

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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KIA CORP. and TOYOTA MOTOR CORP.,  
Petitioners,

v.

EMERGING AUTOMOTIVE LLC,  
Patent Owner.

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IPR2024-01167  
Patent 11,738,659 B2

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Before GEORGIANNA W. BRADEN, BARBARA A. PARVIS, and  
FRANCES L. IPPOLITO, *Administrative Patent Judges*.

BRADEN, *Administrative Patent Judge*.

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

## I. INTRODUCTION

Kia Corp. and Toyota Motor Corp. (collectively “Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting *inter partes* review of claims 1–21 of U.S. Patent No. 11,738,659 B2 (Ex. 1001, “the ’659 patent”). Emerging Automotive LLC (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”).

With our authorization, Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 8, “Prelim. Reply”) and Patent Owner filed a Sur-reply to Petitioner’s Reply (Paper 9, “Prelim. Sur-reply”) to address whether we should deny institution under 35 U.S.C. §§ 314(a), 325(d), and *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). For reasons provided below, we decide not to invoke this discretion to deny institution.

Under 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review. Based on the current record and for the reasons explained below, Petitioner has shown that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims. Therefore, pursuant to § 314, we institute an *inter partes* review of claims 1–21 in the ’659 patent on all challenges included in the Petition.

### A. *Real Parties in Interest*

Petitioner identifies Toyota Motor Corp., Toyota Motor North America, Inc., and Toyota Motor Sales, U.S.A., Inc., Kia Corp., and Kia America Inc., as the real parties-in-interest. Pet. 71. Patent Owner identifies Emerging Automotive LLC as the real party-in-interest. Paper 5 (Patent Owner’s Mandatory Disclosures), 2.

*B. Related Matters*

The parties indicate that the '659 patent has been asserted in the following actions: (1) *Emerging Automotive LLC v. Toyota Motor North America, et al.*, 2:23-cv-00434 (E.D. Tex.); (2) *Emerging Automotive LLC v. Kia Corp., et al.*, 2:23-cv-00437 (E.D. Tex.); and (3) USPTO *Ex Parte* Reexamination, Control No. 90/019,456. Pet. 71; Paper 5, 2. Petitioner further indicates that the cases have been consolidated for pretrial issues with the lead case being *Emerging Automotive LLC v. Kia Corp.*, No. 2:23-cv-00437-JRG (E.D. Tex.). Pet. 71.

*C. The '659 patent*

The '659 patent is titled “Vehicles and Cloud Systems for Sharing E-Keys to Access and Use Vehicles” and it issued on August 29, 2023. Ex. 1001, codes (45), (54). It is a continuation of a U.S. patent application and claims priority to several other continuation and continuation-in-part applications, as well as two provisional applications, the earliest of which was filed on April 22, 2011. *Id.* at codes (60), (63).

*I. Written Description*

The '659 patent relates to systems and methods for generating and sharing electronic keys (e-Keys) with users and cloud-based processing systems. Ex. 1001, 1:66–2:2. In some embodiments, the '659 patent discloses providing vehicle access to individuals, including an owner or “guest driver,” e.g., a friend, service person, or valet. *Id.* at 5:58–62, 10:30–34. According to the '659 patent, this access can be provided by an electronic key, or e-key, which allows the holder of the e-key to use the vehicle. *Id.* at 6:1–3. The '659 patent discloses that an e-key may be sent from a vehicle owner to another person, such as a guest. *Id.* at 10:40–51.

The e-key allows use of the vehicle, and can further include privileges for the user, including speed limits, geographic restrictions, amount of time, etc. *Id.*

The '659 patent describes creating profiles for users that have privileges set by an administrator. *Id.* at 16:46–52. For example, accounts for a driver may be created with “defined the roles,” which can “include a set of privileges,” such as speed limit or geographic privileges. *Id.* at 38:52–62. In this way, according to the '659 patent, logins of user profiles can be dynamically controlled. For example, “[a]dministrators can decide which settings are locked for specific logins or roles, which are open for the login user to toggle and which settings are to be enforced.” *Id.* at 17:19–26. “[U]se of the vehicle can be restricted to predefined rules,” including those based on the user profile. *Id.* at 22:24–25.

One embodiment of the '659 patent is illustrated in Figure 29, which is reproduced below:

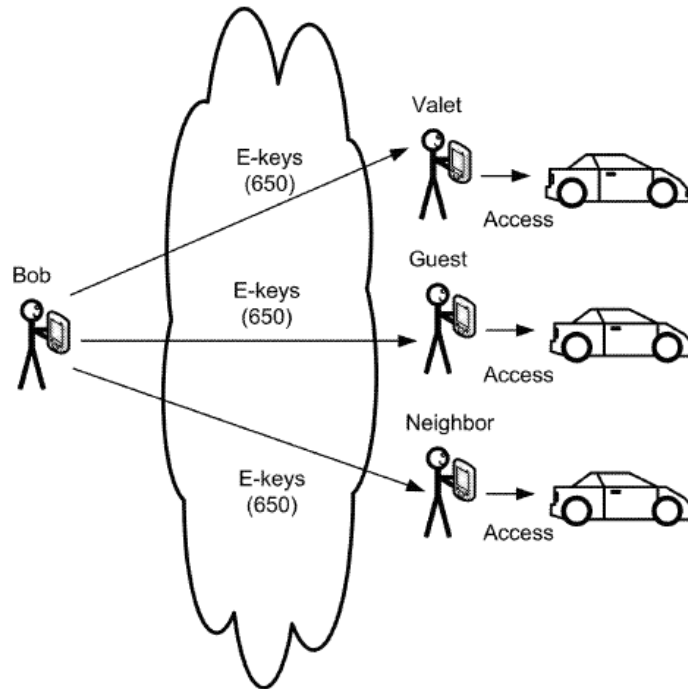


FIG. 29

Figure 29 of the '659 patent, above, is an illustration showing the assignment of “e-keys for enabling access of a vehicle to a remote user.” *Id.* at 10:1–2. In Figure 29, vehicle owner Bob shares electronic keys 650 with users “valet,” “guest,” and “neighbor,” each having “various privilege settings.” *Id.* at 43:37–51.

Another embodiment of the '659 patent is illustrated in Figure 31A, which is reproduced below:

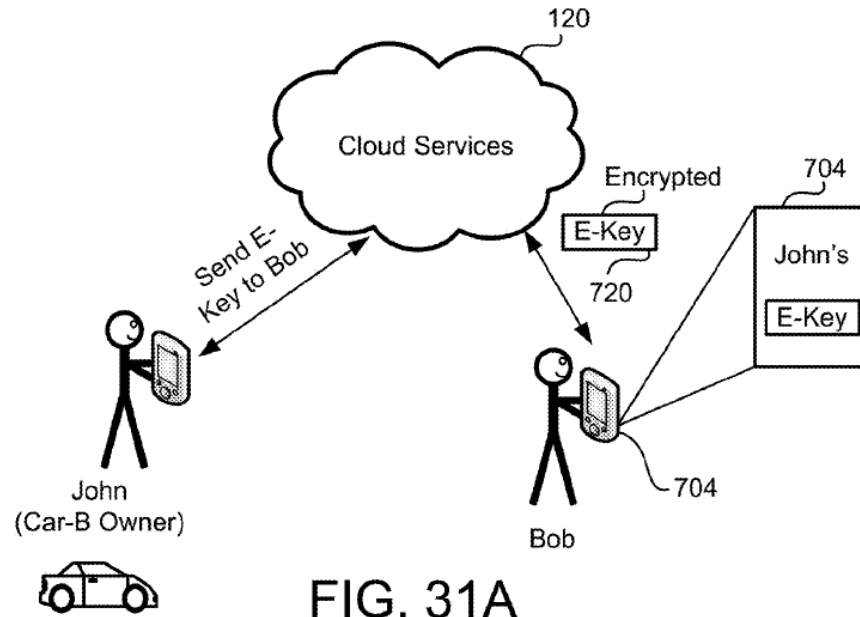


Figure 31A of the '659 patent, above, is an illustration showing a user (John) sending e-keys to another user (Bob) via mobile devices 702 (not labeled) and 704. *Id.* at 44:49–51. Per the '659 patent, the sending of the e-keys includes sending a request to a service, which may be operated by cloud services 120. *Id.* at 44:51–53. The '659 patent discloses that “[a]t the server, the server will generate an access code for the vehicle (carB)” and the “access code will then be encrypted by the server and then sent as encrypted e-keys 722 to Bob’s device 704.” *Id.* at 44:53–57. According to the '659 patent, Bob’s device 704 may be a mobile device, such as a smart phone. *Id.* at 44:57–58.

The '659 patent explains that “[e]ach e-key, in one embodiment, will include a unique access code or substantially unique access code.” *Id.* at 43:52–53. “The unique access code can be generated by a server, such as cloud services 120.” *Id.* at 43:53–54. “The unique generation of access codes enables each electronic keyed [sic] to be different for each user and each e-key can expire at any time set by a requesting user.” *Id.* at 43:60–64;

*see also id.* at 46:18–20 (“Each unique code can then be used to associate those e-keys with the same vehicle, but assigned to different devices/people with different privileges.”). The unique access code “can be generated by a number generator, and [sic] alphanumeric random generator, in [sic] incremental number generator, or any other generation device that can generate codes that are unique or substantially unique.” *Id.* at 45:66–46:2.

