

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

CHARGE FUSION TECHNOLOGIES, LLC,
Patent Owner.

IPR2025-00032
Patent 11,563,338 B1

Before MITCHELL G. WEATHERLY, CARL M. DeFRANCO, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

WEATHERLY, *Administrative Patent Judge*.

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

I. INTRODUCTION

We have authority to hear this *inter partes* review under 35 U.S.C. § 6(c). We enter this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. Tesla, Inc. (“Petitioner”) filed a petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 1–29 (the “challenged

claims”) of the ’338 patent. 35 U.S.C. § 311. Briefly, we determine that Tesla, Inc. (“Petitioner”) has proven by a preponderance of the evidence that claims 1–29 of U.S. Patent No. 11,563,338 B1 (Ex. 1001, “the ’338 patent”) are unpatentable. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

Petitioner cites the following prior art in support of its challenges to claims:

Exhibit	Reference	Effective Date
1004	U.S. Pub. App. 2009/0313034 A1 (“Ferro”)	Jun. 16, 2008
1005	European App. No. 1,920,968 A1 (“Oyobe”)	Aug. 30, 2006
1006	U.S. Pat. No. 7,124,691 B2 (“Donnelly”)	Oct. 24, 2006
1007	Steven E. Letendre, et al., <i>A New Model for Power</i> , PUBLIC UTILITIES FORTNIGHTLY, Feb. 15, 2002, at 16 (“Letendre”)	Feb. 15, 2002
1008	U.S. Pub. App. 2009/0130965 A1 (“Galvez-Ramos”)	May 21, 2009
1009	U.S. Pat. No. 6,889,762 B2 (“Zeigler”)	May 19, 2005
1010	U.S. Pat. No. 6,662,083 B1 (“Knockeart”)	Sep. 16, 2003
1011	U.S. Pub. App. 2008/0136371 A1 (“Sutardja”)	Jun. 12, 2008

Petitioner challenges the patentability of claims as follows:

Claims challenged	35 U.S.C. § ¹	References
1–4, 6, 7, 9–13, 15, 16, 18–22, 24, 25, 27	103	Ferro, Oyobe, Donnelly, Letendre, Zeigler, Galvez-Ramos

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102 and 103 that became effective March 16, 2013. The application for the ’338 patent was filed on June 1, 2022. The ’338 patent claims priority to at least one application filed before March 16, 2013. Ex. 1001, code (63). Therefore, we apply the pre-AIA versions of 35 U.S.C. §§ 102 and 103.

Claims challenged	35 U.S.C. § ¹	References
5, 8, 14, 17, 23, 26	103	Ferro, Oyobe, Donnelly, Letendre, Zeigler, Galvez-Ramos, Knockeart
28, 29	103	Ferro, Donnelly, Letendre, Sutardja

Charge Fusion Technologies, LLC (“Patent Owner”) timely filed a Preliminary Response. Paper 8. On May 19, 2025, based on the record before us at the time, we instituted an *inter partes* review of all challenged claims on all grounds alleged as indicated in the table above. Paper 11 (“Institution Decision” or “Dec.”). After we instituted this review, Patent Owner filed a Patent Owner Response in opposition to the Petition (Paper 17, “PO Resp.”) that was supported by a Declaration from Steven H. Goldberg, Ph.D. (Ex. 2002). Petitioner filed a Reply in support of the Petition (Paper 20, “Reply”). Patent Owner filed a Sur-reply responding to the Reply (Paper 23, “Sur-reply”). Patent Owner did not move to amend any claim of the ’338 patent. We heard oral argument on March 31, 2026, and a transcript of the argument has been entered in the record (Paper 26, “Tr.”).

A. Real Parties-in-Interest

Each party identifies itself as the only real party in interest. Pet. 86; Paper 6, 2.

B. Related Proceedings

Petitioner identified as a related proceeding the co-pending district court proceeding of *Charge Fusion Technologies, LLC v. Tesla, Inc.*, Case No. 1:22-cv-00488 (W.D. Tex.). Pet. 86; Paper 6, 2. Patent Owner additionally identifies the proceedings, which address claims in various patents within the priority chain of the ’338 patent:

- *Charge Fusion Technologies, LLC v. Tesla, Inc.*, Case No. 1:22-cv-00488-DAE (W.D. Tex.);

- *Unified Patents, LLC v. Charge Fusion Technologies, LLC*, Case No. IPR2022-00519 (PTAB);
- *Tesla, Inc. v. Charge Fusion Technologies, LLC*, Case No. IPR2022-01217 (PTAB);
- *Tesla, Inc. v. Charge Fusion Technologies, LLC*, Case No. IPR2023-00062 (PTAB);
- *Tesla, Inc. v. Charge Fusion Technologies, LLC*, Case No. IPR2023-00063 (PTAB);
- *Tesla, Inc. v. Charge Fusion Technologies, LLC*, Case No. IPR2025-00152 (PTAB); and
- *Tesla, Inc. v. Charge Fusion Technologies, LLC*, Case No. IPR2025-00153 (PTAB).

Paper 6, 2. Patent Owner also identifies as related the following pending appeals before the United States Court of Appeal for the Federal Circuit:

- *Tesla, Inc. v. Charge Fusion Technologies, LLC*, Case No. 24-2015 (Fed. Cir.) and
- *Tesla, Inc. v. Charge Fusion Technologies, LLC* Case No.umber: 24-1584 (Fed. Cir.).

Id.

Patent Owner has not identified any pending patent applications as related matters. *See generally* Paper 6. However, Patent Owner may be obligated to do so. Rule 42.8(b)(2) states:

(b) Each of the following notices must be filed:

(2) Related matters. Identify any other judicial or administrative matter that would affect, or be affected by, a decision in the proceeding.

37 C.F.R. § 42.8(b)(2). Under Rule 42.8(b)(2), Patent Owner should consider whether to identify any of its own pending patent applications that share a substantially similar disclosure to the specification of the

'338 patent. Related matters may include the patent applications assigned to Patent Owner listed below. The listed applications purport to share an identical specification with the '338 patent by being characterized as a continuing application of a series of intervening applications, all of which claim priority to U.S. Application No. 12/502,041 filed July 13, 2009.

- Application number 17/826,229 filed May 27, 2022;
- Application number 18/825,910 filed September 5, 2024, now U.S. Patent 12,289,010;
- Application number 29/973,718 filed November 18, 2024;
- Application number 19/021,065 filed January 14, 2025;
- Application number 19/021,067 filed January 14, 2025;
- Application number 19/021,069 filed January 14, 2025;
- Application number 19/021,073 filed January 14, 2025; and
- Application number 19/021,077 filed January 14, 2025.

C. The '338 Patent

The '338 patent is entitled “Systems and Methods for Electric Vehicle Charging and Power Management.” Ex. 1001, code (54). The '338 patent purports to disclose numerous “systems” for managing the process of charging an electric vehicle. *See id.* Figs. 1–6 (illustrating systems 100, 200, 300, 400, 500, 600 respectively). Figure 7, which is reproduced below, illustrates an “exemplary interface 700 according to some embodiments” that is used “in conjunction with and/or to effectuate and/or facilitate operation of the systems 100, 200, 300, 400, 500, 600 of FIG. 1, FIG. 2, FIG. 3, FIG. 4, FIG. 5, and/or FIG. 6.” *Id.* 14:33–39.

700

702

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Back Forward Stop Home Search Favorites Media

Links Customize Links Address http://vehicle.charge.com/dashboard.html

Vehicle Charging Dashboard

704 Welcome Mr. Colby

Main 708 My Account 710 Charging History 712 Help

Search Go

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726 Best Available Rate = 12 ¢ per kWh

716 Current

80% 718 Desired

E Empty 716 714 \$3.00 (estimated) F Full Charge

110 miles 720

Estimated Parking Time = 6 hrs 722

Estimated Departure Time = 17:00

Method: ☐ Max Charge (- \$\$\$) ☒ Cheap Charge (- \$) ☐ Make Money (+ \$) 724

Factor of Safety = 1.5 726 LOCK

Contact Info: E-mail bbttrm@power.com 728

Mobile Phone (203) 555-3455

Alerts: 730 All Alerts ON

☒ Charge Thresholds ☒ Internal Temperature Thresholds ☒ Pet in Car 732

☒ Rate Thresholds ☒ Vehicle Diagnostics

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FIG. 7

D. Illustrative Claims

Claims 1, 10, 19, and 28 are the independent claims among the challenged claims. Claim 1 is illustrative and recites:

1[pre]. An electrical charging system, comprising:

[a] a vehicle sensor;

[b] a communication device;

[c] a processor in communication with the vehicle sensor and the communication device; and

[d] a memory in communication with the processor, the memory storing instructions that when executed by the processor cause the processor to:

[e] receive, from the vehicle sensor, information indicative of a presence of an electric vehicle in a parking space;

[f] receive, from the communication device, information indicative of one or more charging preferences corresponding to a desired charging of the electric vehicle, wherein the one or more charging preferences are defined by an operator of the electric vehicle;

[g] determine, based at least on the one or more charging preferences and at least one current value of a dynamic attribute of an electric charge provider, a charging schedule for the electric vehicle;

[h] wherein at least one of the one or more charging preferences is defined by user input received via a graphical user interface and adapted to display a vehicle charge indicator element comprising a first portion indicative of an amount of charge residing in a battery of the electric vehicle and a second portion indicative of an uncharged capacity of the battery of the electric vehicle and wherein the vehicle charge indicator element further comprises a slider by which an amount of charge may be specified;

[i] charge, in accordance with the charging schedule, the electric vehicle;

- [j] receive a selection of a mode of operation of the electric vehicle that is defined by a stored temperature at which a temperature control system of the electric vehicle is to be set to maintain the interior temperature of the electric vehicle while the electric vehicle remains in a parked state;
- [k] display via the graphical user interface an indication of a status of the selected mode of operation of the electric vehicle,
- [l] wherein the selected mode of operation comprises maintaining the interior temperature of the electric vehicle suitable for a pet located within the electric vehicle;
- [m] operate the temperature control system of the electric vehicle in accordance with the selected mode of operation for a duration of time;
- [n] determine that an amount of charge residing in a battery of the electric vehicle has reached a predefined threshold; and
send an alert to an operator of the electric vehicle indicative of the charge residing in the battery having reached the predefined threshold.

