

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

GEOSCOPE TECHNOLOGIES PTE. LTD.,
Patent Owner.

IPR2023-01213
Patent 9,097,784 B2

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

RANGE, *Administrative Patent Judge*.

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

I. INTRODUCTION

Google LLC (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1, 2, 10–13, 21 and 22 (“the challenged claims”) of U.S. Patent No. 9,097,784 B2 (Ex. 1001, “the ’784 patent”). Paper 2 (“Pet.”). Geoscope Technologies Pte. Ltd. (“Patent Owner”) filed a Preliminary Response. Paper 10 (“Prelim. Resp.”). With our permission, the parties also filed a Petitioner’s Reply (Paper 12, “Reply”) and Patent Owner’s Sur-Reply (Paper 13, “Sur-Reply”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the 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.” The following 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 may be deemed waived.

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. We hereby institute an *inter partes* review as to claims 1, 2, 10–13, 21 and 22 of the ’784 patent based upon Petitioner’s asserted grounds of unpatentability.

II. BACKGROUND

A. Related Matters

The parties identify the following related judicial matters: *Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.*, No. 1:22-cv-01331

(EDVA); *Geoscope Technologies Pte. Ltd. v. Apple Inc.*, No. 1:22- cv-01373 (EDVA); *Geoscope Technologies Pte. Ltd. v. Google LLC*, No. 24-1003 (Fed. Cir.); and *Geoscope Technologies Pte. Ltd. v. Apple, Inc.*, No. 24-1018 (Fed. Cir.). Pet. 3; Paper 11, 1–2.

Patent Owner further identifies the following proceedings as related matters: IPR2023-01209 (U.S. Patent No. 7,561,104), IPR2023-01210 (U.S. Patent No. 8,400,358), IPR2023-01211 (U.S. Patent No. 8,786,494), IPR2023-01212 (U.S. Patent No. 8,406,753), IPR2024-00031 (U.S. Patent No. 8,400,358), IPR2024-00032 (U.S. Patent No. 8,786,494), IPR2024-00255 (U.S. Patent No. 7,561,104), and IPR2024-00259 (U.S. Patent No. 8,406,753). Paper 11, 1–2.

B. The '784 patent

The '784 patent is titled “System and Method to Collect and Modify Calibration Data.” Ex. 1001, code (54). The '784 patent explains that estimating the location of a mobile station requires calibration data such as those pertaining to signal strength, round trip time, time difference of arrival (TDOA), ground truth data, etc. *Id.* at 1:25–28. Additionally, the '784 patent states that “[a]ny device used to retrieve ground truth data may produce some degree of signal degradation or drop-out.” *Id.* at 1:33–34. According to the '784 patent, without accurate ground truth information, a calibration database “will contain significant errors which will in turn be reflected by poor location estimates.” *Id.* at 1:30–33. The '784 patent also explains dead reckoning is a process that provides a remedy in which a GPS satellite is used but this process, however, can produce unsatisfactory results. *Id.*, code (57), 1:44–60. Thus, the '784 patent purports to provide “a method for generating a calibration database that may be used to locate a mobile

station,” while ensuring integrity of the collected data via data modification or by using a data replacement algorithm. *Id.* at 1:64–2:12, code (57).

The ’784 patent discloses a method for generating a calibration database that employs a wireless device in a region that contains plural streets and intersections of the plural streets. *Id.* at 2:21–24. As an example, the ’784 patent discloses that a vehicle may be configured with a collection device to collect calibration data to be stored in a calibration database. *Id.* at 1:38–43. Exemplary collection devices include a GPS receiver that receives satellite location signals and a terrestrial geo-location device that measures the strengths of signals received from base stations and other wireless signaling devices. *Id.* at 3:29–35. Location data obtained from multiple collection devices can be compared to ensure the data’s integrity. *Id.* at 3:35–38. The ’784 patent discloses that a controller unit “may monitor the statistical sufficiency of the data available for the current location” of a collection device. *Id.* at 6:5–7.

The ’784 patent states that “[g]round truth data observed from a data collection device (i.e., a GPS receiver) may be collected and stored in a calibration database and compared to” data in a “street database” to modify and enhance calibration data for increased accuracy. *Id.* at 3:23–26. The ’784 patent discloses that thus, the “street database” is used as a supplemental data source to compare and/or check the integrity of collected location data. *Id.* at 3:42–44. The ’784 patent discloses that the “street database” may be a compilation of latitude, longitude and other forms of geographical location data that “provide ancillary information such as the direction of one-way streets, off-street territories, etc.” *Id.* at 3:44–48. Data integrity of collected data can be checked by “matching each data point to

the closest street in the street database” or matching a set of points “to a particular street based on the proximity of a group of points.” *Id.* at 4:7–12.

Figure 9 of the ’784 patent is reproduced below.

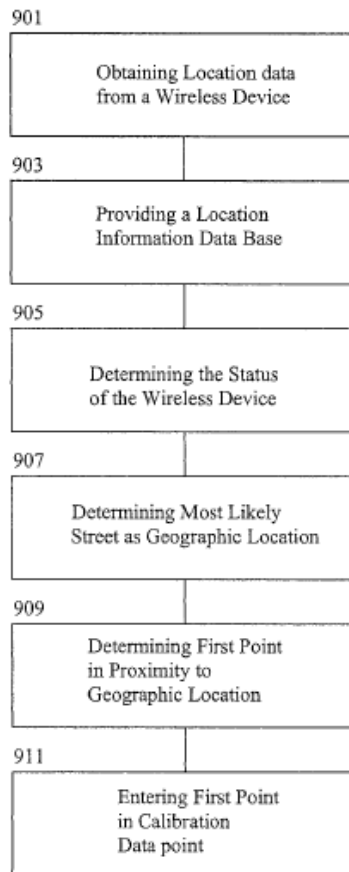


Figure 9

Figure 9 is a flow diagram of a method for generating a calibration database using a wireless device. *Id.* at 3:18–19, 8:55–56.

