

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KEEP TRUCKIN, INC.,
Petitioner,

v.

INNOVATIVE GLOBAL SYSTEMS, LLC,
Patent Owner.

IPR2020-00694
Patent 10,157,384 B2

Before JUSTIN T. ARBES, JOHN F. HORVATH, and
FREDERICK C. LANEY, *Administrative Patent Judges*.

LANEY, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

This is a Final Written Decision in an *inter partes* review challenging the patentability of claims 1–11 and 14–20 (“Challenged Claims”) of U.S. Patent No. 10,157,384 B2 (Ex. 1001, “the ’384 patent”). We have jurisdiction under 35 U.S.C. § 6 and enter this Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–11 and 14–20 are unpatentable. *See* 35 U.S.C. § 316(e).

II. BACKGROUND

A. Procedural History

Keep Truckin, Inc. (“Petitioner”) filed a petition for *inter partes* review under 35 U.S.C. § 311. Paper 2 (“Pet.”). Petitioner supported its Petition with the Declaration of Scott Andrews. Ex. 1003.

Innovative Global Systems, LLC (“Patent Owner”) filed a Preliminary Response. Paper 6. And pursuant to 35 U.S.C. § 314, in view of the record at that time, we instituted an *inter partes* review of all Challenged Claims on all grounds presented in the Petition:

Claim(s) Challenged	35 U.S.C. §	References
1–6, 10, 11, 14–20	103(a) ¹	Skeen, ² Warkentin, ³ Transportation Regulations ⁴

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013.

Because the ’384 patent claims priority to an application that has an effective filing date before this date (*see* Ex. 1001, code (63) (claiming priority to an application with an effective filing date of August 15, 2005); *see also* Pet. 14; PO Resp. 3), the pre-AIA version of § 103 applies.

² Skeen, US 6,832,141 B2, iss. Dec. 14, 2004 (Ex. 1009).

³ Warkentin, US 2002/0035421 A1, pub. Mar. 21, 2002 (Ex. 1010).

⁴ Transportation Regulations, Title 49 of the Code of Federal Regulations, Sections 390–396 (Oct. 1, 2003) (Ex. 1008).

Claim(s) Challenged	35 U.S.C. §	References
8	103(a)	Skeen, Warkentin, Transportation Regulations, Murphy ⁵
7, 9	103(a)	Skeen, Warkentin, Transportation Regulations, Berenz ⁶

Paper 7 (“Institution Decision” or “Inst. Dec.”).

After institution, Patent Owner filed a Response, Paper 16 (“PO Resp.”), supported with the Declarations of Andrew D. Smith (Ex. 2006), William T. Brown (Ex. 2007), and Alan C. Lesesky (Ex. 2009). Petitioner filed a Reply, Paper 24 (“Reply”), supported with an additional Declaration of Mr. Andrews (Ex. 1034). Finally, Patent Owner filed a Sur-reply. Paper 27 (“Sur-reply”).

An oral hearing was held on April 22, 2021. A copy of the transcript is included in the record. Paper 32 (“Tr.”).

B. Real Parties in Interest

Petitioner identifies Keep Truckin, Inc. as the real party-in-interest. Pet. 1. Patent Owner identifies Innovative Global Systems, LLC as the real party-in-interest. Paper 5, 2.

C. Related Matters

The parties agree there are several proceedings related to this matter. Pet. 2; Paper 5, 2. Petitioner was served with a complaint, which is captioned *Innovative Global Systems, LLC v. Keep Truckin, Inc.*, Civil Case No. 0:19-cv-00641-MN (D. Del.), that alleges infringement of the ’384 patent. Pet. 2. The ’384 patent was asserted also against Samsara Networks, Inc. in a separate district court action captioned *Innovative Global Systems,*

⁵ Murphy, US 6,225,890 B1, iss. May 1, 2001 (Ex. 1007).

⁶ Berenz, US 6,724,920 B1, iss. Apr. 20, 2004 (Ex. 1011).

LLC v. Samsara Networks, Inc., Civil Case No. 0:19-cv-01708-MN (D. Del.). *Id.* Finally, another related proceeding is the concurrently filed petition in *Keep Truckin, Inc. v. Innovative Global Systems, LLC*, IPR2020-00692, which challenges several claims of related U.S. Patent No. 8,032,277 B2. *Id.*

D. The '384 patent (Ex. 1001)

The '384 patent describes a system “for logging and reporting driver activity and vehicle operation.” Ex. 1001, 1:8–10. In particular, it describes a system that includes an electronic logging system with an onboard recorder connected to a vehicle’s data bus, which continuously monitors, obtains, and calculates the vehicle’s operation data. *Id.* at 11:4–17. This operational data includes mileage, engine use, time the vehicle’s engine is turned off, the vehicle’s speed, and the engine’s run time while the vehicle is on but not moving. *Id.* at 11:52–62, 12:61–13:9, 13:36–59. The system includes a transmitter, which sends vehicle operation data from the recorder to a portable handheld communications device. *Id.* at 16:54–17:5, 18:12–19.

The '384 patent describes using data processing software to generate a hours of service (“HOS”) log. *Id.* at 13:60–14:3. This log is generated from the vehicle operational data obtained from the onboard recorder that is continuously connected to the vehicle’s data bus, and records the vehicle operator’s duty status, such as whether the operator is on or off duty and whether an on-duty operator is driving or not driving. *Id.* at 13:1–24. In creating the log, a recorder “continuously calculates the time the driver has been in each duty status over the course of a day.” *Id.* at 13:17–19.

Additionally, the log includes the total hours on duty for seven days, total hours on duty for eight days, and the driver’s changes in duty status, as well as the time the duty status changes occurred. *Id.* at 13:19–14:3. The log can

be used to determine whether a driver was in compliance with hours of service regulations. *Id.* at 13:10–13. “By continuously emitting a signal indicating the compliance status of the driver, [the system] provides a way whereby authorized federal, state or local officials can immediately check the status of a driver’s hours of service.” *Id.* at 14:42–45.

E. Illustrative Claims

Of the Challenged Claims, claims 1 and 14 are independent. Claims 2–11 depend from claim 1; claims 15–20 depend from claim 14. Claim 1, reproduced below,⁷ illustrates the subject matter of the challenged claims:

1. [1 preamble] An onboard electronic system for logging and reporting driver activity and operation data of a vehicle, said system comprising:
 - [1a] an onboard recorder adapted for continuously connecting to a data bus of the vehicle to continuously monitor, obtain and calculate vehicle operation data comprising mileage data, engine use data, time the engine is turned off, speed of the vehicle, and time the engine remains on while the vehicle is not moving, and said onboard recorder comprising a processor, a transmitter, and a memory device for recording and storing said vehicle operation data;
 - [1b] said transmitter adapted for transmitting said vehicle operation data from said onboard recorder to a portable handheld communication device;
 - [1c] data processing software operable on the handheld communications device comprising a processor and a display, said data processing software utilized to generate a hours of service log using said vehicle operation data continuously monitored, obtained and calculated from the data bus of the vehicle, and to present the hours of service log in a grid form on the display, the hours of service log comprising a driver’s total hours driven today, total hours on duty today, total miles driven

⁷ Annotation to the elements has been added to be consistent with the labeling used by Petitioner. *See* Pet. 8–9.

today, total hours on duty for seven days, total hours on duty for eight days, and the driver's changes in duty status and the times the duty status changes occurred, whereby the driver's hours of service log is applicable for comparison to a hours of service regulation to determine a compliance status of the driver; and

[1d] a compliance signal emitted by said transmitter and indicating whether said onboard recorder is functioning to record vehicle operation data needed to generate the driver's hours of service log, such that the compliance status of the driver can be accurately determined, and in the event of a malfunction of said onboard recorder, said compliance signal is adapted for activating a visual indicator to the driver signifying an out-of-compliance condition of said onboard recorder.

Ex. 1001, 23:7–45. Independent claim 14 is identical to claim 1, except the preamble of claim 14 recites “incorporating” the onboard electronic system into “a commercial motor vehicle.” *See id.* at 25:1–26:6.

III. ANALYSIS

We have reviewed the parties' respective briefs as well as the relevant evidence discussed in those papers. Petitioner contends the disclosures of Skeen, Warkentin, Transportation Regulations, Murphy, and Berenz, as a whole, demonstrate that the recited combinations of elements in the Challenged Claims would have been obvious at the time of the invention to a skilled artisan. Patent Owner asserts several defects and gaps exist with Petitioner's contention, preventing Petitioner from establishing the unpatentability of the Challenged Claims. In particular, Patent Owner asserts Petitioner's contention is defective because it relies on an unqualified expert (Mr. Andrews) and because it relies on non-analogous art (Skeen). In addition, Patent Owner argues that there are evidentiary gaps in Petitioner's patentability challenge because none of the references, alone or in

combination, disclose claimed subject matter in claim elements [1c]/14[c] and [1d]/14[d]. Nor does Petitioner articulate sufficient reasoning for why a skilled artisan would have combined the disclosures from the references in the manner claimed. Patent Owner does not separately address Petitioner's challenge of the dependent claims. For the reasons discussed in detail below, we are persuaded that Petitioner has shown by a preponderance of the evidence that the Challenged Claims of the '384 patent are unpatentable under 35 U.S.C. § 103.

A. Principles of Law

To prevail in its challenges to the patentability of all claims of the '384 patent, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d) (2019). "In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (2012) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim"))). This burden of persuasion never shifts to patent owner. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015); *see also In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1375–78 (Fed. Cir. 2016) (discussing the burden of proof in *inter partes* review).

A claim is unpatentable for obviousness if, to one of ordinary skill in the pertinent art, "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made." 35 U.S.C. § 103(a) (2006); *see also 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 level of ordinary skill in the art; (2) the scope and content of the prior art; (3) any differences between the claimed subject matter and the prior art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *Magnum Oil*, 829 F.3d at 1380. Moreover, to persuasively show obviousness, Petitioner must include an “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

We analyze Petitioner’s asserted grounds of unpatentability in accordance with the above-stated principles.

B. Level of Ordinary Skill in the Art

We consider the asserted grounds of unpatentability in view of the understanding of a person of ordinary skill in the art (“POSITA”) and, thus, begin with the level of ordinary skill in the art. The level of ordinary skill in the art is “a prism or lens through which . . . the Board views the prior art and the claimed invention” to prevent hindsight bias. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

Petitioner and Patent Owner agree that the relevant level of skill in the art at the time of the ’384 patent (August 2005) is a person having “a bachelor’s degree in electrical engineering, or equivalent, at least two years of experience related to designing and/or developing on-board recording devices for commercial vehicles, and familiarity with the rules and regulations governing logging and reporting of data for drivers of motor

carriers.” Pet. 10 (citing Ex. 1003 ¶ 16); PO Resp. 4. We agree with the parties’ definition, which we adopt as our own, because it is consistent with the teachings of the ’384 patent and the prior art of record.