Ex. 1001, 29:31–30:17 (with certain line breaks and bracketed labels added to ease discussion).

II. ANALYSIS

In our Institution Decision, we concluded that the argument and evidence adduced by Petitioner demonstrated a reasonable likelihood that claims 1, 10, 19, and 28 were unpatentable as obvious based on the challenges identified in the table in Part I above. Dec. 39. We must now determine whether Petitioner has established by a preponderance of the evidence that the specified claims are unpatentable over the cited prior art. 35 U.S.C. § 316(e) (2018). We previously instructed Patent Owner that “any arguments for patentability not raised in the [Patent Owner Response] may be deemed waived.” Paper 12, 9; *see also In re Nuvasive, Inc.*, 842

F.3d 1376, 1381 (Fed. Cir. 2016) (holding that patent owner’s failure to proffer argument at trial as instructed in scheduling order constitutes waiver). Additionally, the Board’s Trial Practice Guide states that the Patent Owner Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Patent Trial and Appeal Board Consolidated Trial Practice Guide (Nov. 2019) 66.²

A. Legal Standards

To prevail in its challenges to the patentability of the claims, Petitioner must establish unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “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) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review).

The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), reaffirmed the framework for determining obviousness as set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The *KSR* Court summarized the four factual inquiries set forth in *Graham* that we apply in determining whether a claim is unpatentable as obvious under 35 U.S.C.

² See <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

§ 103(a) as follows: (1) determining the scope and content of the prior art, (2) ascertaining the differences between the prior art and the claims at issue, (3) resolving the level of ordinary skill in the pertinent art, and (4) when in evidence, considering objective evidence indicating obviousness or nonobviousness. *KSR*, 550 U.S. at 406 (citing *Graham*, 383 U.S. at 17–18).

At this final stage, we determine whether a preponderance of the evidence of record shows that the challenged claims would have been rendered obvious in view of the asserted prior art. We analyze the asserted grounds of unpatentability in accordance with these principles.

B. Level of Ordinary Skill

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Graham*, 383 U.S. at 17. Petitioner submits that the ordinarily skilled artisan would have

at least a bachelor’s degree in electrical or mechanical engineering (or an equivalent field) and at least two years of work experience involving automotive systems, including electric vehicle power management. . . . Additional industry experience or technical training may offset less formal education, while advanced degrees or additional formal education may offset lesser levels of industry experience.

Pet. 2 (citing Ex. 1003 ¶¶ 30–32). Patent Owner “takes no position with respect to Petitioner’s proposed level of ordinary skill.” PO Resp. 17. For the purposes of our analysis below, we apply Petitioner’s proposed level of ordinary skill, which we find to be consistent with the problems addressed in the ’338 patent and the prior art.

C. Claim Interpretation

We interpret claims in the same manner used in a civil action under 35 U.S.C. § 282(b) “including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). When applying that standard, we interpret the claim language as it would be understood by one of ordinary skill in the art in light of the specification. *Wasica Fin. GmbH v. Cont’l Auto. Sys., Inc.*, 853 F.3d 1272, 1279–80 (Fed. Cir. 2017). Thus, we give claim terms their ordinary and customary meaning as understood by an ordinarily skilled artisan. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017).

1. “amount of charge”

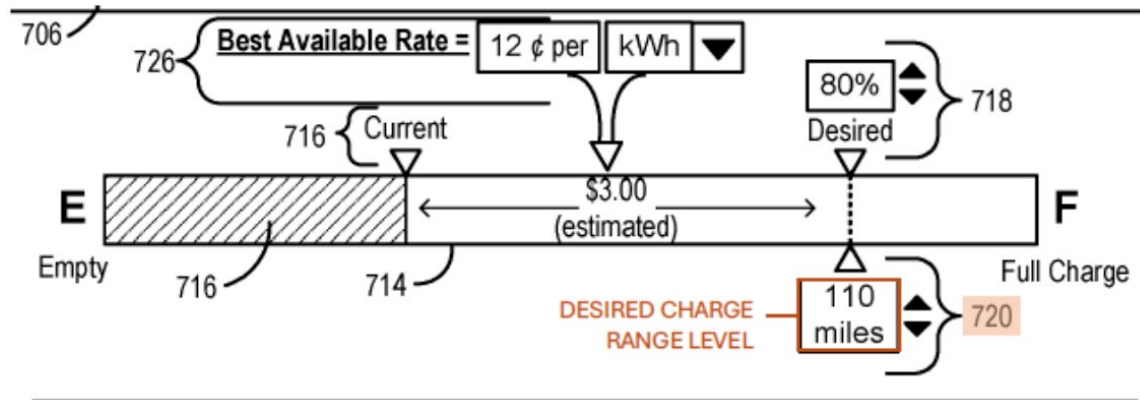
Limitation 1h recites that the “vehicle charge indicator element compris[es] a first portion indicative of an amount of charge” and “a slider by which an amount of charge may be specified.”³ Patent Owner argues “that an ‘amount of charge’ cannot encompass the selection of a desired range.” PO Resp. 18. We disagree.

Initially, we note that “amount of charge” reflects no express limitation on the manner of expressing the “amount” or the “charge.” And the Specification uses both “desired charge percent level” and “desired charge range level” as alternative ways for a user may specify an “amount of

³ As recited in independent claims 10, 19, and 28

charge.” For example, the Specification describes that a user may specify an amount of charge by specifying a desired travel distance as follows: “the user may indicate a desired charging level (and/or a desired charging level may be automatically calculated) based on a desired **distance of travel.**”

Ex. 1001, 19:49–57 (emphasis added). Therefore, “amount of charge” may also refer to a desired mileage or range. Figure 7 further demonstrates that a user may select “amount of charge” in terms of a “percent” or a “range” as shown in Petitioner’s annotated version of the pertinent portion of that figure as shown below.



Reply 2. This portion of Figure 7 illustrates a slider for selecting desired charge range level 720 as marked in red. The figure shows that a user can slide a marker on “vehicle charge indicator 714” to a value specified in miles (e.g., 110 miles). The Specification explains:

The user may also or alternatively view and/or change the desired charge range level 720. An estimate of how far the vehicle can travel on a given charge amount (which may be a general average and/or may be computed based on a specific itinerary and/or past driving habits) can be determined, for example, and utilized to express the desired charge level in terms of distance capable of being traveled. In such a manner, for example, a user may determine a desired distance to travel (e.g., how far it is from home to work or vice versa) and may set the desired charge range level 720 to match the desired distance.

Ex. 1001, 15:1–11. This passage demonstrates that the GUI described in the '338 patent allows a user to specify an amount of charge in miles of range as well as in percentage terms.

Patent Owner argues that the Specification uses only “desired percentage level 718” as referring to an “amount of charge” and that the reference to “desired charge range level 720” reflects an estimated “amount.” PO Resp. 18–19 (citing Ex. 1001, 15:2–7). However, we read the cited passage as favoring Petitioner’s position that “range” is an alternative way of specifying the “amount of charge” as claimed. The sentence immediately preceding the material in the Specification cited by Patent Owner reads: “The user may *also or alternatively* view and/or *change* the desired charge range level 720.” Ex. 1001, 15:1–2. Thus, the Specification unequivocally describes that the user may specify the amount of “desired charge” as a range as well as a percentage.

Patent Owner also argues that language in other portions of claims 1–27 exists that “make[s] it clear that the vehicle is parked and that the ‘operator’ is not in the vehicle” precludes an interpretation of “amount of charge” to encompass a “range.” PO Resp. 19–24. Patent Owner implies that this requirement stems from the limitations relating to maintaining interior temperature for a pet (e.g., limitations 1j–1l, 10f–10h, 19m–19o (collectively “pet mode” limitations)). *Id.* at 21; *see also* Tr. 33:21–34:22 (discussing pet mode limitations).

