**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| In re *Ex Parte* Reexamination of: | ) | |
| | ) | |
| U. S. Patent No. 9,577,440 B2 | ) | Control No.: *To be assigned* |
| | ) | |
| Issue Date: Feb. 21, 2017 | ) | Group Art Unit: *To be assigned* |
| | ) | |
| Inventors: Afshin Partovi, *et al.* | ) | Examiner: *To be assigned* |
| | ) | |
| Appl. No. 13/115,811 | ) | Confirmation No.: *To be assigned* |
| | ) | |
| Filing Date: May 25, 2011 | ) | |
| | ) | |
| For: INDUCTIVE POWER SOURCE AND CHARGING SYSTEM | ) | |

Mail Stop *Ex Parte* Reexam
Attn: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

**REQUEST FOR *EX PARTE* REEXAMINATION OF U.S. PATENT NO. 9,577,440**

Reexamination is requested under 35 U.S.C. § 302 and 37 C.F.R. § 1.510 for claim 1 of U.S. Patent No. 9,577,440 B2 (the '440 patent), which issued on February 21, 2017 to assignee Mojo Mobility, Inc.

The *ex parte* reexamination fee of $12,600 is paid herewith by deposit account authorization. The Commissioner is hereby authorized to charge any additional fees which may be required regarding this request, or credit any overpayment, to Deposit Account No. 50-2613. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2613.

**TABLE OF CONTENTS**

**LIST OF EXHIBITS**

| | |
|---|---|
| Ex. PA-SB08 | USPTO form SB/08 |
| Ex. PAT-A | U.S. Patent No. 9,577,440 ("the '440 patent") |
| Ex. PAT-B | Prosecution History of the '440 patent |
| Ex. PAT-E | U.S. Patent Application No. 11/669,113 ("the '113 application") |
| Ex. PAT-F | U.S. Provisional Application No. 60/763,816 ("the '816 provisional") |
| Ex. PAT-G | U.S. Provisional Application No. 60/810,262 ("the '262 provisional") |
| Ex. PAT-H | U.S. Provisional Application No. 60/810,298 ("the '298 provisional") |
| Ex. PAT-I | U.S. Provisional Application No. 60/868,674 ("the '674 provisional") |
| Ex. PAT-J | Comparison Between Specification Portions of U.S. Patent No. 9,577,440 and Specification Portions of U.S. Patent Application Publication No. 2009/0096413 (Ex. PA-4) |
| Ex. PA-DEC | Declaration of Dr. Baker |
| Ex. PA-DEC-CV | Curriculum vitae of Dr. Baker |
| Ex. PA-1 | U.S. Patent Application Publication No. 2006/0202665 to Hsu ("*Hsu*") |
| Ex. PA-2 | U.S. Patent Application Publication No. 2007/0029965 to Hui ("*Hui*") |
| Ex. PA-3 | U.S. Patent Application Publication No. 2005/0127868 to Calhoon *et al.* ("*Calhoon*") |

| | |
|---|---|
| Ex. PA-4 | U.S. Patent Application Publication No. 2009/0096413 to Partovi *et al.* ("*Partovi*") |
| Ex. PA-7 | Physics, Henry Semat *et al.*, Rinehart & Co., Inc., 1958, Chapters 29-32 ("*Semat*") |
| Ex. PA-8 | GB Patent Application Publication No. 2202414 ("*Logan*") |
| Ex. PA-9 | U.S. Patent No. 7,226,442 ("*Sheppard*") |
| Ex. PA-10 | U.S. Patent Application Publication No. 2006/0145660A1 ("*Black*") |
| Ex. PA-11 | U.S. Patent No. 6,912,137 ("*Berghegger*") |
| Ex. PA-12 | U.S. Patent No. 6,489,745 ("*Koreis*") |
| Ex. PA-13 | U.S. Patent No. 6,366,817 ("*Kung*") |
| Ex. PA-14 | AN710 Antenna Circuit Design for RFID Applications |
| Ex. PA-15 | Spiral Inductor Design for Quality Factor, Sang-Gug Lee et al., Journal of Semiconductor Technology and Science, Vol. 2. No. 1, March 2002 ("*Lee*") |
| Ex. PA-16 | U.S. Patent No. 4,942,352 ("*Sano*") |
| Ex. PA-17 | International Patent Application Publication No. WO2003/096361 ("*Cheng*") |
| Ex. PA-18 | International Patent Application Publication No. WO2004/038888 ("*ChengII*") |
| Ex. PA-19 | U.S. Patent No. 7,378,817 ("*CalhoonII*") |
| Ex. PA-20 | U.S. Patent No. 6,606,247 ("*Credelle*") |
| Ex. PA-21 | U.S. Patent No. 5,780,992 ("*Beard*") |

| | |
|---|---|
| Ex. PA-22 | International Patent Application Publication No. WO1996040367 ("*WangII*") |
| Ex. PA-23 | Fundamentals of Electric Circuits, 2d., Charles Alexander et al., McGraw-Hill, 2004 ("*Alexander*") |
| Ex. PA-24 | U.S. Patent No. 5,702,431 ("*Wang*") |
| Ex. PA-25 | Handbook of Radio and Wireless Technology, Stan Gibilisco, McGraw-Hill, 1999 ("*Gibilisco*") |
| Ex. PA-26 | U.S. Patent Application Publication No. 2007/0109708 ("*Hussman*") |
| Ex. PA-27 | International Patent Application Publication No. WO1994/18683 ("*Koehler*") |
| Ex. LIT-1 | Mojo Mobility's Infringement Contentions in *Mojo Mobility Inc. v. Samsung Elecs. Co., Ltd.*, No. 2:22-cv-00398 (E.D. Tex.) (February 28, 2023) |
| Ex. LIT-2 | Claim Construction Order in *Mojo Mobility Inc. v. Samsung Elecs. Co., Ltd.*, No. 2:22-cv-00398 (E.D. Tex.) (May 16, 2024) |

## I. Introduction

An *ex parte* reexamination is requested on claim 1 of U.S. Patent No. 9,577,440, which issued on February 21, 2017 to Partovi ("the '440 patent,"), for which the U.S. Patent and Trademark Office ("Office") files identify Mojo Mobility Inc. ("Mojo" or "Patent Owner") as the assignee. (Ex. PAT-A, Cover.) In accordance with 37 C.F.R. § 1.510(b)(6), Requester Samsung Electronics Co., Ltd. ("Requester") hereby certifies that the statutory estoppel provisions of 35 U.S.C. § 315(e)(1) and 35 U.S.C. § 325(e)(1) do not prohibit it from filing this *ex parte* reexamination request.

This request raises substantial new questions of patentability based on prior art that the Office did not have before it or did not fully consider during the prosecution of the '440 patent, and which discloses or suggests the features recited in the challenged claims. Requester respectfully urges that this Request be granted and that reexamination be conducted with "special dispatch" pursuant to 35 U.S.C. § 305.

In accordance with 37 C.F.R. § 1.20(c), the fee for *ex parte* reexamination (non-streamlined) is submitted herewith. If this fee is missing or defective, please charge the fee as well as any additional fees that may be required to Deposit Account No. 50-2613.

## II. Related Proceedings

On October 7, 2022, Patent Owner filed suit against Requester asserting, *inter alia*, infringement of the '440 patent in *Mojo Mobility Inc. v. Samsung Electronics Co., Ltd.*, No 2-22-CV-00292 (E.D. Tex.).

Requester filed *inter partes* review petitions against the '440 patent on June 27, 2023. IPR2023-01087, Paper 1; IPR2023-01088, Paper 1. The Patent Trial and Appeal Board ("the PTAB") denied *inter partes* review.

This request, however, does not raise "the same or substantially the same prior art or arguments" previously presented, including in IPR2023-01087 and IPR2023-01088. 35 U.S.C. § 325(d). Instead, this request is based on grounds that the Office did not fully consider during the prosecution of the '440 patent, and that the PTAB did not have before it in IPR2023-01087 and IPR2023-01088, and which discloses or suggests the features recited in the challenged claims, especially under the broadest reasonable interpretation standard applicable to this request.

## III. Identification of Claims and Citation of Prior Art Presented

Requester respectfully requests reexamination of claim 1 of the '440 patent in view of the following prior art references, which are also listed on the attached PTO Form SB/08 (Ex. PA-SB08).

| | |
|---|---|
| Ex. PA-1 | U.S. Patent Application Publication No. 2006/0202665 to Hsu ("*Hsu*") |
| Ex. PA-2 | U.S. Patent Application Publication No. 2007/0029965 to Hui ("*Hui*") |
| Ex. PA-3 | U.S. Patent Application Publication No. 2005/0127868 to Calhoon *et al.* ("*Calhoon*") |
| Ex. PA-4 | U.S. Patent Application Publication No. 2009/0096413 to Partovi *et al.* ("*Partovi*") |

A copy of each of the above-listed references is attached to this request pursuant to 37 C.F.R. § 1.510(b)(3). A copy of the '440 patent is also attached to this request as Exhibit PAT-A pursuant to 37 C.F.R. § 1.510(b)(4).

## IV. Overview of the '440 Patent

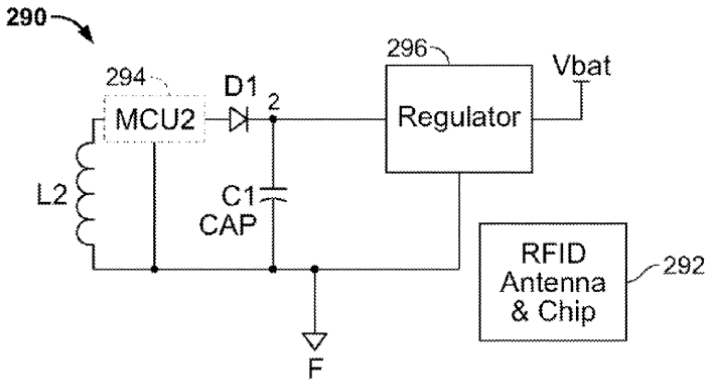
### A. Specification and Drawings of the '440 Patent

The '440 patent is titled "Inductive power source and charging system." The named inventors are Afshin Partovi and Michael Sears. It issued from United States Patent Application No. 13/115,811 ("'811 application), which was filed on May 25, 2011. The '811 application is a continuation of U.S. patent application No. 11/669,113 ("'113 application"), filed on January 30, 2007, now U.S. Patent No. 7,952,322. The '440 patent claims the benefit of provisional application Nos. 60/763,816 ("'816 provisional"), filed on January 31, 2006, 60/810,262 ("'262 provisional"), filed on June 1, 2006, 60/810,298 ("'298 provisional"), filed on June 1, 2006, and 60/868,674 ("'674 provisional"), filed on December 5, 2006.

The '440 patent is directed to "[a] mobile device capable of inductive powering or charging by a universal base unit." (Ex. PAT-A, Claim 1.) More specifically, the '440 patent describes "[a] receiver comprises a means for receiving the energy from the alternating magnetic field from the

pad and transferring it to a mobile or other device. In some embodiments the receiver can also comprise electronic components or logic to set the voltage and current to the appropriate levels required by the mobile device, or to communicate information or data to and from the pad." (*Id.*, Abstract.)

Figure 11 of the '440 patent excerpted below shows an embodiment:




(*Id.*, FIG. 11.)

The '440 patent describes Figure 11 as follows:

> FIG. 11 shows a figure of a circuit diagram 290 in accordance with an embodiment of the invention. In accordance with an embodiment, the MCU1 can periodically start the FET driver. If there is a receiver nearby, it can power the circuit. The regulator 296, or another memory chip in the circuit can be programmed so that on power-up, it draws current in a pre-programmed manner. An example is the integration of an RFID transponder chip in the path, such as ATMEL e5530 or another inexpensive microcontroller (shown here as MCU2 294), that upon power-up modulates the current in the secondary that can then be detected as current modulation in the primary. As with the previous example, other sensors, such as an RFID antenna 292 can also be used to provide positional and other information.

(*Id.*, 19:1-14.)