Another embodiment of the ’659 patent is illustrated in Figure 33, which is reproduced below:

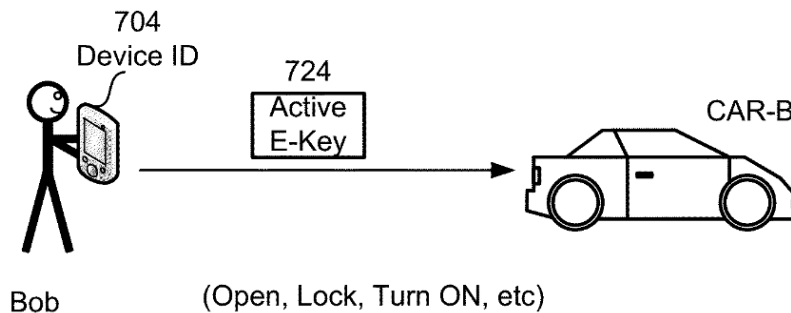


**FIG. 33**

Figure 33 shows Bob using an e-key to unlock and start John’s vehicle (Car-B). *Id.* at 45:30–32. The ’659 patent discloses that “access by Bob is facilitated by the activated e-keys 724, which are used via device 704 having the device ID that is paired or associated with the access code associated with the activated e-keys 724.” *Id.* at 45:32–35.

## 2. Illustrative Claim

As noted previously, Petitioner challenges claims 1–21. Pet. 2. Claims 1, 11, and 18 are independent claims. Claim 1 is representative of the challenged subject matter and is reproduced below with Petitioner’s identifiers in brackets, which do not impact our analysis (*see* Pet. 2, List of Challenged Claims):

1. [1 preamble] A sub-system of a vehicle, the vehicle having an on-board computer interfaced with the sub-system for processing instructions to enable use of an electronic key (eKey), the sub-system comprising:
  - [1a] memory associated with the on-board computer of the vehicle having program instructions for instructing unlocking and starting of the vehicle; and
  - [1b] communications circuitry of the vehicle interfaced with the onboard computer of the vehicle and the sub-system, the communications circuitry is configured to process program instructions to enable communication with a server,
  - [1c] the communications circuitry includes wireless communication circuitry for enabling local connection with a mobile device, the mobile device is configured to use the eKey for said unlocking and said starting the vehicle;
  - [1d] wherein the wireless communications circuitry of the vehicle is configured to receive coded data from the mobile device when using the eKey, the coded data enables functions of said eKey for said unlocking and use of the vehicle, the coded data is associated to the eKey for use by the mobile device,
  - [1e] and the coded data includes privilege settings associated with the eKey for limiting types of use of the vehicle when using the eKey with the vehicle;
  - [1f] wherein use of the vehicle using the eKey is tracked to identify and log actions taken using the vehicle while the eKey is used.

Ex. 1001, 52:12–39.

*D. Asserted Challenges to Patentability and Evidence of Record*

Petitioner challenges the patentability of claims 1–21 of the '659 patent based on the following reference or combination of references:

| Claim(s) Challenged | 35 U.S.C.<br>§ | Reference(s)/Basis                       |
|---------------------|----------------|------------------------------------------|
| 1, 3–21             | 103            | Kleve <sup>1</sup> , Hatton <sup>2</sup> |
| 2                   | 103            | Kleve, Hatton, Sekiyama <sup>3</sup>     |
| 1–3, 5, 8–10        | 102            | Mikan <sup>4</sup>                       |
| 4, 11–18, 20, 21    | 103            | Mikan, Xiao <sup>5</sup>                 |
| 6, 7                | 103            | Mikan, Sekiyama                          |
| 19                  | 103            | Mikan, Xiao, Sekiyama                    |

Pet. 2. In support of its patentability challenge, Petitioner relies on, *inter alia*, the Declaration of Kevin C. Almeroth, Ph.D. (“Dr. Almeroth”).

Ex. 1004. Patent Owner contests the challenges to patentability and supports its position with the Declaration of Sam Malek, Ph.D. (“Dr. Malek”).

Ex. 2001.

## II. PRELIMINARY MATTER

### A. Claim Construction

A 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). Under that standard, the “words of a claim ‘are generally given their ordinary and customary meaning.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc).

Petitioner contends express claim construction is unnecessary at this stage of the proceeding and states that all terms should be given their plain

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<sup>1</sup> U.S. Patent Application Publication No. 2014/0129053 A1, published May 8, 2014 (Ex. 1005) (“Kleve”).

<sup>2</sup> U.S. Patent No. 9,002,536 B2, issued April 7, 2015 (Ex. 1008) (“Hatton”).

<sup>3</sup> JP Patent Application No. 2008-301427, published June 10, 2010, filed Nov. 26, 2008 (Ex. 1006) (“Sekiyama”).

<sup>4</sup> U.S. Patent Application Publication No. 2008/01506830 A1, published June 26, 2008 (Ex. 1007) (“Mikan”).

<sup>5</sup> U.S. Patent No. 8,737,913 B2, issued May 27, 2014 (Ex. 1010) (“Xiao”).

and ordinary meaning. Pet. 9. Patent Owner does not address claim construction in its Preliminary Response.

Construction is needed only for those terms “that are in controversy, and only to the extent necessary to resolve the controversy.” *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). There are no claim terms in controversy at this stage of the proceeding. Consequently, we need not construe any terms for our analysis.

*B. Principles of Law Regarding Obviousness*

*1. Priority of Filing Date*

“[A] patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the claims of the later application, as required by 35 U.S.C. § 112.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008). “To satisfy the written description requirement [in § 112,] the disclosure of the prior application must ‘convey with reasonable clarity to those skilled in the art that, as of the filing date sought, [the inventor] was in possession of the invention.’” *Id.* (alteration in original) (quoting *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991)).

Although the burden of proof for showing unpatentability remains on a petitioner, the patent owner may have a burden of production. A patent owner has the burden for showing it is entitled to priority. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1379 (Fed. Cir. 2015) (discussing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)); see also *In re Magnum Oil Tools Int’l, Ltd.*, 829

F.3d 1364, 1376 (Fed. Cir. 2016) (“[A] patentee bears the burden of establishing that its claimed invention is entitled to an earlier priority date than an asserted prior art reference.”).

## 2. *Obviousness*

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *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 skill in the art; and (4) where in evidence, objective evidence of non-obviousness.<sup>6</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). When evaluating a combination of teachings, we must also “determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Whether a combination of prior art elements would have produced a predictable result is an issue we weigh in the ultimate determination of obviousness. *Id.* at 416–17.

In an *inter partes* review, the petitioner must show with particularity why each challenged claim is unpatentable. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016); 37 C.F.R. § 42.104(b). The

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<sup>6</sup> At this stage of the proceeding, Patent Owner has not presented objective evidence of non-obviousness.

burden of persuasion never shifts to the patent owner. *Dynamic Drinkware*, 800 F.3d at 1378.

We analyze the challenges presented in the Petition in accordance with the above-stated principles.

*C. Level of Ordinary Skill in the Art*

In determining 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 1573, 1579 (Fed. Cir. 1995) (quoting *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)). Furthermore, the prior art itself can reflect the appropriate level of ordinary skill in the art. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Here, Petitioner asserts a person of ordinary skill in the art at the time of the invention of the ’659 patent, would have “had at least a four-year undergraduate degree in electrical engineering, automotive engineering, or a closely related field and at least two years of experience in the field of access control systems, vehicle electronics, and/or cryptography.” Pet. 8–9. Dr. Almeroth supports Petitioner’s position and further testifies that “[a]dditional education could substitute for professional experience and vice versa.” Ex. 1004 ¶ 85.

Patent Owner does not assert a different level of skill in the art at the time of the alleged invention and uses Petitioner’s proposed level of skill. Prelim. Resp. 5–6 (citing Ex. 2001 ¶¶ 36–37).

For the purposes of this Decision, we too adopt Petitioner’s level of ordinary skill in the art because it appears consistent with the problems addressed in the ’659 patent and the prior art of record.

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

Patent Owner asserts that we should discretionarily deny the Petition under § 314(a). Prelim. Resp. 33–46; Prelim. Sur-Reply 1–5. Petitioner argues against discretionary denial. Pet. 68–70; Prelim. Reply 1–4.

In exercising the Director’s discretion under § 314(a), the Board may consider “events in other proceedings related to the same patent, either at the Office, in district court, or the ITC.” Patent Trial and Appeal Board Consolidated Trial Practice Guide, 58 & n.2 (Nov. 2019) (“CTPG”). *NHK Spring* explains that the Board may consider the advanced state of a related district court proceeding, among other considerations, as a “factor that weighs in favor of denying the Petition under § 314(a).” *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential). Additionally, the Board’s precedential order in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–16 (PTAB Mar. 20, 2020) (precedential) (“the *Fintiv* Order”) identifies several factors for analyzing issues related to the Director’s discretion to deny institution in view of related litigation, with the goal of balancing efficiency, fairness, and patent quality.

When considering related litigation, the Board evaluates the following factors (“*Fintiv* factors”):

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* Order at 5–6. In considering these factors, we apply the guidance set forth in a Memorandum regarding the “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation” issued by the Director of the United States Patent and Trademark Office (hereinafter, “Guidance Memo”).<sup>7</sup>

*1. First Factor – Likelihood of Stay*

Petitioner has not requested a stay in the related district court litigation and argues that factor one is neutral. Pet. 69; Prelim. Reply 1. Patent Owner argues that the related district court litigation is unlikely to be stayed based on that court’s low grant rate in other cases. Prelim. Resp. 34–36.

On this record, we decline to speculate as to how the district court might rule on a motion that Petitioner has not filed. Thus, we determine that Factor 1 is neutral.

*2. Second Factor – District Court Trial Date*

The related district court litigation is currently scheduled for trial on July 21, 2025. Pet. 69; Prelim. Resp. 36 (citing Ex. 1024). Patent Owner

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<sup>7</sup> Available at [https://www.uspto.gov/sites/default/files/documents/interim\\_proc\\_discretionary\\_denials\\_aia\\_parallel\\_district\\_court\\_litigation\\_memo\\_20220621\\_.pdf](https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf).

argues that this schedule is consistent with the district court’s median time-to-trial, which Patent Owner states is 21.1 months. Prelim. Resp. 38; *see* Ex. 2006; *see Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation* (USPTO June 21, 2022) (“Guidance Memo”)<sup>8</sup> at 8–9 (providing that “[p]arties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides for the PTAB’s consideration”). According to Patent Owner, “the median time from filing to case disposition in the Eastern District of Texas is 7.8 months.” *Id.* at 38 (citing Ex. 2006). Patent Owner further notes that the “Board’s final written decision would be due over six months later on approximately January 30, 2026.” *Id.* at 36. Therefore, Patent Owner argues that factor two favors discretionary denial. *Id.* at 36–37.