First, we discern no such logical linkage between specifying an “amount of charge” and the pet mode limitations. Moreover, independent claim 28, which also recites “a slider by which the predetermined amount of charge may be specified” does not include any pet mode limitations. *See*

Ex. 1001, 32:56–34:12 (claim 28); Tr. 34:23–35:1 (Patent Owner counsel conceding that claim 28 recites no pet mode limitations). Second, Patent Owner notes that a “word or phrase used consistently throughout a claim should be interpreted consistently.” PO Resp. 19–20 (citing *Phonometrics, Inc. v. N. Telecom Inc.*, 133 F.3d 1459, 1465 (Fed. Cir. 1998)); *see also* Tr. 38:9–18 (agreeing that “amount of charge” should be interpreted consistently across all claims in the ’338 patent). We agree. Claim 28 recites no pet mode limitations nor any limitations otherwise relating to the vehicle being “parked.” Because the alleged context surrounding the “amount of charge” limitation varies across the claims of the ’338 patent, we reject Patent Owner’s argument that context provided by “parking” or “pet mode” limitations warrant excluding a range from an “amount of charge.”

For all the reasons set forth above, we find that “amount of charge” can refer to a “range” as well as a percentage.

2. “vehicle charge indicator element”

Each independent claim recites a “vehicle charge indicator element” that comprises three sub-elements, a first portion indicating the amount of charge, a second portion indicating “uncharged capacity,” and a “slider by which an amount of charge may be specified.”⁴ Patent Owner argues that this “element” refers only to a “GUI element having subcomponents . . . all integrated together” and does not encompass the display of these sub-elements separately. PO Resp. 25–27.

⁴ Claim 28 recites the slider slightly differently, but not materially differently, as “a slider by which the predetermined amount of charge may be specified.” *Compare* Ex. 1001, 33:12–14 (claim 28), *with id.* at 29:60–62 (claim 1), 30:62–63 (claim 10), 32:11–13 (claim 19).

Petitioner notes that other related patents, U.S. 11,990,788 and 11,631,987, require a “**unitary** vehicle charge indicator element” and argues that this difference “casts doubt” on Patent Owner’s argument that “element” alone means “all integrated together.” Reply 10. However, Petitioner also notes it argues that an ordinarily skilled artisan would have considered the “unitary” element to have been suggested by Petitioner’s proposed combination of teachings from Ferro, Donnelly, and Letendre. *Id.* at 10–11. For reasons expressed below, we agree that Petitioner’s challenges to claims address demonstrate that the prior art teaches the “vehicle charge indicator element” as described by Patent Owner. Accordingly, we need not determine whether the meaning of “vehicle charge indicator element” materially differs from that of “unitary vehicle charge indicator element.”

D. Claims 1–4, 6, 7, 9–13, 15, 16, 18–22, 24, 25, 27: Obviousness in View of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos

Petitioner challenges claims 1–4, 6, 7, 9–13, 15, 16, 18–22, 24, 25, and 27 as obvious in view of the combined teachings of six references, Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos. Pet. 9–72. All six references relied upon by Petitioner relate to vehicles having batteries that supply significant levels of power to either propel the vehicle (Ferro, Oyobe, Donnelly, Letendre) or power a heating, ventilation, and air conditioning system while the vehicle is parked (Galvez-Ramos, Zeigler).

Petitioner relies upon Ferro as describing most of the limitations recited in the independent claims and cites various features described in the other five references as describing certain specific aspects recited throughout the claim. *See id.* Briefly, Petitioner relies upon the other references as teaching enhancements or modifications to Ferro’s system. For example,

Petitioner relies upon Oyobe as teaching the vehicle sensor sends information sufficient to determine whether a vehicle is in a parking space. *E.g., id.* at 10. Petitioner relies upon Ferro, Donnelly, and Letendre as teaching aspects of the claimed GUI with a slider. *E.g., id.* at 30–41. Petitioner relies upon Zeigler as teaching maintaining the interior of the vehicle at a set temperature while it is parked. *E.g., id.* at 44–54. Petitioner relies upon Galvez-Ramos as teaching maintaining the interior of a vehicle at a temperature suitable for a pet. *E.g., id.* at 51–53. Petitioner relies upon Donnelly as teaching aspects of tracking the level of charge residing in the battery as it relates to a threshold and sending an alert if the threshold is reached. *E.g., id.* at 54–58.

For the reasons set forth below, we find that Petitioner has demonstrated by a preponderance of evidence that claims 1–4, 6, 7, 9–13, 15, 16, 18–22, 24, 25, and 27 are unpatentable as obvious.

1. Summary of Asserted Prior Art

Ferro relates to a “dynamic energy transaction plan to manage an electric vehicle charging transaction.” Ex. 1004, code (57), ¶¶ 2, 55, Figs. 5–8. Ferro’s transaction plan manages “every aspect of charging electric vehicle” and is configured via an “input/output device located on-board the electric vehicle to create the preferences.” *Id.* ¶¶ 93, 139.

Oyobe relates to “electric-powered” vehicles and describes various ways of informing the user of the state of charge of the battery used as a “motive power source.” Ex. 1005 ¶¶ 1, 7–9. An embodiment of Oyobe’s vehicle includes hardware that “detects whether or not the hybrid vehicle 100B is parked at the location where charging equipment is installed.” *Id.* ¶¶ 141–143, Fig. 16.

Donnelly and Letendre relate to battery-powered vehicles incorporating various graphical user interfaces. Ex. 1006, 21:47–58, 26:6–8, 1:36–38, 6:64–7:1, 8:22–27; Ex. 1007, 18–20, Fig. 1.

Zeigler describes an automotive heating ventilation and air conditioning system that can operate when the vehicle is parked using power drawn from a high capacity battery. Ex. 1009, code (57), 1:63–2:6, 2:53–57, 7:19–8:20, Fig. 4.

Galvez-Ramos describes an automotive climate control system that provides a safe temperature environment for occupants left in a parked automobile. Ex. 1008 ¶¶ 5–8.

2. Independent Claim 1

Petitioner argues that the combined teachings of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos render claim 1 unpatentable as obvious. Pet. 9–59. For its analysis, Petitioner subdivides claim 1 into a preamble (labeled 1pre) and fourteen other limitations (labeled 1a–1n). Patent Owner does not contest Petitioner’s showing that the combined teachings of the prior art describe or suggest the subject matter of limitations 1pre, 1a–1d, 1f, 1g, and 1i–1m. *See* PO Resp. 27–55. Based on our review of Petitioner’s argument and the evidence mustered in support, we find that Petitioner establishes by a preponderance of evidence that the prior art teaches the subject matter recited in limitations 1pre, 1a–1d, 1f, 1g, and 1i–1m.

However, Patent Owner argues that Petitioner’s challenge to claim 1 fails for two types of reasons, including:

1. the alleged combination of prior art fails to teach limitations 1e, 1h, and 1n, PO Resp. 28–53; and

2. an ordinarily skilled artisan would not have been motivated to combine the teachings of the references or expect success in combining those references, *id.* at 57–66.

For the reasons explained below, we find that Petitioner demonstrates that the combined teachings of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galvez-Ramos render claim 1 unpatentable as obvious.

a. Limitation 1e

Limitation 1e refers to an instruction stored in memory that, when executed, will cause a processor to “receive, from the vehicle sensor, information indicative of a presence of an electric vehicle in a parking space.” Ex. 1001, 29:39–41.

Petitioner contends that Ferro describes an electric vehicle arriving at a charging station and indicating “an intention to charge.” Pet. 10 (citing Ex. 1004 ¶ 109). The vehicle connects to the charging station and both receives and transmits data via a network. *Id.* (citing Ex. 1004 ¶ 37). Petitioner argues that Ferro suggests detecting a vehicle at a charging station because, in Ferro, a user specifies, that “any time the electric vehicle is parked at a charging station that is at a specified location, the electric vehicle is . . . to be fully charged.” *Id.* (citing Ex. 1004 ¶ 121; Ex. 1003 ¶ 146).

Petitioner cites Oyobe’s teaching of the vehicle sensor introduced in limitation 1a in the form of Oyobe’s “vehicle position detecting apparatus 108” that “detects whether or not hybrid vehicle 100B is parked at the location where charging equipment is installed.” One of the ways in which Oyobe’s apparatus 108 detects the presence of a vehicle at the charging location is via “communication with a radio apparatus” at the charging location. *Id.* at 11 (citing Ex. 1005 ¶¶ 142, 143, Fig. 16). Petitioner argues

that such radio communication is akin to the wireless interrogation vehicle sensor example. *Id.*; *see also* Ex. 1001, 9:58–10:4 (using “wireless interrogation” to “detect an arrival, proximity, and/or presence of the vehicle”), 16:39–44 (describing the vehicle sensor detecting a proximity of the vehicle via “wireless electronic transmission sensing”). Oyobe’s control apparatus 60B (vehicle processor of limitation 1d) receives a “detection signal from vehicle position detecting apparatus 108” that “the vehicle is parked at a location where charging equipment is installed.” *Id.* at 19 (citing Ex. 1005 ¶¶ 143, 144; Ex. 1003 ¶ 178).