The ’784 patent discloses that starting at step 901, location data is obtained for a plurality of geographic locations situated within a region having plural streets and intersections using a wireless device. *Id.* at 8:56–60. At step 903, a location information database, such as a “street database,” having accurate latitude and longitude information for plural points in the

same geographic region is used. *Id.* at 8:60–63. The status of the wireless device is then determined at step 905. *Id.* at 8:63–64. Thereafter, based upon the status, a most likely street upon which the wireless device is sited is determined as the geographic location at step 907. *Id.* at 8:64–66. A first point from the location information database that is in proximity to the first geographic location is determined at step 909. *Id.* at 8:66–9:1. Finally, at step 911, the first point is then entered in the calibration database. *Id.* at 9:1–2.

C. Illustrative Claim

Petitioner challenges claims 1, 2, 10–13, 21 and 22. Pet. 1. Claims 1 and 12 are independent claims. Ex. 1001, 9:17–43, 10:10–33. Claims 2, 10, and 11 depend from claim 1. *Id.* at 9:44–46, 10:5–9. Claims 13, 21, and 22 depend from claim 12. *Id.* at 10:34–37, 10:60–64. Claim 1 is reproduced below.

1. A method for generating a calibration database, comprising;
receiving at a wireless device an attribute of a signal transmitted by a wireless transmitter to a mobile station in a region;
wirelessly transmitting from said wireless device said attribute to a controller unit;
obtaining location data of a plurality of geographic locations situated within said region, wherein said location data is determined using said wireless device, and wherein said region contains plural streets and intersections of said plural streets;
providing a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;
determining a status of said wireless device;

determining from said status a most likely one of said plural streets upon which said wireless device is located;
determining said most likely street as a first one of said plural geographic locations;
determining a first point of said plural points that is in proximity to said first geographic location; and
entering said first point in said calibration database and associating the location data for the first one of said plural geographic locations determined by said wireless device with the first point.

Id. at 9:17–43.

D. Asserted Ground of Unpatentability

Petitioner, supported by the declaration of David H. Williams (Ex. 1008), asserts the following ground of unpatentability (Pet. 6):¹

Claims Challenged	35 U.S.C. §	References/Basis
1, 2, 10–13, 21, 22	103(a)	Crane, ² Spain ³

Petitioner contends that all references cited in the ground of unpatentability qualify as prior art under pre-AIA 35 U.S.C. § 102(b). Pet. 7. Patent Owner does not, at this stage of the proceeding, challenge the availability of any of the references as prior art. We presume, for purposes of this decision, that all references relied on by Petitioner are prior art to the '784 patent.

¹ The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, took effect on March 16, 2013. The '784 patent claims priority to applications with filing dates before this date. *See* Ex. 1001, code (60), (63). For the purposes of this Decision, pre-AIA statutes apply.

² US 6,381,533 B1, issued April 30, 2002, Ex. 1004 (“Crane”).

³ US 2003/0064735 A1, published April 3, 2003, Ex. 1005 (“Spain”).

III. ANALYSIS

A. *Legal Standard*

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 evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).⁴

B. *Level of Ordinary Skill in the Art*

In order to determine whether an invention would have been obvious at the time the application was filed, we consider the level of ordinary skill in the pertinent art at the critical time. *Graham*, 383 U.S. at 17. The resolution of this question is important because it allows us to “maintain[] objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d

⁴ The parties have not presented arguments regarding objective indicia at this time.

1573, 1579 (Fed. Cir. 1995) (quotation omitted). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovention Toys, LLC v. MGA Entm't, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Petitioner asserts that one of ordinary skill in the art:

would have been someone knowledgeable in wireless networks, cellular radio systems, mobile communication devices and radio navigation systems, having at least a bachelor’s degree in electrical engineering, with a background in radio frequency communications and/or navigation system technology as well as approximately two years of industry experience working on radio communication and/or navigation systems.

Pet. 14 (citing Ex. 1008 ¶ 40). Patent Owner does not dispute Petitioner’s definition for the level of ordinary skill in the art. Prelim. Resp. 22.

For purposes of this Decision, we adopt Petitioner’s proposal as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

C. Claim Construction

In an *inter partes* review proceeding based on a petition filed on or after November 13, 2018, a patent claim shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (as amended Oct. 11, 2018). This rule adopts the same claim construction standard used by Article III federal courts, which follow *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny. Under this standard, the

words of a claim are generally given their “ordinary and customary meaning,” which is the meaning the term would have to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification. *See Phillips*, 415 F.3d at 1312–13.

Petitioner proposes the claim constructions reproduced below.

Pet. 15–18. Independent claims 1 and 12 of the ’784 patent each recite the first four terms, and the fifth term relates to claim 1. Ex. 1001, 9:16–43; 10:9–33.

CLAIM TERM	PETITIONER’S PROPOSED CONSTRUCTION
wireless device	“a device capable of transmitting and receiving signals while unattached to any physical wires”
status of said wireless device	“information regarding the movement or orientation of the wireless device”
determining said most likely street as a first one of said plural geographic locations	encompasses “determining a street upon which a wireless device is most likely located as a first geographic location of a geographic region”
determining a first point of said plural points that is in proximity to said first geographic location	encompasses “determining a point of the location information database that is in proximity to the first geographic location” and “in proximity” encompasses “where the ‘first point’ and ‘said first geographic location’ match (<i>e.g.</i> , are the exact same location)”
order of “obtaining” and “determining” steps	“‘obtaining ...’ and ‘determining from said status ...’ must occur before ‘determining said most likely street ...,’ which must occur before ‘determining a first point of said plural points ...’”