Patent Owner challenges the qualifications of Petitioner’s expert to provide testimony regarding a POSITA in this proceeding. PO Resp. 6–12; Sur-reply 6–8. Although a consensus exists for the relevant background of an ordinarily skilled artisan in the art, Patent Owner asserts that “Petitioner’s arguments fail because they depend upon Scott Andrews’ unqualified opinions” and his “testimony is neither competent nor credible.” *See id.* Patent Owner, however, does not show persuasively that Mr. Andrews, Petitioner’s expert, is unqualified.

Patent Owner argues that Mr. Andrews is “unqualified” because “[n]othing in his background, education, or training renders him qualified to opine on the subject matter of the Challenged Claims—systems that log and present data to ensure compliance with the HOS Regulations^[8].” PO Resp. 6. Patent Owner argues that Mr. Andrews “has no experience designing or developing systems that log and present data to ensure compliance with the HOS Regulations,” nor does Mr. Andrews have any other related experience associated with ensuring compliance with the HOS Regulations. *Id.* at 7–8. In particular, Patent Owner highlights Mr. Andrews’s lack of familiarity with “key aspects of the HOS Regulations, including 49 C.F.R. § 395.8 and § 395.15,” which are allegedly “critical in the development of the Challenged Claims [because] they define, in part, the problem to be solved.” *Id.* at 8–9. Patent Owner argues that, because Mr. Andrews lacks familiarity

⁸ “HOS Regulations” is specifically defined by Patent Owner to mean “49 C.F.R. pt. 395, subpt. A.” PO Resp. vi (Glossary of Terms).

with “HOS Regulations” and because he failed to take “steps to become skilled in the art of HOS logging or compliance,” “Mr. Andrews cannot provide any competent or credible testimony about what a POSITA would have reviewed or would have been motivated to do.” *Id.* at 9–12.

In response, Petitioner observes initially that Patent Owner’s argument “does not allege that Mr. Andrews lacks the level of education or technical experience both parties attribute to a POSITA.” Reply 2. Petitioner contends that this is because “Mr. Andrews has a Master’s Degree in electrical engineering and extensive experience designing onboard recording devices for commercial vehicle[s].” *Id.* (citing Ex. 1003 ¶¶ 6–11; Ex. 1004 (Mr. Andrews’s curriculum vitae); Ex. 2008, 58:17–20 (“I’d say I’ve developed a lot of systems that are able to calculate and log the kind of data associated with hours of service . . .”), 88:4–11). Petitioner points to Mr. Andrews’s specific experience developing “a lot of systems that are able to calculate and log the kind of data associated with hours of service” to demonstrate his familiarity with different kinds of duty statuses and regulations associated with logging and reporting data for drivers of motor carriers. *Id.* (citing Ex. 2008, 30:1–5, 32:21–33:9, 48:18–19, 49:6–8, 58:17–20, 90:6–92:2, 207:1–209:18).

Petitioner characterizes Patent Owner’s argument as follows: “Mr. Andrews[’s] testimony cannot support Petitioner’s challenges because Mr. Andrews does not meet requirements beyond the definition of a POSITA on which *both parties* agreed.” Reply 2. Petitioner contends that “[t]he definition of a POSITA adopted by both parties . . . says nothing of designing or developing systems for logging and presenting data to ensure compliance with HOS regulations.” *Id.* at 3. Petitioner presses that “[t]he parties agreed that the only technical expertise required of a POSITA is a

degree in electrical engineering, or equivalent, and experience related to designing or developing on-board recording devices for commercial vehicles, both of which Mr. Andrews clearly has.” *Id.*

Patent Owner argues in reply that “Petitioner *does not claim* that Mr. Andrews has any experience relating to systems *designed to* log and record data to ensure compliance with an ‘hours of service regulation’ and generate an ‘hours of service log.’” Sur-reply 7. “This lack of experience matters,” Patent Owner asserts, because systems designed for this purpose “need to have specific functionality” and “[n]o electrical engineer could appreciate these issues without *some* experience developing or designing a system having the same general purpose as the one claimed in the Challenged Claims.” *Id.*

As an initial matter, we note that Patent Owner did not move to exclude either of Mr. Andrews’s declarations (Exhibits 1003 and 1034) and thereby waived any argument that Mr. Andrews is not “qualified as an expert by knowledge, skill, experience, training, or education [to] testify in the form of an opinion or otherwise” under Federal Rule of Evidence 702. *See* 37 C.F.R. § 42.64 (setting forth the procedure for objecting to evidence and filing a motion to exclude to “preserve” such objections); Paper 8, 8–10 (listing the time periods for motions to exclude); Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019), 79, *available at* <https://www.uspto.gov/TrialPracticeGuideConsolidated> (“A motion to exclude must explain why the evidence is not admissible (e.g., relevance or hearsay) A motion to exclude is not a vehicle for addressing the weight to be given evidence—arguments regarding weight should appear only in the merits documents.”). Thus, although Patent Owner’s arguments are framed in terms of whether Mr. Andrew is “qualified,” PO Resp. 6, we understand

Patent Owner's position to be that Mr. Andrews's testimony should be accorded no *weight* in our analysis of whether Petitioner has proven that the Challenged Claims would have been obvious.

Indeed, we note that with respect to the issue of whether an expert has sufficient qualifications to offer admissible testimony, there is no requirement that the expert's experience be a perfect match to the field of art at issue. *SEB S.A. v. Montgomery Ward & Co.*, 594 F.3d 1360, 1373 (Fed. Cir. 2010). To testify as an expert, an individual does not need to be a person of ordinary skill in the art, but rather must be "qualified in the pertinent art." *Sundance, Inc. v. DeMonte Fabricating Ltd.*, 550 F.3d 1356, 1363–64 (Fed. Cir. 2008).

We find Patent Owner's criticisms of Mr. Andrews's qualifications in this proceeding are unwarranted. As Petitioner has argued, and Patent Owner has not disputed, Mr. Andrews's advanced degree in electrical engineering and extensive experience designing onboard recording devices for commercial vehicles demonstrate that he has technical expertise that is particularly relevant to the subject matter of '384 patent. *See* Ex. 1004, 3–6. A focus of Mr. Andrews's experience includes "the development and management of technologies in support of Intelligent Transportation Systems" and "a strong working knowledge of the various technologies that comprise location-based vehicle status logging and tracking." Ex. 1003 ¶¶ 6, 8. Mr. Andrews has experience working with "systems for logging the location and operational status of vehicles, and providing automated roadside assistance and emergency response based on relaying GPS position and vehicle status to a service center using wireless communications." *Id.* ¶ 7. Mr. Andrews has experience also with "work[ing] on various systems associated with trucking applications," including "driver hour logging and

associated parking reservation systems, and various types of navigation, communications, and dispatching systems.” *Id.* ¶ 8.

Although Patent Owner appears to be correct that Mr. Andrews’s experience does not include working on any specific projects in which logging and recording data was specifically for the purpose of ensuring compliance with a hours of service regulation, we do not find this absence of first-hand knowledge to impact the weight we should give his testimony. Mr. Andrews has considerable *technical* experience related to the “[t]echnical [f]ield” of the ’384 patent, namely logging and reporting driver activity and operation data of a vehicle, which is a focus of the ’384 patent. *See* Ex. 1001, code (54), 1:5–10; Ex. 1003 ¶¶ 3–8; Ex. 1004; Reply 2–4 (describing Mr. Andrews’s experience as recounted during his deposition). Therefore, we reject Patent Owner’s argument that Mr. Andrews’s testimony should be given no weight because he is an “unqualified” expert.

For similar reasons, we reject Petitioner’s arguments that the testimony of Patent Owner’s expert, Mr. Brown, should be given no weight because he “does not qualify as a POSITA.” *See* Reply 4–5. Mr. Brown has education equivalent to a bachelor’s degree in electrical engineering and the requisite level of technical experience. *See* Sur-reply 3–6 (citing Ex. 2007 ¶¶ 13, 16, 18, 20; Ex. 1035, 18, 19:20–23, 62–66). We have considered and weighed both individuals’ testimony according to the strength of their opinions posited in the context of the record before us. As explained herein, we conclude that Mr. Andrews’s opinions are more credible, as they are consistent with the disclosures of the cited prior art references and evidence that he relies upon.

C. Scope and Content of the Prior Art

Petitioner contends Skeen, Warkentin, Transportation Regulations, Murphy, and Berenz are all prior art references to the '384 patent. Pet. 14–15. Patent Owner, however, argues Skeen is outside the scope of available art because it is non-analogous. PO Resp. 12–23. Therefore, we first address whether Skeen is within the scope of analogous art for the '384 patent before we discuss the subject matter disclosed by Skeen and the remaining references.

1. Skeen Is Analogous Art

Patent Owner states, “Petitioner’s reliance on Skeen is misplaced because Skeen is not analogous art.” PO Resp. 13. The “[c]riteria for determining whether prior art is analogous may be summarized as ‘(1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.’” *Scientific Plastic Prods., Inc. v. Biotage AB*, 766 F.3d 1355, 1359 (Fed. Cir. 2014) (citing *In re Clay*, 966 F.2d 656, 658–59 (Fed. Cir. 1992)). Petitioner contends that “Skeen . . . [is] in the same field of endeavor as the '384 Patent—logging and reporting driver activity and vehicle operation data.” Pet. 21; *see also* Reply 6–9. Patent Owner disagrees because the field of endeavor for the '384 patent “is logging and presenting data for the specific purpose of ensuring compliance with the HOS Regulations” and “Skeen has nothing to do with logging and presenting data to ensure compliance with the HOS Regulations.” PO Resp. 14–15. Because Patent Owner does not dispute Skeen and the '384 patent are within the same field of endeavor if

Petitioner’s characterization of the field is accurate (*see id.* at 13–18), the issue we must decide is the applicable field of endeavor of the ’384 patent.

“To determine the applicable field of endeavor, the factfinder must consider ‘explanations of the invention’s subject matter in the patent application, including the embodiments, function, and structure of the claimed invention.’” *Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1380 (Fed. Cir. 2019) (quoting *In re Bigio*, 381 F.3d 1320, 1324 (Fed. Cir. 2004)). “In [*In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979)], for example, . . . [the] court determined the field of endeavor based on an express disclosure in the Background of the Invention section of the applicant’s specification.” *Id.* An indication that a reference is from the same field of endeavor exists when the reference discloses technology with “essentially the same function and structure” as the claimed technology. *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986) (finding that the challenged prior art references were in the same field of endeavor because they disclosed pumps and compressors that had “essentially the same function and structure” as the claimed piston devices).