The '440 patent and the provisionals that the application of the '440 claims the benefit of admit that numerous claimed features of the alleged invention were known in the prior art prior to the alleged invention of the '400 patent. For example, the '262 provisional acknowledges that a person of ordinary skill in the art would recognize wireless charging from the principles of a transformer:

> Realizing that a power supply contains a transformer for voltage

> conversion, **one can envision breaking up the transformer into 2 parts**. One part would contain the first winding and the electronics to drive this winding at the appropriate operating frequency. The other part consists of a winding where power is received and then rectified to obtain DC voltage. If the 2 parts are brought into physical proximity to each other, p**ower is transformed from one part to the other inductively** without any connection.

(Ex. PAT-G, at 2 (emphasis added).)

The '262 provisional further acknowledges that wireless charging and wireless power transfer were known prior to the priority date of the application of the '440 patent: "An early patent in '89 for use of an inductive charger for powering batteries in a watch is US patent 4,873,677 by K. Sakamoto et al." (Ex. PAT-G, 2 (emphasis added).) "Patent 5,959,433 [] describes an inductively rechargeable battery system. Patent 6,208,115 [] describes a battery with a coil in the package for receiving power from a primary charger. Patent 6,301,128 [] includes a variable frequency primary driver to optimize power transfer." (*Id*., 3 (emphasis added).) B Choi. et al. (Proc. IEEE ICCE '01 June 2001, PP. 58-59) have shown use of such a charger for a mobile phone application." (*Id.*) (Emphasis added.) "Patents 5,600,225, 5,963,012, and 6,183,651 describe charging systems where ... power transfer ... between the secondary and primary is established." (*Id.*, 4 (emphasis added).)

The '262 provisional further acknowledges that these prior wireless charging systems included a "charging pad":

> More recently, K. Hatanaka, et al., IEEE Trans. On Magnetics, 38, 3329 (2002) have investigated the possibility of developing a surface with multiple coils imbedded in it (a desk in this case) where any device placed on the surface can be charged. ... S. Hui et al., Transactions of 35th IEEE Power Electronics Specialists Conference, Aachen, Germany, pp. 638-644, 2004, describe a method for obtaining uniform power on the surface of a charging pad. By having multiple coils on 3 pcb layers and activating all the coils simultaneously, they have shown that they can obtain uniform magnetic fields on the surface.

(*Id.*, 3-4.) (Emphasis added.)

The '262 provisional further acknowledges that wireless charging systems in the prior art wirelessly communicated "information about the power requirements of the battery and its status during the charging":

> Patents 5,600,225, 5,963,012, and 6,183,651 describe charging systems where in addition to the power transfer, a communication link between the secondary and primary is established that transfers information about the power requirements of the battery and its status during the charging to the primary. This information is used to establish methods and parameters for charging (voltage, current, duration, etc.) and to identify end of charge point.

(*Id.*, 4 (emphasis added).)

The '262 provisional further acknowledges a "typical" sequence for selectively activating primary coils for charger operation:

> A **typical** sequence for operation may be as follows: The mobile device charger may be in a low power status normally thus minimizing power usage. However, **periodically, each of the coils** (or a separate data coil in another PCB layer) **is powered up in rotation with a short signal such as a short RF signal that can activate a signal receiver in the secondary** such as an RF ID tag. The mobile device charger then tries to **identify a return signal from any mobile device** (or any secondary) that may be nearby. Once a mobile device (or a secondary) is detected **the mobile device charger and the mobile device proceed to exchange information**. This information can include **a unique ID code** that can verify the authenticity and manufacturer of the charger and mobile device, the **voltage requirements of the battery** or the mobile device, **and the capacity of the battery**.

(*Id.*, 7.)

The '262 provisional further acknowledges regulating the wireless power transfer by adjusting frequency: "Patent 6,301,128 [] includes a **variable frequency primary driver to optimize power transfer.**" (*Id.*, 3.)

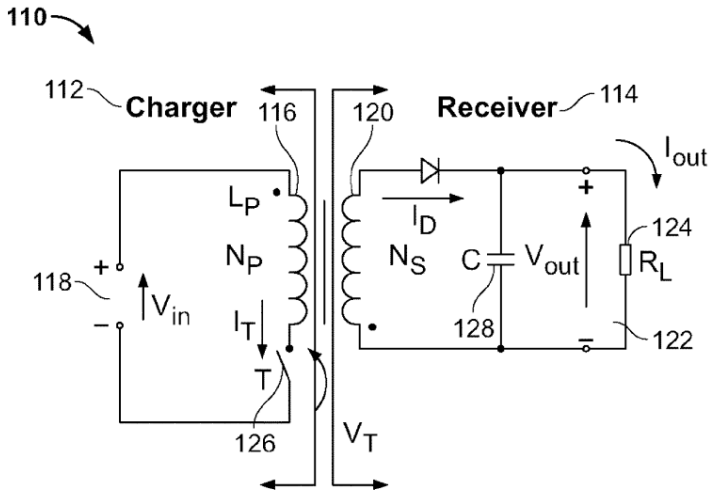
The '440 patent provides more detail on the "typical" wireless charging system:

> FIG. 2 shows the main components of a typical inductive power transfer system 110. The circuit illustrated is used to illustrate the principle of inductive power transfer and is not meant to be limiting to the present invention. In accordance with an embodiment, the charger 112 comprises a power source 118, and a switch T 126 (which can be a MOSFET or other switching mechanism) that is switched at an appropriate frequency to generate an AC voltage across the primary coil Lp 116 and generate an AC magnetic field. This field in turn generates a voltage in the coil 120 in the receiver 114 that is rectified and then smoothed by a capacitor to provide power 122 to a load RI 124. For ease of

> use, a receiver can be integrated with a mobile device, such as integrated inside the mobile device or attached to the surface of the mobile device during manufacture, to enable the device to receive power inductively from a mobile device charger or integrated into, or on its battery.
>
> The mobile device or its battery typically can include additional rectifier(s) and capacitor(s) to change the AC induced voltage to a DC voltage. This is then fed to a regulator chip which includes the appropriate information for the battery and/or the mobile device. The mobile device charger provides power and the regulation is provided by the mobile device. The mobile device charger, after exchanging information with the mobile device, determines the appropriate charging/powering conditions to the mobile device. It then proceeds to power the mobile device with the appropriate parameters required. For example, to set the mobile device voltage to the right value required, the value of the voltage to the mobile device charger can be set. Alternatively, the duty cycle of the charger switching circuit or its frequency can be changed to modify the voltage in the mobile device. Alternatively, a combination of the above two approaches can be followed, wherein regulation is partially provided by the charger, and partially by the circuitry in the secondary.

(Ex. PAT-A, 8:43-9-11.) (Emphasis added.)

Figure 2 of the '440 patent depicts the "typical" wireless charging system:




(*Id.*, FIG. 2.)

In addition to these admitted prior art references, based on experience in the field, each of the components recited in the claims of the '440 patent was known prior to the priority date of the

'440 patent. (Ex. PA-DEC, ¶23.)

**B. Prosecution History of the '440 patent**

Claim 1 of the '440 patent issued after multiple iterations of rejections by the examiner and amendments by applicant. (*See, e.g.,* Ex. PAT-B at 1623 (1st Office Action dated 3/28/2013, for which there was no response), 1605 (2nd Office Action dated 9/23/2013), 779 (Response to 2nd Office Action), 604 (3rd Office Action dated 3/4/2014), 320 (Response to 3rd Office Action), 286 (4th Office Action dated 8/20/2014), 264 (Response to 4th Office Action), 177 (5th Office Action dated 6/29/2015), 163 (Response to 5th Office Action), 129 (6th Office Action dated 11/05/2015), 114 (Response to 6th Office Action), 98 (7th Office Action dated 5/13/2016), 86 (Response to 7th Office Action).)

In the last (7th) Office Action, the examiner stated that:

> … all the claimed elements of applicant's inventions were known in the prior art (e.g. inductive charger, voltage regulator and protection device, etc.,) and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of invention …

(*Id.*, 109-10.)

Applicant then amended the claim to specify that the charger is a "universal base unit":

1. (Currently Amended) A mobile device capable of inductive powering or charging by a universal base unit for charging of different mobile devices and/or batteries of different charging characteristics associated therewith, comprising:

a battery, wherein one or both of a mobile device and the battery have particular charging characteristics associated therewith;

a receiver and receiver coil, for one of inductively powering the device or charging the battery in the mobile device, wherein the receiver is one of attached to or incorporated into the battery or the mobile device, and wherein the receiver coil has a generally planar shape so that a magnetic field received in a direction substantially perpendicular to the plane of the receiver coil is used to inductively generate a current in the receiver coil;

an identification component associated with the mobile device or battery, which is configured to provide wireless identification of the receiver to ~~a~~ the universal base unit;

a means for avoiding overcharging one or both of the mobile device and battery inductively; and

a regulator, coupled to the output of the receiver or to the battery, that regulates an output voltage or output current provided by the receiver, to the mobile device or battery, to be within a range of parameters for the mobile device or the battery;

wherein different mobile devices and batteries can have different charging characteristics associated therewith; and

wherein the receiver communicates with the base unit to

detect, identify and authenticate the receiver with the base unit, as provided by the identification component,

determine and then activate one or more primary coils of the base unit which are aligned with the receiver coil,

verify the continued presence of the receiver near the base unit, and

communicate information describing the characteristics of the mobile device or the battery, for use by the base unit to provide power transfer to the receiver and to the mobile device and the battery according to their particular charging characteristics.

(*Id*., 87 (Response to 7th Office Action).)

The examiner then allowed the claim. (*Id*. at 49 (Notice of Allowance).) However, as explained throughout this request, a charger that is a "universal base unit" was well-known in the art at the time of the invention.

Per the district court, a "universal base unit" is simply a "base unit capable of charging different mobile devices and/or batteries of different charging characteristics associated therewith." (*See* Ex. LIT-2, 42.) But such a feature was well-known. For example, *Hsu* discloses an inductive powering device 20 for inductively charging multiple portable computing devices 22

(e.g. laptop computers, tablet PCs, email accessing devices, PDAs). (Ex. PA-1, Abstract, FIGs. 1-4, ¶¶[0018], [0022], [0028].)

### C. The Effective Priority Date of the '440 Patent

Mojo asserts that claim 1 of the '440 patent is entitled to at least an effective filing date of June 1, 2006. (Ex. LIT-1, 6.) Mojo's assertion is incorrect. (*Infra*, Section VI.B.1.) As explained below in Section VI.B.1, the effective filing date of claim 1 can be no earlier than May 25, 2011, which is the filing date of the '811 application from which the '440 patent issued.

### D. Level of Ordinary Skill

A person of ordinary skill in the art ("POSITA") around the time of the purported invention (whether in or around 2006 or in or around 2011) would have had at least a master's degree in electrical engineering, or a similar discipline, and at least two years of experience in the relevant field, e.g., wireless power transfer. More education can supplement practical experience and vice versa. (Ex. PA-DEC, ¶¶21-22.)

## V. Claim Construction

"During patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.'" MPEP § 2111; *see also* MPEP § 2258. Limitations in the specification are not read into the claims. MPEP § 2258. The standard of claim interpretation in reexamination is different than that used by the courts in patent litigation.[1] Therefore, any claim interpretations submitted or implied herein for the purpose of this reexamination do not necessarily correspond to the appropriate construction under the legal standards mandated in litigation. MPEP § 2686.04.11; *see also In re Zletz*, 893 F.2d 319, 322, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). For purposes of this request, Requester believes that no special constructions of the challenged claims, other than the term identified below, are needed over the asserted prior art. (Ex. PA-DEC, ¶¶57-59.)

1 Requester reserves all rights and defenses available including, without limitation, defenses as to invalidity, unenforceability, and non-infringement regarding the '440 patent. Further, because the claim interpretation standard used by courts in patent litigation is different from the appropriate standard for this reexamination, any claim constructions submitted or implied herein for the purpose of this reexamination are not binding upon Requester in any litigation related to the '440 patent. Specifically, any interpretation or construction of the claims presented herein or in Dr. Baker's declaration for reexamination, either implicitly or explicitly, should not be viewed as constituting, in whole or in part, the Requester's own interpretation or construction of such claims.