Pet. 15–18. Petitioner’s proposed constructions are consistent with the claim construction decision from related litigation or the parties’ prior stipulations regarding claim construction. *Id.*; Ex. 1023 (parties’ stipulation); Ex. 1027 (parties’ stipulation); Ex. 1028, pp. 24–32 (District Court order). For purposes of its preliminary response, Patent Owner does not dispute Petitioner’s statement on claim construction. Prelim. Resp. 22–23.

For purposes of this decision, we adopt the undisputed claim constructions that Petitioner proposes. These constructions, especially absent argument to the contrary, are consistent with claim language and the ’784 patent specification. The constructions are further supported by the reasoning provided by the district court’s claim construction order. Ex. 1028.

As to other claim terms, Petitioner establishes a reasonable likelihood that it would prevail with respect to at least one claim based on the ordinary and customary meaning of the claim terms. Thus, we determine that no other claim terms require express construction for purposes of this Decision. *See, e.g., Nidec Motor Corp. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. Discretionary Denial under 35 U.S.C. § 314(a)

Petitioner argues that we should not exercise discretion to deny institution under 35 U.S.C. § 314(a). Pet. 54–57. Patent Owner argues that we should exercise our discretion under 35 U.S.C. § 314(a) and not institute trial, given the state of the parallel district court litigation. Prelim.

Resp. 2–18. For the reasons stated below, we do not exercise our discretion to deny institution.

Institution of an *inter partes* review is discretionary. *See* 35 U.S.C. § 314(a) (authorizing institution of an *inter partes* review under particular circumstances, but not requiring institution under any circumstances); *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.”); *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018) (“[Section] 314(a) invests the Director with discretion on the question whether to institute review” (emphasis omitted)); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d at 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

When determining whether to exercise discretion to deny institution in view of a parallel proceeding with an earlier trial date, the following factors may be relevant:

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.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20,

2020) (precedential) (“*Fintiv*”). “These factors relate to whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding.” *Id.*

Below, we summarize the facts to our analysis and address statutory authority. We then address whether *Fintiv* applies.

1. Relevant Procedural History

The Petition, filed August 9, 2023, challenges claims 1, 2, 10–13, 21, and 22 of the ’784 patent based on 35 U.S.C. § 103. Pet. 6.

On November 22, 2022, Patent Owner filed a complaint against Petitioner alleging infringement of the ’784 patent. Ex. 2018 ¶ 1 (parties’ stipulation summarizing litigation). On June 12, 2023, Patent Owner narrowed the litigation so it was only asserting claim 11 of the ’784 patent against Petitioner. *Id.* at ¶ 3.

In an Order dated July 19, 2023, the United States District Court for the District of Virginia held that the term “in proximity” is indefinite. Ex. 1028, 24–28. Both independent claims of the ’784 patent, claims 1 and 12, recite “in proximity.” Claim 1 of the ’784 patent recites “in proximity” as part of the phrase “determining a first point of said plural points that is in proximity to said first geographic location.” Ex. 1001, 9:38–39. Claim 12 similarly recites “circuitry for determining a first point of said plural points that is in proximity to said first geographic location.” *Id.* at 10:26–27.

In the same Order, the District Court also held that “determining said most likely street as a first one of said plural geographic locations” is an indefinite claim term. Ex. 1028, 28–30. Both independent claims of the ’784 patent recite this phrase with claim 1 including this “determining” step as

part of its method and claim 12 including “circuitry for” performing this “determining” step. Ex. 1001, 9:36–37; 10:26–27.

On August 22, 2023, based on the District Court’s indefiniteness determination, the parties stipulated “that the Court may enter judgment of invalidity of asserted claim 11 of the ’784 patent.” Ex. 2018 ¶ 7. The District Court entered partial judgment on September 18, 2023. Ex. 2019 (order entering judgment of invalidity of claim 11 of the ’784 patent); Ex. 2020 (judgment pursuant to order). Although the Patent Owner’s stipulation reserved Patent Owner’s right to appeal the District Court indefiniteness determination (Ex. 2018 ¶ 7), Patent Owner chose not to appeal. Prelim. Resp. 6.

In the context of litigation against Apple Inc., Patent Owner entered a similar stipulation as to claim 11 of the ’784 patent. Ex. 2021 ¶ 7. The District Court entered a similar order and judgment. Ex. 2022; Ex. 2023.

2. *Statutory Authority*

As a threshold matter, we take note of the Director’s decision on director review in *Volvo Penta of the Americas, LLC v. Brunswick Corp*, IPR2022-01366, Paper 15 (PTAB May 2, 2023) (“*Volvo Penta*”). In that decision, the Director held that a District Court’s determination, on appeal, that one claim is invalid under Section 101 does not prevent institution. *Id.* at 5–7.

Here, the District Court determined that one challenged claim (claim 11) out of eight total challenged claims (claims 1, 2, 10–13, 21, and 22) is invalid and there is no appeal. Patent Owner does not argue that the District Court’s determination, even if final, as to one claim effects our statutory authority as to other challenged claims. Moreover, the U.S. Supreme Court

has held that if the Board (acting on behalf of the Director, 37 C.F.R. § 42.4) institutes an IPR as to one claim, it must institute as to all challenged claims. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1353 (2018).⁵ As such, we do not discern any lack of statutory authority for institution under these circumstances.

3. *Applicability of Fintiv*

Patent Owner's *Fintiv* argument emphasizes the "advanced" stage of litigation based on the District Court's invalidity ruling. Prelim. Resp. 2. Petitioner emphasizes that the District Court litigation only resulted in judgment as to claim 11 and not challenged claims 1, 2, 10, 12, 13, 21, or 22. Pet. Reply 1. Patent Owner responds by arguing that the claim terms the District Court found invalid appear in every challenged claim. PO Sur-reply 1–2.