Petitioner contends, “[t]he title of the ’384 Patent, the Challenged Claims, including their preambles, and the specification of the ’384 Patent demonstrate that the relevant field of endeavor is logging and reporting driver activity and operation data of a vehicle.” Reply 6. The ’384 patent is titled “System for Logging and Reporting Driver Activity and Operation Data of a Vehicle” and, in the section of the patent describing the “Technical Field,” it states that the disclosure “relates broadly and generally [to] systems, methods, and apparatus for logging and reporting driver activity and vehicle operation.” Ex. 1001, code (54), 1:5–10. In the “Summary of Exemplary Embodiments” section of the ’384 patent, a wide range of

examples and aspects of systems that include logging and reporting driver activity and vehicle operation are described generally. *Id.* at 1:19–9:44. The ’384 patent describes its disclosure as comprising,

exemplary systems, methods and apparatus capable of logging driver activity and vehicle operating data, creating reports from the data containing information required to comply with [hours of service] regulations and IFTA fuel tax reporting, and emitting a signal indicating whether the driver is in-compliance or out-of-compliance with applicable [hours of service] laws or regulations.

Id. at 10:58–63 (emphasis added). In addition, the ’384 patent discloses other “exemplary embodiments” of systems, methods, and apparatus capable of “automat[ing] at-the-pump management of vehicle fuel purchases,” as well as, “diagnosing and managing vehicle faults.” *Id.* at 10:65–11:3. Each of these *exemplary* systems share in common an electric onboard recorder (e.g., 200 and 901 in Figures 2, 9) that functions, *inter alia*, to collect driver activity and vehicle operation data from a vehicle. *See* Ex. 1001, 11:4–13:9, 19:29–36, 21:49–55. Likewise, each independent claim preamble in the ’384 patent (i.e., claims 1, 13, and 14) recites an “onboard electronic system for logging and reporting driver activity and operation data of a vehicle.” *Id.* at 23:7–8, 24:24–25, 25:1–3.

Patent Owner does not address the description of the disclosed subject matter in the Specification of the ’384 patent. *See* PO Resp. 13–18; Sur-reply 1–25. Instead, Patent Owner relies exclusively on “the Challenged Claims repeatedly refer[ring] to logging data to create an ‘hours of service log’ or to comply with an ‘hours of service regulation’” to support its more narrow characterization of the field of art—logging and presenting data for the specific purpose of ensuring compliance with the HOS Regulations. PO Resp. 13–15. Patent Owner asserts that because “[i]nfringing the

Challenged Claims . . . requires creation of an ‘hours of service log’ . . . the field of endeavor for the ’384 Patent is limited to logging and presenting data for the exclusive purpose of ensuring compliance with the HOS Regulations.” *Id.* at 14. From this, Patent Owner asserts a skilled artisan “would have understood that logging and presenting data for purposes of compliance with the HOS Regulations was a distinct and unique field of endeavor.” *Id.* According to Patent Owner, “[g]iven the challenges specific to ensuring compliance with the HOS Regulations, [skilled artisans] in this field generally were not looking at art relating to general data logging in passenger vehicles in 2005.” *Id.* at 15 (citing Ex. 2007 ¶ 26; Ex. 2006 ¶¶ 31–36).

We find Petitioner’s characterization of the field of endeavor more persuasive because it correctly captures the breadth that the ’384 patent states expressly was intended by the disclosure. The ’384 patent unambiguously states that the disclosure has a broad scope because “the particular arrangements disclosed are meant to be illustrative only and not limiting as to scope of the invention” and “many embodiments, such as adaptations, variations, modifications, and equivalent arrangements, will be implicitly disclosed by embodiments described . . . and fall within the scope of the present invention.” *Id.* at 10:17–19, 10:21–25. When considering the ’384 patent as whole, we agree with Petitioner that the title of the ’384 patent, the Challenged Claims, including their preambles, and the Specification demonstrate that the relevant field of endeavor is logging and reporting driver activity and operation data of a vehicle.

Limiting the field of art to the specific purpose of ensuring compliance with the “HOS Regulations,” or 49 C.F.R. pt. 395, subpt. A (*see* PO Resp. vi), would be directly contrary to what the ’384 patent teaches.

Although Patent Owner contends reciting “hours of service log” and “hours of service regulation” in the claims would lead a skilled artisan to such a conclusion, the ’384 patent supports a different conclusion. *See Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1001 (Fed. Cir. 2016) (“The field of endeavor of a patent is not limited to the specific point of novelty, the narrowest possible conception of the field, or the particular focus within a given field.”). As explained above, the ’384 patent describes the relevant “field” of art more broadly. *See* Ex. 1001, code (54), 1:5–10. Further, the ’384 patent states, “[a]lthough specific terms are employed herein, they are used in a *generic and descriptive sense only* and not for the purposes of limitation.” Ex. 1001, 10:26–28 (emphasis added). Still further, a skilled artisan would view the field of art broader than the one proposed by Patent Owner because several of the exemplary embodiments and aspects discussed in the ’384 patent address logging and reporting driver activity and operation data of a vehicle for purposes that are wholly unrelated to ensuring compliance with the HOS Regulations, such as “automat[ing] at-the-pump management of vehicle fuel purchases,” as well as, “diagnosing and managing vehicle faults.” Ex. 1001, 10:65–11:3.

Therefore, because the field of endeavor is logging and reporting driver activity and operation data of a vehicle and because Skeen relates to a device that logs driver activity and vehicle operation data (*see* PO Resp. 5; Ex. 1009, 1:21–23 (“This invention relates to . . . on board recordation of operating data from a motor vehicle into a dedicated onboard diagnostic port memory module.”)), we find Skeen is analogous art and thus within the scope of prior art for the ’384 patent. Accordingly, we need not decide

whether Skeen is reasonably pertinent to the particular problem with which the inventor of the '384 patent was involved.

2. *Skeen (Ex. 1009)*

Skeen is a U.S. Patent titled “Module for Monitoring Vehicle Operation Through Onboard Diagnostic Port.” Ex. 1009, code (54). Skeen issued on December 14, 2004 from an application filed on October 25, 2002, and is thus prior art under 35 U.S.C. §§ 102(b) and 102(e). Pet. 14–15. Beyond its non-analogous art argument, Patent Owner does not dispute the prior-art status of Skeen.

Skeen discloses an invention relating to “on board recordation of operating data from a motor vehicle into a dedicated onboard diagnostic port memory module.” Ex. 1009, 1:21–23. Skeen states that “[t]he dedicated onboard diagnostic port memory module can be preprogrammed before placement to the vehicle as to certain critical data parameters to be monitored, placed in vehicle for monitoring over an extended period of time, and finally intelligently interrogated to discharge the recorded data,” which can be used to generate a detailed record of vehicle and driver operation of a vehicle. *Id.* at 1:27–35.

3. *Warkentin (Ex. 1010)*

Warkentin is a U.S. Patent Application Publication titled “System and Method for Recording and Processing Driver Data Including Hours of Service.” Ex. 1010, code (54). This application was filed on September 14, 2001 and it was published on March 21, 2002 (*id.* at codes (22), (43)), and is thus prior art under 35 U.S.C. §§ 102(b) and 102(e). Pet. 15. Patent Owner does not dispute the prior-art status of Warkentin.

Warkentin discloses an invention relating to “the field of recording and processing driving data, including hours of service data, for drivers in

the transportation industry.” Ex. 1010 ¶ 2. Warkentin describes a system that includes a portable computing device associated with a driver and adapted to record driving data for the driver. *Id.* ¶ 8. The system is able to access a software program through a wide-area communications network to process driving data received from the portable computing device. *Id.* Warkentin states that the “the driving data includes hours of service data for [the] driver” and that the device can incorporate a connection interface with a vehicle to determine the operational status of the vehicle, including speed, distance traveled, and diagnostic information. *Id.* ¶¶ 9, 31. In addition, Warkentin describes the portable computing device as including a display for showing hours of service information generated from the collected hours of service data. *Id.* ¶ 32.

4. *Transportation Regulations (Ex. 1008)*

Transportation Regulations is an Exhibit containing excerpts from the Code of Federal Regulations, including regulations 49 C.F.R. §§ 390–396, that Petitioner contends were publically available by February 4, 2001, and is thus prior art under 35 U.S.C. §§ 102(a) and 102(b). Pet. 15 (citing Ex. 1008⁸; Ex. 1003 ¶¶ 17–21, 116–117). Patent Owner does not dispute the prior-art status of Transportation Regulations.

Transportation Regulations sets forth standards for those involved with the operation of commercial motor vehicles in interstate commerce. *See generally* Ex. 1008. For example, it establishes that “[e]very driver who operates a commercial motor vehicle shall record his/her duty status by using an automatic on-board recording device [and t]he duty status

⁸ The Petition identifies Exhibit 1007, which we understand to be a typographical error because Exhibit 1008 is Transportation Regulations.

shall be recorded as follows: (1) ‘Off duty’ or ‘OFF’; (2) ‘Sleeper berth’ or ‘SB’ (only if a sleeper berth is used); (3) ‘Driving’ or ‘D’; (4) ‘On-duty no driving’ or ‘ON.’” *Id.* at 0154 (49 C.F.R. § 395.8).

5. *Murphy (Ex. 1007)*

Murphy is a U.S. Patent titled “Vehicle Use Control.” Ex. 1007, code (54). Murphy issued on May 1, 2001 from an application filed on March 20, 1998 (*id.* at codes (22), (45)), and is thus prior art under 35 U.S.C. § 102(b). Pet. 15. Patent Owner does not dispute the prior-art status of Murphy.

Murphy relates to a system for restricting the use of a vehicle. Ex. 1007, code (57). In particular, Murphy describes a system that monitors, records, and processes data for the purpose of determining whether an operator is authorized to use the vehicle and/or whether the vehicle is being operated within the defined criteria (e.g., speed, location, time) established for vehicle operation by an authorized operator. *Id.*

6. *Berenz (Ex. 1011)*

Berenz is a U.S. Patent titled “Application of Human Facial Features Recognition to Automobile Safety.” Ex. 1011, code (54). Berenz issued on April 20, 2004 from an application filed on July 21, 2000 (*id.* at codes (22), (45)), and is thus prior art under 35 U.S.C. §§ 102(b) and 102(e). Pet. 15. Patent Owner does not dispute the prior-art status of Berenz.

Berenz discloses an imaging system within a vehicle that employs face recognition software and algorithms to identify and track a person. Ex. 1011, 2:25–28. The system includes infrared emitters and sensors that collect data that is processed using face recognition software to detect human faces, which data is then compared to data stored in a database to identify a person operating the vehicle. *Id.* at 2:28–36.