Claim 1 recites a "**means for avoiding overcharging one or both of the mobile device and battery inductively**." (Ex. PAT-A, 27:25-26.) This is a mean-plus-function term.

The identified function is the underlined text above. The corresponding structure identified in the specification includes a battery regulator chip and/or a circuit that measures parameters of a battery (e.g., voltage, degree of charging, temperature, etc.) and uses an internal program to regulate the power drawn from a circuit to ensure overcharging does not occur (where "[t]he circuit could also include LEDs to show the receiver being in the presence of a magnetic field from the charger, complete charge LEDs and/or audible signals") and/or equivalents thereof. (Ex. PAT-A, 11:8-16; *see also* Ex. PAT-B, 171 (citing ¶[0064]), *see also id.*, 1669 (¶[0064]); Ex. LIT-2, 33-37.)

Requester believes no other constructions are needed under the broadest reasonable interpretation. Nonetheless, the claims would be unpatentable under any reasonable construction of the terms given how closely the prior art maps to the claims. This is particularly true given that the broadest reasonable interpretation standard governs this request.

## VI. Statement of Substantial New Questions of Patentability

The following combinations of prior art disclose or suggest all of the features of claim 1 of the '440 patent.

**SNQ1**: *Hsu*, *Hui*, and *Calhoon* raise a substantial new question of patentability (SNQ1) with respect to claim 1 of the '440 patent.

**SNQ2**: *Partovi* and *Calhoon* raise a substantial new question of patentability (SNQ2) with respect to claim 1 of the '440 patent.

The above combinations were not applied in a rejection by the Patent Office during prosecution. Nor were they presented in IPR2023-01087 and IPR2023-01088, which involved different prior art. For example, neither *Hsu* nor *Partovi* were presented as a primary reference like in the instant request. Moreover, as explained in detail below, *Hsu* discloses the "planar coil" limitations that the Board found missing from the prior art in IPR2023-01087. (IPR2023-01087, Paper 10 at 13-24 (Jan. 10, 2024).) Thus, "the request is not based on the same or substantially the same prior art or arguments presented in the prior petition." Control No. 90/015,130, Order Granting Request for Ex Parte Reexamination (November 17, 2022) at 10-11.

For the reasons discussed below and in the accompanying declaration of Dr. Baker (Ex. PA-DEC), *Hsu*, *Hui*, and *Calhoon* raise a substantial new question of patentability (SNQ1) with

respect to claim 1 of the ’440 patent; and *Partovi* and *Calhoon* raise a substantial new question of patentability (SNQ2) with respect to claim 1 of the ’440 patent.

### A. SNQ1: *Hsu* in View of *Hui* and *Calhoon* Discloses or Suggests Claim 1

Even assuming *arguendo* that claim 1 of the ’440 patent is entitled to the June 1, 2006 date Mojo contends as the effective filing date, *Hsu*, *Calhoon*, and *Hui* are prior art.

*Hsu* was filed on May 13, 2005 and published on September 14, 2006, and thus qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(e). *Hui* was filed on September 23, 2005 and published on February 8, 2007, and thus qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(e). *Calhoon* was filed on December 12, 2003 and published on June 16, 2005, and thus qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(e).

#### 1. Overview of *Hsu*

*Hsu* discloses a powering device for providing power to a portable device. (Ex. PA-DEC at ¶¶61-63.) For example, *Hsu* discloses a “powering device 20 with an inductive powering surface 21 for powering a portable device [22] placed on the surface.” (Ex. PA-1, ¶[0018], FIG. 1.) “[I]f the powering device 20 is a conference table, users participating in a meeting only have to place their laptop computers or tablet PC’s on the surface of the table, and their portable devices will be automatically powered or recharged by the table surface.” (*Id*.)

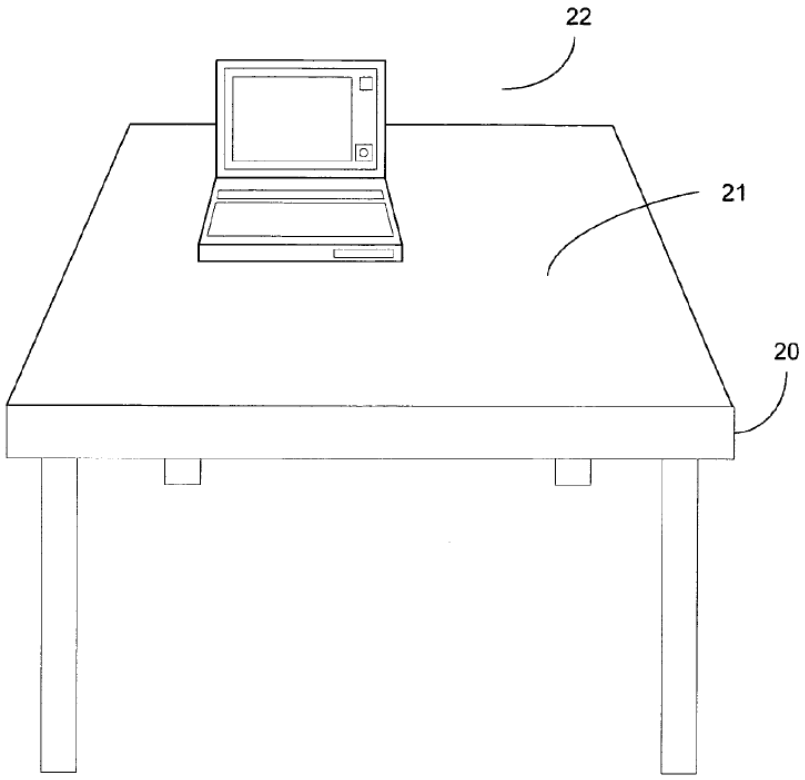



FIG. 1

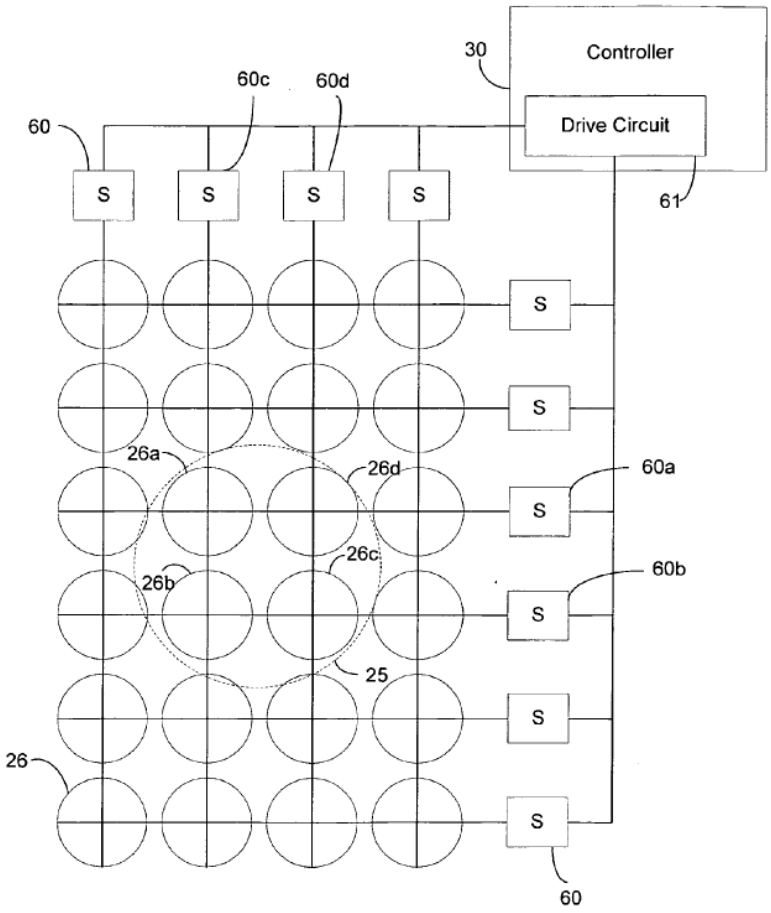
(*Id.*, FIG. 1.)

> Turning now to FIG. 2, the power transfer from the inductive powering surface 21 to the portable device 22 is by means of the inductive coupling between a primary coil 26 in the inductive powering surface and a second primary coil 25 in the portable device. The primary coil 26 and secondary coil 25 form a transformer. When the primary coil 26 is driven with an alternating signal at a selected frequency, the variation of the magnetic flux is picked up by the secondary coil 25 and induces an alternating voltage signal across the secondary coil. The alternating voltage signal can then be converted into power by a power supply circuit in the portable device for powering the operations of the portable device.

(*Id.*, ¶[0019].)

"[T]he inductive powering surface 21 has a plurality of primary coils 26 arranged therein that can be energized for transferring power to the portable device 22 placed on the surface. One example of the multi-coil arrangement in the inductive powering surface is shown in FIG. 6." (*Id.*, ¶[0020].) In an embodiment, "only those [primary coils] that are covered by or overlapping with the secondary coil 25 are to be energized for transferring power to the portable device." (*Id.*,

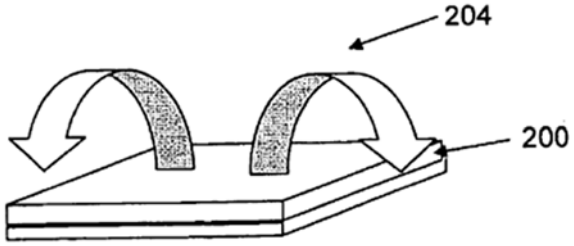
¶[0029].)




(*Id*., FIG. 6.)

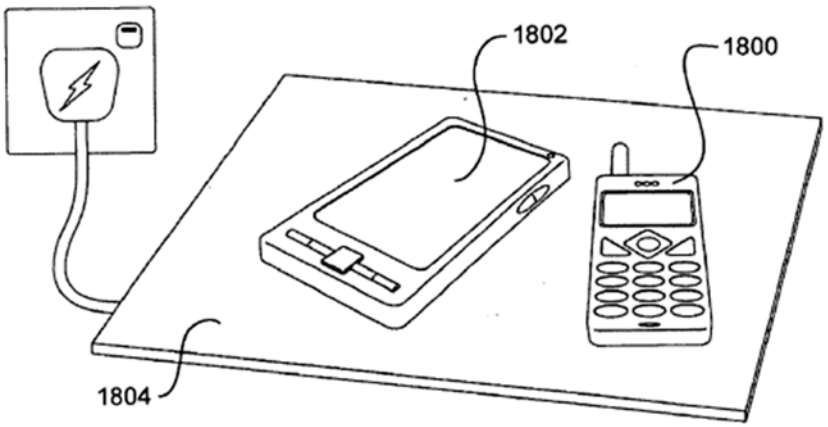
**2. Overview of *Hui***

*Hui* discloses a system for inductive charging. (Ex. PA-DEC at ¶¶64-67.) *Hui* discloses an "inductive battery charging platform" in Figure 2, where the "lines of flux of this charging platform flow 'perpendicularly' in and out of the charging surfaces." (Ex. PA-2, ¶[0005].) "This perpendicular flow of flux is very beneficial because it allows the energy transfer over the surface on which the electronic equipment (to be charged) is placed." (*Id*. (emphasis added).)




(*Id.*, FIG. 2.)

In one embodiment, *Hui* discloses charging a battery pack in a mobile phone by placing a mobile phone over the "planar charging platform of FIG. 2 (which has the magnetic flux lines flowing into and out of the charging surface perpendicularly)." (*Id*., ¶[0050].) "As long as the 'active side' of the battery pack faces the surface of the charging platform, the electronic equipment can be charged by the planar inductive charging platform as shown in FIG. 18." (*Id*., ¶[0060].) An "energy receiving element in the form of a simple planar device is introduced [into] this battery pack structure so that this battery pack can be charged inductively by the planar charging platform of FIG. 2." (*Id*. ¶[0050].) The "energy receiving element" includes an "energy pick-up coil," which is "essentially a planar inductor." (*Id*., ¶[0051] (emphasis added).)




(Ex. PA-2, FIG. 18.)