Fintiv provides factors "related to a parallel, co-pending proceeding in determining whether to exercise discretionary institution or denial." *Fintiv*, IPR2020-00019, Paper 11 at 5 (emphasis removed). *Fintiv* expanded upon the reasoning of *NHK* "where the district court has set a trial date to occur earlier than the Board's deadline to issue a final written decision in an instituted proceeding." *Id.* at 3; *see also NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential) (holding that it would be inefficient to proceed with *inter partes* review where district court proceedings concerning the same prior art and arguments was set for trial long before any projected final written

⁵ We invite the parties to address at trial whether or not claim 11 has any remaining legal importance and whether or not it is appropriate for the Board to reach a final written decision as to claim 11.

decision).

In the *Volvo Penta* IPR, the panel originally did not apply *Fintiv* because the District Court determined that one challenged claim was invalid under Section 101 and the determination was on appeal. *Volvo Penta*, IPR2022-01366, Paper 15 at 8 (citing Paper 12, 12). The Director vacated that panel’s decision because the panel incorrectly “did not consider the district court litigation in this case to be ongoing during the pendency of appeal.” *Id.* *Volvo Penta* emphasizes that a *Fintiv* analysis should be conducted “where a district court has rendered a *non-final* invalidity determination that some or all of the claims challenged in an IPR petition are invalid, even on grounds that cannot be raised in that IPR.” *Id.* (citing *AviaGames, Inc. v. Skillz Platform, Inc.*, IPR2022-00530, Paper 14 (PTAB March 2, 2023)) (emphasis added).

Patent Owner cites *Snap Inc.* to support denial of institution. Prelim. Resp. 7 (citing *Snap Inc. v. Blackberry Ltd.*, IPR2020-00391, Paper 8 at 17 (PTAB July 13, 2020)). In *Snap*, the panel declined to institute *inter partes* review of claims 1, 2, 9, 14, 15, and 21 where a district court had entered a final order determining that claims 1, 2, 14, 20, and 21 were unpatentable pursuant to 35 U.S.C. § 101, and that decision was on appeal. *Snap Inc.*, IPR2020-00391, Paper 8 at 11.

Neither party cites precedent that would control institution under the present circumstances. At present, there is no parallel litigation at all. The District Court proceeding (which ultimately related to only claim 11 of the ’784 patent) is complete. There is no appeal. *Fintiv*, *Volvo*, and *Snap* are all distinguishable on this basis. *Fintiv*, according to the language of that decision, only applies when there are parallel proceedings, and the parties do

not cite any precedent to extend *Fintiv*'s reasoning to situations where there are not parallel proceedings. The Director's June 21, 2022, Guidance Memo likewise relates to "parallel district court litigation." USPTO Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation ("Guidance Memo") (June 21, 2022) (emphasis removed). As such, *Fintiv*'s six-factor analysis does not apply to the present situation.

We further observe that the thrust of both *Fintiv* and the Guidance Memo place an emphasis on efficiency. *Fintiv*, IPR2020-00019, Paper 11 at 5 (emphasizing a balance of "efficiency, fairness, and patent quality"), 6 (emphasizing "efficiency and integrity of the system"). Here, there is no risk of inefficient duplication of efforts because there is no ongoing Article III court activity concerning the '784 patent at all. While the Article III courts may have finally adjudicated claim 11, the courts have not ruled on the validity of challenged claims 1, 2, 10, 12, 13, 21, or 22.⁶ Because there are

⁶ Patent Owner suggests that the District Court ruling as to claim 11 might also have implications as to the other challenged claims because these claims include the claim terms that the District Court focused on when addressing claim 11. Prelim. Resp. 5, n. 2. This, however, is not *necessarily* the case. Adjudicators must address indefiniteness on a claim-by-claim basis. *Cox Communications, Inc. v. Spring Comm. Co. LP*, 838 F.3d 1224, 1232 (Fed. Cir. 2016) ("[T]he dispositive question is whether the 'claims,' not particular claim terms, 'read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.'") (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014)). Here, for the sake of efficiency, we decline to conduct a § 112 validity analysis of claims the District Court did not rule upon where the analysis would be only for the purpose of determining whether or not it is efficient to move forward with a § 103 validity analysis.

no concerns of inefficiency here, there is no basis for discretionary denial based on *Fintiv*.

4. *Alternative consideration of the Fintiv Factors*

In the alternative, even if we were to consider the *Fintiv* factors, the factors would weigh against discretionary denial here.

The first *Fintiv* factor, possibility of a stay of litigation, is irrelevant because there is no ongoing litigation. The second factor, proximity of trial date, is irrelevant because there is no ongoing litigation. The third factor, investment in the parallel proceeding, is irrelevant because there is no parallel proceeding. To the extent we consider the prior proceeding, this factor is neutral because the prior proceeding did not address the obviousness issues raised by the Petition. The fourth *Fintiv* factor, overlap of issues, weighs against discretionary denial. There is no ongoing proceeding with any overlap of issues, and the prior proceeding did not address any of the obviousness issues the Petition raises and did not address most of the claims the Petition challenges. The fifth *Fintiv* factor, identity of parties, is neutral because there is no ongoing proceeding. If we consider the prior proceeding, this factor would weakly favor discretionary denial. The sixth *Fintiv* factor, other circumstances including the merits, favors institution because, as we explain below, Petitioner presents strong evidence on the merits that the challenged claims are obvious.

Absent a compelling reason to the contrary, we take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review” when evaluating these factors. *Fintiv*, Paper 11 at 6. We have considered the circumstances and facts before us in view of the *Fintiv* factors and, to the extent the *Fintiv* factors apply at all here, we

determine that the circumstances presented here do not support exercising our discretion under § 314(a) to deny institution of this *inter partes* review.