Petitioner does not dispute Patent Owner’s evidence regarding time-to-trial, but argues that delays in Judge Gilstrap’s cases are common and noting that “case filings have skyrocketed.” Prelim. Reply 1 (citing Ex. 1040, 7, 24; Ex. 1041, 2; Ex. 1042, 1). Petitioner then argues that “[f]or Judge Gilstrap, statistics for 12 months prior confirm that time-to-trial is on the rise,” and “Judge Gilstrap now has fifteen trials set for July 21, 2025.” *Id.* (citing Ex. 1047; Ex. 1043). Thus, Petitioner contends that Patent Owner’s “speculation that this case would be prioritized *and* that EDTX’s trial backlog would be clear is extremely unlikely.” *Id.*

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<sup>8</sup> Available at [https://www.uspto.gov/sites/default/files/documents/interim\\_proc\\_discretionary\\_denials\\_aia\\_parallel\\_district\\_court\\_litigation\\_memo\\_20220621\\_.pdf](https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf).

Patent Owner’s representation of median time-to-trial of 21 months is consistent with the most recent available data from the judiciary.<sup>9</sup> *See* Ex. 2006. Additionally, Petitioner agrees that trial is scheduled for July 21, 2025, which is approximately six months before the Board would issue its Final Decision in this proceeding. *See* Prelim. Reply 1.

Accordingly, we determine that Factor 2 weighs in favor of discretionary denial.

*3. Third Factor – Investment in Related District Court Litigation*

Patent Owner argues that Factor 3 strongly weighs in favor of denial because both parties “will have expended considerable resources in the parallel litigation, including on the merits of Petitioners’ invalidity positions, by the time the Board issues an institution decision.” Prelim. Resp. 39. According to Patent Owner, the parties have “already spent an entire day in Judge Gilstrap’s court” for a hearing on motions pertaining to technical aspects of the asserted patents, including motions to compel discovery, a motion to amend invalidity contentions, and a motion to strike infringement contentions. *Id.* at 40 (citing Ex. 2007). Additionally, Patent Owner argues that the parties will have (1) already exchanged interrogatory responses, (2) completed at least four depositions; (3) substantially completed document productions; (4) review source code, and (5) substantially completed claim construction briefing. *Id.* at 40 (citing Ex. 1024).

Petitioner argues that Factor 3 does not warrant denial because as Patent Owner “has described the case” “to the Federal Circuit,” it is “in the initial stages.” Prelim. Reply 2 (citing Ex. 1024). Petitioner specifically

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<sup>9</sup> Available at [https://www.uscourts.gov/sites/default/files/fcms\\_na\\_distprofile1231.2023\\_0.pdf](https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf).

argues that all but one of the “technical motions” mentioned by Patent Owner were denied as moot by agreement of the parties, and the last was summarily denied. *Id.* According to Petitioner, “[b]y time of institution, fact discovery will still be ongoing” and “[t]he district court’s substantive investment regarding invalidity will be nil.” *Id.* (citing *Samsung Electronics America, Inc. v. Cobblestone Wireless, LLC*, IPR2024-00606, Paper 13 at 40–41 (PTAB Sept. 10, 2024) (close of fact discovery occurring after institution weighs against denial)).

The record before us indicates that the related district court proceeding is still in relatively early stages. Fact and expert discovery are ongoing until March 3, 2025 and April 7, 2025, respectively. Ex. 2003, 4. Claim construction briefing is underway, and the Markman Hearing that was scheduled originally for January 16, 2025 has been postponed until February 14, 2025, which is after the date of this Decision. Paper 13; Ex. 1025; Ex. 2003, 4–5. We are not persuaded that the discovery motions identified by Patent Owner represent a significant investment in the case. As a result, we determine that this factor weighs against discretionary denial.

#### 4. *Fourth Factor – Overlap of Issues*

Petitioner argues that Factor 4 “favors institution” because the Petitioner “offer[s] a ‘*Sand plus*’ stipulation” where it “will not pursue any invalidity ground that includes *Kleve*, *Hatton*, *Sekiyama*, *Mikan*, or *Xiao* against the ’659 patent in the related litigation.” Prelim. Reply 2. Additionally, Petitioner contends “this IPR will address issues not present in the district court.” *Id.*

Patent Owner contends Factor 4 weighs in favor of denial “because there is substantial overlap between the claims, arguments, and evidence raised in the Petition and in Petitioners’ invalidity contentions in the parallel

district court proceeding.” Prelim. Resp. 42. Patent Owner also argues that “Petitioners’ stipulation is narrower than the *Sotera* stipulation approved in the Interim *Fintiv* Procedure,” and “the relevant art includes multiple references that disclose the same basic concepts.” Prelim. Sur-Reply 3 (citing Prelim. Resp. 42–45). Thus, Patent Owner asserts that the concerns discussed in the *Sand Revolution* case and the Preliminary Response remain, and denial is warranted. *Id.*

We agree with Patent Owner that the language in Petitioner’s stipulation does not eliminate completely any overlap with district court invalidity arguments. Petitioner’s stipulation allows Petitioner to use any prior art reference that is not relied on in the Petition. This may not fully address “concerns of inefficiency and the possibility of conflicting decisions.” *See Fintiv*, Paper 11 at 12. Nonetheless, Petitioner’s stipulation does decrease the overlap in issues and mitigates to a great degree the concerns regarding duplicative efforts and potentially conflicting decisions.

Based on the foregoing discussion, we determine that Factor 4 weighs against discretionary denial.

#### 5. *Fifth Factor – Defendant in District Court*

Petitioner is the defendant in the related district court litigation. Prelim. Resp. 45. We find that this factor favors denial. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 19 (PTAB Dec. 1, 2020) (precedential as to § II.A).

#### 6. *Sixth Factor – Other Circumstances, Including the Merits*

The sixth *Fintiv* factor takes into account other circumstances that may bear on the decision to exercise discretion to deny, such as the merits of the patentability challenges. *Fintiv*, Paper 11 at 14–16. Under this factor, “the PTAB will not deny institution based on *Fintiv* if there is compelling

evidence of unpatentability.” Guidance Memo 5. Board precedent provides that we should only consider the compelling merits standard if the first five *Fintiv* factors favor discretionary denial. *CommScope Techs. LLC. v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 4–5 (PTAB February 27, 2023) (precedential).

The Factor 1 is neutral, Factors 2 and 5 favor discretionary denial, and Factors 3 and 4 weighs against discretionary denial. As set forth above, we determine that balance of the first five *Fintiv* factors do not favor discretionary denial, and thus, we need not assess compelling merits. *CommScope*, Paper 23 at 5 (“In circumstances where, however, the Board’s analysis of *Fintiv* factors 1–5 favors denial of institution, the Board shall then assess compelling merits.”).

#### 7. *Fintiv* Determination

The balance of all *Fintiv* factors do not favor the exercise of our discretionary powers to deny institution. Therefore, we determine that discretionary denial is not appropriate in this case.

##### E. *Request for Discretionary Denial under 35 U.S.C. § 325(d)*

The Patent Office may deny institution under 35 U.S.C. § 325(d), which provides, in pertinent part, that “[i]n determining whether to institute or order a proceeding under this chapter . . . the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Board also has discretion to institute proceedings pursuant to 35 U.S.C. § 314(a). *See, e.g., General Plastic Industrial Co. v. Canon Kabushiki Kaisha*, Case IPR2016-01357, slip op. at 8–10, 16–19 (PTAB Sept. 6, 2017) (Paper 19) (precedential).

Patent Owner asserts that we should discretionarily deny the Petition under § 325(d). Prelim. Resp. 46–47. Specifically, Patent Owner asserts that we should exercise our discretion under 35 U.S.C. § 325(d) to deny the petition because the Office is already considering the validity of the ’659 patent in a post-issuance ex parte review proceeding brought by Unified Patents. *Id.* at 46. Patent Owner also argues “Unified Patents is a membership platform that challenges patents that are infringed by its members, and the Toyota petitioner is a member.” *Id.* (citing Ex. 2018, 3). According to Patent Owner, the Examiner issued an Office Action in the reexamination proceeding rejecting all claims of the ’659 patent as well as having held an interview, and received Patent Owner’s response. *Id.* at 46–47 (citing Ex. 2019); *see* Prelim. Sur-Reply 5. Thus, Patent Owner contends that the Board should not expend its valuable resources reconsidering the validity of the ’659 patent when the issue is already before the Office in a parallel proceeding. Prelim. Resp. 47 (citing Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding, 84 Fed. Reg. 16,654, 16,657 (Apr. 22, 2019)); *see* Prelim. Sur-Reply 5.

For its part, Petitioner argues that we should not exercise our discretion under § 325(d) because “Patent Owner provides no analysis of the relevant factors for denial of institution under §325(d)” and “only cites to a non-binding Notice.” Prelim. Reply 4–5. Additionally, Petitioner notes that the reexamination proceeding “relies on almost entirely unrelated grounds based on U.S. Patent Application Pub. No. 2013/0099892 to Tucker, which is not part of this Petition.” *Id.* at 5 (citing Ex. 1023 at 4, 8). Therefore, Petitioner argues that “[c]ontrary to Patent Owner’s allegation, there is no risk of ‘parallel analysis,’ and both proceedings should continue.” *Id.*

For the reasons given below, we decline to exercise our discretion to deny.

*1. The Legal Standard*

In evaluating matters under § 325(d), the Board uses the two-part framework set forth under *Advanced Bionics, LLC v. Med-El Electromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 7 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*” or “*AB*”). Under the first prong of that framework, we must determine whether the same or substantially the same art or arguments previously were presented to the Office. If so, we turn to the second prong which focuses on whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims. *Id.* at 8.