Petitioner argues that an ordinarily skilled artisan would have been motivated to incorporate Oyobe’s wireless vehicle detecting apparatus into Ferro because doing so “advantageously allows a user to instruct charging without exiting the vehicle and physically interacting with a charging station.” Pet. 11–12 (citing Ex. 1003 ¶¶ 150–152). Petitioner also contends that this combination would be made “according to known methods to yield predictable results of enabling ‘an intention to charge’ without the operator leaving the vehicle. *Id.* (citing Ex. 1004 ¶ 36; Ex. 1004 ¶ 151). Petitioner relies on Mr. Andrews testimony as proving that an ordinarily skilled artisan would have understood Oyobe to suggest using its sensor to determine the presence of its vehicle “in a parking space” proximate to the charging apparatus because charging equipment is commonly installed next to a parking space. *Id.* at 19–20 (citing Ex. 1003 ¶¶ 178–181).

i. Motive to Combine Based on Allegedly Improper Hindsight

Patent Owner argues that an ordinarily skilled artisan would not have been motivated to incorporate Oyobe’s position detecting apparatus into Ferro to meet limitation 1e. PO Resp. 29–30. First, Patent Owner argues

that Petitioner’s proposed motivation amounts to “improper hindsight” because Ferro already teaches “wireless” charging so incorporating Oyobe’s vehicle sensor 108 into Ferro’s system is “redundant.” *Id.*

We disagree with Patent Owner. First, Patent Owner’s reliance on *Wonderland* as announcing a rule having broad effect is misplaced. Patent Owner contends that the “Federal Circuit has confirmed that where the primary reference already includes the function of the secondary reference, an allegation to incorporate that function into the primary reference is improper hindsight and no motivation to combine exists.” *Id.* at 29 (citing *Wonderland NurseryGoods Co. v. Thorley Indus., LLC*, 988 F.Supp. 2d 479, 498–99 (W.D. Pa. 2013), *aff’d*, 644 F. App’x 1011 (Fed. Cir. 2016); citing *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1368 (Fed.Cir.2012))). Patent Owner’s citation to *Wonderland* does not support the proposition for which it is cited, namely that the Federal Circuit has “confirmed” that incorporating a function from a secondary reference into a primary reference is “improper hindsight” that precludes a motivation to combine teachings from the primary and secondary references. In *Wonderland*, the district court denied an accused infringer’s motion for summary judgment of invalidity, in part, due to its finding that genuine issues of material fact existed for the issue of whether sufficient motivation to combine prior art existed. *Wonderland*, 988 F. Supp. 2d at 511. The *Wonderland* decision does not constitute a final ruling on that issue, and the Federal Circuit’s summary affirmance of the final ruling by the district court does not address the issue or reflect how the issue was resolved at trial. *Wonderland NurseryGoods Co. v. Thorley Indus., LLC*, 644 F. App’x 1011 (Fed. Cir. 2016).

Second, Petitioner also correctly points out that although Ferro refers to wireless charging, it provides no implementation details. Ex. 1004 ¶ 36; Ex. 2003, 54:8–55:9. Ferro also describes manual options for initiating charging, Ex. 1003 ¶ 146 (citing Ex. 1004 ¶ 109), and that an ordinarily skilled artisan would have been motivated to apply Oyobe’s vehicle sensor to allow a user to initiate Ferro’s charging methods more easily without the user having to leave the vehicle, Ex. 1003 ¶¶ 151, 152.

Accordingly, we find that Petitioner has established that an ordinarily skilled artisan would have been motivated to incorporate Oyobe’s use of a sensor to establish presence of a vehicle near a charging station into Ferro’s system.

ii. Alleged Differences Between Oyobe’s Teachings and the
Wireless Interrogation Example in the ’338 Patent

Patent Owner argues that Petitioner mischaracterizes Oyobe’s use of its vehicle sensor as being “akin to the wireless interrogation vehicle sensor example” from the ’338 patent. The ’388 patent explains that “vehicle sensor 454 may comprise a communication device such as a Bluetooth® and/or passive-inductive device.” Ex. 1001, 9:60–10:3. Additionally, the ’338 patent describes its sensor 454 as enabling the system to determine “whether the vehicle is properly positioned, oriented, and/or outfitted for charging services.” Ex. 2002 ¶ 76 (citing Ex. 1001, 16:45–51). Patent Owner further argues that Oyobe fails to describe “information that the vehicle is in position to charge.” Even if true, limitation 1e recites no such requirement and the allegedly more detailed description in the ’338 patent of how the vehicle sensor may be used does not overcome Petitioner’s showing that Oyobe teaches a sensor that can provide “information indicative of a presence of an electric vehicle in a parking space” as recited in limitation 1e.

iii. Alleged Failure by Oyobe to “provide information that enables identifying an intention to charge”

Patent Owner argues that, because Oyobe “alert[s] the user when the battery is low” rather than “identifying that the vehicle is in a position ready to charge,” Petitioner’s proposed combination is “analogous to illuminating the low on fuel indicator in a standard gasoline powered vehicle only when the driver has pulled into a filling station and parked next to the gas pump, which is nonsensical.” PO Resp. 32–33 (citing Ex. 2002 ¶ 79).

It is true that Oyobe focuses on alerting a vehicle user to a low state of charge by raising a physical indicator on the exterior of the vehicle (i.e., the “informing apparatus 102) when the battery is low. Ex. 1005 ¶ 40. Oyobe explains:

even in such a case where the vehicle user exit from the vehicle without checking the SOC of main battery B on the console panel, informing apparatus 102 disposed at a location where it can easily be seen outside the vehicle by the vehicle user allows the vehicle user to easily recognize the necessity of charging main battery B.

Id. However, Oyobe’s focus on raising a physical indicator on the vehicle as a reminder does not detract from Oyobe’s unambiguous disclosure that its vehicle also includes position detecting apparatus 108 that uses wireless communication to “sense that the vehicle is parked at the location where charging equipment is installed.” *Id.* ¶ 142. Oyobe’s ability to sense whether a vehicle is parked next to a charger allows Oyobe’s system to remind the user to charge the battery by raising low battery indicator 102 while the vehicle is located next to a charger but not “where charging cannot be performed.” *Id.* ¶¶ 143–145. Accordingly, regardless of the reason that Oyobe provides for including its vehicle position detecting apparatus, we

find that Oyobe describes a vehicle sensor that can provide “information indicative of a presence of an electric vehicle in a parking space” near a charging station.

iv. Alleged Contradiction Between Purpose of Oyobe and Reason to Combine Oyobe and Ferro

Patent Owner contends that the “only use of Oyobe’s detecting apparatus is as ‘disposed at a location where it can easily be seen by the driver *when the driver has exited from the vehicle.*’” PO Resp. 35–36 (citing Ex. 1005, Fig. 14, ¶¶ 132–133). Patent Owner contends that Oyobe’s “only use” thus contradicts Petitioner’s supplied motive for combining Oyobe’s vehicle position sensor 108 with Ferro’s system. *Id.* at 36.

We disagree with Patent Owner. Petitioner correctly notes that combination of Oyobe and Ferro would have “*allow[ed]* a user to remain in-vehicle while charging,” not require it. Reply 19 (quoting Pet. 12). Additionally, the combination would have allowed a user to “instruct charging without exiting the vehicle and physically interacting with a charging station.” *Id.* (citing Ex. 1003 ¶¶ 151–152). Patent Owner therefore mischaracterizes Petitioner’s stated motive for combining Oyobe and Ferro as requiring a user to stay in the vehicle rather than simply permitting a user to do so. Moreover, we also find that Patent Owner’s focus on Oyobe’s “informing apparatus 102” is a red herring that distracts from Oyobe’s teaching of its vehicle position sensor 108 that is expressly described as a sensor used to determine whether the car “is parked at the location where charging equipment is installed.” Ex. 1005 ¶ 142.

v. Conclusion

For all the reasons expressed above, we find that Petitioner has demonstrated by a preponderance of evidence that the combined teachings of Ferro and Oyobe suggest the subject matter of limitation 1e.

b. Limitation 1h

Limitation 1h refers to an instruction stored in memory that, when executed, will cause a processor to:

wherein at least one of the one or more charging preferences is defined by user input received via a graphical user interface and adapted to display a vehicle charge indicator element comprising a first portion indicative of an amount of charge residing in a battery of the electric vehicle and a second portion indicative of an uncharged capacity of the battery of the electric vehicle and wherein the vehicle charge indicator element further comprises a slider by which an amount of charge may be specified.

Ex. 1001, 29:52–61. This limitation primarily defines a graphical user interface (“GUI”) for setting charging preferences using a “slider” to specify “an amount of charge.” The slider is part of a “vehicle charge indicator” has two portions to provide information about the battery, a “first portion indicative of an amount of charge” and a “second portion indicative of an uncharged capacity.”