E. Overview of the Asserted Art

1. Crane (Exhibit 1004)

Crane describes a data collection system and a method that match the positions of one or more cellular phones “to data indicating the locations of roads in a geographic area to derive data about phones located in vehicles traveling along the roads.” Ex. 1004, code (57). Crane discloses that data of “phones located in vehicles traveling along the roads are used for updating or refining a geographic database, traffic monitoring and reporting, or for other purposes.” *Id.*

Crane explains that “[t]here are various available technologies that can be used to determine the positions of cellular phones in an area” such as those “used to locate a cellular phone user who dials an emergency number, e.g., ‘911.’” *Id.* at 3:7–11. Crane states that “[a]ny such technology that is presently available or that becomes available in the future may be suitable for the phone location determining system 104 in FIG. 1.” *Id.* at 3:11–12.

Figure 1 of Crane is reproduced below.

FIG. 1

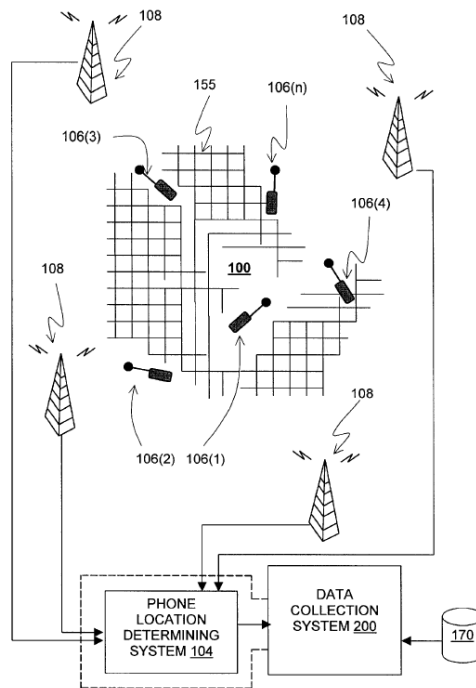


Figure 1 is an illustration of a cellular phone location determining system 104 located in a geographic region, wherein the cellular phone location determining system is used as a component of a data collection system 200. *Id.* at 2:36–40.

Figure 1 of Crane shows phone location determining system 104 with towers 108 throughout a geographic area 100 that encompasses positions 130 of cellular phones 106 (positions 130 are not labeled in Figure 1 but are shown in Figure 2). *Id.* at 3:1–7, 3:16–25. Crane discloses that phone location determining system 104 “outputs data 140 identifying the phone, the position (e.g., geographic coordinates, relative coordinates, etc.), and a time stamp (e.g., the absolute or relative time at which the identified cellular phone was at the identified position).” *Id.* at 3:27–32.

Figure 3 of Crane is reproduced below.

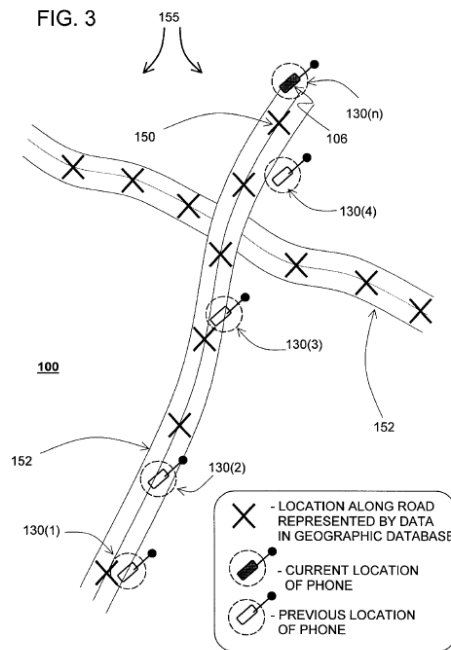


Figure 3 illustrates a series of positions of the cellular phones of Figure 1 overlaid on a map of a portion of the road network. *Id.* at 2:45–47.

Crane discloses that in geographic area 100 are roads 152 forming a road network 155 represented by data 170 in geographic database 172 (data 170 and geographic database 172 are shown in Figure 4 rather than Figure 3). *Id.* at 3:32–37. Points 150 are positions along roads 152 and 174 are data of coordinates of points 150 which are part of data 170. *Id.* 3:39–40, 3:45–46.

Crane discloses “data collection system 200 uses the data 140 collected by the cellular phone location determining system 104 in conjunction with the data 170 from the geographic database 172 to generate new data 210.” *Id.* at 3:49–52. “The data collection system 200 matches the acquired cellular phone position data 140 to the locations of roads 152 represented by the data 170 in the geographic database 172.” *Id.* at 3:52–56. Crane discloses that its matching process includes analysis of: whether “the

cellular phone is on or within a certain threshold distance of the position of a road 152 or is moving,” whether “the cellular phone can be assumed to be in a vehicle traveling along the actual road,” and determining “a rate of travel of the cellular phone.” *Id.* at 4:4–7, 4:20–25.

2. *Spain (Ex. 1005)*

Spain “relates . . . to wireless communication systems.” Ex. 1005 ¶ 2. Spain explains that pertinent to mobile communication systems, GPS based location computation is “not always reliable since the mobile unit may be in an environment where there is no penetration of the GPS satellite signals.” *Id.* ¶ 4. Spain purports to resolve this and other “disadvantages associated with techniques in the prior art” by providing “a computationally-efficient technique for reducing the number of possible positions that have to be analyzed.” *Id.* ¶ 5. Consequently, Spain discloses “[a] method for determining the location of a mobile unit” using “spectral fingerprint” in which the “observed signal strength of a predetermined set of signals in the RF spectrum constitutes a fingerprint.” *Id.* ¶ 35.

