at 47 (citing Ex. 1003 ¶ 94; Ex. 1004 ¶¶ 190–193).

Patent Owner presents no arguments specifically related to this limitation. *See generally* Prelim. Resp.

We have reviewed the evidence and arguments, and on this record, we preliminarily determine that Petitioner has presented sufficient evidence that Bhattacharya teaches limitation [1f].

viii. Conclusion

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 1 is rendered obvious by Bhattacharya and Yost.

b. Claim 32

Claim 32 is a system claim that recites similar limitations to the limitations of method claim 1. Petitioner relies on similar evidence and argument to that presented for claim 1 in support of the Bhattacharya and Yost teachings of the claim 32 limitations. Pet. 50–53.

Patent Owner presents no additional arguments specifically directed to claim 32 that we have not already addressed. *See generally* Prelim. Resp. We have reviewed the Petition’s showing for this claim and find that sufficient evidence has been provided in support of the obviousness challenge at this stage of the proceeding. Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 32 is rendered obvious by Bhattacharya and Yost.

c. Claims 7, 9, 38, and 40

Petitioner provides evidence and argument that dependent claims 7, 9, 38, and 40 would have been obvious over Bhattacharya and Yost. Pet. 47–50, 40. Patent Owner presents no additional arguments specifically directed to these claims that we have not already addressed. *See generally* Prelim. Resp. We have reviewed the Petition’s showing for these claims and find that sufficient evidence has been provided in support of the obviousness challenges at this stage of the proceeding. Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 7, 9, 38, and 40 would have been obvious over Bhattacharya and Yost.

III. CONCLUSION

For the foregoing reasons, we have determined that there is a reasonable likelihood that the Petitioner would prevail with respect to at

least one of the claims challenged in the Petition. We therefore institute trial as to all challenged claims on all grounds stated in the Petition.

IV. ORDER

Upon consideration of the record before us, it is:

ORDERED that *inter partes* review of claims 1, 7, 9, 32, 38, and 40 of the '753 patent is instituted on all grounds in the Petition; and

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 will commence on the entry date of this decision.

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Patent 8,406,753 B2

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