- a. Advanced Bionics Prong One: whether “the same or substantially the same art or arguments previously were presented to the Office”*

In evaluating whether the same or substantially the same prior art or arguments were previously presented to the Office, the Board has identified several non-exclusive factors for consideration. *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, Case IPR2017-01586, slip op. at 17–18 (PTAB Dec. 15, 2017) (Paper 8) (informative) (“the *Becton Dickinson* factors”). The *Becton Dickinson* factors are framed as comparing the art or arguments in a petition against what was before an examiner during prosecution.

The reexamination request for the ’659 patent raised five proposed substantial new questions of patentability, reproduced below.

| SNQ   | Claims        | Basis                           |
|-------|---------------|---------------------------------|
| SNQ 1 | 1, 2 and 5–10 | § 103 – Tucker and Perry        |
| SNQ 2 | 1–3 and 5–7   | § 103 – Tucker and Mikan        |
| SNQ 3 | 4             | § 103 – Tucker, Mikan and Kleve |
| SNQ 4 | 8–10          | § 103 – Tucker, Mikan and Perry |
| SNQ 5 | 11–21         | § 103 – Tucker and Cazan        |

See Ex. 1023, 8. According to the request “[n]one of Mikan, Kleve, Perry, or Cazan was cited or discussed on the record in the original prosecution,” while “Tucker was cited by applicant but its substance was not discussed on the record by applicant or examiner. *Id.* at 8–9.

As Petitioner argues, and Patent Owner does not deny, the prior art combinations at issue in the reexamination proceeding are not the same as those raised in the Petition. Prelim. Reply 4–5; Prelim. Sur-Reply 5. As such, we determine the first part of *Advanced Bionics* is not satisfied and do not exercise our discretion to deny institution for this reason.

*b. Advanced Bionics Prong Two: whether “the Office erred in a manner material to the patentability of the challenged claims”*

Because the Petition does not “presents to the Office the same or substantially the same art previously presented to the Office,” we need not consider the second part of the *Advanced Bionics* framework. See *Advanced Bionics*, IPR2019-01469, Paper 6 at 7–8, 10.

*2. Conclusion Regarding Discretionary Denial under § 325(d)*

The *Advanced Bionics* framework “reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Advanced Bionics*, IPR2019-01469, Paper 6 at 9. Under the present circumstances, we determine that the Office has not considered the

same or substantially the same art or arguments previously, and will not consider same or substantially the same art or arguments in the reexamination proceeding. Accordingly, we decline to exercise our discretion to deny institution under § 325(d).

### III. ANALYSIS

#### A. *Summary of References*

##### 1. *Kleve (Ex. 1005)*

Kleve is a U.S. patent application publication titled “Credential Check and Authorization Solution for Personal Vehicle Rental.” Ex. 1005, code (54). Kleve discloses a vehicle computing system (“VCS”) that includes the ability to use a vehicle rental micro-business that is integrated into the VCS. *Id.* ¶ 36.

One embodiment of Kleve is shown in Figure 2, reproduced below.

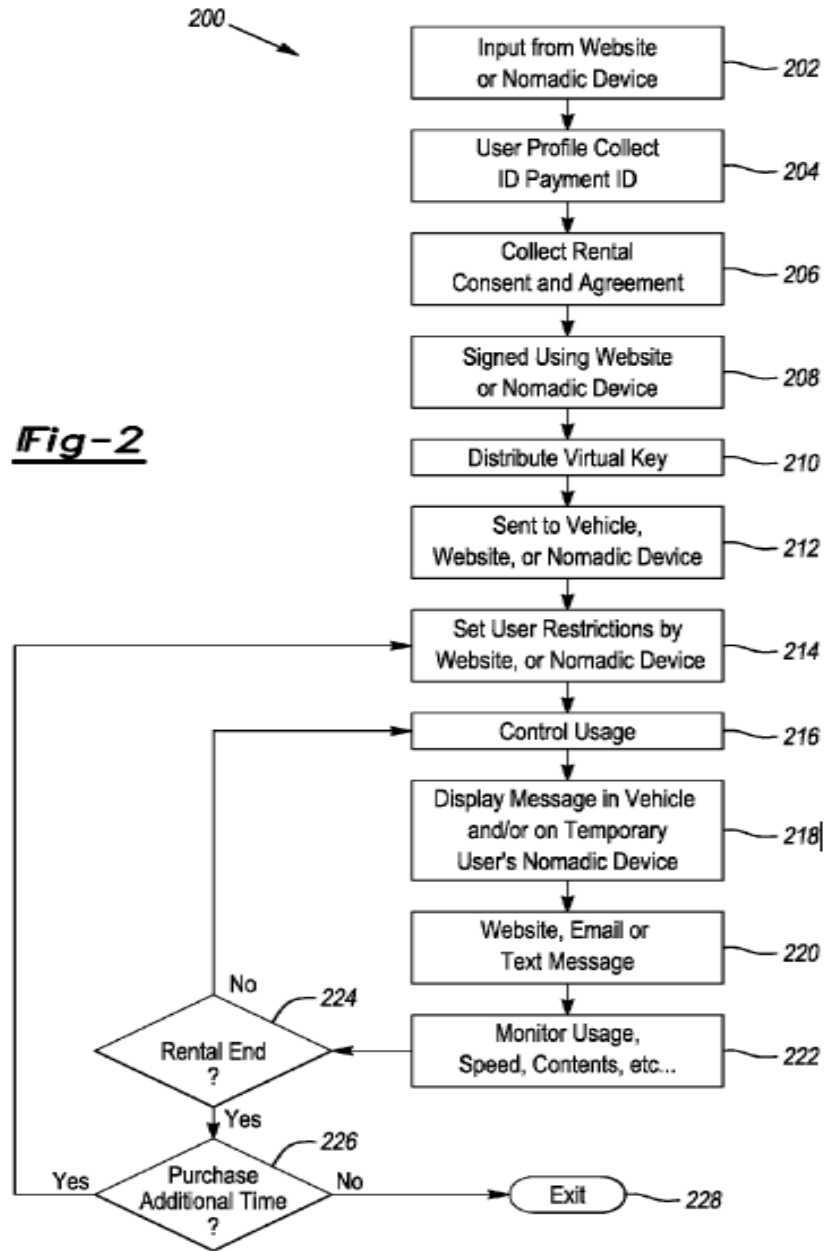


Figure 2, above, is a flow chart illustrating the steps of a vehicle rental micro-business as taught by Kleve. *Id.* ¶ 11. As part of Kleve’s system, an Owner and Temporary User “may set up a user profile using a website or a nomadic device communicating” with a site that is stored in a database. *Id.* ¶ 37, Fig. 2 at step 202. According to Kleve, a “Temporary User may also fill out a user profile using the website or nomadic device to include, but not limited to, photos of credit cards, photo of forms of ID, facial recognition,

voice print recognition, matrix barcode (ex. two-dimensional code), code word or phrase for speech recognition, temporary mobile web login IDs and password, or other types of unique Temporary User identification to validate and pay for the rental service at step 204.” *Id.* ¶ 37, Fig. 2 at step 204.

Using this system, an Owner can rent out their vehicle and the Temporary User may agree to terms to rent a vehicle. *Id.* ¶ 38.

Per Kleve, the Owner and Temporary User “may agree to terms and conditions for the rental period using the website or nomadic device” as shown at step 206 in Figure 2. *Id.* ¶ 38. Kleve discloses the use of an identifier from a vehicle rental administrative system that is configured to activate a vehicle during a prescribed rental period. *Id.* ¶¶ 7, 39. Kleve specifically discloses that in Figure 2 at step 210, the system generates a virtual key to distribute to the Temporary User and VCS (located within the vehicle itself). *Id.* ¶¶ 35, 39. Kleve then discloses that at step 214 of Figure 2, the Owner may have access to control use of the vehicle being rented by the Temporary User. *Id.* ¶ 40. According to Kleve, these restrictions “may be based on, but not limited to, the owner’s selection of parameters including, but not limited to, speed, global position coordinates, or load weight restrictions.” *Id.*

Kleve additionally explains that “during the rental term the VCS may monitor the Temporary User’s utilization of the vehicle including, but not limited to, renter verification, driving behavior, vehicle location, speed, fuel level, and other vehicle information requested by the vehicle owner.” *Id.* ¶ 73. “The continuous monitoring of the Temporary User’s behavior during the rental period may be transmitted to the server.” *Id.* ¶ 76.

Kleve explains that Temporary User’s use of the shared vehicle may be subject to “restriction limits [privileges] initially set by the Owner at the

beginning of the rental term.” *Id.* ¶ 43. According to Kleve, “[t]he restrictions may be based on, but not limited to, the [O]wner’s selection of parameters including, but not limited to, speed, global position coordinates, or load weight restrictions.” *Id.* ¶ 40. Kleve specifies that during the rental term, the “control parameters” of the shared vehicle are “monitor[ed]” to determine whether a “restriction” has been exceeded. *Id.* ¶¶ 40, 53. When a restriction is exceeded, Kleve teaches that “the Temporary User and Owner may be notified.” *Id.* ¶ 40. Kleve discloses that “an in-vehicle display message may be sent [from the server] to notify the Temporary User if a restriction limit has been exceeded.” *Id.* ¶¶ 40, 53. Kleve states that “[t]he display message to alert the Temporary User of a restriction violation may be sent to the vehicle display information console.” *Id.* ¶ 53.

2. *Hatton (Ex. 1008)*

Hatton is a U.S. Patent titled “Key FOB Security Copy to a Mobile Phone.” Ex. 1008, code (54). Hatton explains that mobile device can enable one or more processors to receive vehicle key security codes from a vehicle key, where the mobile device receives a signal from a transmitter associated with a vehicle key, the signal being indicative of one or more security codes associated with the vehicle key. *Id.* at code (57). According to Hatton, the mobile device may store the one or more security codes in memory and configure a mobile device application to implement one or more vehicle control functions using the security codes. *Id.*

Hatton teaches that a “mobile device 124 may be configured using a software application to communicate with the VCS,” using encrypted data to control the vehicle. *Id.* at 7:11–45. Hatton also teaches that the encrypted data may be used to securely generate an electronic key on the mobile device, such as by a user “typing a pin number on the [software] application

[on the mobile device],” and associating the pin number “as the primary or secondary key.” *Id.* at 15:37–41. Hatton explains that the virtual key and encrypted data can be communicated between the mobile device and the VCS using “wireless communication technologies.” *Id.* at 7:56–60.