*Hui* is in the same field as the '440 patent as *Hui* relates to a system for inductively charging a battery using a charging platform. (*See e.g.*, Abstract.) *Hui* is also pertinent to the same types of problems the inventor was trying to solve. For example, *Hui*'s inductive charging platform advocates for the use of "planar PCB transformer technology" for planar windings which generate "magnetic flux lines flowing into and out of the charging surface perpendicularly." (*Id.*, ¶¶[0008], [0050], [0054].) These are problems with which the inventor was concerned. (*See, e.g.*, PAT-A at 7:8-26; 10:66-11:44.)

### 3. Overview of *Calhoon*

*Calhoon* is titled "Inductive Battery Charger." (Ex. PA-3, Cover.) *Calhoon* discloses "[a]n inductive charging system [that] transfers energy by inductively coupling a source coil on a power source to a receiver coil for a battery charger." (Ex. PA-3, Abstract.) *Calhoon* discloses "a charging system 300" that includes "an inductive charging source 302 that wirelessly provides

electrical power and/or data communications to an inductive battery charger assembly 304." (*Id.*, ¶[0029].) "The battery charger assembly 304 may be configured to receive electrical energy from inductive power source 302" through "a power pickup coil 324 that is operatively connected to a power supply 320." (*Id.*, ¶[0031].) "In one operation, the power supply 320 of battery charger assembly 304 provides electrical energy to a battery charger 322 that supplies energy to legacy battery pack 350." (*Id.*)

Figure 3, which illustrates the components of the inductive charger system, is excerpted below:

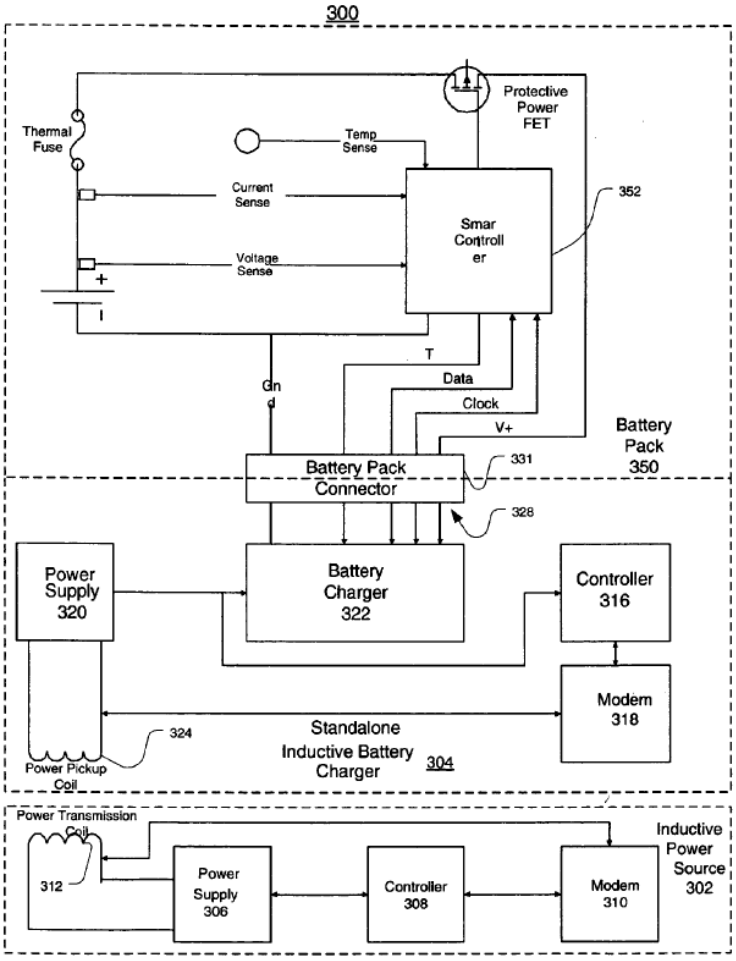



FIGURE 3

(*Id.*, FIG. 3.)

*Calhoon*'s charging system can avoid overcharging.

> After the negotiation process, in process block 514, when the battery charger assembly 304 begins to receive its requested voltage and

> power, the controller 316 may turn on the battery charger 322 in order to charge the battery pack 350. In process block 520, if the battery is charged to the desired level, the battery charger 322 can be switched off-line. When power from the source is lost, the battery pack returns to its listening mode. In process block 522, if the battery 314 is not at the desired level of charge, then the charging process is continued.

(*Id.* ¶[0048].)

Furthermore, charger assembly 304 can transmit information to the inductive power source 302, including "charging parameters ... such as the required charging voltage and maximum power requirement. [and] . . . other information relevant to the battery charger assembly 304, such as a battery charger identification (ID) number, battery type chemistry of the battery pack, or serial number of the battery charger or the serial number of the battery pack [which] can be used for security, data integrity, or other purposes." (*Id.* ¶[0047], emphasis added.)

*Calhoon* explains that the inductive power source 302 can authenticate the battery charger assembly 304.

> In process block 606, upon receiving the battery pack's request for power, the inductive charging source 302 may request for a security certificate or digital signature from the battery charger assembly 304 to authenticate it. The security certification or digital signature may be stored in the computer readable storage of the controller 308. In process block 608, if battery charger assembly 304 has a digital certificate or digital signature stored, the battery charger assembly 304 transmits it to the source 302. In process block 610, if the battery charger assembly 304 is authenticated in view of the certification or signature, the source 302 supplies the requested voltage and power the battery charger as shown in process block 612.

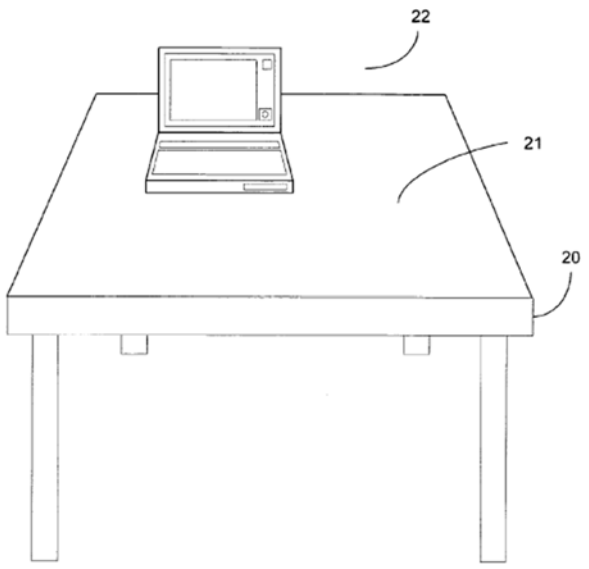
(*Id.* ¶[0052], emphasis added.)

*Calhoon* is also in the same field as the '440 patent as *Calhoon* relates to an inductive charging system. (*See, e.g.*, Ex. PA-3, ¶[0022].) *Calhoon* is also pertinent to the same types of problems the inventors of the '440 patent were trying to solve. For example, *Calhoon* relates to a universal charger that allows "device independence" (*id.*, ¶¶[0006]-[0008]) and can handle "multiple battery packs [with] different power requirements." (*Id.*, ¶¶[0045], [0033] ("This feature provides a more flexible and adaptable solution for persons or organizations with different electronic devices.").) These are problems with which the inventor was concerned. (*See, e.g.*, Ex. PAT-A, at 5:58-6:30.)

**4. Claim 1**

**a. A mobile device capable of inductive powering or charging by a universal base unit for charging of different mobile devices and/or batteries of different charging characteristics associated therewith, comprising:**

To the extent the preamble is limiting, *Hsu* discloses this limitation. (Ex. PA-DEC, ¶¶79-81.) For example, *Hsu*, discloses an inductive powering device 20 ("**universal base unit**") for inductive wireless charging ("**inductive powering or charging**") of portable computing devices 22 (e.g. laptop computers, tablet PCs, email accessing devices, PDAs) ("**mobile device**," "**mobile devices**") when placed on a surface 21 of the powering device 20. (*See, e.g.*, Ex. PA-1, at ¶¶[0006], [0018], [0019], [0022], [0028], FIG. 1.)




(*Id.*, FIG. 1.) The portable device 22 is a "**mobile device**," as claimed.

Each portable device 22 has its own power requirement ("**different charging characteristics associated therewith**"). For example, a POSITA would have understood that a laptop computer, a PDA, or tablet PC would have different power requirements. That is precisely why *Hsu*'s portable device 22 transfers its power requirement to the powering device 20; if the requirement was the same across all devices, there would be no need for this information transfer. (*Id.*, ¶[0028].)

Furthermore, powering device 20 is a "**universal base unit**" because, consistent with the district court's interpretation, it is "capable of charging different mobile devices and/or batteries

of different charging characteristics associated therewith." (*See* Ex. LIT-2, 41 ("A POSITA would understand that a 'universal base unit' is a 'base unit that is capable of charging different mobile devices and/or batteries of different charging characteristics therewith.'").)[2]

**b. a battery, wherein one or both of a mobile device and the battery have particular charging characteristics associated therewith;**

*Hsu* discloses this limitation. (Ex. PA-DEC, ¶82.) For instance, *Hsu*'s portable device 22 ("**mobile device**") is provided with an internal power source (e.g. battery or fuel cell) ("**battery**") for its operation. (Ex. PA-1, ¶¶[0021]-[0022].) An RFID chip in the portable device 22 stores data pertaining to the power requirements of the portable device 22 ("**particular charging characteristics associated**" with the mobile device) and transmits the same to the powering device 20 during a sensing operation. (*Id.*, ¶¶[0022], [0028]; Ex. PA-DEC, ¶82.) These power requirements, include, for example, "maximum idle time between the power transfer operations, the minimum duty cycle for active power transfer, the size of the secondary power coil, and/or the maximum instant transferred power." (*Id*., ¶[0028].)

**c. a receiver and receiver coil, for one of inductively powering the device or charging the battery in the mobile device, wherein the receiver is one of attached to or incorporated into the battery or the mobile device, and**

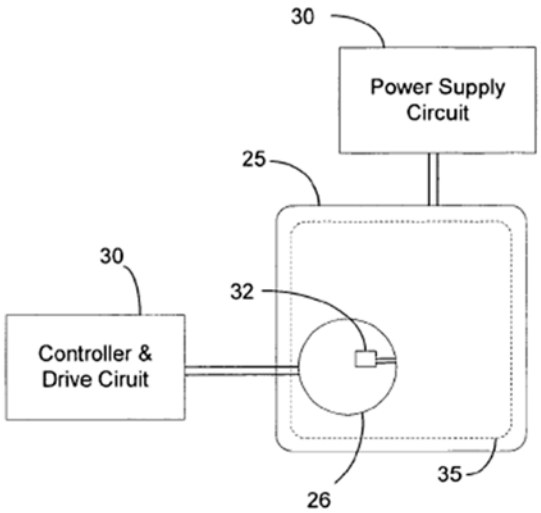
*Hsu* discloses this limitation. (Ex. PA-DEC, ¶83-85.) *Hsu*'s portable device 22 contains a secondary coil 25 ("**receiver coil**"). (Ex. PA-1, ¶¶[0020] ("secondary coil 25 in the portable device"). There is a "power supply circuit in the portable device for powering the operations of the portable device." (*Id*., ¶[0019].) For example, "[w]hen the primary coil 26 is driven with an alternating signal at a selected frequency, the variation of the magnetic flux is picked up by the secondary coil 25 and induces an alternating voltage signal across the secondary coil. The alternating voltage signal can then be converted into power by a power supply circuit in the portable device for powering the operations of the portable device." (*Id*., ¶[0019].) Furthermore, the portable device 22 includes an RFID microchip and antenna (e.g., the secondary coil 25) for storing data pertaining to the portable device 22 (e.g., power requirements of the portable device) and transmitting the same to the powering device 20 during a sensing operation. (*Id.*, ¶¶[0021]-[0029].) The antenna associated with the RFID microchip receives radio frequency waves for

[2] Requester does not acquiesce to the district court's construction.

powering the RFID microchip. (*Id*., ¶¶[0021], [0027], [0030].) *Hsu*'s power supply circuit (i.e., the component that converts the voltage signal across the secondary coil into power) and the RFID microchip-antenna combination, together constitute a "**receiver**." The '440 patent contemplates that the "receiver" includes both the power conversion circuitry and an RFID chip. (Ex. PAT-A, 14:8-21.)