Petitioner relies upon Ferro as describing the basic aspects of the claimed GUI with Donnelly and Letendre describing certain details.

Pet. 30–41. Patent Owner counters that Petitioner cobbles together three references in ways that (1) demonstrate an improper hindsight bias and (2) an ordinarily skilled artisan would not reasonably expect to succeed. PO Resp. 36–46. Patent Owner also contends that the proposed combination of prior art fails to teach or suggest a GUI that allows a user to specify “an amount of charge.” *Id.*

For the reasons that follow, we find that Petitioner demonstrates by a preponderance of evidence that the combined teachings of Ferro as modified by Oyobe with Donnelly and Letendre suggest the subject matter of limitation 1h. We also find that Petitioner establishes that an ordinarily skilled artisan would have been motivated to combine teachings of Ferro as modified by Oyobe, Donnelly, and Letendre and would have reasonably expected success in doing so. We address the individual aspects of limitation 1h in the order set forth in the Petition.

i. Charging Preferences Defined by User Input

Limitation 1h requires that user input defines “one or more charging preferences.” Petitioner contends that Ferro describes a user providing charging preferences via input/output devices such as “keyboards, displays, pointing devices, etc.” Pet. 30 (citing Ex. 1004 ¶¶ 43, 162; Ex. 1003 ¶ 211). Patent Owner does not contest Petitioner’s showing, and we find it to be persuasive on this aspect of limitation 1h.

ii. GUI for Receiving User Input

Limitation 1h requires that user input is “received via a graphical user interface.” Petitioner contends that Donnelly describes a hybrid vehicle having a touch screen display that presents a GUI to allow the user to provide commands to control aspects of the vehicle. Pet. 31 (citing Ex. 1006, 21:47–58, 26:6–9, 1:36–38; Ex. 1003 ¶¶ 212–214). Ferro describes an “input/output unit 212” and “display 214” that communicate with processor 204 via “communications fabric 202.” Pet. 31–32 (citing Ex. 1004 ¶¶ 40, 43, 161, 162, Fig. 2). Ferro also describes a user inputting charging preferences via input/output unit 212. *Id.* at 32 (citing Ex. 1004 ¶¶ 84, 93). However, Ferro’s display 214 is not described as a touchscreen,

so Ferro does not describe using a touchscreen GUI to specify charging preferences. *Id.* at 32–33.

Nevertheless, Petitioner contends that an ordinarily skilled artisan would have been motivated to incorporate Donnelly’s touchscreen GUI into Ferro’s system in which a user inputs charging preferences because touchscreens were “well-known GUIs” that made “an application easy, practical, and efficient to use” and “allow the user to concentrate on the task at hand.” *Id.* at 32 (citing Ex. 1003 ¶ 216 (citing Ex. 1038)). Moreover, GUIs presented on touchscreens in vehicles were ubiquitous at the time of the ’338 patent and were commonly used to view and control various functions in an automobile. Ex. 1003 ¶ 218 (citing Ex. 1041, 2:52–55, 3:55–58, Figs. 15A, 15B; Ex. 1061, 2:14–17; Ex. 1062, 3). An ordinarily skilled artisan would have been found it advantageous to use a touchscreen to control charging parameters and incorporation of Donnelly’s known GUI as an improvement of Ferro’s non-touchscreen display 214 would have streamlined the entry of charging parameters and been accomplished with a reasonable expectation of success. *Id.* (citing Ex. 1003 ¶¶ 219–221).

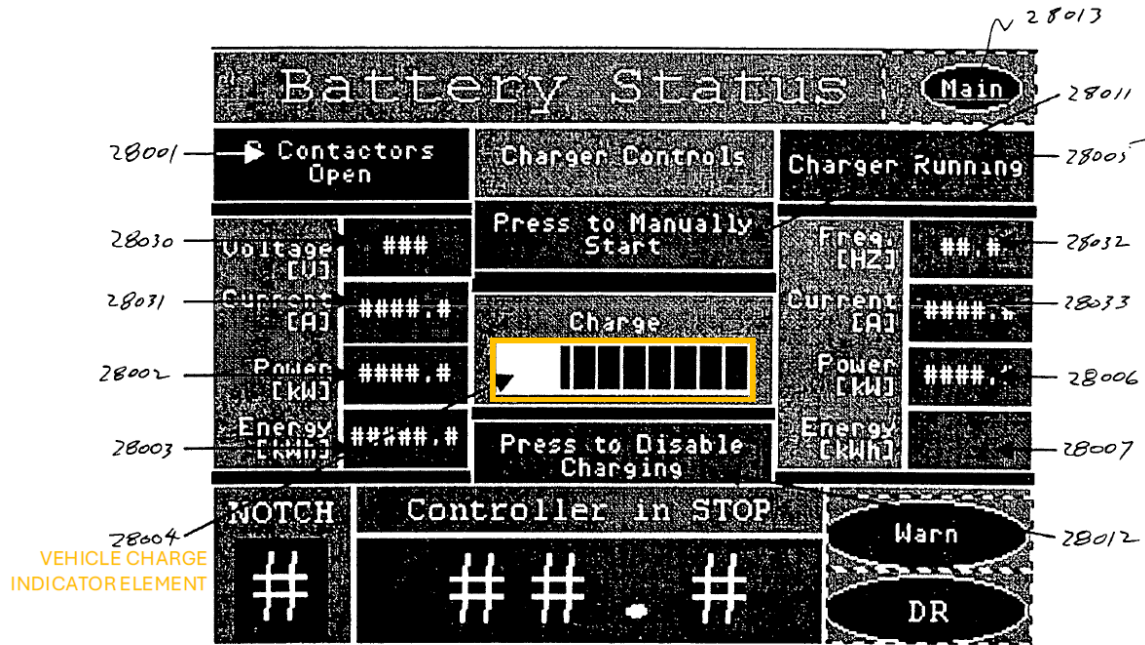
Patent Owner does not contest Petitioner’s showing, and we find it to be persuasive on this aspect of limitation 1h.

iii. First and Second Portions of the Vehicle Charge Indicator

Limitation 1h further requires a “vehicle charge indicator element comprising a first portion indicative of an amount of charge residing in a battery of the electric vehicle and a second portion indicative of an uncharged capacity of the battery of the electric vehicle.”

Petitioner contends that Ferro describes its user can specify an “amount of charge 514 preference” including a minimum and/or maximum

level of charge. Pet. 33 (citing Ex. 1003 ¶ 112–113). Petitioner relies on Donnelly as describing a GUI that displays the charged and uncharged capacity of a vehicle battery. *Id.* at 34–35 (citing Ex. 1006, 21:47–58, 23:16–20, 23:31–33, Fig. 28). Donnelly illustrates its GUI with the charge indicator in Petitioner’s annotated version of Fig. 28 reproduced below.



Donnelly’s touchscreen GUI is depicted in Fig. 28, which is entitled “Battery Status,” and Petitioner highlights in orange an area labeled “Battery State of Charge 28004” that is configured as a bar graph indicating “the state of charge” of the vehicle battery. *Id.* at 35 (citing Ex. 1006, 14:59–61, 23:31–33; Ex. 1003 ¶¶ 224–226). Petitioner contends that an ordinarily skilled artisan would understand Donnelly’s bar graph 28004 to illustrate both the “amount of charge residing in the battery” as black bars filling a portion of the bar graph and the uncharged capacity of the battery as the white space in the bar graph. *Id.* at 35–36 (citing Ex. 1003 ¶¶ 227–234).

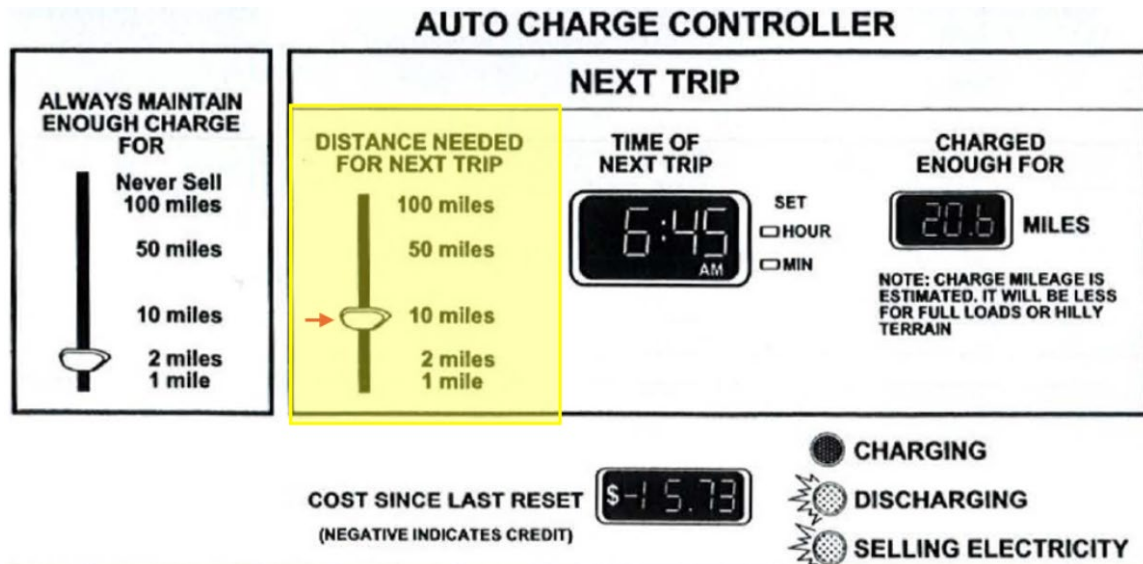
Petitioner argues that an ordinarily skilled artisan would have found it obvious to combine Donnelly's GUI with its bar graph depicting the charged and uncharged capacity of a vehicle battery into Ferro according to well-known methods that would have yielded predictable results. Pet. 37 (citing Ex. 1003 ¶ 238). Petitioner also contends that an ordinarily skilled artisan would have reasonably expected to successfully combine Donnelly's GUI as it relates to the state of charge into Ferro's vehicle, which already processed information about the state of charge of its battery and included a display showing charging parameters. *Id.* (citing Ex. 1004 ¶¶ 40, 93, 112, 162, Ex. 1003 ¶ 239).