3. *Sekiyama (Ex. 1006)*

Sekiyama is a Japanese patent application publication titled “Electronic Key System.” Ex. 1006, code (54). Sekiyama provides an electronic key system that allows restrictions on functions that can be executed with a duplicate electronic key to be imposed when a duplicate electronic key is generated. *Id.* at code (57). Sekiyama discloses a server that generates an e-key. *Id.* ¶ 26 (“[A]n electronic key [is] outputted from the center server 20.”). This key performs “door locking / unlocking” and “the permission for engine start.” *Id.* ¶ 18.

4. *Mikan (Ex. 1007)*

Mikan is a U.S. patent application publication titled “Wireless Device as Programmable Vehicle Key.” Ex. 1007, code (54). Mikan is directed to the use of “wireless devices for providing secure operation of a vehicle.” *Id.* at code (57). One embodiment of Mikan is shown in Figure 2, a block diagram, reproduced below. *Id.* ¶ 5.

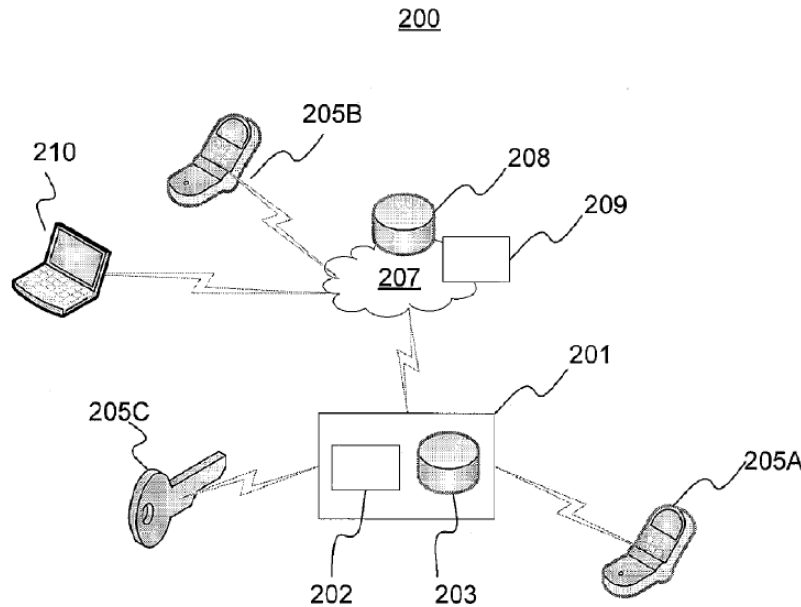


FIG. 2

Figure 2, above, is a block diagram illustrating an embodiment of wireless vehicle security system 200. *Id.* ¶ 11. According to this embodiment, the system may include multiple keys, which may be “electronic keys” that are “embedded in a wireless device such as a cellular telephone or Personal Digital Assistant.” *Id.* ¶ 50. Mikan explains that a “vehicle operation policy” may assign specific “vehicle operation features” (e.g., “unlocking a door,” “opening a trunk,” or “engaging an ignition”) that are accessible to different electronic keys. *Id.* ¶¶ 49, 51.

Mikan discloses that system 200 includes a “control unit 202” that is “in communication with wireless network 207” using well known wireless communication techniques, such as WIFI. *Id.* ¶ 52. According to Mikan, control unit 202 may also “interface with vehicle 201” to “control vehicle functions and . . . sense operation of vehicle 201.” *Id.* ¶ 53. For example, the control unit may “lock and unlock the vehicle doors” or “sense vehicle

speed and the status of the ignition.” *Id.* Mikan’s system also includes local and master databases that maintain information about vehicles, keys, and operation policies associated with different vehicles and keys. *Id.* ¶¶ 51, 54. Mikan then disclose that control unit 202 may employ the vehicle operation policies to “block and/or limit operation of vehicle 201 . . . when an access request does not conform with vehicle operation policy.” *Id.* ¶ 77.

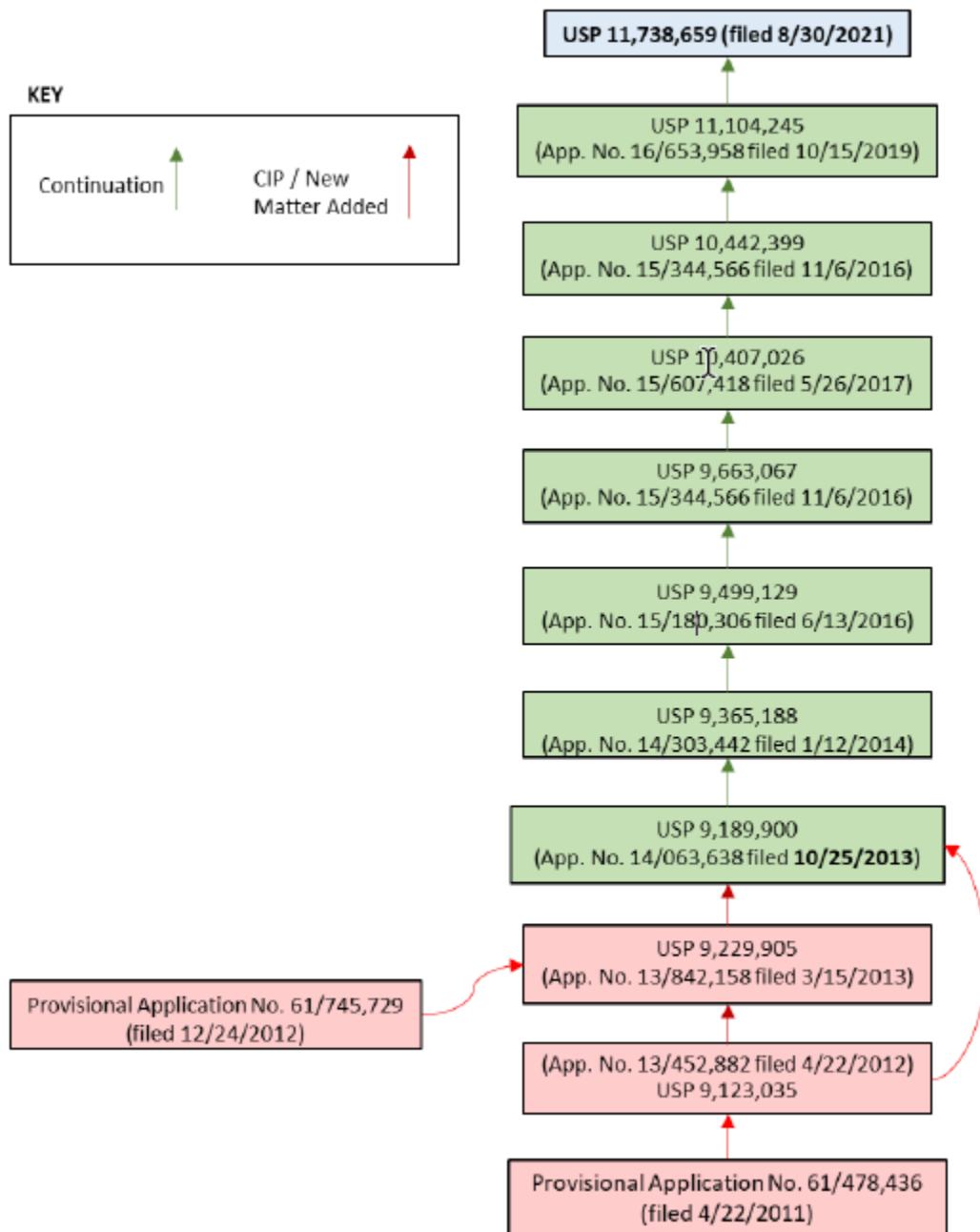
5. *Xiao (Ex. 1010)*

Xiao is a U.S. patent application publication titled “Methods and Systems for Providing a Wireless Automobile Key Service.” Ex. 1010, code (54). Xiao discloses a system that uses a mobile device to “command[] an automobile.” *Id.* at 2:29–30. Xiao’s mobile device includes a “wireless automobile key service application” through which the operator of the vehicle “register[s] for the disclosed wireless automobile key service . . . and create[s] an account for one or more mobile devices 110, automobile operators, and/or automobiles 112.” *Id.* at 4:33–36, 4:46–56. According to Xiao, a user’s account may include information about the user’s “mobile ID 610, operator authentication information 612, operator profile information 614, automobile permissions information 616, and a default automobile ID 617.” *Id.* at 12:8–13.

B. *Priority of the ’659 Patent Claims and the Availability of Klevé as Prior Art*

The ’659 patent was filed on August 30, 2021 as a continuation of U.S. Patent Application No. 16/653,958 (“the ’958 application”). The ’958 application was filed on October 15, 2019, and later issued as U.S. Patent No. 11,104,245 B1. *See* Ex. 1001, code (63), 1:7–15. The ’659 patent also claims priority to U.S. Provisional Patent Application No. 61/745,729 (“the ’729 Provisional”) filed on December 24, 2012, and U.S. Provisional

Patent Application No. 61/478,436 (“the ’436 Provisional”) filed on Apr. 22, 2011. *Id.* at code (60). Additionally, the ’659 patent claims priority to several other U.S. continuation applications and continuation-in-part applications. *Id.* at code (63), 1:15–62. For convenience, Petitioner’s priority flow chart is provided below.