The power supply circuit, the RFID chip, and its antenna (e.g., the secondary coil 25) of *Hsu* are "in the portable device." (Ex. PA-1, ¶¶[0019], [0027], [0028].) Thus, the receiver is "**incorporated into the . . . mobile device**," as claimed.

Furthermore, the combination of the secondary coil 25 and power supply circuit powers the portable device 22 by inductively receiving power from the primary coil 26 ("**inductively powering the [mobile] device**"). (*Id.*, ¶¶[0019], [0024], FIG. 1, 3.) For example, "[w]hen the primary coil 26 is driven with an alternating signal at a selected frequency, the variation of the magnetic flux is picked up by the secondary coil 25 and induces an alternating voltage signal across the secondary coil. The alternating voltage signal can then be converted into power by a power supply circuit in the portable device for powering the operations of the portable device." (*Id*., ¶[0019].)

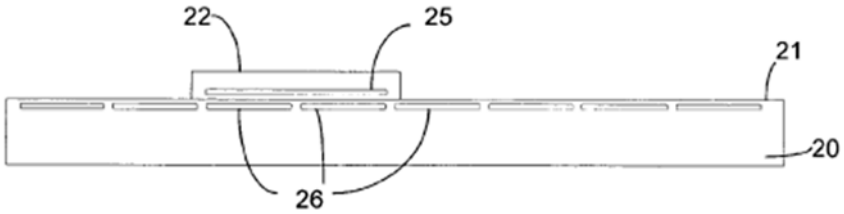



(*Id.*, FIG. 3.[3])

[3] Figure 3 of *Hsu* has a typographical error in that "power supply circuit" should have reference numeral 36 instead of 30, as set forth in paragraphs [0024] and [0025] in *Hsu*.

**d. wherein the receiver coil has a generally planar shape so that a magnetic field received in a direction substantially perpendicular to the plane of the receiver coil is used to inductively generate a current in the receiver coil;**

*Hsu* alone or in combination with *Hui* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶86-92.) As abundantly evident from figure 2, secondary coil 25 ("**receiver coil**") has a "**generally planar shape**," as claimed.




(Ex. PA-1, FIG. 2.) This is further confirmed by Figure 6 of *Hsu*, which shows a circular secondary coil 25 overlaid on circular primary coils 25.

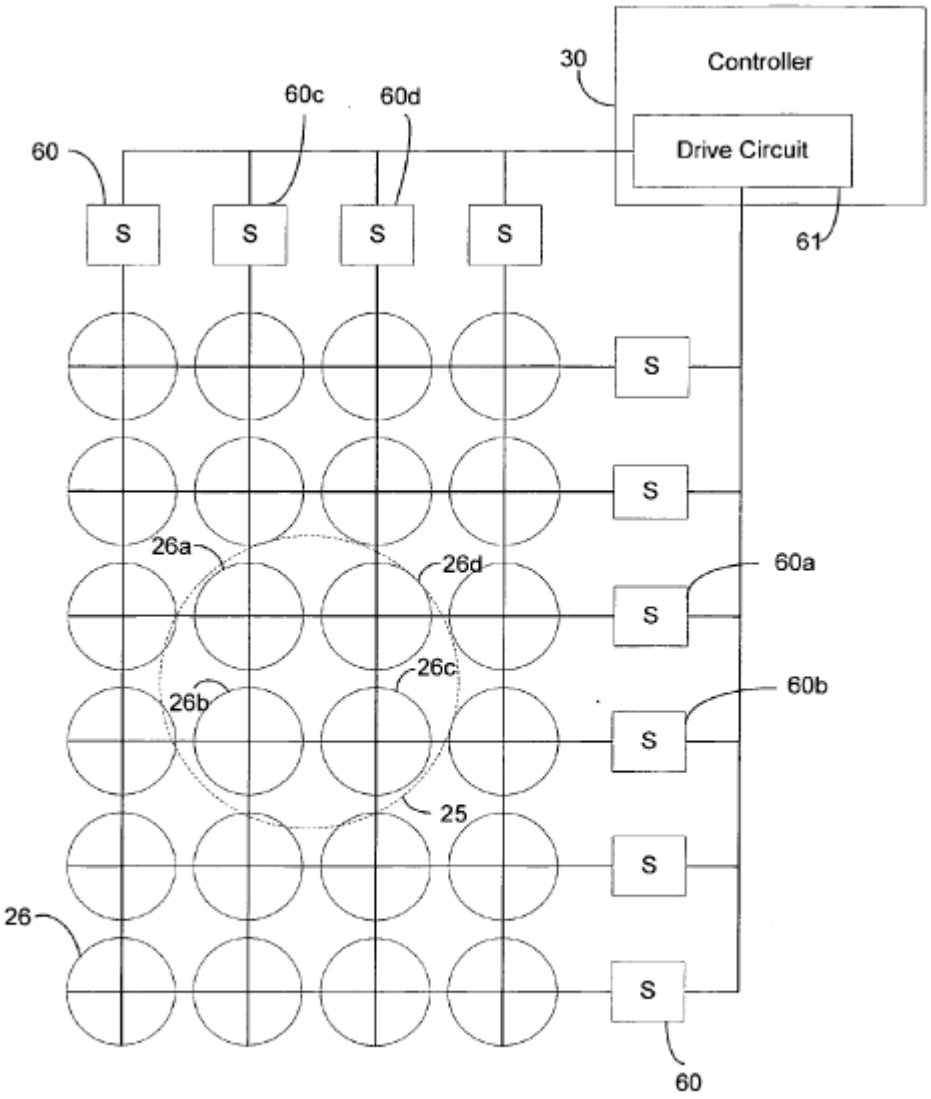



FIG. 6

(*Id*., FIG. 6.)

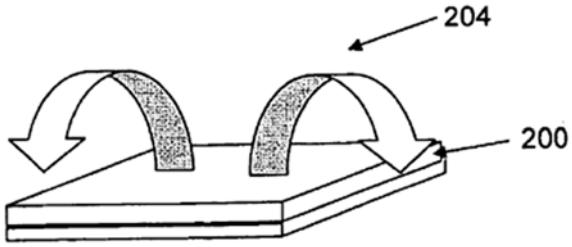
*Hsu* further discloses that "[w]hen the primary coil 26 is driven with an alternating signal, . . . the variation in the magnetic flux" is picked up by the secondary coil 25 such that an "alternating voltage signal" is "induce[d]" in the secondary coil 25 ("**receiver coil**"). (Ex. PA-1, ¶¶[0019], [0024] (emphasis added).[4]) This means that a current is induced in the secondary coil

[4] A POSITA understands that "magnetic flux" is a measure of the "magnetic field" passing through a given area. (Ex. PA-DEC, ¶87.)

25 because an alternating voltage across an inductor (such as the secondary coil 25) would result in an alternating current in the coil. (Ex. PA-DEC, ¶87.) That is the basic principle behind inductive charging, as confirmed by the '440 Patent. (*Id.*) Indeed, the alternating voltage signal induced in the receiver coil 25 powers the power supply circuit (Ex. PA-1, ¶[0019]), which means that current is supplied to the power supply circuit by the receiver coil 25. (Ex. PA-DEC, ¶87.) *Hsu* thus discloses "**a magnetic field received in a . . . plane of the receiver coil is used to inductively generate a current in the receiver coil**," as claimed.

*Hsu* further discloses that the received magnetic field is "**in a direction substantially perpendicular to the plane of the receiver coil**." *Hsu*'s secondary coil 25 is parallel to the primary coil 26, as seen in Figure 2. (Ex. PA-1, FIG. 2.) Thus, at least some portion of the magnetic field emanating from primary coil 26 will be perpendicular to secondary coil 25 in order for the field to reach the entire surface area of coil 25.

To the extent *Hsu* is found to not disclose any aspect of limitation 1.d, *Hui* discloses such a limitation. Like *Hsu*, *Hui* discloses a system for inductive charging. (Ex. PA-DEC., ¶89.) *Hui* discloses an "inductive battery charging platform" in Figure 2, where the "lines of flux of this charging platform flow 'perpendicularly' in and out of the charging surfaces." (Ex. PA-2, ¶[0005].) "This perpendicular flow of flux is very beneficial because it allows the energy transfer over the surface on which the electronic equipment (to be charged) is placed." (*Id*. (emphasis added).)




(*Id.*, FIG. 2.)

In one embodiment, *Hui* discloses charging a battery pack in a mobile phone by placing a mobile phone over the "planar charging platform of FIG. 2 (which has the magnetic flux lines flowing into and out of the charging surface perpendicularly)." (*Id*., ¶[0050].) An "energy receiving element in the form of a simple planar device is introduced [into] this battery pack structure so that this battery pack can be charged inductively by the planar charging platform of FIG. 2." (*Id*.) The "energy receiving element" includes an "energy pick-up coil," which is

"essentially a planar inductor." (*Id*., ¶[0051] (emphasis added).)

A POSITA looking to maximize the power transfer from the primary coil 26 to the secondary coil 25 for charging a portable device in *Hsu* would have looked to *Hui*, which is similarly directed towards charging of portable electronic devices using a planar inductive platform. (PA-DEC at ¶91.) Such a POSITA would have been motivated to configure the magnetic field generated by *Hsu*'s primary coils 26 to be perpendicular to the surface of the powering device 20 because "perpendicular flow of flux is very beneficial [as] it allows the energy transfer over the surface on which the electronic equipment (to be charged) is placed." (Ex. PA-2, ¶[0005] (emphasis added).) A POSITA would have had a reasonable expectation of success in making such a modification, which would have been a straightforward combination of well-known technologies using known methods and techniques familiar to such a skilled person. (Ex. PA-DEC, ¶91.) For example, *Hui* discloses configurations for "planar" coils that generate a perpendicular magnetic field over the entire charging surface. (Ex. PA-2, ¶[0005].) And *Hui* references WO03/105308 as providing further disclosure of a charging surface that provides a perpendicular magnetic field. (Ex. PA-DEC, ¶91.) Thus, a POSITA would know how to configure *Hsu*'s primary coils in order to generate a perpendicular magnetic field when an alternating current is passed therethrough.

The combined *Hsu* and *Hui* system discloses or suggests that the "magnetic field received in a direction substantially perpendicular to the plane of the receiver coil is used to inductively generate a current in the receiver coil." As discussed above, a POSITA would have modified *Hsu*'s primary coils 26 to generate a perpendicular magnetic field. *Hsu*'s primary coils 26 are parallel to the secondary coil 25 ("receiver coil"), as shown in Figure 2 of *Hsu*. Therefore, the magnetic field will also be perpendicular to the plane of the receiver coil 25 in the combined *Hsu-Hui* system.

**e. an identification component associated with the mobile device or battery, which is configured to provide wireless identification of the receiver to the universal base unit;**

*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶93-99.) *Hsu* discloses an RFID microchip in the portable device 22 ("**component associated with the mobile device**") for storing data pertaining to the portable device 22 (e.g., power requirements of the portable device) that is transmitted via RF waves to the powering device 20 ("**universal base unit**") during a sensing operation. (Ex. PA-1, ¶¶[0028], [0029].) However, *Hsu* does not

explicitly disclose that the data pertaining to the portable device stored in the RFID microchip includes "**identification"** information of the "**receiver**." In other words, *Hsu* does not expressly disclose that the RFID microchip is an "**identification**" component.

*Calhoon* discloses such a limitation. Like *Hsu*, *Calhoon* discloses "[a]n inductive charging system [that] transfers energy by inductively coupling a source coil on a power source to a receiver coil for a battery charger." (Ex. PA-3, Abstract.) In particular, an inductive charging source 302 inductively transfers power to a battery charger assembly 304. (*Id*., ¶[0031], FIG. 3.) "The battery charger assembly 304 may be configured to receive electrical energy from inductive power source 302" through "a power pickup coil 324 that is operatively connected to a power supply 320." (*Id*.) "In one operation, the power supply 320 of battery charger assembly 304 provides electrical energy to a battery charger 322 that supplies energy to legacy battery pack 350 . . . ." (*Id*.) The battery charger assembly 304 is a "**receiver**," as claimed.[5] Figure 3, which illustrates the components of the inductive charger system, is excerpted below:

[5] Alternatively, the components of the battery charger assembly 304 minus the power pickup coil 324 constitutes a "**receiver**".