Patent Owner does not contest Petitioner's showing, and we find it to be persuasive on this aspect of limitation 1h.

iv. Motive to Combine Ferro, Donnelly, and Letendre

Petitioner relies on Ferro as suggesting that a user may specify an amount of charge on a display 214 of its input/output unit 212. Pet. 30 (citing Ex. 1003 ¶¶ 43, 84, 93, 162; Ex. 1003 ¶ 211). Petitioner relies on Donnelly as suggesting that a way to graphically depict the amount of charge desired and remaining in a battery of a vehicle. *Id.* at 31 (citing Ex. 1006, 1:36–38, 21:47–58, 26:6–8; Ex. 1003 ¶¶ 212–214). Because Ferro already describes using a display as an input/output device to specify charging preferences and Donnelly describes a well-known way of depicting the state of charge in a vehicle battery, Petitioner contends that an ordinarily skilled artisan would have found it obvious to use Donnelly's touchscreen interface depicting the state of the battery on a bar graph on Ferro's input/output display. *Id.* at 31–33 (citing Ex. 1004 ¶¶ 40, 43, 84, 93, 161, 162 Fig. 2; Ex. 1003 ¶¶ 215–221).

Petitioner relies upon Letendre as suggesting the use of a slider to set charging preferences as shown in Letendre’s “auto charge controller” depicted in the figure reproduced below with annotations provided by Petitioner.



Letendre explains that its “auto charge controller” includes a movable slider to “set [] the length of the expected next trip” (here, 10 miles). Pet. 39 (citing Ex. 1007, 18–20 (citing Ex. 1073 as the source of the figure and referring to the control as a slider)). Letendre further explains that its control may be “physical, on the dash, or on a Webpage.” *Id.* (citing Ex. 1007, 19–20). Petitioner contends that the webpage version of Letendre’s control represents a GUI with a graphical control element that allows a user to specify amount of charge as a desired range. *Id.* Petitioner contends that Letendre expressly motivates an ordinarily skilled artisan to use its control because Letendre states: “it is essential that the driver be able to limit any draw down so travel is not affected.” *Id.* at 40 (citing Ex. 1007, 19. Petitioner contends that an ordinarily skilled artisan would have been motivated to include an on-board GUI with Letendre’s slider to select a

desired charge level. *Id.* at 40–41 (citing Ex. 1004 ¶ 93, Ex. 1007, 19; Ex. 1003 ¶ 248). Petitioner further argues that modifying Ferro/Donnelly’s bar graph GUI to incorporate Letendre’s slider merely required applying a known technique (using a slider to adjust a charge setting) to a known device (a vehicle GUI showing a bar graph) to yield predictable results. *Id.* at 41 (citing Ex. 1004 ¶ 123; Ex. 1003 ¶¶ 249–250).

Patent Owner argues that Petitioner fails to establish how and why Letendre would have been combined with Ferro and Donnelly to arrive at a “vehicle charge indicator element” with first and second portions and the slider unified into one GUI element. PO Resp. 43–46. First, Patent Owner argues that Petitioner fails to demonstrate how an ordinarily skilled artisan would have combined Ferro and Donnelly to meet the “first portion” and “second portion” of limitation 1h while allowing a user to specify the amount of charge. *Id.* at 44. Second, Patent Owner argues that Petitioner fails to establish how an ordinarily skilled artisan would have incorporated Letendre’s physical slider element, with its logarithmic scale, onto the proportional scale taught by Donnelly. *Id.* at 44–45; Surreply 14–15.

“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. . . . Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *MCM Portfolio LLC v. Hewlett-Packard Co.*, 812 F.3d 1284, 1294 (Fed. Cir. 2015). Patent Owner’s argument fails to account for the level of skill and creativity of an ordinarily skilled artisan, who would have possessed a bachelor’s degree in engineering and could have easily accounted for the differences in scale depicted by Letendre’s and Donnelly’s controls.

Ex. 1003 ¶¶ 247–249. Accordingly, we find that Petitioner’s showing on the motivation to combine teachings of Ferro, Donnelly, and Letendre to arrive at limitation 1h is persuasive.

c. Limitation 1n

Limitation 1n refers to an instruction stored in memory that, when executed, will cause a processor to:

determine that an amount of charge residing in a battery of the electric vehicle has reached a predefined threshold; and

send an alert to an operator of the electric vehicle indicative of the charge residing in the battery having reached the predefined threshold.

Ex. 1001, 30:12–17.

Petitioner contends that Ferro as modified by Donnelly teaches limitation 1n. Pet. 54–59. More specifically, Petitioner contends that Ferro describes a user entering preferences for the amount of charge in the battery as “minimum level” and “maximum level.” *Id.* at 54–55 (citing Ex. 1004 ¶¶ 84, 123, Fig. 5). Petitioner also relies on Ferro’s processor’s ability to manage the battery charging and gather information regarding “the current level of charge.” *Id.* (citing Ex. 1004 ¶¶ 101–103, 112).

Petitioner cites Donnelly as suggesting that the state of charge of a vehicle battery is monitored and a warning is displayed on a GUI “when the battery voltage or state of charge or both are below the lower set point” for the battery level. *Id.* at 56–57 (citing Ex. 1006 13:57–62, 18:50–67, 23:16–26, 23:66–67, 25:4–16,

Figs. 28, 29, 34; Ex. 1003

¶¶ 295–298). Petitioner identifies the warning of

“Battery Voltage Low”

highlighted in yellow as

shown on Petitioner’s

annotated version of

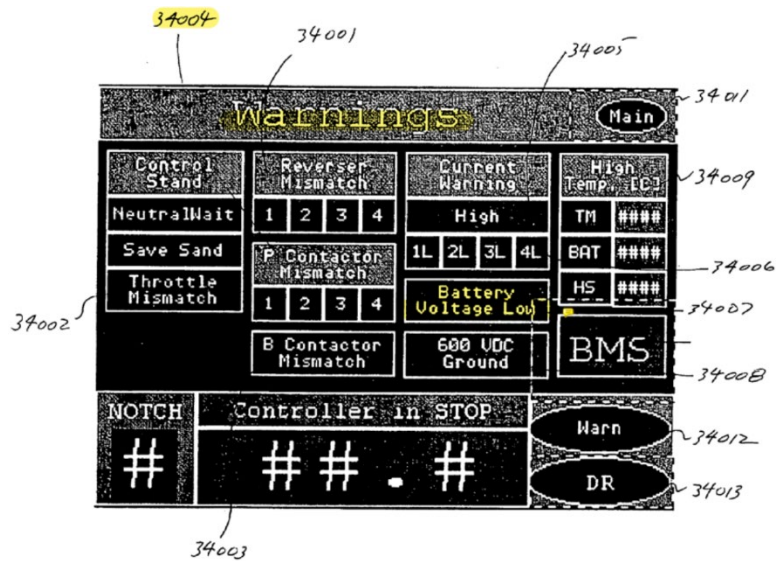
Donnelly’s Figure 34,

reproduced at right, as an

example of the claimed alert.

Id. at 57.

Patent Owner argues that context of the claim requires that the alert must be sent when the operator is not in the vehicle. PO Resp. 48. Patent Owner identifies the “context” of the claim on which it relies as limitations 1j–1m, Surreply 19, which are the pet mode limitations (1j–1l) combined with limitation 1m requiring that the vehicle temperature be maintained “for a duration of time,” Ex. 1001, 29:64–30:11. Based on this context, Patent Owner argues that an ordinarily skilled artisan “would recognize that sending an alert to an operator requires the electric vehicle to send an alert to an operator via means other than displaying the status of the vehicle on the dash.” PO Resp. 15 (citing Ex. 2002 ¶ 109). Patent Owner also argues that



because limitation 1k refers to “display via the graphical user interface,” the claim requires that “send an alert” is a separate function that cannot be met by using the graphical user interface. PO Resp. 52–53.