Spain discloses a mobile unit containing a component “for tuning to a predetermined portion of the RF spectrum.” *Id.* ¶ 37. The mobile unit includes “the appropriate circuitry and software to capture the required signals and their parameters.” *Id.* ¶ 43. A communication link between the mobile unit and a location server is made “through the base stations and base station controllers of the cellular network.” *Id.* ¶ 37. As a one possible parameter of the spectral fingerprint, “the identity of the signal source (e.g., channel number or station code) is used” to generate a spectral fingerprint. *Id.* ¶ 41. The generated fingerprint is then compared with the fingerprints in a database stored in the mobile unit and “the fingerprint in the database that

is closest to the generated fingerprint is selected as the match.” *Id.* ¶ 47.

Spain discloses that “the fingerprint database is generated by computer calculations with RF prediction models using certain parameters which depend on the type of buildings, terrain features, time of the day, environmental and seasonal conditions, etc.” *Id.* ¶ 52. In one embodiment, “either Support Vector Machines for Regression or Regularized Regression can be used to learn each mapping of position versus fingerprint (measured or predicted signal strengths)” in which “[p]osition will be used as the input value, while signal strength will be used as the target value.” *Id.* ¶ 54.

F. Unpatentability over Crane and Spain

Petitioner asserts that claims 1, 2, 10–13, 21, and 22 are unpatentable under 35 U.S.C. § 103(a) as having been obvious over Crane in view of Spain, citing the Declaration of Mr. Williams for support. Pet. 19–53 (citing Ex. 1008). Petitioner accounts for the limitations recited in these claims. *Id.* Below, we address the limitations of claim 1 while addressing other claims collectively.

a. *Claim 1*

[1.pre] A method for generating a calibration database, comprising:

Petitioner argues that, to the extent the preamble is limiting, Crane discloses this recitation. Pet. 20–21. Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence. Crane teaches, for example, a data collection system that creates a “database with new, more accurate data [that] can be used for subsequent cellular phone location matching.” Ex. 1004, 3:49–55; 6:56–58, 62–65; Ex. 1008 ¶¶ 85–90.

[1.1] receiving at a wireless device an attribute of a signal transmitted by a wireless transmitter to a mobile station in a region.

Petitioner argues that Crane and Spain teach this claim limitation. Pet. 21–26. Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence. Crane teaches cellular phones (a wireless device) including hardware and software to determine and collect geographic location. Ex. 1004, 1:13–20, 7:33–50. Thus, Crane discloses mobile stations and wireless devices that receive and transmit wireless signals. Ex. 1008 ¶¶ 93–96. Crane also discloses a geographic area including base stations and towers. Ex. 1004, Fig. 1, 2:36–39; 2:66–3:7, 3:1–7; Ex. 1008 ¶ 97–99. Petitioner illustrates this point by annotating Figure 6 of the ’784 patent and Figure 1 of Crane. Pet. 22–23 (figure not reproduced here).

Petitioner argues that, according to the ’784 patent, an attribute of a signal can be, for example, “signal strength, Cell global identity, broadcast control channel, base identity code.” Pet. 24; *see also* Ex. 1001, 9:43–46 (claim 2 providing possibilities for the “said attribute”). Petitioner states that Crane “does not expressly disclose details by which a cellular phone’s location is determined by ‘phone location determining system 104’” and “does not expressly state that its cellular phones receive ‘an attribute of a signal’ from a wireless transmitter.” Pet. 23–24.

Petitioner argues that “‘an attribute of a signal’ may encompass ‘information of a signal transmitted by a wireless transmitter.’” Pet. 23–24 (quoting Ex. 1001, 5:59–64). Petitioner further argues that Crane’s cellular phones and system are described as using “911” cellular phone technologies and that Crane contemplates referencing other documents for such technologies. Pet. 24 (citing Ex. 1004, 3:7–13; Ex. 1008 ¶ 104). Petitioner cites Spain as describing a mobile station and wireless device with such 911 technology. *Id.* at 24–25 (citing ex. 1005 ¶¶ 30–32, 37, Fig. 1; Ex. 1008

¶¶ 105–107). Petitioner argues that the “base station” of Spain is the claimed “transmitter.” Pet. 25 (citing Ex. 1008 ¶¶ 108–109). Spain teaches that its “data is communicated in both directions” and that “signals and their parameters” are used as part of its location determination system. Ex. 1005 ¶¶ 31, 37, 41, 43; Ex. 1008 ¶¶ 106–110.

Petitioner argues that it would have been obvious to implement Spain’s location determination system as part of Crane’s system and that such an implementation would have a reasonable expectation of success. Pet. 26 (citing Ex. 1008 ¶¶ 111–112). Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence.

[1.2] wirelessly transmitting from said wireless device said attribute to a controller unit;

Petitioner argues that Crane’s “data collection system 200” is the claimed “controller unit.” Pet. 26–27 (citing Ex. 1004, 3:4–7, 49–59, 6:46–61, Figs. 4, 7, 8; Ex. 1008 ¶¶ 114–117). Petitioner argues that Crane does not explicitly disclose transmission of an “attribute of a signal” but explains that Spain teaches this recitation as Petitioner discusses when addressing element [1.1]. Pet. 27 (citing Ex. 1008 ¶ 118). Petitioner further argues that Spain teaches this recitation and persuasively asserts that it would have been obvious to implement Spain’s attribute into Crane’s location determining system with a reasonable expectation of success. Pet. 27–28 (citing Ex. 1005 ¶¶ 31, 37, 43, Fig. 1; Ex. 1008 ¶¶ 119–21). Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence.