D. Claim Construction

In interpreting the claims of the '384 patent, we “us[e] the same claim construction standard that would be used to construe the claim[s] in a civil action under 35 U.S.C. [§] 282(b).” *See* 37 C.F.R. § 42.100(b) (2019). The claim construction standard includes construing claims in accordance with the ordinary and customary meaning of such claims as would have been understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. *See id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc).

Petitioner proposes a construction for the terms “continuously” and “electronic tablet.” *See* Pet. 11–13. Patent Owner does not respond to Petitioner’s proposed constructions of these terms; does not argue that Petitioner’s proposed constructions improperly expand or narrow the scope of the claims; and does not suggest any other term needs interpretation. PO Resp. 4. Instead, “Patent Owner does not believe that any claim construction is needed.” *Id.* Because there is not a clear dispute regarding the meaning of either “continuously” or “electronic tablet” in the record before us, we determine an express construction of either term is unnecessary. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)) (explaining that only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy).

E. Objective Evidence of Non-Obviousness

Patent Owner argues that “a number of secondary considerations demonstrate that the Challenged Claims are not obvious.” PO Resp. 53.

Specifically, Patent Owner alleges the invention produced unexpected results and received industry praise. *Id.* at 53–57.

“[W]hen secondary considerations are present, though they are not always dispositive, it [would be] error not to consider them.” *In re Kao*, 639 F.3d 1057, 1067 (Fed. Cir. 2011). We evaluate the strength of Patent Owner’s evidence, however, by assessing whether it is “reasonably commensurate with the scope of the claims” and whether it has “a nexus . . . [to] the merits of the claimed invention.” *Id.* at 1068. Patent Owner must establish a connection between its evidence and the claimed invention for it to have “substantial weight.” *Id.* “A nexus may not exist where, for example, the merits of the claimed invention were ‘readily available in the prior art.’” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). “Additionally, there is no nexus unless the evidence presented is ‘reasonably commensurate with the scope of the claims.’” *Id.* The weight afforded to Patent Owner’s secondary considerations evidence depends on “the degree of the connection between the features presented in evidence and the elements recited in the claims.” *Id.* at 1221; *see also Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 837 (Fed. Cir. 2015) (“To the extent that the [Patent Owner] demonstrates the required nexus, [the] objective evidence of nonobviousness will be accorded more or less weight.”).

Patent Owner contends “the invention in the Challenged Claims produced unexpected results” because at the time of the invention “no [skilled artisan] would have thought it possible to create a reliable wireless connection between a vehicle’s data bus and a wireless receiver capable of depicting a graphical hours of service log.” PO Resp. 53 (citing Ex. 2007 ¶¶ 187, 190). As support, Patent Owner argues that at the time of the invention all automatic on-board recording devices were cable tethered and

if a skilled artisan “would have considered it obvious to provide a reliable wireless connection, [contemporary device manufacturers] would have done so.” *Id.* at 53–54 (citing Ex. 2007 ¶¶ 187–188).

“[T]he burden of showing unexpected results rests on he who asserts them.” *In re Klosak*, 455 F.2d 1077, 1080 (C.C.P.A. 1972). To establish “unexpected results,” Patent Owner must show “that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected.” *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997) (citations omitted); *see also Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC*, 683 F.3d 1356, 1363 (Fed. Cir. 2012) (“to show that the [result] was unexpected, [the patent owner] needed to demonstrate that the results were unexpected to a significant degree beyond what was already known”).

Patent Owner has not shown persuasively that a skilled artisan would have viewed any of the results derived from the inventions of the Challenged Claims as either unexpected or surprising. Stating that skilled artisans at companies in the relevant time frame would have done something differently if they had known that they could have successfully done so provides little, if any, evidence about the predictability of the *results* generated by the combination of elements claimed. This is so because it says nothing about the results derived from combining the recited elements in the manner claimed, nor does it say anything about how the results are either different from or beyond what a skilled artisan would have expected from the recited combination of elements. “An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required” to establish unexpected results. *In re Geisler*, 116 F.3d at 1470. Further, Mr. Brown testifies that certain “cable-tethered”

devices were manufactured in 2006–2011, but likewise does not explain sufficiently why the mere existence of such devices shows that the result of the claimed inventions was unexpected or surprising.

We also agree with Petitioner that Patent Owner’s argument falls short of making a showing of unexpected results because “the ’384 Patent does not claim or even disclose a novel wireless connection protocol or arrangement.” Reply 22. Patent Owner does not adequately show that any alleged unexpected results are reasonably commensurate with the scope of the Challenged Claims. *See Allergan Inc. v. Apotex, Inc.*, 754 F.3d 952, 965 (Fed. Cir. 2014) (“It is the established rule that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.” (internal quotation marks omitted)).

Patent Owner also contends that “the invention claimed in the ’384 patent has received industry praise.” PO Resp. 54. This praise is shown, according to Patent Owner, by a license to the ’384 patent and by the fact that “the Federal Motor Carrier Safety Administration (‘FMCSA’) adopted an ‘ELD Mandate,’ 49 C.F.R. § 395.20(b), which requires all trucks moving in interstate commerce to, in essence, include the device disclosed in the ’384 Patent.” *Id.* at 54, 56.

Regarding the licensing of the ’384 patent, “only little weight can be attributed to such evidence if the patentee does not demonstrate ‘a nexus between the merits of the invention and the licenses of record.’” *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). Patent Owner relies on a 2011 licensing agreement for Patent Owner’s “hours of service logging intellectual property,” as well as other patent groupings. PO Resp. 54 (citing Ex. 2009 ¶¶ 11–14). Although the ’384 patent did not issue until December 18, 2018 (Ex. 1001, code (45)), the license agreement (entered into in 2011)

covered the '384 patent because it included “‘all continuations, continuations-in-part, divisions, reissues, reexaminations, renewals, extensions, and improvements’ related to the licensed patents.” *Id.* (citing Ex. 2009 ¶ 12).

Patent Owner highlights that, even as the licensee sought to stop paying royalties on some of the licensed group of patents, the licensee continued to express a desire to license the “driver log” group of patents and continued to pay royalties on those patents. *Id.* at 55–56 (citing Ex. 2009 ¶¶ 16, 18, 19). The problem with Patent Owner’s evidence is that the license is to a *group* of “driver log” patents and fails to demonstrate any particularized recognition or value attributed specifically to the subject matter claimed in the '384 patent.⁹ Moreover, because the licensee took a license to the “driver log” group of patents years before the filing of the application that led to the '384 patent, the evidence tends to suggest that the licensee believed this group of patents was desirable even *without* the '384 patent. Therefore, Patent Owner has not established a significant nexus between the merits of the invention at issue in this case and the license of record, and we attribute little weight to that license as evidence of nonobviousness in this case.

Similarly, we attribute no weight to the FMCSA’s adoption of an “ELD Mandate” as evidence of nonobviousness in this case because Patent Owner has not shown persuasively any connection between that adoption and a recognition of the merits of the invention claimed in the '384 patent. Patent Owner provides no evidence that anyone on the committee for the

⁹ The 2011 license agreement listed 16 patents and two pending applications. Ex. 2009, Ex. A.

FMCSA was ever aware of the '384 patent prior to adopting the ELD Mandate. Additionally, simply stating that a regulation requires the “essence” of the device disclosed in the '384 Patent does little, if anything, to show a nexus between the merits of the claimed invention and the adoption of the regulation. Patent Owner likewise makes no showing that the “ELD Mandate” is reasonably commensurate with the scope of the claims. The fact that Patent Owner characterizes the regulation as including only the “essence” of the invention tends to suggest that the “ELD Mandate” regulation is *not* commensurate with the scope of the Challenged Claims.

Therefore, although we factor into our obviousness analysis Patent Owner’s objective evidence of nonobviousness, for the reasons discussed above, we attribute little weight to the evidence of unexpected results and industry praise in determining whether the claims at issue in this case would have been obvious to a person skilled in the art at the time of the invention.

F. Comparing the Subject Matter of Claims 1–6, 10, 11, and 14–20 to the Disclosures of Skeen, Warkentin, and Transportation Regulations

Petitioner contends that claims 1–6, 10, 11, and 14–20 are unpatentable under 35 U.S.C. § 103(a) as obvious in view of Skeen, Warkentin, and Transportation Regulations. Pet. 15–68. Patent Owner disagrees. Patent Owner contends none of these references, alone or in combination, disclose the claimed subject matter of either claim elements [1c]/14[c] or [1d]/14[d] in independent claims 1 and 14. PO Resp. 23–57; Sur-reply 12–25. Patent Owner does not separately dispute Petitioner’s evidence discloses the subject matter recited in the remaining elements ([preamble], [a], [b]) of claims 1 and 14. *See generally id.* Nor does Patent Owner separately dispute Petitioner’s evidence discloses the subject matter recited in dependent claims 2–6, 10, 11, and 15–20. *See generally id.*

Having considered the totality of the arguments and evidence, we find Petitioner’s contention persuasive for the following reasons.

1. Independent Claims 1 and 14

The recited subject matter of claims 1 and 14 is substantially the same. Ex. 1001, 23:7–45, 25:1–26:6. Petitioner relies accordingly on substantially the same evidence for its challenges to these claims. Pet. 26–44, 63–67. Patent Owner likewise relies on the same arguments for these claims. *See generally* PO Resp. 23–53. Patent Owner argues that three defects exist with Petitioner’s evidence purporting to show the obviousness of claims 1 and 14: (1) it does not teach or suggest the “compliance signal” that elements 1[d] and 14[d] recite (*id.* at 25–36); (2) it does not teach or suggest a handheld communications device that has software to “generate a hours of service log using said vehicle operation data continuously monitored, obtained and calculated from the data bus of the vehicle” that elements 1[c] and 14[c] recite (*id.* at 37–45); and (3) it does not establish a skilled artisan would have been motivated to combine the subject matter of Skeen, Warkentin, and Transportation Regulations in the manner claimed (*id.* at 46–53). Patent Owner does not, however, otherwise dispute Skeen, Warkentin, and Transportation Regulations disclose the subject matter that is recited in claims 1 and 14. *See generally id.* In view of the parties’ arguments, we address claims 1 and 14 together.

[1 & 14 preamble]. “[A] preamble limits the invention if it recites essential structure or steps, or if it is necessary to give life, meaning, and vitality to the claim,” but the Federal Circuit “has recognized that as a general rule preamble language is not treated as limiting.” *Artic Cat Inc. v. GEP Power Products, Inc.*, 919 F.3d 1320, 1327 (Fed. Cir. 2019) (citations and quotations omitted). Neither party has argued that the preamble of

either of claims 1 or 14 is a limitation because it is necessary to give life, meaning, and vitality to the claim.