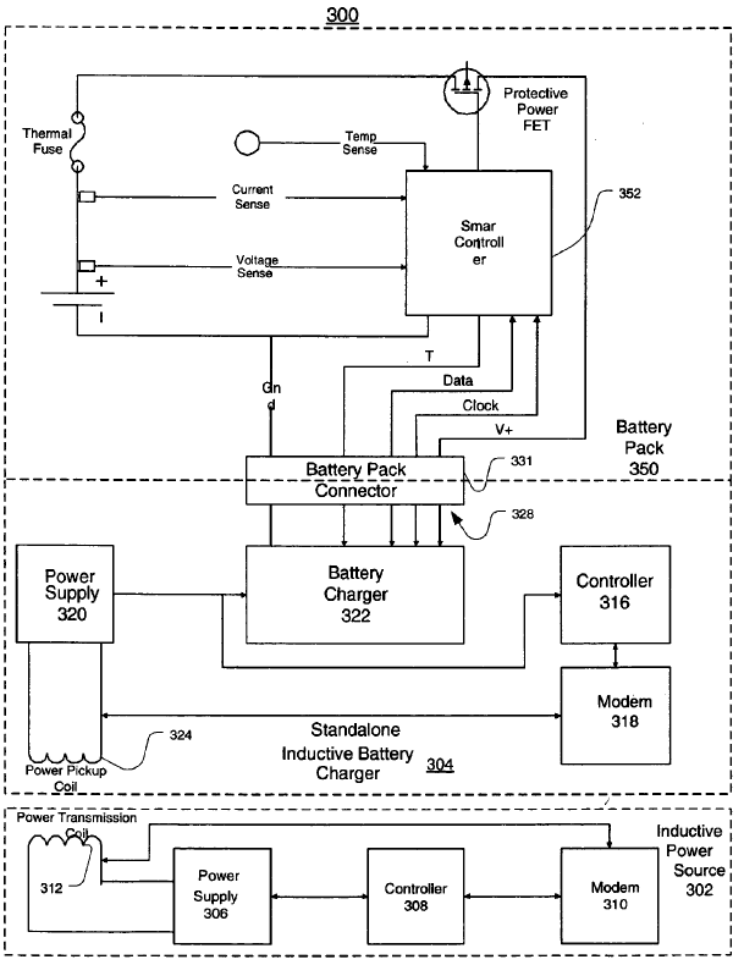



FIGURE 3

(*Id.*, FIG. 3.)

The battery charger assembly 304 further includes a "controller 316 that may be configured for receiving, transmitting and storing data . . . ." (*Id.*, ¶[0036].) This data includes, for example, "a battery charger ID number, serial number, manufacturer's name and date of manufacture." (*Id.*, ¶[0042].) The inductive power source 302 acquires this data from controller 316 before transmitting power to the battery charger assembly 304.

> [T]he source 302 may request information or charging parameters from the battery charger assembly 304, such as the required charging voltage and maximum power requirement. Nevertheless, the inductive charging source 302 can request other information relevant to the battery charger assembly 304, such as a battery charger identification (ID) number, battery type chemistry of the battery pack, or serial number of the battery charger or the serial number of the battery pack. This information can be used for security, data integrity, or other purposes. In process block 508, the battery charger assembly 304 transmits the

> requested information. In process block 510, the source 302, via controller 308, determines if it can supply the requested voltage and power to battery charger assembly 304.

(*Id*., ¶[0047] (emphasis added); Ex. PA-DEC, ¶95.) A "battery charger identification (ID) number" is an "**identification**" number of the battery charger assembly 304 ("**receiver**").

*Calhoon* further discloses transmitting a "security certificate or digital signature from the battery charger assembly 304 to authenticate it." (*Id*., ¶[0052].)

> In process block 606, upon receiving the battery pack's request for power, the inductive charging source 302 may request for a security certificate or digital signature from the battery charger assembly 304 to authenticate it. The security certification or digital signature may be stored in the computer readable storage of the controller 308. In process block 608, if battery charger assembly 304 has a digital certificate or digital signature stored, the battery charger assembly 304 transmits it to the source 302. In process block 610, if the battery charger assembly 304 is authenticated in view of the certification or signature, the source 302 supplies the requested voltage and power the battery charger as shown in process block 612. During the powering process, the source 302 may periodically poll the battery charger assembly 304, and if no response is received or inductive coupling is removed, the source 302 changes state from the charging mode to return to the polling mode. In process block 610, if the battery charger assembly 304 is not authenticated, or the source 302 cannot supply the requested voltage or power, the source 302 will remain in low power mode, and the source 302 will return to polling mode. Nevertheless, steps any or all of steps shown in blocks 500-522 in FIG. 5A, and steps shown in blocks 550-560 in FIG. 5B, and can be implemented in the process shown in FIG. 6.

(*Id*.)

Based on *Calhoon*, a POSITA would have been motivated to modify the *Hsu-Hui* combination to store additional information of the receiver in *Hsu*'s RFID chip (that stores data pertaining to the portable device) and transmit the same to the powering device along with the power requirements of the portable device. For example, given *Calhoon*'s teachings, a POSITA would have been motivated to store the receiver's identification information, security certificate or digital signature in *Hsu*'s RFID microchip, and transmit the same to the powering device using *Hsu*'s RF waves to enable the powering device to verify the identity and authenticity of the portable device or the receiver therein. (Ex. PA-DEC, ¶97.) A POSITA would have been motivated to do so in order to allow for a more secure system in which the powering device 22 verifies the identity

of receiver prior to transmitting power to the portable device. (*Id.*) This is confirmed by *Calhoon*, which discloses that the "battery charger identification (ID) . . . can be used for security, data integrity, or other purposes." (Ex. PA-3, ¶[0047].) It is further confirmed by *Calhoon*'s teaching that authenticating the device to be charged "prevents computerized virus infections in the [device to be charged]" from infecting the charger and thus "improves security functions for inductive power arrangements." (*Id*., ¶[0022].) A POSITA would have had a reasonable expectation of success in making the above modifications to *Hsu* given that the modifications would have been a straightforward combination of well-known technologies using known methods and techniques familiar to such a skilled person. (PA-DEC at ¶98.) For example, configuring *Hsu*'s RFID chip to store the receiver's ID is a straightforward operation involving storing data. And transmission of such data from the RFID chip would also have been straightforward because *Hsu* already discloses that data stored in the RFID chip is transmitted to the powering device. (*Id*.)

In the *Hsu-Hui-Calhoon* combination, the RFID chip of *Hsu* stores the identification information of the receiver and transmit the same via RF waves to the powering device 22. The RFID chip is thus "**an identification component associated with the mobile device or battery, which is configured to provide wireless identification of the receiver to the universal base unit**," as claimed.

**f. a means for avoiding overcharging one or both of the mobile device and battery inductively; and**

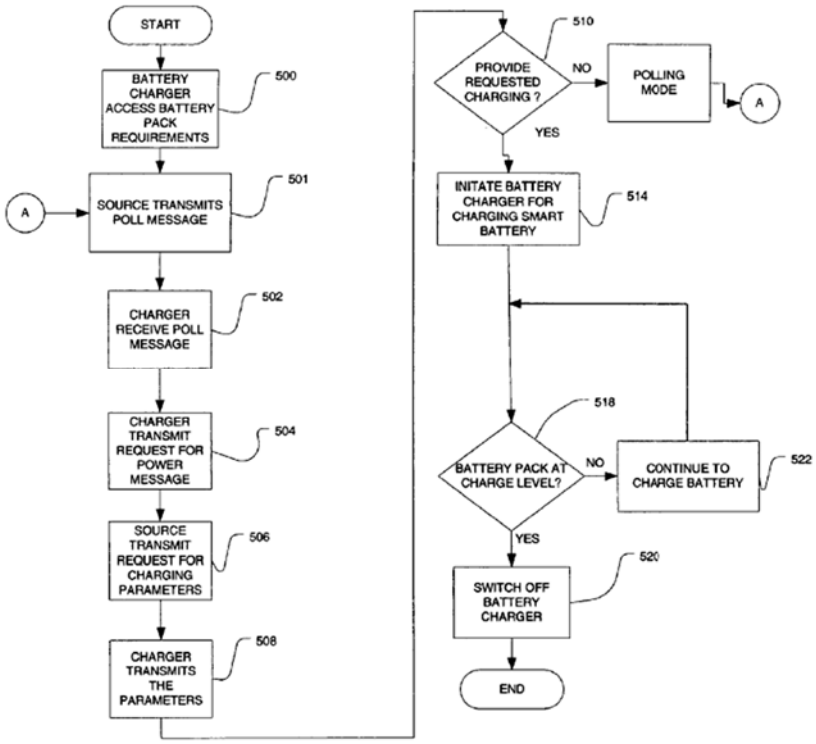
*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶100-102.) *Hsu* does not explicitly disclose a means for avoiding overcharging one or both of the mobile device and battery inductively. A POSITA would have been aware that continuing to charge a fully charged battery may cause the battery to heat up, which can damage or detrimentally affect the battery and/or related components (*e.g.*, mobile device components). (*Id.*) Accordingly, a POSITA looking to avoiding overcharging in the *Hsu-Hui* combination would have looked to *Calhoon*, which is similarly directed towards charging of a battery charger via inductive transfer of energy from a source coil. (*Id.*) *Calhoon* teaches mechanisms for avoiding battery overcharging.

> In another alternative arrangement [relating to FIG. 3], a thermistor or "T" line [not shown in FIG. 3] between the charger 322 of battery charger assembly 304 and the battery pack 350 can be used as a safety control to disrupt charging in the event the battery pack 350 experiences an overcharge or over-temperature condition.

(Ex. PA-3, ¶[0038] (emphasis added), FIG. 3.)

> when the battery charger assembly 304 begins to receive its requested voltage and power, the controller 316 may turn on the battery charger 322 in order to charge the battery pack 350. In process block 520, if the battery is charged to the desired level, the battery charger 322 can be switched off-line.…In process block 522, if the battery 314 is not at the desired level of charge, then the charging process is continued.

(*Id*., ¶[0048] (emphasis added); *see also id*., ¶[0044] ("controller 316…may be configured to read…other functions, alarms, and signals from the battery pack 350" such as "battery pack voltage, relative state of charge, absolute state of charge, remaining capacity, full charge capacity, alarm warning, average time to full…"), FIG. 5A.)




(Ex. PA-3, FIG. 5A.)

*Calhoon* thus discloses or suggests a mechanism that encompasses the corresponding structures or equivalents thereof (and claimed function) for the claimed "**means for avoiding overcharging**" term. For instance, the controller 316 and/or battery charger 322 (including its stored program(s) or in ASIC-based form) discloses or is equivalent to a "battery regulator chip and/or a circuit that measures parameters of a battery (e.g., voltage, degree of charging, temperature, etc.) and uses an internal program to regulate the power drawn from a circuit to ensure

overcharging does not occur." (Ex. PA-DEC, ¶101; Ex. PA-3, ¶¶[0038] (measures temperature), [0040], FIG. 4, [0043] ("controller 316 may have computer-readable media 415, which provides nonvolatile storage of computer-readable instructions, data structures, program modules and other data relevant for charging operations"), [0044] (voltage/charge state), [0048], [0066] ("the aspects may be implemented via…(ASICs)").)