[1.3] obtaining location data of a plurality of geographic locations situated within said region, wherein said location data is determined using said wireless device, and wherein said region contains plural streets and intersections of said plural streets;

Petitioner argues that Crane discloses obtaining location data using Crane’s “phone location determining system 104” for generating an updated geographic database with “new, more accurate data” (i.e., a calibration database. Pet. 28. Petitioner further argues that Crane discloses providing wireless device status as discussed above. *Id.* Petitioner illustrates how Crane teaches this recitation by reproducing and annotated Figure 4 of the ’784 patent with Figure 3 of Crane. *Id.* at 29–30 (citing Ex. 1008 ¶¶ 132–133) (figure not reproduced here). Petitioner concludes that Crane discloses the recitations of [1.3]. *Id.* at 30. Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence. Ex. 1004, 3:49–52, 4:27–34, 6:56–58, Fig. 3; Ex. 1008 ¶¶ 123–135.

[1.4] providing a location information database wherein said location database includes latitude and longitude information for each of a plurality of points within said region;

Petitioner argues that Crane discloses providing a location information database (e.g., geographic database 172) containing latitude and longitude information for plural points. Pet. 31. Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence. Ex. 1004, 3:44–48, Figs. 3–4; Ex. 1008 ¶¶ 139–141.

[1.5] determining a status of said wireless device;

Petitioner argues that Crane teaches determining the status of its cellular phones. Pet. 32–33.

Patent Owner argues that Crane does not disclose this recitation because Crane “discloses determining [purported statuses] based on ‘a plurality of locations for a single phone over a period of time,’ with those

locations acquired from a ‘cellular phone location determining system.’” Prelim. Resp. 24–26 (quoting Ex. 1004, 4:27–34). Patent Owner argues that the purpose of the ’784 patent is to use ancillary information (like rate or direction of travel) independent of positional information. *Id.*

Patent Owner’s argument does not persuasively undermine Petitioner’s showing based on the current record because, as we explain above, we construe “status of said wireless device” as “information regarding the movement or orientation of the wireless device” for this decision. Section III(C), *supra*. Patent Owner does not dispute this claim construction for purposes of its Preliminary Response. *Id.* at 22–23. Patent Owner admits that Crane derives status information such as rate or direction of travel and only disputes that Crane does not teach this this recitation because of *how* the status information is derived. *Id.* at 23–24. The claim construction Patent Owner agrees to, however, does not require that the information be determined in any particular manner.

Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence. Ex. 1004, 4:27–34, Figs. 3–4; Ex. 1008 ¶¶ 142–146.

[1.6] determining from said status a most likely one of said plural streets upon which said wireless device is located;

Petitioner argues that Crane discloses from the status (e.g., direction of travel, rate of travel) the most likely street upon which the cellular phone is located. Pet. 33–35. Petitioner quotes the following passage from Crane in order to support its argument:

[T]he data collection system 200 includes a process 256 that matches the acquired cellular phone positions 140 to positions of roads 152 which are represented by the data 170 in the geographic

database 172....

The matching process 256 optionally includes other processes 260 that perform analysis and filtration of the data 140. The analysis and filtration processes 260 may make use of several assumptions and/or observations.... For example, if the acquired cellular position data 140 ***indicate that the cellular phone is on or within a certain threshold distance of the position of a road 152 or is moving, the cellular phone can be assumed to be inside of a vehicle traveling along the road*** [152].... The analysis process 260 computes a distance 270 between each of the locations 130 of the phone and the straight dashed lines 266 which represent the roads. ***If the distances 270 are sufficiently small, the cellular phone can be assumed to be in a vehicle traveling along the actual*** [i.e., most likely] ***road***.

Id. at 33–34 (quoting Ex. 1004, 3:57–4:22⁷) (Petitioner’s emphasis added).

Petitioner argues, based on this passage and declarant testimony, that Crane teaches using status of the cellular phone (i.e., direction of travel in relation to distance from known roads, whether it is moving, and/or rate of travel) to determine the most likely street the vehicle is traveling along. *Id.* at 34–35 (citing Ex. 1008 ¶¶ 150–152).

Patent Owner argues that even if Crane teaches “determining a status of said wireless device” it does not teach using that status to determine “a most likely” street—out of a plurality of streets—that the wireless device is located upon. Prelim. Resp. 26. Patent Owner instead argues that Crane uses a status as part of determining whether the device is on a street at all. *Id.* For example, Crane states, “[i]f the rate of travel is greater than a threshold, e.g., 5 miles per hour, a relatively high probability can be assigned that the

⁷ Petitioner’s citation has a typographical error and refers to “Ex1004, 3:57–47.” Pet. 34. Petitioner’s intended citation, however, is clear because Petitioner provides the exact quotation.

cellular phone is located in a vehicle traveling **along a road** in the geographic area.” Ex. 1004, 4:34–37 (emphasis added).

On this record, Petitioner adequately establishes a reasonable likelihood that Petitioner will succeed on this issue at trial. In particular, Crane teaches that its system calculates “a distance 270 between each of the locations 130 of the phone and the straight dashed lines 266 which represent the roads.” Ex. 1004, 4:17–22. The Crane system then determines “the *actual* road” if “the distances 270 are sufficiently small.” *Id.* at 4:20–22 (emphasis added). These passages are sufficient to support that Crane teaches determining a most likely one of said plural streets upon which said wireless device is located. This leaves open the next question, does Crane teach performing this determination “from said status?”

As we discuss above in Section III(c), *supra*, we construe “status of said wireless device” to mean “information regarding the movement or orientation of the wireless device” for purposes of this decision, and Patent Owner does not dispute this construction in the Preliminary Response. Crane teaches first determining, based on whether the cellular phone “is moving” (in other words, information regarding the movement or “status”), that the cellular phone is inside of a vehicle traveling along a road. Ex. 1004, 4:4–8. The Crane system combines this status information with a calculation of what road is nearest to determine an “actual road.” *Id.* at 4:1–22. Thus, Crane teaches determining “from said status” which actual road the phone is located on. The status is part of the total process that makes the determination.