We need not decide whether the preambles are limiting, however, because we find that Petitioner persuasively maps the cited art to the elements of the preambles (with testimony of Mr. Andrews in support of the combination of references). *See* Pet. 26–28, 63–64 (citing Ex. 1009, code (57), 1:21–22, 1:32–34, 2:55–57, 2:65–3:2, 3:18–21, 4:13–15, 5:54–6:21; Figs. 3A-3B, 4, 5A-5E, 6; Ex. 1010 ¶¶ 2, 33, 44; Ex. 1003 ¶¶ 102–108, 213–216). Patent Owner does not present separate and specific arguments for the preambles of claims 1 and 14. *See generally* PO Resp. 23–53. We agree with and adopt the contentions set forth in the Petition and in Mr. Andrews’s Declaration as mapped to the elements of the preambles as our own findings. *See In re NuVasive, Inc.*, 841 F.3d 966, 974 (Fed. Cir. 2016) (explaining that the Board need not make specific findings about claim limitations that a patent owner does not dispute are disclosed in the prior art).

[1 & 14 a]. Elements [1a] and [14a] recite:

an onboard recorder adapted for continuously connecting to a data bus of the vehicle to continuously monitor, obtain and calculate vehicle operation data comprising mileage data, engine use data, time the engine is turned off, speed of the vehicle, and time the engine remains on while the vehicle is not moving, and said onboard recorder comprising a processor, a transmitter, and a memory device for recording and storing said vehicle operation data.

Ex. 1001, 23:10–18, 25:4–12. Skeen generally discloses an onboard diagnostic memory module (“ODPMM”) that is configured to plug into the onboard diagnostic port in a vehicle and has a real-time clock, a processor with operating firmware, and an attached memory. Ex. 1009, code (57). In operation, the ODPMM is generally preprogrammed with data collection

parameters that enable it to record selected data about a vehicle's operation, which may be exported for additional processing. *Id.*

Petitioner relies on the following to show that the ODPMM in Skeen discloses an onboard recorder that includes the structure and functionality that claim elements [1a] and [14a] recite. Pet. 28–34 (citing Ex. 1009, 2:57, 2:65–3:1, 3:9–11, 4:10–13, 4:37–39, 5:54–56, 6:3, 6:7–8, 8:37–39, 9:58–60, Figs. 4, 5D, 8A–8D, 8F; Ex. 1003 ¶¶ 109–121).

Regarding the recited structure, Petitioner identifies Skeen's description of the ODPMM (10 in Figure 4) as having a CPU (13 in Figure 4) and memory (15 in Figure 4). *Id.* at 32 (citing Ex. 1009, 2:57, 6:3, 6:7–8, Fig. 4). Skeen additionally describes the ODPMM as optionally being able to wirelessly transmit data using, for example, an infrared data communication protocol and “an [Infrared Data Association (IrDA)] transceiver that interfaces directly to the [infrared (IR)] transmitter.” *Id.* (citing 8:37–39, Fig. 5D).

Regarding the recited functionality, Petitioner identifies Skeen's description of the ODPMM as being connected to a data bus of the vehicle via a port, which may be permanently connected to allow it to continuously receive vehicle operation data via various communication protocols, such as SAE J1850. Pet. 28–29 (citing Ex. 1009, 3:9–11, 4:38–39, 5:54–56, 5:64–6:2; Ex. 1003 ¶¶ 111–12). The “[d]ata is then channeled directly to memory 15.” Ex. 1009, 6:3. When the ODPMM is connected to the vehicle, Skeen describes it as monitoring and recording the vehicle's operation to collect the following data: mileage data; engine use data; timing data associated with the vehicle's engine being off; speed of the vehicle data; and timing data associated with the vehicle's engine being on without moving. Pet. 29–31

(citing Ex. 1009, 2:65–3:1, 4:10–13, 4:37, 9:58–60, Figs. 8A–8D, 8F; Ex. 1003 ¶ 118).

Patent Owner does not present separate and specific arguments for claim elements [1a] and [14a]. *See generally* PO Resp. 23–53. And we find that Petitioner persuasively maps the cited art to claim elements [1a] and [14a] as discussed above (with testimony of Mr. Andrews in support of the combination of references). Therefore, we adopt the contentions set forth in the Petition and in Mr. Andrews’s Declaration as mapped to claim elements 1[a] and 14[a] as our own findings. *See NuVasive*, 841 F.3d at 974.

[1 & 14 b]. Elements [1b] and [14b] recite:

said transmitter adapted for transmitting said vehicle operation data from said onboard recorder to a portable handheld communication device.

Ex. 1001, 23:19–21, 25:13–15. Petitioner contends that Skeen discloses this element because it describes the ODPMM as having a transmitter “adapted for transmitting said vehicle operation data from said onboard recorder to a portable handheld communications device.” Pet. 34–36 (citing Ex. 1009, 4:41–44, 8:29–32; Ex. 1010 ¶¶ 31; Ex. 1003 ¶¶ 122–128). In particular, Skeen states that “[t]he Optional IrDA Interface (see FIG. 5D) allows the onboard diagnostic memory module to communicate with a Personal Digital Assistant (PDA) using the wireless IrDA industry standard.” Ex. 1009, 8:29–32.

Petitioner contends that a skilled artisan knew the infrared transmitter may transmit vehicle operation data from the onboard recorder to a portable handheld communication device, such as the one Warkentin discloses. Pet. 35 (citing Ex. 1010 ¶¶ 31; Ex. 1003 ¶¶ 125–126). As support, Petitioner relies on Warkentin’s teaching that its portable handheld communication

device “can incorporate . . . a connection interface to [a] truck (not shown) for determining operational status of th[e] vehicle, including speed and distance traveled, and other vehicle status information including diagnostics can also be recorded to facilitate servicing and for keeping maintenance records.” *Id.* (citing Ex. 1010 ¶ 31). Because Skeen’s onboard recorder generates and transmits the kind of information that Warkentin teaches is received and processed by its portable handheld communication device, Petitioner contends that a skilled artisan would have known to similarly use an infrared receiver with Warkentin’s portable device to receive the vehicle operation data from the onboard recorder. *Id.* (citing Ex. 1003 ¶¶ 125–126).

Patent Owner does not present separate and specific arguments for claim elements [1b] and [14b]. *See generally* PO Resp. 23–53. And we find that Petitioner persuasively maps the cited art to claim elements [1b] and [14b] as discussed above (with testimony of Mr. Andrews in support of the combination of references). Therefore, we adopt the contentions set forth in the Petition and in Mr. Andrews’s Declaration as mapped to claim elements 1[b] and 14[b] as our own findings. *See NuVasive*, 841 F.3d at 974.

[1 & 14 c]. Elements [1c] and [14c] recite:

data processing software operable on the handheld communications device comprising a processor and a display, said data processing software utilized to generate a hours of service log using said vehicle operation data continuously monitored, obtained and calculated from the data bus of the vehicle, and to present the hours of service log in a grid form on the display, the hours of service log comprising a driver’s total hours driven today, total hours on duty today, total miles driven today, total hours on duty for seven days, total hours on duty for eight days, and the driver’s changes in duty status and the times the duty status changes occurred, whereby the driver’s hours of service log is applicable for comparison to a hours of

service regulation to determine a compliance status of the driver.

Ex. 1001, 23:22–36, 25:16–30. For this element, Petitioner relies on Skeen, Warkentin, and Transportation Regulations, collectively, to show the recited subject matter was known to skilled artisans. Pet. 36–39 (citing Ex. 1010 ¶¶ 19, 31, 32, 38, Figs. 2, 3; Ex. 1009; Ex. 1003 ¶¶ 129–143).

Petitioner contends that Warkentin discloses data processing software operating on a handheld communications device, which includes a processor and a display, that monitors, receives and processes vehicle operation data to generate a hours of service log in a grid form on the display. Pet. 37–39 (citing Ex. 1010 ¶¶ 19, 31, 32, 38, Figs. 2, 3; Ex. 1003 ¶¶ 132–133).

Regarding the specifics of the information included in the hours of service log, Petitioner contends Transportation Regulations shows the kinds of information that was known to be included to help ensure compliance with a regulation—such as a driver’s total hours driven today, total hours on duty today, total miles driven today, total hours on duty for seven days, total hours on duty for eight days, and the driver’s changes in duty status and the times the duty status changes occurred. *Id.* at 39 (citing Ex. 1003 ¶¶ 134–143).

Because Skeen’s interfacing onboard recorder can transmit from a vehicle to an external device the vehicle operation data used to generate a hours of service log and because Warkentin’s handheld communications device may receive the vehicle operation data through its vehicle interface, Petitioner contends a skilled artisan would have known to adapt the onboard recorder to transmit the vehicle operation data it continuously monitors, processes, and obtains from the vehicle data bus to the handheld communications device to generate the hours of service log. Pet. 39 (citing

Ex. 1003 ¶ 143); *see also id.* at 21–26 (citing Ex. 1009, 5:46–53; Ex. 1010 ¶¶ 3–4, 8, 12, 26, 32, 33; Ex. 1003 ¶¶ 89–101).

Petitioner contends a reason the skilled artisan would have combined Skeen and Warkentin in the manner claimed is to improve the reliability of the hours of service log because Warkentin teaches that allowing the handheld communications device to receive the vehicle operation data directly from the vehicle can prevent drivers from fraudulently recording driving times and Skeen teaches an onboard recorder that can collect and transmit directly from the vehicle the kind of data that is necessary to serve this purpose. *Id.* at 21–23 (citing Ex. 1009, 5:46–53; Ex. 1010 ¶¶ 3–4, 8, 12, 26, 32, 33; Ex. 1003 ¶¶ 91–95). Additionally, Petitioner contends, in view of Transportation Regulations, the reason a skilled artisan would have included in the hours of service log generated by the handheld communications device the specific information recited in claim elements [1c]/[14c] (i.e., “a driver’s total hours driven today . . . the times the duty status changes occurred”) is to accomplish a stated goal of Warkentin to help maintain compliance with regulatory requirements. *Id.* at 24–25 (citing Ex. 1010 ¶¶ 3–4; Ex. 1003 ¶¶ 96–99). In particular, Warkentin expressly states that “there are regulatory requirements such as hours of service compliance” and “[h]ours of service regulations strictly regulate the number of hours a driver may drive.” *Id.* (quoting Ex. 1010 ¶¶ 3–4; emphasis omitted).