Pet. 6. Petitioner's priority flow chart on page 6 of the Petition shows the priority applications listed on the face of the '659 patent and marks, with a red arrow, applications that Petitioner alleges added new matter. *Id.*

Petitioner argues that the challenged claims are entitled only to an effective filing date of October 25, 2013, because that is the first-time subject matter regarding "e-keys" was added to a related application, specifically CIP App. No. 14/063,638. Pet. 6.

Patent Owner agrees that the '659 patent is entitled to a priority date of at least Oct. 25, 2013. Prelim. Resp. 47–48. Patent Owner does not assert that any of petitioner's references fail to qualify as prior art, except Kleve. Patent Owner asserts that "Kleve is not 'prior art consisting of patents or printed publications' as required by § 311(b)." *Id.* at 48. Although Patent Owner concedes that Kleve is a patent publication, Patent Owner argues it is not prior art consisting of a patent, and Petitioner has not shown Kleve was publicly available before its publication date of May 8, 2014. *Id.* (citing Ex. 1005, 1). Furthermore, Patent Owner "notes that this issue is currently on appeal before the Federal Circuit in *Lynk Labs, Inc. v. Samsung Electronics Co.*, No. 2023-2346 (Fed. Cir.)." Prelim. Resp. 48–49 n. 4; Prelim. Sur-reply 5.

The Federal Circuit recently issued a decision in *Lynk Labs* and found that "a published patent application can be deemed prior art in an IPR as of the application's filing date." *Lynk Labs, Inc.*, No. 2023-2346 (Fed. Cir. Jan. 14, 2025) (affirming the Board's holding that under § 102, applicable "printed publications" include published applications under § 102(e)(1)). Accordingly, in view of the Federal Circuit's decision, we are not persuaded by Patent Owner's argument, which is contrary to the law applied by PTAB.

*C. Claims 1 and 3—21 Allegedly Rendered Obvious by Kleve and Hatton*

Petitioner contends that Kleve in combination with Hatton teaches every limitation of claims 1 and 3–21. Pet. 9–36. Patent Owner disagrees. Prelim. Resp. 9–26. Patent Owner specifically challenges whether Petitioner has shown that the combined teachings of Kleve with Hatton teach (a) an “alleged” “memory” has “program instructions for instructing/controlling unlocking and starting of the vehicle,” or (b) a “coded data” that “includes privilege settings,” as required by the challenged independent claims. *Id.* at 14, 21. Patent Owner further challenges whether Petitioner has demonstrated a reason to combine Kleve with Hatton. *Id.* at 23

*1. Analysis of Independent Claim 1*

*a) Limitation [1a]*

Claim 1 recites the steps:

[1a] memory associated with the on-board computer of the vehicle having program instructions for instructing unlocking and starting of the vehicle;

Ex. 1001, 52:16–18.

For this limitation, Petitioner contends that “Kleve discloses memory associated with the VCS processor.” Pet. 16 (citing Ex. 1005, Fig. 1). According to Petitioner, Kleve’s memory includes random access memory (RAM) and a hard disk drive (HDD) or flash memory. *Id.* (citing Ex. 1005 ¶ 22). Petitioner asserts that this memory is used to store data. *Id.* (citing Ex. 1005 ¶ 31). According to Petitioner, “Kleve’s processor executes instructions stored at a ‘storage medium [*i.e.*, memory]’ that ‘enable a vehicle rental transaction’ by ‘activat[ing] [*i.e.*, starting] the vehicle during a

prescribed rental period’ and, ‘enabl[ing] a keyless driveaway.’” *Id.* (citing Ex. 1005 ¶¶ 9, 71).

Patent Owner disagrees with Petitioner’s reading of Kleve and contends there is no teaching of a memory having program instructions for instructing unlocking and starting of the vehicle. Prelim. Resp. 22; Ex. 2001 ¶ 64. According to Patent Owner, Petitioners rely on a particular memory in Kleve (i.e., the HDD and RAM), as well as Kleve’s processor that enables a rental transaction by activating the vehicle to enable keyless drive away. Prelim. Resp. 22 (citing Pet. 16). Patent Owner argues that Petitioner does “not identify any alleged instructions as being in the previously-identified memory.” *Id.*

Patent Owner relies on Dr. Malek’s testimony to support its position. Specifically, Dr. Malek testifies that a person of ordinary skill in the art would have understood “that merely ‘activating’ a vehicle is not ‘instructions for unlocking and starting the vehicle’ or ‘instructions for controlling unlocking and starting of the vehicle.’” Ex. 2001 ¶ 64. Dr. Malek further testifies that “POSITA would understand ‘activating’ a vehicle to mean making the vehicle operative [(e.g.,] such as setting a flag to indicate that a particular rental agreement is in effect).” *Id.* Instead, according to Patent Owner, Kleve’s vehicle is active “during a prescribed *rental* period” but it is “not ‘started’ during the entire rental period or continuously being started.” Prelim. Resp. 22 (citing Ex. 1005, code (57)). Patent Owner asserts that a person of ordinary skill in the art would not have understood instructions “to ‘activate’ a vehicle to be instructions for starting and unlocking of the vehicle.” *Id.* Patent Owner further argues that Petitioner fails to identify any instruction in the identified alleged memory that unlocks and drives Kleve’s vehicle. *Id.*

At this stage of the proceeding, based on the teachings of Kleve, we are persuaded that a person of ordinary skill in the art at the critical time would have understood that Kleve’s memory (including random access memory (RAM) and a hard disk drive (HDD) or flash memory) would have included program instructions for instructing unlocking and starting of a vehicle. Additionally, we credit the testimony of Dr. Almeroth, whose testimony is consistent with Kleve’s disclosure. *See* Ex. 1004 ¶¶ 120–123.

Kleve states that one of its embodiments includes a computer readable storage medium for storing instructions that, when executed by a processor is configured to enable a vehicle rental transaction. *See* Ex. 1005 ¶ 9. Then Kleve states that after e-key comparison and authorization, “the vehicle may enable driveaway access to that Temporary User for the scheduled time period of the rental agreement” and for “the duration of the rental term, the Temporary User may again input the same identifying credentials to unlock and drive.” *Id.* ¶ 71. Unlike Patent Owner supposition, we do not understand this to mean that the vehicle would be “started” with the engine running continuously during the entirety of the rental period. Rather, we understand this to mean that the vehicle itself has program instructions stored in memory so that the Temporary User can (1) “start” the engine running at any time during the rental period and (2) unlock and drive the vehicle any time during the rental period. *See* Ex. 1004 ¶¶ 122–123.

Thus, after review of the arguments and evidence, we find that Petitioner has provided adequate explanation and supporting evidence that Kleve in view of Hatton teaches or suggests the challenged claim limitation.

*b) Limitation [1e]*

Claim 1 recites the step:

[1d] wherein the wireless communications circuitry of the vehicle is configured to receive coded data from the mobile device when using the eKey, the coded data enables functions of said eKey for said unlocking and use of the vehicle, the coded data is associated to the eKey for use by the mobile device,

[1e] and the coded data includes privilege settings associated with the eKey for limiting types of use of the vehicle when using the eKey with the vehicle;

Ex. 1001, 52:27–36.

For this limitation, Petitioner first contends Kleve discloses or renders this limitation obvious because Kleve teaches “a virtual key is wirelessly communicated to the vehicle using encrypted data,” with the encrypted data being the recited “coded data.” Pet. 19 (citing Ex. 1004 ¶¶ 131–137; Ex. 1005 ¶ 63). Petitioner next contends that “the virtual key, represented as encrypted data, includes privilege settings that limit types of use of the vehicle.” *Id.* at 20 (citing Ex. 1004 ¶¶ 138–140). Petitioner provides the example of where “the vehicle’s ‘Owner’ ‘may set user restrictions . . . based on . . . parameters including, but not limited to, speed, global position coordinates, or load weight restrictions.’” *Id.* at 20–21 (citing Ex. 1005 ¶ 40). According to Petitioner, such restrictions can “be set in accordance with the types of use intended by the owner and temporary user.” *Id.* (citing Ex. 1005 ¶¶ 76, 83). Therefore, Petitioner concludes that a person of ordinary skill of art at the critical time would have found it obvious to include the use restrictions within the encrypted data associated with the virtual key in order to prevent tampering by a temporary user.

Patent Owner disagrees with Petitioner's reading of Kleve and contends there is no teaching of "the coded data includes privilege settings associated with the eKey for limiting types of use of the vehicle." Prelim. Resp. 14. According to Patent Owner, "Petitioners did not show—and could not have shown—that Kleve's 'restrictions' are included in Kleve's 'virtual key.'" *Id.* at 15 (citing Pet. 20–21; Ex. 1003 ¶¶ 55–62). Patent Owner argues that for Petitioner relies on Kleve's "virtual key" as the "coded data" and on Kleve's "restrictions" as the alleged "privilege settings," but none the paragraphs in Kleve discussing the "restrictions" disclose the use of a "virtual key" and none of the paragraphs discussing the "virtual key" include any "restrictions." *Id.* (citing Pet. 19–21 (relying on Ex. 1005 ¶¶ 40, 76, 83); Ex. 2001 ¶ 56). According to Patent Owner, Kleve's "virtual key" is provided before rental time, and "Kleve is clear any 'restrictions' are not applied provided until the rental period has begun." *Id.* (citing Ex. 1005 ¶¶ 75 (after "the system detects a rental time start . . . [t]he system may begin to download . . . restrictions."), 40 (Owner may set restrictions for "vehicle being rented."), Fig. 7).

Patent Owner then asserts that Petitioner's reliance on Hatton to suggest that modifying Kleve's virtual key via encryption is misplaced because Petition does not rely on Hatton to suggest modifying the virtual key to include any "privilege settings." *Id.* at 16 (citing Pet. 12–14, 20–30). Nor would it have been obvious, according to Patent Owner, to include any privilege settings in the virtual key. *Id.* at 17. Patent Owner relies on the testimony of Dr. Malek to support its position. *Id.* Dr. Malek testifies that "[a] POSITA would understand that Kleve teaches to 'set user restrictions' after the virtual key is distributed and after the step in which the virtual key is 'sent to vehicle, website or nomadic device.'" Ex. 1005, Fig. 2, ¶¶ 39–

40). Therefore, Patent Owner concludes, that no “restrictions”—set after the virtual key was made and distributed—could be included in the key. Prelim. Resp. 17–20 (citing Ex. 1005 ¶ 57).