Petitioner responds that limitation 1n encompasses alerts in the form of a warning displayed on the vehicle GUI as indicated in the Specification as follows:

the [electrical charging system] ECS can communicate with the user/driver to alert the driver to potential problems. For example, with reference to the example above, the ECS may determine that the cost of electricity will be below \$0.10/kWh for only two of the next eight hours. The ECS may send a message to this effect *to the user via a user specified node, such as a message on a dashboard display device*, a message sent to a cell phone, an email account or the like.

Ex. 1001, 20:18–26; *see also* Reply 19–20 (citing Ex. 1001, 20:18–26).

Petitioner also contends that limitation 1n does not require the “vehicle to be parked when the alert is sent, for the driver to be outside of the vehicle when the alert is sent, or for the A/C to be operating when the alert is sent.”

Reply 20. We agree because we discern no such express requirements recited in the language of limitation 1n itself, and the portion of the Specification quoted above refers to displaying a message on a dashboard display as a way to “alert the driver to potential problems.” Thus, Petitioner’s broader reading of limitation 1n is consistent with the plain language of the limitation and the Specification.

Petitioner also responds that the recitation in limitation 1k to “display via the graphical user interface an indication of the status of the selected mode of operation of the electric vehicle” does not preclude a reading of limitation 1n’s alert being met by displaying information on the graphical user interface. Reply 20–21. We agree. We find that displaying a

“warning” about a “potential problem” on a graphical user interface is a type of alert because the Specification expressly describes such an alert.

Ex. 1001, 20:18–26; *see also id.* at 15:49–61 (describing various conditions that can trigger an “alert”).

For the reasons expressed above, we find that Petitioner has demonstrated by a preponderance of evidence that the combination of Ferro and Donnelly teaches limitation 1n.

d. Conclusion

For all the reasons set forth above, we find that Petitioner has demonstrated that the combined teachings of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galves-Ramos render claim 1 unpatentable as obvious.

3. Independent Claims 10 and 19

With few exceptions, Petitioner cross-references its showing for independent claim 1 as demonstrating that independent claims 10 and 19 are also unpatentable as obvious over the combined teachings of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galves-Ramos. Pet. 65–66 (claim 10); 67–71 (claim 19). Petitioner identifies how the combined prior art teaches limitations 19j–19k, which are unique to claim 19, focusing on teachings from Ferro. *Id.* at 68–71 (citing Ex. 1004 ¶¶ 60, 73–76, 114–117, 148–150, Fig. 12; Ex. 1003 ¶¶ 366–369). Patent Owner addresses Petitioner’s showing for claims 10 and 19 by cross-referencing its arguments for claim 1 that we address in Part II.D.2 above without otherwise advancing any argument unique to either claim 10 or claim 19. PO Resp. 27–54 (addressing claims 1, 10, and 19 solely as a group). Therefore, Patent

Owner does not contest Petitioner's showings relating to any aspects of claims 10 and 19 that differ from Petitioner's showing for claim 1.

To the extent that Petitioner's showing for claims 10 and 19 differ from its showing for claim 1, Pet. 65–66 (claim 10); 67–71 (claim 19), we agree with and adopt as our own Petitioner's showing as supported by the evidence relied upon by Petitioner. On that basis, we find that Petitioner has demonstrated by a preponderance of evidence that the combined teachings of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galves-Ramos render independent claims 10 and 19 unpatentable as obvious.

4. Dependent Claims 2, 11, and 20

Claims 2, 11, and 20 depend directly from claims 1, 10, and 19 respectively and further recite “wherein the graphical user interface is adapted to display a web page.” Ex. 1001, 30:18–19 (claim 2), 31:20–21 (claim 11), 32:34–35 (claim 20). Petitioner correctly notes that Letendre describes implementing its slider-based user interface on a webpage. Pet. 60 (citing Ex. 1007, 19–20). Petitioner further contends that vehicles including an on-board display were well known and that Ferro described hardware and software for communicating with a remote server via a wireless network including the internet. *Id.* (citing Ex. 1003 ¶¶ 310–312). Petitioner argues that an ordinarily skilled artisan would have been motivated to modify Ferro's input/output display into a webpage as suggested by Letendre so that both the user of the vehicle and the entity providing charging services would have access to the same GUI. *Id.* (citing Ex. 1003 ¶¶ 83, 91, 93; Ex. 1003 ¶ 312). Petitioner contends that an ordinarily skilled artisan would have reasonably expected success at implementing the modification because Ferro already taught communications unit 210 wirelessly connected to the internet

via network 102 and web-based GUI's were well known before the '338 patent such that an ordinarily skilled artisan would need only to program Ferro's processor to access a webpage via network 102 and display the webpage on Ferro's display. *Id.* at 60–61 (citing Ex. 1003 ¶¶ 38, 42; Ex. 1004 ¶ 313). Petitioner's showing for claims 11 and 20 cross-references its showing for claim 2. *Id.* at 66, 72.

Patent Owner argues that Petitioner fails to present any reference that “contains a GUI that displays a webpage.” PO Resp. 54. We disagree. Petitioner identifies Letendre as expressly suggesting that the GUI can be a webpage. We also find Petitioner's showing relating to how and why an ordinarily skilled artisan would have followed Letendre's teaching to modify Ferro's interface to display a webpage is persuasive for the reasons set forth in the Petition and summarized above. Accordingly, we find that Petitioner has demonstrated by a preponderance of evidence that the combined teachings of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galves-Ramos render dependent claims 2, 11, and 20 unpatentable as obvious.

5. Dependent Claims 3, 4, 6, 7, 9, 12, 13, 15, 16, 18, 21, 22, 24, 25, and 27

Petitioner identifies specific disclosure from the combined prior art that teach the limitations introduced in each of dependent claims 3, 4, 6, 7, 9, 12, 13, 15, 16, 18, 21, 22, 24, 25, and 27 and render those claims unpatentable as obvious. Pet. 61–65 (claims 3, 4, 6, 7, 9), 67 (claims 12, 13, 15, 16, 18), 72 (claims 21, 22, 24, 25, and 27). Patent Owner does not contest Petitioner's showing for these claims. We have reviewed Petitioner's showing and, for the reasons set forth in the Petition as supported by the evidence cited in the Petition, we find that Petitioner has demonstrated by a preponderance of evidence that the combined teachings

of Ferro, Oyobe, Donnelly, Letendre, Zeigler, and Galves-Ramos render dependent claims 3, 4, 6, 7, 9, 12, 13, 15, 16, 18, 21, 22, 24, 25, and 27 unpatentable as obvious.

E. Claims 5, 8, 14, 17, 23, 26: Obviousness in View of Ferro, Oyobe, Donnelly, Letendre, Zeigler, Galvez-Ramos, and Knockeart

Claims 5, 8, 14, 17, 23, and 26 depend from one of independent claims 1, 10, and 19 and add a requirement that the graphical user interface “forms part of a smartphone” (claims 5, 14, and 23) or in which “the alert is sent to a smartphone” (claims 8, 17, and 26). Ex. 1001, 30:25–26 (claim 5), 30:35–36 (claim 8), 31:28–29 (claim 14), 31:38–39 (claim 17), 32:41–42 (claim 23), 32:51–52 (claim 26).

Petitioner identifies Knockeart as teaching a removable personal device that communicates with an in-vehicle system and provides a touchscreen display. Pet. 72 (citing Ex. 1010, 2:46, 4:32–67, 6:39–48, 7:1–9, 12:38–41, 13:57–60, Figs. 1, 3–6, code (57); Ex. 1003 ¶¶ 383–389). Petitioner argues that an ordinarily skilled artisan would have been motivated to adapt Ferro’s GUI to be displayed on a removable smartphone as suggested by Knockeart so that the user could view charging information when they are away from the vehicle. *Id.* at 73 (citing Ex. 1004 ¶¶ 32, 33, 37, 64; Ex. 1003 ¶ 386).

Patent Owner does not contest that the combined teachings of Knockeart with the other prior art in the combination teaches all limitations introduced in dependent claims 5, 8, 14, 17, 23, and 26. PO Resp. 55–56. Although Patent Owner attacks Knockeart individually as not teaching controlling a vehicle interface on a smartphone, Patent Owner does not address the combined teachings of Petitioner’s combination. *Id.* Patent Owner contends that Petitioner fails to describe how an ordinarily skilled

artisan would have incorporated Knockeart's teachings into the proposed combination without rebutting Petitioner's showing with evidence. *Id.* (citing Ex. 2002 ¶ 115 (merely recounting Petitioner's proffered motivation without rebutting it)); Reply 22.

For the reasons set forth in the Petition as supported by the evidence cited in the Petition, we find that Petitioner has demonstrated by a preponderance of evidence that the combined teachings of Ferro, Oyobe, Donnelly, Letendre, Zeigler, Galves-Ramos, and Knockeart render claims 5, 8, 14, 17, 23, and 26 unpatentable as obvious.