Petitioner contends,

This combination would represent no more than the combination of familiar elements that would yield a predictable result. In addition, Warkentin references the need to comply with regulations, thus providing an express or inherent suggestion to combine his device with the Transportation

Regulations. Lastly, this combination would represent an arrangement of old elements with each performing the same function disclosed in their respective prior art references (Skeen providing a vehicle interface, Warkentin providing the data collection device, and the Transportation Regulations informing the types of data to collect and the types of reports to produce). This combination would yield no more than one would expect from such an arrangement.

Pet. 26 (citations omitted; citing Ex. 1010 ¶¶ 3–4; Ex. 1003 ¶ 101).

Patent Owner disputes whether Skeen, Warkentin, and Transportation Regulations, alone or in combination, teach or suggest a handheld communications device that has software to “generate a hours of service log using said vehicle operation data continuously monitored, obtained and calculated from the data bus of the vehicle.” PO Resp. 37–45. This is so, Patent Owner argues, because (1) Skeen does not teach or suggest generating a hours of service log (*id.* at 38); (2) Warkentin does not teach or suggest using “vehicle operation data continuously monitored, obtained and calculated from the data bus of the vehicle (*id.* at 39–42);” and (3) Petitioner failed to establish a reason that a skilled artisan would have been motivated to modify Skeen and Warkentin in the manner claimed (*id.* at 43–44, 51–53).

More specifically, Patent Owner contends Skeen is directed to passenger vehicles, which do not require a graphical presentation of a driver’s duty status record. PO Resp. 38. Skeen additionally does not reference commercial motor vehicles (“CMVs”), hours of service requirements, or Transportation Regulations. *Id.*

Patent Owner contends that, although Warkentin may be connected to a vehicle through a “connection interface,” it does not teach or suggest connecting to a vehicle’s data bus. PO Resp. 39 (citing Ex. 1010 ¶ 31; Ex. 2007 ¶¶ 150–155; Ex. 2008, 183:8–15). Even if a skilled artisan did

understand that the connection interface would connect to a data bus, Patent Owner contends Warkentin still does not teach or suggest using “vehicle operation data that is continuously monitored, obtained, and calculated” and that is collected from a data bus. *Id.* at 40. This is because Warkentin suggests its portable device is driver specific and a driver changing vehicles may not properly re-connect to the data bus of the different vehicles, which would undermine the accuracy of any hours of service log. *Id.* (citing Ex. 1010 ¶¶ 6, 45; Ex. 2007 ¶ 170).

Patent Owner further contends that even if the connection interface of Warkentin’s portable device does allow *some* continuously monitored vehicle data to be received, Warkentin does not suggest receiving all of the vehicle data recited in claim elements [1a]/[14a] from a vehicle data bus. *Id.* at 41. Patent Owner argues that Warkentin instead suggests “it can use a GPS to obtain some data for the purpose of generating [a graphical presentation of a driver’s duty status record].” *Id.* at (citing Ex. 1010 ¶ 31). “Using Warkentin’s widely used GPS feature would have ‘been in line with this cost-saving ethos,’ rather than determining how to utilize Warkentin’s connection interface.” *Id.* (citing Ex. 2007 ¶ 134); *see also id.* at 51–52 (citing Ex. 2007 ¶ 184).

Patent Owner contends that, because neither Skeen nor Warkentin teaches or suggests “generat[ing] a hours of service log using . . . vehicle operation data that is continuously monitored, obtained, and calculated from the data bus of the vehicle,” a skilled artisan would have concluded “that these references could not be combined to achieve this limitation.” PO Resp. 43–44 (citing 2007 ¶¶ 160–167). Patent Owner also contends a skilled artisan would not have been motivated to combine these references in the manner claimed. *Id.* at 46–53. The artisan “would not have viewed

Skeen as a reference that was even pertinent to the [hours of service] compliance issues facing the commercial trucking industry in 2005.” *Id.* at 46 (citing Ex. 2006 ¶¶ 27–47; Ex. 2007 ¶¶ 67–70). Additionally, Patent Owner contends a skilled artisan would not have been motivated to use Skeen’s onboard recorder because there is no disclosure that it communicates in the language used by the trucking industry. *Id.* at 47–48 (citing Ex. 1009, 5:61–6:3; Ex. 2006 ¶ 38; Ex. 2007 ¶¶ 64, 69, 125, 150, 174; Ex. 2008, 116:20–117:3).

Finally, Patent Owner contends that a skilled artisan “would not have been motivated to combine Warkentin with *any* device that suggested a connection to the data bus of the vehicle, such as Skeen.” PO Resp. 51. Patent Owner contends a skilled artisan “would not have found it useful or valuable to connect Warkentin’s device to a vehicle’s data bus” because Warkentin’s device includes a GPS that already gathers the data necessary to generate a hours of service log. *Id.* at 51–52 (citing Ex. 2007 ¶ 184). Patent Owner notes that Warkentin states that “‘it is not uncommon for drivers to change vehicles during the day, or overnight,’ making on-board recording devices of ‘limited value in tracking hours of service data.’” *Id.* at 40 (citing Ex. 1010 ¶ 6). Ultimately, Patent Owner concludes that a skilled artisan “would have had no incentive to innovate in this area until industry or regulatory forces required it.” *Id.* at 52.

We find that Petitioner has demonstrated persuasively that the teachings of Skeen, Warkentin, and Transportation Regulations account for all the limitations of claim elements [1c]/[14c], have been properly combined, and that an ordinarily skilled artisan would have found it obvious to combine these teachings in the manner claimed with a reasonable expectation of success.

For the reasons discussed above in the context of claim elements [1a]/[14a] and [1b]/[14b], Skeen demonstrates that skilled artisans were aware of onboard recorders that continuously connect to a data bus of a vehicle to continuously monitor, obtain, and calculate vehicle operation data, as well as, transmit the vehicle operation data from the onboard recorder to an external device to generate a detailed record of vehicle and driver operation of a vehicle from the recorded data. Perhaps the clearest and simplest evidence of this fact comes from the following statement by Skeen:

This invention relates to [] on board recordation of operating data from a motor vehicle into a dedicated onboard diagnostic port memory module. More specifically, a “trip oriented” data recordation protocol is actuated during vehicle operation when the dedicated onboard diagnostic port memory module is connected to the onboard diagnostic port of the vehicle. The dedicated onboard diagnostic port memory module can be preprogrammed before placement to the vehicle as to certain critical data parameters to be monitored, placed in vehicle for monitoring over an extended period of time, and finally intelligently interrogated to discharge the recorded data. A detailed record of vehicle and driver operation of a vehicle can be generated from the recorded data.

Ex. 1009, 1:21–35. Patent Owner does not dispute this fact. *See generally* PO Resp. 37–45; Reply 17. Patent Owner instead attempts to discount Skeen by raising largely irrelevant points of distinction.

For example, Patent Owner points to the fact that Skeen does not mention specifically generating a hours of service log, nor does it ever refer expressly to a hours of service log. Even accepting this as true, Skeen is not being relied upon to show what was known about generating a hours of service log. *See* Reply 17. Moreover, Patent Owner’s point is unpersuasive because, when viewed as a whole, Skeen at least *suggests* using the disclosed onboard recorder as a source of vehicle data for an external device

to use to generate a hours of service log because such a log is generally a detailed record of vehicle and driver operation of a vehicle. Ex. 1009, 1:33–35 (stating “[a] detailed record of vehicle and driver operation of a vehicle can be generated from the recorded data”).

Patent Owner’s other point about Skeen disclosing an onboard recorder for a passenger vehicle and not a large commercial truck is likewise unavailing. Again, even accepting this point as true, it is not a strong point because “[a] reference must be considered for everything it *teaches* by way of technology and is not limited to the particular *invention* it is describing and attempting to protect.” *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir. 1985). The fact the Skeen discloses its onboard recorder in the context of a passenger vehicle does little to detract from the strong evidentiary support Skeen provides showing skilled artisans knew of onboard recorders that could continuously connect to a data bus of a vehicle to continuously monitor, obtain, and calculate vehicle operation data. *See Samsung Elecs. Co., Ltd. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1382 (Fed. Cir. 2019) (“What matters in the § 103 nonobviousness determination is whether a person of ordinary skill in the art, having all the teachings of the references before him, is able to produce the structure defined by the claim.” (citation omitted)). Furthermore, Skeen makes clear this technology was known to have the versatility that allows for the particular vehicle data monitored to be selected and the versatility to communicate using different vehicle communication protocols. *See* Ex. 1009, 1:27–30, 2:6–10.

Turning to Warkentin, Petitioner’s evidence likewise firmly establishes that skilled artisans were well aware of handheld communications devices with data processing software operable to generate

a hours of service log and display it in a grid form. *See* Warkentin ¶¶ 4, 19, 31, 32, 38, Figs. 2, 3. Patent Owner does not dispute this fact. *See generally* PO Resp. 39–42; Reply 17. Rather, Patent Owner disputes Warkentin discloses “using said vehicle operation data continuously monitored, obtained and calculated from the data bus of the vehicle” to generate the hours of service log. PO Resp. 39. But, as Petitioner correctly notes, Warkentin is not relied upon to show this portion of claim elements [1c]/[14c]. Reply 17. Thus, Patent Owner’s associated arguments (PO Resp. 40–41) are largely irrelevant because they all similarly center on the absence of evidence from Warkentin to show vehicle operation data that is continuously monitored, obtained, and calculated, which Warkentin is again not relied upon to show.

Patent Owner’s arguments focus on what the references disclose individually, rather than what they *together* fairly suggest as a whole. For example, Petitioner proposes combining Warkentin’s handheld communication device with Skeen’s onboard recorder. In the combination Petitioner proposes, the data processing software in Warkentin’s handheld communication device generates a hours of service log using the vehicle operation data transmitted by Skeen’s onboard recorder, which continuously monitors, obtains, and calculates the vehicle operation data from the data bus of the vehicle. Nevertheless, Patent Owner’s arguments never actually address the combination proposed. “A finding of obviousness . . . cannot be overcome ‘by attacking references individually where the rejection is based upon the teachings of a combination of references.’” *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1050 (Fed. Cir. 2019) (citation omitted). Warkentin, Skeen, and Transportation Regulations “must be read, not in isolation [from each other], but for what [they] fairly teach[] in combination with [each

other] as a whole.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)).