At this stage of the proceeding, we first are persuaded Petitioner demonstrates that Kleve’s “virtual key” is coded data because it is wirelessly communicated from a server to a vehicle in an encrypted format. *See* Ex. 1005 ¶ 63.

Second, we are persuaded that Petitioner adequately shows Kleve teaches, or at least suggests, an e-key that includes “privilege settings that limit types of use of the vehicle” because we are persuaded that the distribution of Kleve’s virtual e-key includes a rental period restriction. For purposes of institution, the rental period restriction appears to be a “type of use of the vehicle” and delineates the start/stoppage of when the vehicle can be used. Specifically, we are persuaded by the Petition’s reliance on Kleve’s express disclosure that “terms and conditions for the rental period” are agreed to before the virtual key is generated. *See* Pet. 15 (citing Ex. 1004 ¶ 138). We preliminarily agree with Petitioner that Kleve describes an e-key that is only operable during a rental period because Kleve discloses, “The owner may review the requested rental based on what the Temporary User is looking to use the vehicle for (e.g., without limitation, for towing, hauling, or errands), when the requested use will be taking place, and where.” Ex. 1004 ¶ 138; *see* Ex. 1005 ¶ 83.

We note Patent Owner’s citations to Kleve’s Figure 7 that indicates “geofences or performance limits” are added after the rental start time. *See* Prelim. Resp. 16. For purposes of institution, however, based on the disclosure of Kleve we are persuaded the rental period would be included as

a restriction when the virtual key is created at step 206 of Figure 2 prior to the distribution of the virtual key at 210. *See* Ex. 1005 ¶¶ 38–39.

At this stage of the proceeding, we credit the testimony of Dr. Almeroth, who opines that Kleve discloses that certain restrictions are sent with the request to generate a virtual key. Ex. 1004 ¶¶ 119–123. Specifically, Dr. Almeroth testifies that Kleve discloses that the virtual key “enable[s] the keyless drive system for the appropriate Temporary User during a given rental period.” *Id.* ¶ 119. According to Dr. Almeroth, this “indicates that rental agreement restrictions were sent with the request so that the virtual key could be associated with said restrictions.” *Id.* ¶ 152; *see also* Ex. 1005 ¶ 68 (“Once the rental period has expired the virtual key may be reset and cleared from the VCS.”)). Dr. Almeroth further testifies that the virtual key in Kleve is always generated after the rental agreement. Ex. 1004 ¶¶ 152, 156 ([Once] “the Temporary User selects the vehicle, pays the appropriate amount and signs a consent agreement,” then “the system may generate a virtual key to distribute to the Temporary User and VCS.”)).

Thus, after review of the arguments and evidence, we find that Petitioner has provided adequate explanation and supporting evidence that Kleve alone or in combination with Hatton teaches the challenged claim limitation.

*c) Limitations [1b] – [1d] and [1f]*

Claim 1 recites additional steps at limitations [1b] through [1d] and limitation [1f]. Ex. 1001, 52:18–33.

Petitioner provides arguments and evidence regarding each of these claim limitations. Pet. 17–20, 21–22. Patent Owner has not provided separate arguments regarding Kleve alone or in combination with Sekiyama in regards to these challenged claims. *See generally* Prelim. Resp.

Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We have reviewed the Petition’s analysis of the other claimed subject matter not discussed in the previous sections and determine that the analysis is sufficient at this stage. Based on our review of the arguments and evidence submitted for limitations [1b] through [1d] and limitation [1f] and the reasons presented previously, we are persuaded for purposes of institution only that Petitioner has sufficiently shown sufficiently that Kleve alone or in combination with Hatton teaches or suggests these limitations as recited in independent claim 1.

*d) Rationale to Combine*

Petitioner contends a person of ordinary skill in the art at the critical time would have been motivated to combine Kleve’s system with Hatton’s teaching of an e-key system for vehicles. Pet. 12 (citing Ex. 1004 ¶¶ 109–115). According to Petitioner, “[t]here were well-known benefits of using encrypted data for wireless communications” including being able to ensure that only authorized receivers can view messages that are sent over radio waves. *Id.* (citing Ex. 1004 ¶ 110). Petitioner argues that “[f]or electronic key systems, encrypted communications would be particularly effective to prevent unauthorized access to the vehicle” while “[a]ssociating encrypted data with specific electronic keys would further facilitate an owner’s monitoring and control of vehicle use by individual users.” *Id.* at 12–13. According to Petitioner, a person of ordinary skill in the art would have “been motivated to bind the virtual key to the receiving user’s mobile device (e.g., by associating the virtual key with an identifier unique to the mobile device) to prevent unauthorized distribution to third parties.” *Id.* at 13 (citing Ex. 1004 ¶ 111).

Petitioner explains that a person of ordinary skill in the art would have been “particularly motivated to look to Hatton’s teachings to improve Kleve because both Kleve and Hatton are Ford references directed to similar electronic key systems for use in a vehicle.” *Id.* (citing Ex. 1004 ¶ 113). Petitioner cites as an example the fact that “both Kleve and Hatton describe an identical architecture for a computing system within a vehicle (the ‘VCS’ in both references) and a ‘vehicle rental’ business using that system.” *Id.* at 13–14 (citing Ex. 1005 ¶¶ 21–36, Fig. 1; Ex. 1008, 2:54–5:53, Fig. 1).

Petitioner further argues that a person of ordinary skill in the art would have had a reasonable expectation of success in applying Hatton to Kleve because “Kleve already uses its wireless communications circuitry for encrypted communications (*e.g.*, with a server)” and “[c]onfiguring the wireless communications circuitry to additionally receive encrypted messages associated with a virtual key and including use restriction information directly from a mobile device would have been a straightforward and routine application of well-known techniques in wireless communications and encryption.” *Id.* at 14 (citing Ex. 1004 ¶ 114; Ex. 1005 ¶ 63). Petition then concludes that “it would have been obvious to a POSITA to use one of several standard, well-known encryption techniques (such as public/private key encryption) to implement the encryption schemes described by Kleve and Hatton, and a POSITA would have been capable of implementing such encryption techniques within those systems.” *Id.*

Patent Owner disagrees with Petitioner because it contends that Hatton is directed to encryption for authentication and not encryption for confidentiality. Prelim. Resp. 23 (citing Ex. 2001 ¶¶ 67–68). According to Patent Owner, these are distinct conception so a person of ordinary skill in the art at the critical time would not have been motivated to modify Kleve in

view of Hatton in order to add encryption for authentication purposes. *Id.* at 23–24 (citing Ex. 2001 ¶ 68).

Patent Owner then contends that Petitioner fails to explain how Kleve could be modified as proposed because “Hatton does not disclose generating any encrypted data at a mobile device.” *Id.* at 24–25 (citing Ex. 2001 ¶ 69). Patent Owner explains that because Hatton’s encrypted data is assigned to a vehicle at the manufacturing process, it would not have been obvious in view of Hatton to generate encrypted data to include restrictions for use in a rental vehicle because the encrypted data would have already been generated. *Id.* at 25 (citing Ex. 1008, 8:24–36, 14:7–18). Patent Owner argues that “[u]nder Petitioners’ theory, encrypted data would need to be generated each time ‘restrictions’ were created or modified, but Hatton does not have a mechanism for doing this.” *Id.*

After review of the arguments and evidence, we are persuaded at this stage of the proceeding by Petitioner’s position. Specifically, we are persuaded that (1) both Kleve and Hatton are directed to use of electronic key systems for vehicles (*see* Ex. 1005 ¶¶ 7–9, 39, 63; Ex. 1008, 1:48–52, 1:61–2:2, 5:25–34) and (2) encrypted communications would have been understood to be effective in preventing unauthorized access to the vehicle, something that is taught explicitly by Hatton (*see* Ex. 1008, 9:50–63). Given these disclosures by Kleve and Hatton, we are persuaded by Petitioner that a person of ordinary skill in the art would have had a reasonable expectation of success in combining these teachings and arriving at the challenged claims. Accordingly, for purposes of institution, we find that a person of ordinary skill in the art at the critical time would have reason to combine the teachings of Kleve with that of Hatton.

2. *Analysis of Independent Claims 11, 18 and Dependent Claims 3–10, 12–17, 19–21*

Petitioner provides arguments and evidence regarding independent claims 11 and 18, as well as dependent claims 3–10, 12–17, and 19–21 in view of Kleve in combination with Hatton. Pet. 22–36. Patent Owner has not provided separate arguments regarding Kleve in combination with Hatton in regards to these challenged claims. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We have reviewed the Petition’s analysis of the other claimed subject matter not discussed in the previous sections and determine that the analysis is sufficient at this stage. Based on our review of the arguments and evidence submitted for independent claims 11 and 18, as well as dependent claims 3–10, 12–17, and 19–21 and the reasons presented previously, we are persuaded for purposes of institution only that Petitioner has shown sufficiently that Kleve in combination with Hatton teaches or suggests the limitations as recited in independent claims 11 and 18, as well as dependent claims 3–10, 12–17, and 19–21.

3. *Summary regarding Challenged Based on Kleve in combination with Hatton*

Based on the current record, Petitioner has established a reasonable likelihood that it will prevail in demonstrating that claims 1 and 3–21 would have been obvious over Kleve in combination with Hatton.

D. *Claim 2 Allegedly Rendered Obvious by Kleve and Hatton in combination with Sekiyama*

Claim 2 recites

The sub-system of the vehicle of claim 1, wherein said privileges function as restrictions that enable access to specific vehicle

areas that include one or more of vehicle door operation, or trunk operation.

Ex. 1001, 52:40–43.