F. Claims 28 and 29: Obviousness in View of Ferro, Donnelly, Letendre, Sutardja

Independent claim 28 is generally broader in scope than independent claims 1, 10, and 19, by not reciting the "vehicle sensor" or pet mode limitations of those claims. In other respects, claim 28 may be narrower than those claims. Claim 28 recites:

28[pre]. An electrical charging system, comprising:

[a] a communication device;

[b] a processor in communication with the communication device; and

[c] a memory in communication with the processor, the memory storing instructions that when executed by the processor cause the processor to:

[d] receive, from the communication device, information indicative of at least two charging preferences comprising a time by which an electric vehicle is to be charged to a predetermined amount and an indication that charging of the electric vehicle be based, at least in part, on a cost of providing electrical charge to the electric vehicle,

- [e] wherein the at least two charging preferences are defined by an operator of the electric vehicle, and wherein at least the predetermined amount of charge is defined by user input received via a graphical user interface and adapted to display a vehicle charge indicator element comprising a first portion indicative of an amount of charge residing in a battery of the electric vehicle and a second portion indicative of an uncharged capacity of the battery of the electric vehicle and wherein the vehicle charge indicator element further comprises a slider by which the predetermined amount of charge may be specified;
- [f] determine, based at least on the at least two charging preferences, that the electric vehicle cannot be charged in accordance with the at least two charging preferences;
- [g] issue an alert that charging the electric vehicle in accordance with the at least two charging preferences is not possible;
- [h] receive an updated value for at least one of the at least two charging preferences in response to the issuance of the alert;
- [i] determine, based at least on the updated value for the at least one of the at least two charging preferences, that the electric vehicle can now be charged in accordance with the at least two charging preferences; and
- [j] charge the electric vehicle in accordance with the at least two charging preferences.

Ex. 1001, 32:56–34:12 (with certain line breaks and bracketed labels added to ease discussion). Claim 29 depends directly from claim 28. *Id.* at 34:13–16.

Petitioner challenges claims 28 and 29 as obvious in view of the combined teachings of four references, Ferro, Donnelly, Letendre, and Sutardja. Pet. 73–82. All four references relied upon by Petitioner relate to vehicles having batteries that supply significant levels of power to either propel the vehicle.

Petitioner relies upon Ferro as describing many of the limitations recited in claim 28 (limitations 28pre–28d) and relies on Donnelly and Letendre regarding limitation 28e, which parrots the language of limitation 1h addressed in Part II.D.2.b above. *Id.* at 73–76. Petitioner relies upon the same motivations to combine teachings of Ferro, Donnelly, and Letendre for claim 28 as it identifies in connection with claim 1. *Id.* Petitioner introduces Sutardja primarily as teaching limitations 28f–28j (relating to whether the vehicle can be charged according to the requested preferences, providing an alert if not, and updating the charging preferences to enable charging), but also relies upon Sutardja as describing aspects of limitation 28d. *Id.* at 74–82.

Petitioner argues that an ordinarily skilled artisan would have been motivated to modify Ferro’s process of charging a vehicle with Sutardja’s teachings of “determining if the vehicle can be charged according to alternate charging parameters in Ferro’s electric vehicle charging system and method.” *Id.* at 81 (citing Ex. 1003 ¶¶ 421–425). Petitioner also argues that the modifications to Ferro in view of Sutardja represent combining prior art element according to known methods to yield predictable results to avoid “undesirable surprise failure to complete charging as requested.” *Id.* (citing Ex. 1003 ¶¶ 421–425). Lastly, Petitioner argues that an ordinarily skilled artisan would have reasonably expected success combining Sutardja and Ferro because Ferro already included the necessary hardware and software to calculate charging schedules and, therefore, whether a vehicle could be charged as requested. *Id.* at 82 (cross-referencing showing for limitation 1g and citing Ex. 1003 ¶ 426).

For the reasons set forth below, we find that Petitioner has demonstrated by a preponderance of evidence that claims 28 and 29 are unpatentable as obvious.

Patent Owner does not dispute Petitioner's showing that the combination of Ferro, Donnelly, Letendre, and Sutardja describes limitations 28pre–28d and 28f–28j. *See* PO Resp. 56–57 (contesting only Petitioner's showing regarding limitation 28e and Petitioner's showing regarding the motive to combine Sutardja with the other prior art). Based on Petitioner's arguments that the proposed combination teaches limitations 28pre–28d and 28f–28j and the evidence adduced in support of those arguments, we find that Petitioner has established by a preponderance of evidence that the combination of Ferro, Donnelly, Letendre, and Sutardja teaches those limitations.

Patent Owner also argues that the proposed combination fails to teach limitation 28e for the same reasons proffered in connection with limitation 1h. *Id.* For the reasons set forth in Part II.D.2.b above, we find that Petitioner has demonstrated by a preponderance of evidence that the combination of Ferro, Donnelly, Letendre, and Sutardja teaches limitation 28e and would have motivated an ordinarily skilled artisan to have combined the teachings of the references to arrive at those limitations.

Patent Owner also argues that Petitioner fails to establish that an ordinarily skilled artisan would have combined teachings from Sutardja with teachings of Ferro, Donnelly, and Letendre as Petitioner argues. PO Resp. 57 (citing Ex. 2002 ¶ 118). However, Patent Owner cites no evidence other than a single paragraph of testimony from Dr. Goldberg in support of this argument. *Id.* Dr. Goldberg cites no objective evidence supporting his

opinion that Petitioner's proffered motivation to combine teachings from Sutardja with Ferro, Donnelly, and Letendre is "hindsight." For this reason alone, we consider Dr. Goldberg's testimony to be of little probative value. We also find that his testimony is of little probative value for the reasons identified by Petitioner in its Reply. More specifically, Dr. Goldberg

has never worked on the design of an electric vehicle charging system, never designed a GUI for an electric vehicle, and never designed an HVAC system for an electric vehicle. EX1093, 12:11–14:1. He has never owned an electric vehicle, never rented an electric vehicle, and never even personally plugged in an electric vehicle to charge. EX1093, 22:19–23:5. His closest experience comes from being on the Board of an electric vehicle company where, admittedly, he "wasn't involved with engineering. EX1093, 12:17–18.

Reply 12.

For the reasons expressed immediately above, we find that Petitioner demonstrates by a preponderance of evidence that the combined teachings of Ferro, Donnelly, Letendre, and Sutardja render claim 28 unpatentable as obvious.

For claim 29, Petitioner cross-references its showing for dependent claim 9, Pet. 82, which depends from claim 1 and introduces substantially similar limitations as those recited in claim 29, *compare* Ex. 1001, 34:13–16 (claim 29), *with id.* at 30:37–39. Patent Owner does not separately address dependent claim 29. *See* PO Resp. 56–57 (contesting only Petitioner's showing regarding limitation 28e and Petitioner's showing regarding the motive to combine Sutardja with the other prior art). For the reasons set forth in the Petition and the evidence adduced in support, we find that Petitioner has demonstrated by a preponderance of evidence that the

combined teachings of Ferro, Donnelly, Letendre, and Sutardja render claim 29 unpatentable as obvious.

III. CONCLUSION⁵

In summary,

Claim(s)	35 U.S.C. §	Reference(s)	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–4, 6, 7, 9–13, 15, 16, 18–22, 24, 25, 27	103	Ferro, Oyobe, Donnelly, Letendre, Zeigler, Galvez- Ramos	1–4, 6, 7, 9–13, 15, 16, 18–22, 24, 25, 27	
5, 8, 14, 17, 23, 26	103	Ferro, Oyobe, Donnelly, Letendre, Zeigler, Galvez- Ramos, Knockeart	5, 8, 14, 17, 23, 26	
28, 29	103	Ferro, Donnelly, Letendre, Sutardja	28, 29	
Overall Outcome			1–29	

⁵ 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).

IV. ORDER

For the reasons given, it is:

ORDERED, based on a preponderance of evidence, that claims 1–29 of U.S. Patent 11,563,338 B1 are *unpatentable* as obvious under 35 U.S.C. § 103; and

FURTHER ORDERED because this is a final written decision, the parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2025-00032
Patent 11,563,338 B1

FOR PETITIONER:

Jennifer C. Bailey
Virginia A. Brown
Callie A. Pendergrass
Adam M. Sandwell
Justin N. Grimes
ERISE IP, P.A.
jennifer.bailey@eriseip.com
virginia.brown@eriseip.com
callie.pendergrass@eriseip.com
adam.sandwell@eriseip.com
justin.grimes@eriseip.com
PTAB@eriseip.com
lydia.raw@eriseip.com

Ashraf Fawzy
Tesla, Inc.
afawzy@tesla.com

FOR PATENT OWNER:

Bradley D. Liddle
Michael Pomeroy
CARTER ARNETT BENNETT & PEREZ PLLC
bliddle@cozen.com
mpomeroy@carterarnett.com

Frederick A. Tecce
ALTIMA ADVISORS/ATTORNEYS, LLC
fred.tecce@altimaadvisors.com

Douglas W. Link
COZEN O'CONNOR
dlink@cozen.com