Turning to the reasons for combining the references in the manner claimed, we find a skilled artisan would have been led to combine Skeen’s onboard recorder with Warkentin’s handheld communication device to improve the reliability of the generated hours of service log. Warkentin teaches that using vehicle operation data obtained directly from a vehicle “may prevent drivers from fraudulently recording [vehicle operation data]” (Ex. 1010 ¶ 33) and Skeen’s onboard device would help avoid this fraud by transmitting vehicle operation data continuously monitored, obtained, and calculated from the data bus of a vehicle. Skeen supports this finding further because it teaches that the onboard recorder is able to collect and transmit the vehicle operation data necessary to generate “[a] detailed record of vehicle and driver operation of a vehicle” (Ex. 1009, 1:33–35), which is a central purpose of Warkentin’s handheld communication device. This combination is simply an arrangement of known elements with each performing the same function it had been known to perform to accomplish what a skilled artisan would have expected from such an arrangement.

Patent Owner’s argument that a skilled artisan would not have been motivated to combine Skeen and Warkentin because Skeen is not directed to the hours of service compliance issues facing the commercial trucking industry in 2005 is misplaced. The problem motivating the patentee may be only one of many that would justify the proposed combination. “The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a

reason for combining the elements in the manner claimed.” *KSR*, 550 U.S. at 420. Thus, even if Patent Owner is correct, Patent Owner has not undermined the strength of the reasoning Petitioner asserts.

Similarly, we do not agree with Patent Owner’s argument that a skilled artisan would not have been motivated to use Skeen’s onboard recorder because it fails to communicate in a language commonly used in the trucking industry. “It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements Rather, the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.” *In re Mouttet*, 686 F.3d 1322, 1332–33 (Fed. Cir. 2012); *see also MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015) (“[t]he test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference” (citation omitted)); *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc) (finding that “assertions that [one reference] cannot be incorporated in [another reference] are basically irrelevant, the criterion being not whether the references could be physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole”).

Finally, we find Patent Owner’s argument that there was no motivation to combine the references because a skilled artisan would not have found it useful or valuable to connect Warkentin’s handheld communication device to a vehicle’s data bus to be lacking in merit. This is because Warkentin itself explains why it was understood that it would be useful to obtain vehicle operation data directly from a vehicle (through communications with a vehicle’s data bus)—“[i]t will be understood that a

connection interface to the truck itself may prevent drivers from fraudulently recording driving time as off duty state, etc.” Ex. 1010 ¶ 33. Although Warkentin does suggest some drawbacks exist with installing the device that generates a hours of service log on-board a vehicle (e.g., they can be expensive, *id.* ¶ 6), the proposed combination is still not contrary to this teaching because, in the asserted combination, the device generating the hours of service log is a handheld communication device that is portable and can remain with the driver. *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) (“A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use.”).

To summarize, after analyzing the entirety of both parties’ arguments and assigning the appropriate weight to the cited supporting evidence, we find Petitioner has met its burden—i.e., Skeen, Warkentin, and Transportation Regulations disclose the subject matter recited by claim elements [1c]/[14c]. We reach this determination because Petitioner has shown persuasively that combining Skeen, Warkentin, and Transportation Regulations in the manner claimed is simply an arrangement of old elements with each performing the same function it was intended to perform and yields what a skilled artisan would have expected from the combination. *See* Pet. 26; *KSR*, 550 U.S. at 417 (“when a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, *the combination is obvious*”) (emphasis added).

[1 & 14 d]. Elements [1d] and [14d] recite:

a compliance signal emitted by said transmitter and indicating whether said onboard recorder is functioning to record vehicle

operation data needed to generate the driver's hours of service log, such that the compliance status of the driver can be accurately determined, and in the event of a malfunction of said onboard recorder, said compliance signal is adapted for activating a visual indicator to the driver signifying an out-of-compliance condition of said onboard recorder.

Ex. 1001, 23:37–45, 25:31–26:6. Petitioner contends the ODPMM in Skeen discloses the recited compliance signal, which would have been obvious to transmit to Warkentin's handheld communication device. Pet. 40–44 (citing Ex. 1009, 5:54–60, 8:28–32, 8:37–39; Ex. 1010 ¶ 37; Ex. 1003 ¶¶ 144–154).

In particular, Petitioner contends indicator light 2 is described by Skeen as being activated by a compliance signal when the ODPMM senses that it is not communicating with the vehicle data bus to collect data (i.e., identifying that a malfunction has occurred). *Id.* at 40–42 (citing Ex. 1009, 5:54–60; Ex. 1003 ¶¶ 148–149). Petitioner further argues Warkentin's handheld communication device also includes a “visible and/or audible warning” to alert the driver when a non-complaint condition occurs. *Id.* at 42–43 (citing Ex. 1010 ¶ 37; Ex. 1003 ¶ 152). Petitioner contends that

[i]t would be a simple and logical matter for a [person of ordinary skill in the art] to include the non-compliance (or compliance) signal used to illuminate the indicator light of Skeen as an additional data element in the IrDA communication between the ODPMM and the portable data collection device (this data element in the IR data stream being the claimed “compliance signal emitted by said transmitter”), and this would facilitate using the visual or audible indicators described above by Warkentin.

Id. at 43–44 (citing Ex. 1003 ¶ 152). Moreover, Petitioner contends that a skilled artisan would have modified the devices of Skeen and Warkentin in the manner claimed “in order to assure that the driver was alerted when a non-compliant condition such as a data recorder malfunction occurred” and

because such a modification “would be more effective at alerting the driver.”
Id. at 44.

Patent Owner contends that Skeen, Warkentin, and Transportation Regulations, alone or in combination, do not teach or suggest the type of compliance signal recited in claims 1 and 14. PO Resp. 25–36. Patent Owner addresses each reference individually first and then addresses the combination of references. *See id.* Petitioner, however, does not contend either Warkentin or Transportation Regulations discloses the recited compliance signal. As a result, although Patent Owner’s arguments regarding the lack of any disclosure of the recited compliance signal in Warkentin and Transportation Regulations have been considered, we do not address them expressly below. Instead, our discussion below focuses on Patent Owner’s arguments regarding Skeen and the combination of references.

Regarding Skeen, Patent Owner contends that it “fails to teach or suggest two discrete aspects of the claimed compliance signal: (1) a visual indicator to the driver signaling an out-of-compliance condition and (2) a visual indicator to the driver ‘indicating whether said onboard recorder is functioning to record vehicle operation data needed to generate the driver’s hours of service log.’” PO Resp. 26. We address each in turn below.

First, Patent Owner contends that indicator light 2 cannot be a visual indicator of an out-of-compliance condition because of its *location* in a vehicle. PO Resp. 26. Specifically, Patent Owner contends that “Skeen’s indicator light 2 cannot signal ‘the presence of communication between’ the device and the vehicle *visually to the driver*” because “[d]oing so would be impossible.” *Id.* (citing Ex. 2007 ¶ 56). Noting that indicator light 2 in Skeen is located on the ODPMM that is located under the dashboard near the

steering column when it is plugged into the data bus of a vehicle, Patent Owner contends “that light cannot signal *anything*—least of all whether the recorder is functioning—to the driver” “[b]ecause the vehicle’s dash typically obscures Skeen’s indicator light from the driver’s view.” *Id.* at 27 (citing Ex. 1009, 4:45–48; Ex. 2007 ¶¶ 48, 49, 55). And even if visual indicator light 2 could be seen, a skilled artisan “would have considered Skeen to be an unacceptably dangerous means to produce a compliance signal.” *Id.*

Second, Patent Owner contends Skeen fails to disclose “a signal that indicates ‘whether said onboard recorder is functioning to record vehicle operation data needed to generate the driver’s hours of service log.’” PO Resp. 28. Patent Owner states in several different ways that Skeen cannot possibly be viewed as producing a signal indicative of the onboard recorder functioning to record the vehicle operation data needed for a hours of service log because Skeen fails to address hours of service compliance at all. *See id.* at 28–30.

Regarding the combination of Skeen, Warkentin, and Transportation Regulations, Patent Owner contends that “the combination would not produce a compliance signal that lets the driver know ‘whether [the] onboard recorder is functioning to record vehicle operation data needed to generate the driver’s hours of service log’” because “[t]his feature of the ’384 Patent’s ‘compliance signal’ is distinct and unique.” PO Resp. 33 (citing Ex. 2007 ¶¶ 79–85). As support, Patent Owner once again points out that Skeen says nothing about generating a hours of service log. *Id.* at 33–34. Patent Owner additionally notes that Warkentin says nothing about a compliance signal because it does not disclose using an onboard recorder with its handheld communication device. *Id.* at 34.

Patent Owner contends further that there are three reasons a skilled artisan would not have been motivated to modify Skeen or Warkentin to produce a compliance signal that lets the driver know “whether [the] onboard recorder is functioning to record vehicle operation data needed to generate the driver’s hours of service log.” PO Resp. 34. To begin, Patent Owner contends that “neither [Skeen nor Warkentin] mentions, claims, or suggests the desirability of having [such] a compliance signal.” *Id.* (citing generally Ex. 1009; 1010; Ex. 2007 ¶ 101). Patent Owner states, “[t]here is nothing in either reference that would have caused a person of ordinary skill in the art to see the utility of such a compliance signal in 2005.” *Id.* at 35. Next, Patent Owner contends there would not have been a motivation to modify Skeen because a skilled artisan “would not have looked to Skeen to provide solutions for problems specific to compliance with the HOS Regulations.” *Id.* Lastly, Patent Owner contends that “Petitioner offers no contrary evidence.” *Id.*

We find that Petitioner has demonstrated persuasively that the combination of Skeen, Warkentin, and Transportation Regulations discloses all of the limitations of claim elements [1d]/[14d], that the references have been properly combined, and that an ordinarily skilled artisan would have found it obvious to combine the teachings from these references in the manner claimed with a reasonable expectation of success.

Skeen’s teaching that “indicator light 2 can be used for indicating any number of selected functions including the presence of communication between the [onboard recorder] and the [vehicle]” (Ex. 1009, 5:57–60) is persuasive evidence that a compliance signal is generated. In particular, that statement suggests to a skilled artisan that Skeen’s onboard recorder is configured to generate a compliance signal indicative of whether the

recorder is *functioning to record vehicle operation data*, which is needed in the proposed Skeen, Warkentin, and Transportation Regulations combination to generate a driver's hours of service log. Moreover, this statement in Skeen suggests to a skilled artisan that the compliance signal may be used to activate a visual indicator to the driver signifying *an out-of-compliance condition of said onboard recorder*.

We are also persuaded that the need to ensure that a driver is informed of a malfunctioning onboard recorder would have led a skilled artisan to modify Skeen to transmit the compliance signal from the onboard recorder to Warkentin's handheld communication device because it would enhance the visibility (and thus awareness) of an adverse event. As discussed above in the context of claim elements [1c]/14[c], combining Skeen's onboard recorder with Warkentin's handheld communication device to communicate information is simply an arrangement of old elements with each performing the same function it was intended to perform and yields what a skilled artisan would have expected from the combination. In this instance, the result would be the transmission of a compliance signal indicative of whether the recorder is functioning to record vehicle operation data from the onboard recorder to the handheld communication device. Therefore, this combination would represent no more than the combination of familiar elements that would yield a predictable result.