A POSITA would have been motivated to adopt the functionality of *Calhoon*'s controller 316 as a means for avoiding overcharging in the aforementioned *Hsu-Hui-Calhoon* combination. (Ex. PA-DEC, ¶102.) A POSITA would have been motivated to so in order to avoid damage to the battery in *Hsu*'s portable device. (*Id*.) For example, *Hsu* could have been modified to incorporate a mechanism (like in *Calhoon*) between the power supply circuit and the battery charged by the power supply circuit such that current to the battery is shut off to prevent overcharging. A POSITA would have had a reasonable expectation of success in making such a modification given the above teachings of the prior art, and the modification would have been a straightforward combination of well-known technologies using known methods and techniques familiar to such a skilled person. (*Id.*)

In view of the above, the combination of *Hsu*, *Hui* and *Calhoon* discloses or suggests "**a means for avoiding overcharging one or both of the mobile device and battery inductively**," as claimed.

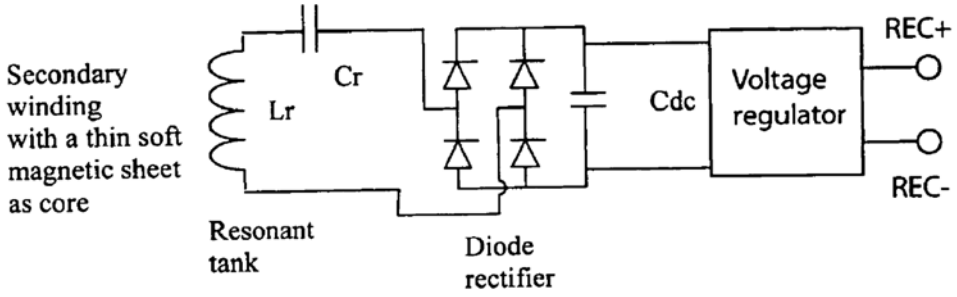
**g. a regulator, coupled to the output of the receiver or to the battery, that regulates an output voltage or output current provided by the receiver, to the mobile device or battery, to be within a range of parameters for the mobile device or the battery;**

*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶103-107.) *Hsu* does not explicitly disclose a regulator that regulates an output voltage/current provided by the receiver to the battery to be within a certain range. But *Hui*, which is similarly directed towards charging of portable electronic devices, discloses using a voltage regulator in the receiver circuit to ensure a "stable DC voltage for charging the battery." (Ex. PA-2, ¶[0056]; PA-DEC at ¶103.)

*Hui* discloses a receiver circuit that receives alternating magnetic flux from the charger and converts the same into charging current for charging a battery. (Ex. PA-2, ¶¶[0051], [0056], FGI. 13(b).)

the winding in this invention (FIGS. 11 and 12) serves as both an energy pick-up coil and a resonant inductor (Lr). A small AC capacitor (Cr) is connected in series (or possibly in parallel) with this coil (an inductor) as shown in FIG. 13 to form a resonant tank, which is then connected to the diode rectifier with a DC capacitor (Cdc). The diode rectifier turns the resonant AC voltage picked up by the resonant tank into a DC voltage and the DC capacitor reduces the voltage ripple in order to maintain a fairly stiff DC voltage for the charging circuit. . . . The use of a voltage regulator can ensure a stable DC voltage for charging the battery.

(*Id*., ¶[0056] (emphasis added).)




(*Id*., FIG. 13(b).)

*Hui* therefore teaches "**a regulator**" that is coupled to the "**battery**" and that regulates an "**output voltage**" provided to the "**battery**" to be "**within a range of parameters for the mobile device or the battery**." A POSITA would have understood that a stable DC voltage refers to maintaining the DC voltage to within a permissible range of parameters for charging the battery.

A POSITA would have looked to *Hui* for combination with *Hsu*. *Hsu* is silent on the circuit components (e.g., the rectifier circuitry) in a receiver. For example, *Hsu* discloses a portable device 22 and a power supply circuit in it, but doesn't further explain the construction of the power supply circuit.[6] *Hui*, however, explains the construction of a well-known power supply circuit arrangement that converts a received AC magnetic field into current for charging the battery. (Ex. PA-Dec, ¶106.) And *Hui* notes that a voltage regulator in the receiver circuit should be used to ensure a "stable DC voltage for charging the battery." Thus, a POSITA would have been motivated to incorporate a voltage regulator in *Hsu*'s power supply circuit for charging the battery and would

[6] *Hsu* discloses that "[t]he alternating voltage signal can then be converted into power by a power supply circuit in the portable device for powering the operations of the portable device." (Ex. PA-1, ¶[0019].)

have had a reasonable expectation of success in making such a modification given that the modification would have been a straightforward combination of well-known technologies using known methods and techniques familiar to such a skilled person. (*Id.*) Accordingly, the combination of *Hsu*, *Hui* and *Calhoon* disclose or suggest "**a regulator, coupled to the output of the receiver or to the battery, that regulates an output voltage or output current provided by the receiver, to the mobile device or battery, to be within a range of parameters for the mobile device or the battery**," as claimed.

**h. wherein different mobile devices and batteries can have different charging characteristics associated therewith; and**

*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶108.) As explained, *Hsu*'s inductive powering device accommodates portable computing devices ("**mobile devices**") each having power requirements ("**different charging characteristics**") (*e.g.*, Ex. PA-1, ¶¶[0018], [0022], [0028]), and *Calhoon* confirms a POSITA's understanding that different devices/batteries have different charging characteristics (Ex. PA-3, ¶¶[0033], [0037], [0040] ("different battery packs can have different charging requirements"), [0045] ("…different power requirements"), [0049]; PA-DEC, ¶108).

**i. wherein the receiver communicates with the base unit to detect, identify and authenticate the receiver with the base unit, as provided by the identification component,**

*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶109-112.) As discussed above with reference to claim element 1.e in Section VI.A.4.e, *Hsu* combined with *Hui* and *Calhoon* discloses or suggests an RFID microchip that is an "**identification component**" because, for example, the RFID microchip stores identification information for the receiver.

*Hsu* discloses that the RFID microchip in the portable device 22 transmits certain data (e.g. information regarding power requirements) of the portable device 22 to the powering device 20 during a sensing operation. (Ex. PA-1, ¶¶[0028], [0029].) The powering device 22 detects the presence of the portable device (and therefore, the RFID microchip) by receiving this communication. (*Id.*, ¶[0029] ("The RF waves returned by the RFID device are picked up by the primary coil (step 52). The detection of the returned waves indicates that a secondary coil is present and overlaps with the primary coil.").) *Hsu* thus discloses "**wherein the receiver communicates with the base unit to detect . . . the receiver with the base unit, as provided by the**

**identification component**."

*Hsu* as modified based on *Calhoon* further discloses or suggests that the RFID microchip communicates information to the powering device 20 that both identifies and authenticates the receiver. *Supra* Section VI.A.4.e. As discussed above, given *Calhoon*'s teachings, a POSITA would have been motivated to store the receiver's identification information, security certificate or digital signature in *Hsu*'s RFID microchip, and transmit the same to the powering device using *Hsu*'s RF waves to enable the powering device to verify the **identity** and **authenticity** ("**identify and authenticate**") of the receiver therein. *Supra* Section VI.A.4.e.

Accordingly, the combination of *Hsu*, *Hui* and *Calhoon* discloses or suggests "**wherein the receiver communicates with the base unit to detect, identify and authenticate the receiver with the base unit, as provided by the identification component**," as claimed.

**j. [wherein the receiver communicates with the base unit to] … determine and then activate one or more primary coils of the base unit which are aligned with the receiver coil,**

*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶113-115.) *Hsu*'s controller 30 determines and energizes those primary coils 26 ("**determine and then activate one or more primary coils of the base unit**") that are aligned with a secondary coil 25 ("**which are aligned with the receiver coil**") by scanning the primary coils 26 according to a scan pattern (e.g. a linearly progressive pattern in which the controller loops through the rows or columns of the primary coils, or any other pattern). (Ex. PA-1, ¶¶[0029]-[0030].) "As mentioned above, the inductive powering surface has a plurality of primary coils 26, and only those that are covered by or overlapping with the secondary coil 25 are to be energized for transferring power to the portable device. To that end, the controller 36 of the powering device first determines whether any portable device is present on the powering surface and, if so, the location of the secondary coil of that device. (Ex. PA-1, ¶[0029] (emphasis added).)

Controller 30 is able to determine the presence of the receiver coil by picking up RF signals from the RFID microchip in the portable device ("**wherein the receiver communicates with the base unit to** . . .").

> For each primary coil 26, the controller operates an appropriate driver circuit to energize the coil at a sensing frequency, such as 13.56 MHz, and at a lower power level (step 50). If a secondary coil is present and overlaps with that primary coil, the RFID circuit in the portable device will pick up the waves sent by the primary coil

> (step 51), power up the RFID chip, and return RF waves containing information about the portable device. . . In this way, the controller goes through the primary coils according to the scan pattern, and identifies those primary coils that have picked up responses from the RFID device.

(*Id.*, ¶[0029].)

**k. [wherein the receiver communicates with the base unit to] … verify the continued presence of the receiver near the base unit, and**

*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶116-123.) *Hsu* discloses a controller 36 in the powering device that scans the primary coils 26 to detect the presence and location of the secondary coil 25 of portable device 22. (*See, e.g.*, Ex. PA-1, ¶[0029].) Specifically, the controller scans the primary coils for an RF signal from the RFID chip in the portable device 22. (*Id.*) Once the controller detects the RF signal, it energizes the corresponding primary coils. (*Id.*) *Hsu* thus discloses that the RFID chip in the "**receiver**" communicates with the controller in the powering device ("**base unit**") to "**verify the . . . presence of the receiver near the base unit.**"

*Hsu*, however, also discloses verifying the "**continued**" presence of the receiver near the base unit, as claimed. This is because *Hsu* continues scanning the primary coils for an RF signal from the RFID chip during the charging process (i.e., after detecting the initial presence of the secondary coil). (Ex. PA-DEC, ¶118.) For example, *Hsu* states that it "loops through the rows and columns of the primary coils" (Ex. PA-1, ¶[0029]), which means that the scanning in *Hsu* is continuous (i.e., it does not stop after detecting a secondary coil). This is further confirmed by *Hsu*'s disclosure that it performs charging and sensing "at the same time." (Ex. PA-1, ¶[0025] ("The wide separation between the two frequencies [scanning at 13.56 MHz and power transfer at 100 MHz] allows the RFID chip 32 to be isolated from the normal powering circuit of the portable device, such that the power transfer operation will not interfere with the sensing operation or overwhelm the RFID chip. The primary coil 26 can optionally be driven at both the 13.56 MHz and 100 KHz at the same time.") (emphasis added).) Without such an operation, the powering device 20 would remain powered on in perpetuity and would not shut down if the portable device is removed therefrom. Accordingly, *Hsu* discloses that the primary coil, while charging, receives a signal from the secondary device's RFID chip, which is sent from the secondary coil, notifying

("**verify**") the controller that the portable device 22 (and its secondary coil 25) is still present ("**the continued presence of the receiver coil near the base unit**").

To the extent Patent Owner contends that *Hsu* does not discloses the above limitation, *Calhoon* remedies any such deficiency in *Hsu*. For instance, *Calhoon* teaches a method of polling performed by the inductive charging source 302 ("**base unit**") to determine if the battery charger assembly 304 ("**receiver**") is present. (Ex. PA-3, ¶[0052].) During the powering process, the source 302 periodically polls the battery charger assembly 304 ("**receiver**") and if no response is received ("**verify the continued presence of the receiver near the base unit**") or inductive coupling is removed, the source 302 changes state from charging mode to return to polling mode. (*Id.*) Stated differently, the charger 302 continues to receive a response from the battery charger assembly 304 that verifies the assembly 304's continued presence. If no response is received, the charger 302 understands that the battery charger assembly 304 has been removed.

A POSITA would have been motivated to adopt *Calhoon*'s method of polling during charging to verify the continued presence of the receiver on the base unit in the *Hsu-Hui-Calhoon* combination for efficiency purposes. (Ex. PA-DEC, ¶121.) Without such an operation, the powering device 20 would remain powered on in perpetuity and would not shut down if the portable device is removed therefrom. (*Id*.) In fact, such an implementation would have been a matter of common sense for a designer of the powering device in *Hsu* because the device can be a conference room table and portable devices would be expected to come and go during the course of a day. (*Id*.; Ex. PA-1, ¶[0018] ("[t]he powering device 20 may be in the form of, for example, a computer desk, a conference table, a night stand, or a powering pad, etc.") (emphasis added).)