Crane teaches using location information to determine which actual road the phone is located on. *Id.* at 4:17–22. Claim 1, however, does not

require that a road determination be made *only* “from the status.” Rather, claim 1 merely requires that the determination come “from” the status. Claim 1 remains open to other information *also* being used to reach the determination. Thus, on the present record, Petitioner has adequately established that Crane teaches or suggests this claim recitation.

To the extent Patent Owner disputes this ground after institution, we will resolve any questions raised based on the full trial record in any final written decision entered in this proceeding. Nothing in this Decision is an invitation for Petitioner to supplement the argument or evidence presented in the Petition with respect to any ground.

[1.7] determining said most likely street as a first one of said plural geographic locations;

As we explain in Section III(c), *supra*, we construe this recitation as encompassing “determining a street upon which a wireless device is most likely located as a first geographic location of a geographic region.” Although the District Court determined that it “cannot decipher” the meaning of this claim term (in the context of issuing a ruling as to claim 11), Patent Owner does not dispute Petitioner’s position that, even if the full scope is uncertain, this recitation at least encompasses this construction. Ex. 1028, 28–30 (District Court ruling); Prelim. Resp. 22–23 (Patent Owner not disputing Petitioner’s statement on claim construction in its Preliminary Response). Thus, we are able to determine whether or not the cited prior art teaches this recitation based on what the parties agree the term minimally encompasses.

Petitioner argues that Crane teaches determining the street the phone is most likely located on. Pet. 35–37; *see also* Discussion of [1.6], *supra*.

Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence. Ex. 1004, 3:15–56, Fig. 5; Ex. 1008 ¶¶ 161–162.

[1.8] determining a first point of said plural points that is in proximity to said first geographic location;

As we explain in Section III(c), *supra*, we construe this recitation as encompassing “determining a point of the location information database that is in proximity to the first geographic location” where “in proximity” encompasses “where the ‘first point’ and ‘said first geographic location’ match (*e.g.*, are the exact same location).” Although the District Court determined that the full scope of the claim term “in proximity” “does not inform a [person of ordinary skill in the art] about the scope of the invention with reasonable certainty” (in the context of issuing a ruling as to claim 11), Patent Owner does not dispute Petitioner’s position that, even if the full scope is uncertain, “in proximity” at least encompasses a match. Ex. 1028, 26 (District Court ruling); Prelim. Resp. 22–23 (Patent Owner not disputing Petitioner’s statement on claim construction in its Preliminary Response). Thus, we are able to determine whether or not the cited prior art teaches this recitation based on what the parties agree the term minimally encompasses.

Petitioner argues that Crane teaches a matching process that involves determining that the phone is on or within a threshold distance of a road and ultimately determining what road the phone is on. Pet. 37–41. Based on the current record, we find Petitioner’s argument to be sufficiently supported by evidence. Ex. 1004, 3:38–39, 3:59–67, 4:1–20, 4:61–63, Figs. 3, 5; Ex. 1008 ¶¶ 164–178.

In summary, we determine that Petitioner has established a reasonable likelihood of prevailing on its assertion that claim 1 is unpatentable as obvious over Crane and Spain.

b. Dependent Claims 2, 10, and 11

Petitioner accounts for the limitations recited in claims 2, 10, and 11. Pet. 46–48. Petitioner explains how the combination of Crane and Spain discloses the recitations of these claims. Patent Owner does not separately dispute Petitioner’s position as to these claims.

Based on evidence in the present record, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that the combination of Crane and Spain teaches or suggests all limitations recited in claims 2, 10, and 11. Having reviewed Petitioner’s arguments and supporting evidence in the present record, we are persuaded that Petitioner has established a reasonable likelihood of prevailing on its assertion that claims 2, 10, and 11 are unpatentable as obvious over Crane and Spain.

c. Claim 12

Claim 12 is a system claim that is similar to method claim 1. Ex. 1001, 9:17–43, 10:9–34. Petitioner addresses claim 12 in a similar manner to claim 1. Pet. 48–50. Our reasoning with respect to claim 12 is also substantially the same as our analysis with respect to claim 1. Patent Owner does not separately dispute Petitioner’s position as to claim 12.

Based on evidence in the present record, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that the combination of Crane and Spain teaches or suggests all limitations recited in claim 1. Having reviewed Petitioner’s arguments and supporting evidence in the present record, we are persuaded that Petitioner has established a

reasonable likelihood of prevailing on its assertion that claim 1 is unpatentable as obvious over Crane and Spain.

d. Dependent Claims 13, 21, and 22

Petitioner accounts for the limitations recited in claims 13, 21, and 22. Pet. 50–52. Petitioner explains how the combination of Crane and Spain discloses the recitations of these claims. Patent Owner does not separately dispute Petitioner’s position as to these claims.

Based on evidence in the present record, we are persuaded that Petitioner has shown sufficiently for purposes of this Decision that the combination of Crane and Spain teaches or suggests all limitations recited in claims 13, 21, and 22. Having reviewed Petitioner’s arguments and supporting evidence in the present record, we are persuaded that Petitioner has established a reasonable likelihood of prevailing on its assertion that claims 13, 21, and 22 are unpatentable as obvious over Crane and Spain.

IV. CONCLUSION

For the reasons above, we determine that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail with respect to challenged claims 1, 2, 10–13, 21, and 22 of the ’784 patent. At this juncture in the proceeding, we have not made a final determination with respect to the patentability of the challenged claims, or with respect to claim construction.

V. ORDER

For the foregoing reasons, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1, 2, 10–13, 21 and 22 of the ’784 patent is hereby

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instituted with respect to the ground of unpatentability set forth 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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