Patent Owner's arguments fail to undercut Petitioner's evidence and reasoning supporting the obviousness of this element. Patent Owner's contention that because a driver could not easily observe indicator light 2 in Skeen does not discount Petitioner's showing that the onboard recorder provides a compliance signal that is adapted for activating a visual indicator to the driver signifying an out-of-compliance condition of said onboard

recorder. Simply put, the argument and point of distinction is not commensurate with the scope of the claims because the claim element does not recite that a driver must be able to easily view the visual indicator while driving the vehicle. *See* Reply 13, 20. What is important is that the onboard recorder is configured to provide a signal that activates a visual indicator (regardless of its location) that indicates *the recorder* is in an out-of-compliance condition.

Likewise, Patent Owner's arguments that Skeen cannot disclose a compliance signal because it lacks any specific reference to a driver's hours of service log is misplaced. This is because the recited compliance signal need only indicate whether the onboard recorder is functioning to record needed vehicle operation data. We are persuaded that a signal about whether the onboard recorder is communicating with the vehicle qualifies as a compliance signal because it is a direct indicator of whether the recorder is recording the vehicle operation data. It is reasonable in the context of Skeen's teachings to presume that the vehicle operation data is being recorded when there are communications and, conversely, that vehicle operation data is not being recorded when there are no communications. We find Mr. Andrews's explanation as to how a person of ordinary skill in the art would have understood Skeen persuasive in that regard. *See* Ex. 1003 ¶ 149. And, of course, the vehicle operation data is needed to generate the driver's hours of service log in Petitioner's proposed combination of Skeen, Warkentin, and Transportation Regulations.

Patent Owner's arguments against the combined teaching of Skeen, Warkentin, and Transportation Regulations are unconvincing because they do not address the combination Petitioner proposes.

Finally, we do not agree with Patent Owner’s insistence that Skeen, Warkentin, and Transportation Regulations would never have been combined as Petitioner proposes because a skilled artisan would only have been looking through “the specific lens of ensuring compliance with the HOS Regulations” (Sur-reply 17; *see also* PO Resp. 28–29, 33, 35, 44, 48). The problem motivating the patentee is only one of many that could justify the proposed combination. Again, “[a]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *KSR*, 550 U.S. at 420. The lens Patent Owner proposes to look through is too narrow and fails to account for the reason Petitioner actually asserts. And to the extent Patent Owner touches on Petitioner’s proposed reasoning, no deficiencies have been persuasively shown. Further, Petitioner’s reasoning as to why a person of ordinary skill in the art would have looked to Transportation Regulations in the proposed combination is strong, given Warkentin’s specific reference to hours of service “compliance” and “regulations.” *See* Pet. 24–25; Ex. 1010 ¶¶ 3–4; Ex. 1003 ¶ 99.

Therefore, after analyzing the entirety of the record and assigning appropriate weight to the cited supporting evidence, including the secondary considerations evidence discussed in section III.E, *supra*, for the foregoing reasons, we determine that Petitioner has shown by a preponderance of the evidence that claims 1 and 14 are unpatentable for being obvious in view of the combination of Skeen, Warkentin, and Transportation Regulations.

2. Dependent Claims 2–6, 10, 11, and 15–20

Having decided that the combination of Skeen, Warkentin, and Transportation Regulations teaches or suggests each and every limitation of claims 1 and 14, we turn to the remaining claims challenged in this ground

of unpatentability—i.e., claims 2–6, 10, 11, and 15–20. These claims depend directly from claims 1 and 14, respectively. As such, they also include the above-discussed limitations. We find that Petitioner persuasively maps the cited art to the limitations of these dependent claims (with testimony of Mr. Andrews in support of the combination of references).¹⁰ *See* Pet. 44–63, 67–68 (citing, for **claims 2 and 15**: Ex. 1009, 4:10–15, 4:66–5:2, 5:64–6:3, 7:17–21, 8:1–4, Figs. 4, 5B, 5C, 8F; Ex. 1003 ¶¶ 155–169; Ex. 1010 ¶¶ 10, 31, 39; for **claims 3 and 16**: Ex. 1003 ¶¶ 170–176; Ex. 1009, 8:29–32; Ex. 1010 ¶¶ 26, 31, 33, 39; for **claims 4 and 17**: Ex. 1010 ¶¶ 31, 35, 37, Fig. 2; Ex. 1003 ¶¶ 177–183; for **claims 5 and 18**: Ex. 1010 ¶¶ 19, 31, 35, 37, Figs. 3, 4; Ex. 1003 ¶¶ 184–190; for **claims 6 and 20**: Ex. 1009, 5:54–56, 3A; Ex. 1010 ¶¶ 31, 33; Ex. 1003 ¶¶ 191–194; for **claims 10**: Ex. 1010 ¶¶ 26, 31, 32, Fig. 2, 3; Ex. 1003 ¶¶ 195–203; for **claims 11 and 19**: Ex. 1009, 6:4–10, Fig. 4; Ex. 1010 ¶¶ 28, 31, 33; Ex. 1003 ¶¶ 205–212). Again, Patent Owner does not present separate and specific arguments for any of these dependent claims. *See generally* PO Resp. 23–53. We have reviewed Petitioner’s contentions and cited evidence, find them persuasive, and adopt the contentions set forth in the Petition and in Mr. Andrews’s Declaration as mapped to the limitations of the challenged claims as our own findings. *See NuVasive*, 841 F.3d at 974.

For these reasons, after having analyzed the entirety of the record and assigning appropriate weight to the cited supporting evidence, including the secondary considerations evidence discussed in section III.E, *supra*, we determine that Petitioner has shown by a preponderance of the evidence that

¹⁰ Petitioner provides citations for limitations of certain claims by reference to earlier sections of the Petition discussing similar elements of other claims.

claims 2–6, 10, 11, and 15–20 are unpatentable for being obvious in view of the combination of Skeen, Warkentin, and Transportation Regulations.

3. *Summary*

After having analyzed the entirety of the record and assigning appropriate weight to the cited supporting evidence, including evidence of secondary considerations presented by Patent Owner, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–6, 10, 11, and 14–20 are unpatentable over the combination of Skeen, Warkentin, and Transportation Regulations. In particular, we find that Petitioner has demonstrated persuasively that the teachings of Skeen, Warkentin, and Transportation Regulations account for all the limitations of these claims, have been properly combined, and that an ordinarily skilled artisan would have found it obvious to combine these teachings in the manner claimed with a reasonable expectation of success.

G. Comparing the Subject Matter of Claim 8 to the Disclosures of Skeen, Warkentin, Transportation Regulations, and Murphy

As to claim 8, we find that Petitioner persuasively maps the cited art to the limitations of this dependent claim (with testimony of Mr. Andrews in support of the combination of references). *See* Pet. 68–74 (citing Ex. 1007, 2:32–34, 2:54–60, 6:55–7:14, 10:29–40, 12:1–5, 12:47–50, 12:54–56, 14:46–54, Fig. 6; Ex. 1009, 10:55–65; Ex. 1010 ¶¶ 26, 28, 32, 38, 48, 51; Ex. 1003 ¶¶ 244–257). Again, Patent Owner does not present separate and specific arguments for any of the dependent claims. *See generally* PO Resp. 23–53. We have reviewed Petitioner’s contentions and cited evidence, find them persuasive, and adopt the contentions set forth in the Petition and in Mr. Andrews’s Declaration as mapped to the limitations of the challenged claims as our own findings. *NuVasive*, 841 F.3d at 974.

After having analyzed the entirety of the record and assigning appropriate weight to the cited supporting evidence, including the secondary considerations evidence discussed in section III.E, *supra*, we determine that Petitioner has shown by a preponderance of the evidence that claim 8 is unpatentable over the combination of Skeen, Warkentin, Transportation Regulations, and Murphy. In particular, we find that Petitioner has demonstrated sufficiently that the teachings of Skeen, Warkentin, Transportation Regulations, and Murphy account for all the limitations of claim 8, have been properly combined, and that an ordinarily skilled artisan would have found it obvious to combine these teachings in the manner claimed with a reasonable expectation of success.

H. Comparing the Subject Matter of Claims 7 and 9 to the Disclosures of Skeen, Warkentin, Transportation Regulations, and Berenz

For claims 7 and 9, we find that Petitioner persuasively maps the cited art to the limitations of this dependent claim (with testimony of Mr. Andrews in support of the combination of references). *See* Pet. 74–78 (citing Ex. 1011, 2:26–36, 4:40–58, 5:5–23, 6:30–50, 9:26–43, Figs. 1, 2, 5; Ex. 1009, 10:55–65; Ex. 1010 ¶¶ 26, 28, 32, 38; Ex. 1003 ¶¶ 258–274). Patent Owner again does not present separate and specific arguments for any of these dependent claims. *See generally* PO Resp. 23–53. We have reviewed Petitioner’s contentions and cited evidence, find them persuasive, and adopt the contentions set forth in the Petition and in Mr. Andrews’s Declaration as mapped to the limitations of the challenged claims as our own findings. *NuVasive*, 841 F.3d at 974.

After having analyzed the entirety of the record and assigning appropriate weight to the cited supporting evidence, including the secondary considerations evidence discussed in section III.E, *supra*, we determine that

Petitioner has shown by a preponderance of the evidence that claims 7 and 9 are unpatentable over the combination of Skeen, Warkentin, Transportation Regulations, and Berenz. In particular, we find that Petitioner has demonstrated sufficiently that the teachings of Skeen, Warkentin, Transportation Regulations, and Berenz account for all the limitations of the claims, have been properly combined, and that an ordinarily skilled artisan would have found it obvious to combine these teachings in the manner claimed with a reasonable expectation of success.

IV. CONCLUSION¹¹

Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–6, 10, 11, 14– 20	103(a)	Skeen, Warkentin, Transportation Regulations	1–6, 10, 11, 14–20	
8	103(a)	Skeen, Warkentin, Transportation Regulations, Murphy	8	
7, 9	103(a)	Skeen, Warkentin, Transportation Regulations, Berenz	7, 9	

¹¹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

V. ORDER

Accordingly, it is
ORDERED that claims 1–11 and 14–20 of U.S. Patent
No. 10,157,384 B2 are unpatentable under 35 U.S.C. § 103 as obvious; and
FURTHER ORDERED that, because this is a Final Written Decision,
parties to the proceeding seeking judicial review of this decision must
comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2020-00694
Patent 10,157,384 B2

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