Petitioner provides arguments and evidence regarding dependent claim 2 in view of Kleve in combination with Hatton and with Sekiyama. Pet. 36–39. Patent Owner has not provided separate arguments regarding Kleve in combination with Hatton and with Sekiyama in regards to this challenged claim, except to state that “Sekiyama does not cure any of the deficiencies of the proposed Kleve / Hatton combination.” Prelim. Resp. 26. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We have reviewed the Petition’s analysis and determine that the analysis is sufficient at this stage. Based on our review of the arguments and evidence submitted for dependent claim 2, we are persuaded for purposes of institution only that Petitioner has shown sufficiently that Kleve in combination with Hatton and with Sekiyama teaches or suggests the limitations as recited in dependent claim 2.

*E. Claims 1, 3, 5–7, 9, 11–16, and 18–20 Allegedly Anticipated by or Rendered Obvious in View of Mikan*

Petitioner contends that the disclosure and teachings of Mikan either anticipate or would have rendered the subject matter of claims 1–3, 5, and 8–10 obvious. Pet. 39–49. Patent Owner disagrees. Prelim. Resp. 26–36. Patent Owner specifically challenges whether Petitioner has shown that Mikan discloses or teaches “coded date” that includes privilege settings and is “from a mobile device” as recited in limitations [1d] and [1e] of independent claims 1, 11, and 11. Accordingly, for purposes of institution, we will only provide analysis for limitations [1d] and [1e].

*1. Analysis of Independent Claim 1*

*a) Limitations [1d] and [1e]*

Claim 1 recites the step:

[1d] wherein the wireless communications circuitry of the vehicle is configured to receive coded data from the mobile device when using the eKey, the coded data enables functions of said eKey for said unlocking and use of the vehicle, the coded data is associated to the eKey for use by the mobile device,

[1e] and the coded data includes privilege settings associated with the eKey for limiting types of use of the vehicle when using the eKey with the vehicle;

Ex. 1001, 52:28–36.

For this limitation, Petitioner contends that for limitation [1d] Mikan teaches a wireless communications circuitry that receives coded data associated to an electronic key from a mobile device. Pet. 43–44 (citing Ex. 1004 ¶¶ 218–219). Petitioner asserts that when “a user attempt[s] to access or operate vehicle 201 with a key 205AC,” the control unit initiates an authentication process where “[s]ecure identifier 407 may be received . . . at control unit 202.” *Id.* at 44 (citing Ex. 1007 ¶¶ 67, 70).

According to Petitioner, “[t]he secure identifier comprises coded data, such as ‘a digital signature associated with a key,’ which may be ‘the product of a public key encryption system.’” *Id.* (citing Ex. 1007 ¶ 59).

Petitioner relies on Dr. Almeroth’s testimony to support its position. *See* Pet. 44. Dr. Almeroth testifies that “[a]uthenticating the electronic key using the secure identifier enables the key to perform vehicle functions, such as unlocking and using the vehicle.” Ex. 1004 ¶ 219. Petitioner then explains that “after the electronic key has been authenticated, the control unit may retrieve a ‘vehicle operation policy . . . based on authenticated

key 205A-C,’ which enables the use of certain ‘vehicle operation features,’ including ‘unlocking a door’ and ‘engaging an ignition.’” Pet. 44 (citing Ex. 1007 ¶¶ 60–61, 72).

Petitioner next contends that for limitation [1e], Mikan discloses privilege settings that limit the types of use of the vehicle as being included with the coded data associated with an electronic key. *Id.* (citing Ex. 1004 ¶¶ 220–223. Petitioner specifically asserts Mikan teaches that electronic keys may be linked to vehicle operation policies and that “[a]s part of the electronic key authentication process, the vehicle receives the vehicle operation policy associated with the authenticated key.” *Id.* (citing Ex. 1007 ¶¶ 60–61, 72, 76–77).

Petitioner lastly contends that a person of ordinary skill in the art at the critical time would have found it obvious “to transmit the vehicle operation policy as additional coded data along with Mikan’s secure identifier” because it would “prevent a secondary user from tampering with the use restrictions associated with an electronic key.” *Id.* at 45 (citing Ex. 1004 ¶ 221). Petitioner argues that an ordinarily skilled artisan “would have had a reasonable expectation of success because the vehicle operation policy could be encoded and transmitted using the same encryption and wireless communication techniques already implemented and used to transmit Mikan’s secure identifier,” and would have been “capable of applying these techniques to encode and transmit Mikan’s vehicle operation policy.” *Id.* (citing Ex. 1004 ¶ 222). Petitioner further argues that “Mikan’s vehicle operation policy limits the types of use of the vehicle by the particular electronic key. *Id.* Therefore, Petitioner concludes that a person of ordinary skill would have understood that “limiting access to different

vehicle functions serves to limit the types of use of the vehicle.” *Id.* (citing Ex. 1007 ¶¶ 60, 73–74; Ex. 1004 ¶ 223).

Patent Owner disputes Petitioner’s position and contends that Mikan fails to teach any “coded data” with “privilege settings” and that none of the “coded data” is “from the mobile device.” Prelim. Resp. 27. According to Patent Owner, there is no disclosure in Mikan that its “digital signature” includes any “vehicle operation policies” or that these policies are “from the mobile device.” *Id.* at 28 (citing 2001 ¶¶ 76–77).

Patent Owner relies on the testimony of Dr. Malek to support its position. Dr. Malek testifies that a person of ordinary skill at the critical time has understood that Mikan’s “vehicle policies” are provided to the vehicle by synchronization with the master database” and Petitioner never provides a reason “why a POSITA would have modified Mikan to have the mobile phone perform synchronization between [Mikan’s] two databases.” Ex. 2001 ¶¶ 77–78. Dr. Malek further testifies that Petitioner’s arguments about it being “obvious to a POSITA to transmit the vehicle operation policy as additional coded data along with Mikan’s secure identifier” makes no sense. *Id.* ¶ 78 (citing Pet. 45). According to Dr. Malek, “adding an intermediary at the secondary user’s device, it would allow the secondary user access to the data, and an unnecessary point of security vulnerability, as it would allow a secondary user an opportunity to modify data on the device.” *Id.* Patent Owner argues that Petitioner that an ordinarily skilled artisan would not have sent the vehicle operation policies from the server to the vehicle through an intermediary (i.e., mobile phone) because it would be inefficient and contrary to Mikan’s disclosures. Prelim. Resp. 32 (citing Ex. 2001 ¶ 81). Thus, Patent Owner concludes that the Petition is based on inappropriate hindsight analysis.

At this stage of the proceeding, we are persuaded Petitioner has adequately demonstrated that Mikan teaches or at least suggests a vehicle receiving coded data (such as a digital signature) from a mobile device because Mikan specifically discloses the electronic keys 205A-C may be embedded in a wireless device, such as a cellular telephone. *See* Ex. 1007 ¶ 50. Mikan further discloses that electronic keys may be linked to vehicle operation policies and that “[a]s part of the electronic key authentication process, the vehicle receives the vehicle operation policy associated with the authenticated key.” *Id.* ¶¶ 60–61, 72, 76–77. We understand this disclosure to mean that the vehicle operation policy sets boundaries for the use of the vehicle that is accessed by an electronic key on a mobile device. Thus, for purposes of institution, we are persuaded Petitioner has identified sufficiently a teaching or suggestion from Mikan that meets the required limitations of claim [1d] and [1e].

## 2. *Analysis of Claims 2, 3, 5, 8–10*

Petitioner asserts that dependent claims 2, 3, 5, and 8–10 of the ’659 patent are anticipated by or rendered obvious by the disclosure of Mikan. Pet. 46–49. For this challenge, Patent Owner relies on the same arguments presented for claim 1. Prelim. Resp. 26–32. Patent Owner has not provided separate arguments regarding Mikan in regards to these challenged claims. *See generally* Prelim. Resp. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We have reviewed the Petition’s analysis of the other claimed subject matter not discussed in the previous section and determine that the analysis is sufficient at this stage. Based on our review of the arguments and evidence submitted for dependent claims 2, 3, 5, and 8–10 and the reasons presented previously, we are persuaded for purposes of institution only that

Petitioner has shown sufficiently that Mikan teaches or at least suggests the limitations as recited in dependent claims 2, 3, 5, and 8–10.

*F. Alleged Obviousness of Claims 4, 6, 7, and 11–21 in View of Mikan in Combination With Xiao*

Petitioner contends the combined teachings of Mikan with Xiao, would have rendered claims 4, 11–18, 20, and 21 obvious, while the teachings of Mikan in view of Sekiyama would have rendered claims 6 and 7 obvious, and the teachings of Mikan with Xiao in view of Sekiyama would have rendered obvious claim 19. Pet. 2, 49–68. For this challenge, Patent Owner relies on the same arguments presented for claim 1 in view of Mikan. *See* Prelim. Resp. 32–33.

Patent Owner has not provided separate arguments regarding Mikan, Xiao, and/or Sekiyama in regards to these challenged claims other than to state that Xiao and/or Sekiyama do not cure the deficiencies of Mikan alone. Prelim. Resp. 32–33. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

We have reviewed the Petition’s analysis of the other claimed subject matter not discussed in the previous section and determine that the analysis is sufficient at this stage. Based on our review of the arguments and evidence submitted for dependent claims 4, 6, 7, and 11–21 and the reasons presented previously, we are persuaded for purposes of institution only that Petitioner has shown sufficiently that Mikan in combination with Xiao and/or Sekiyama teaches or at least suggests the limitations as recited in dependent claims 4, 6, 7, and 11–21.

#### IV. CONCLUSION

Based on the arguments and evidence presented by the parties, we determine that there is a reasonable likelihood Petitioner would prevail with

respect to at least one claim challenged in the Petition. Hence, we institute an *inter partes* review of all challenged claims on all challenges included in the Petition. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1355 (2018) (noting that the language of 35 U.S.C. § 314(b) “indicates a binary choice—either institute review or don’t”); *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute as requiring “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”)).

## V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–21 in the ’659 patent is instituted on all challenges included in the Petition;

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

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