Furthermore, a POSITA would have had a reasonable expectation of success in making such a modification given the above teachings of *Hsu*, *Hui* and *Calhoon*, and the modification would have been a straightforward combination of well-known technologies using known methods and techniques familiar to such a skilled person. (Ex. PA-DEC, ¶122.)

Accordingly, the combination of *Hsu*, *Hui* and *Calhoon* discloses or suggests "wherein the receiver communicates with the base unit to … verify the continued presence of the receiver near the base unit," as claimed.

**l. [wherein the receiver communicates with the base unit to] … communicate information describing the characteristics of the mobile device or the battery, for use by the base unit to provide power transfer to the receiver and to the mobile device and the battery according to their particular charging characteristics.**

*Hsu* in view of *Hui* and *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶124-125.) For instance, *Hsu* discloses that the information regarding the power requirements of the portable device (e.g. maximum idle time between the power transfer operations, the minimum duty cycle for active power transfer, the size of the secondary powering coil, and/or the maximum instant transferred power, etc.) ("**information describing the characteristics of the mobile device**," "**particular charging characteristics**") stored in the RFID chip is "transmitted to the powering device" (i.e., "**the base unit**"). (Ex. PA-1, ¶[0028]; *see also id*., ¶[0029].) This information "may be used by the controller [of the powering device] to facilitate the power transfer operation" ("**for use by the base unit to provide power transfer to the receiver and to the mobile device and the battery according to their particular charging characteristics**"). (*Id*., ¶[0029].)

## B. SNQ2: *Partovi* in View of *Calhoon* Discloses or Suggests Claim 1

### 1. Effective Filing Date of the '440 Patent

As explained below, claim 1 is not entitled to a filing date earlier than May 25, 2011. That makes *Partovi*—a publication in the same family as the '440 patent and that includes at least the disclosure of the '440 patent—prior art.

The '440 Patent issued from U.S. Application No. 13/115,811 ("the '811 application") filed on May 25, 2011, which is a continuation of U.S. patent application No. 11/669,113 ("'113 application"), filed on January 30, 2007, now U.S. Patent No. 7,952,322. The '440 patent claims priority to provisional application Nos. 60/763,816 ("'816 provisional"), filed on January 31, 2006, 60/810,262 ("'262 provisional"), filed on June 1, 2006, 60/810,298 ("'298 provisional"), filed on June 1, 2006, and 60/868,674 ("'674 provisional"), filed on December 5, 2006. Claim 1 of the '440 Patent is, however, not entitled to the January 30, 2007 filing date of the '113 Application because the '113 Application (and the prior applications it incorporates by reference) does not provide written description support for each limitation in claim 1. As a result, *Partovi* is prior art.

"It is elementary patent law that a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support

for the claims of the later application, as required by 35 U.S.C. § 112." *PowerOasis, Inc. v. T-Mobile USA, Inc*., 522 F.3d 1299, 1306 (Fed. Cir. 2008) (citations omitted)*; see also Research Corps. Techs. v. Microsoft Corp*., 627 F.3d 859, 871–72 (Fed. Cir. 2010) (holding that a later-filed application, with claims that were not limited to a "blue noise mask," was not entitled to the priority filing date of the parent application, which was "limited to a blue noise mask"). This requirement prevents an inventor from "overreaching" in a later-filed application as to the scope of what was invented at the time of the earlier-filed application by requiring that the invention be described in "such detail that . . . future claims can be determined to be encompassed within the . . . original creation." *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed. Cir. 1991). To satisfy the written description requirement, the disclosure of the earlier-filed application must "reasonably convey[]" to one of ordinary skill in the art that, as of the filing date sought, "the inventor had possession" of the subject matter now claimed. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351–52 (Fed. Cir. 2010); *Vas-Cath*, 935 F.2d at 1563–64. The test for written description, therefore, requires "an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art" to determine whether the specification "show[s] that the inventor [had] actually invented," or possessed, each feature now included as a claim limitation. *Ariad Pharm*., 598 F.3d at 1351; *see also New Railhead Mfg*., 298 F.3d at 1295. While "the disclosure as originally filed does not have to provide in *haec verba* support for the claimed subject matter at issue…one skilled in the art, reading the original disclosure, must immediately discern the limitation at issue in the claims." *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000) (emphasis added).

Here, none of the aforementioned applications disclose limitations [1.e], which requires "**an identification component associated with the mobile device or battery, which is configured to provide wireless identification of the receiver to the universal base unit**," [1.i], which requires "**wherein the receiver communicates with the base unit to detect, identify and authenticate the receiver with the base unit, as provided by the identification component,"** and [1.k], which requires "**the receiver communicates with the base unit to … verify the continued presence of the receiver near the base unit**." (Ex. PAT-A, 27:21-24, 27:35-38, 27:42-43; Ex. PAT-DEC, ¶151.)

**a. Claim 1 of the '440 Patent Requires Providing Wireless Identification of the "Receiver"**

Claim 1 of the '440 Patent requires "**an identification component** associated with the mobile device or battery, **which is configured to provide wireless identification <u>of the receiver</u> to the universal base unit**." (Ex. PAT-A, 27:21-24 (emphases added).) Further, the receiver must communicate with the base unit to "**detect, identify and authenticate <u>the receiver</u> with the base unit**." (*Id*., 27:35-38 (emphases added).) It is not sufficient for there to be transmission of the identity of the battery or a mobile device; instead, an identification of the "**<u>receiver</u>**" must be communicated by the receiver to the charger. This is apparent from the claim, which distinguishes between the "receiver" and the mobile device or battery. For example, claim 1 recites that the "**receiver"** is "**attached to or incorporated into the battery or the mobile device**," such that the claim expressly distinguishes between the receiver, the mobile device, and the battery. (*Id.*, 27:9-24.) (Ex. PAT-DEC, ¶ 151.)

**b. Claim 1 of the '440 Patent Requires the Receiver to Communicate With the Base Unit to Verify the Continued Presence of the Receiver Near the Base Unit**

Claim 1 of the '440 Patent requires the receiver to "communicate[] with the base unit to detect, identify, and authenticate the receiver with the base unit, as provided by the identification component." (Ex. PAT-A, 27:35-38.) Claim 1 further requires the receiver to communicate with the base unit to "verify the continued presence of the receiver near the base unit." (Ex. PAT-A, 27:42-43.) "Verify the continued presence of the receiver," however, is different from detecting the presence of the receiver initially. This is evident from the claim itself because the claim initially recites that the base unit and receiver communicate to "detect" the receiver, and then later recites verifying a "continued" presence of the receiver. (*Compare id.*, 27:35-38, *with id.*, 27:42-43.) In other words, "verify the <u>continued presence</u> of the receiver" requires the receiver to communicate its presence with the base unit <u>after</u> the initial detection of the receiver. It is not sufficient for the receiver to merely communicate with the base unit to indicate its <u>initial</u> presence near the base unit. (Ex. PAT-DEC, ¶ 152.)

**c. The '113 Application Does Not Provide Written Support for Claim [1.e] and [1.i]**

**(1) The '113 Application Does Not Disclose Providing Wireless Identification of the "Receiver"**

The '113 Application does not disclose "**an identification component** associated with the

mobile device or battery, **which is configured to provide wireless identification <u>of the receiver</u>** to the universal base unit." (Ex. PAT-A, 27:21-24.) Nor does it disclose "**wherein the receiver communicates with the base unit to detect, identify and authenticate <u>the receiver</u> with the base unit, as provided by the identification component."** Therefore, claim 1 of the '440 Patent is not entitled to the filing date of the '113 Application, as there is no written description support in the '113 Application for each limitation of claim 1. (Ex. PAT-DEC, ¶¶153-155.)

For example, the '113 Application's disclosures concern RFID tags that identify the presence of a mobile device, RFID tags that verify voltage/battery requirements or the authenticity and manufacturer of the charger and mobile device, and RFID tags that include a separate receiver circuit:

Ex. PAT-E, [0047]-[0048] ("However, periodically, each of the coils (or a separate data coil in another PCB layer) is powered up in rotation with a short signal such as a short radiofrequency (RF) signal that can activate a signal receiver in the secondary such as an RF ID tag. The mobile device charger then tries to identify a return signal from any mobile device (or any secondary) that may be nearby. Once a mobile device (or a secondary) is detected, the mobile device charger and the mobile device proceed to exchange information. This information can include <u>a unique ID code that can verify the authenticity and manufacturer of the charger and mobile device</u>, the voltage requirements of the battery or the mobile device, and the capacity of the battery. For security purposes or to avoid counterfeit device or pad manufacture, such information could be encrypted, as is common in some RFID tags. In accordance with various embodiment, other protocols such as Near Field Communications (NFC) or Felica can be used, wherein the circuitry containing the ID and the necessary information is powered either by the mobile device or remotely by the mobile device charger.") (emphasis added);

Ex. PAT-E, [0074] ("In another embodiment, the receiver in the battery also includes a means for providing information regarding battery manufacturer, required voltage, capacity; current, charge status, serial number, temperature, etc. to the charger.");

Ex. PAT-E, [0092] ("An inexpensive method for charging these tags would be to include a receiver with each tag. Thus, a charger can be used to power or charge these RFID tags.");

Ex. PAT-E, [0099] ("The MCU1 receives input from another sensor mechanism that will provide information that it can then use to decide whether a device is nearby, what voltage the device requires, and/ or to authenticate the device to be charged.");

Ex. PAT-E, [0100] ("One of the sensor mechanisms for this information are through the use of an RFID reader 280 that can detect an RFID tag of circuit and antenna in the secondary (i.e. device to be charged). The information on the tag can be detected to identify the voltage in the secondary required and to authenticate the circuit to be genuine or under license. The information on the tag can be encrypted to provide further security.").

But the above disclosures are related to identifications of the mobile device or battery (as opposed to the "**receiver**"). Nowhere does the '113 Application disclose that an identity of the "**receiver**" is provided to the base unit to identify and authenticate the "**receiver**." As discussed below, the Provisional Applications, which are incorporated by reference in the '113 Application, cannot remedy this deficiency in the '113 Application. (Ex. PAT-DEC, ¶155.)

**(2) The Provisional Applications Incorporated Into the '113 Application Do Not Provide the Missing Disclosure**

There is also no disclosure of "an identification component associated with the mobile device or battery, which is configured to provide wireless identification of the receiver to the universal base unit" in the '262, '298, '674, or '816 Provisional Applications incorporated by reference in the '113 Application. (Ex. PAT-DEC, ¶¶156-158.)

For example, the '816 and '298 Provisional Applications' disclosures that are related to various identifications concern charger parameter identifications and presence identifications. (*See e.g.*, Ex. PAT-F, [0012] ("[A] communication link between the secondary and primary is established that transfers information about the power requirements of the battery and its status during the charging to the primary. This information is used to establish methods and parameters for 20 charging (voltage, current, duration, etc.) and to identify end of charge point"); Ex. PAT-H, 5 ("In addition, the pad could contain various signaling, and switching or communication circuitry and means of identifying the presence of devices to be charged….The receiver may contain circuitry to identify its presence and characteristics to the pad."), 18 ("In another implementation, some active RFID tags include batteries that would send out information about the status or location of a package or shipment. An inexpensive method for charging these tags would be to include a receiver with each tag. Thus, a charger can be used to power or charge these RFID tags.").) And the '262 and '674 Provisional Applications include disclosures similar to those discussed above for the '113 Application. (*See supra* Section VI.B.1.c.1; Ex. PAT-G, 7; Ex. PAT-I, 11, 25, Abstract; Ex. PAT-DEC, ¶ 157.)

Thus, the aforementioned disclosures cannot provide written description support for limitations [1.e] and [1.i] of the '440 Patent because there is no disclosure of a communication from the receiver to the charger that **identifies and authenticates** the "**receiver**." (Ex. PAT-DEC, ¶158.)

**d. The '113 Application Does Not Provide Written Support for Claim [1.k]**

**(1) The '113 Application does not disclose "the receiver communicates with the base unit to … verify the continued presence of the receiver near the base unit."**

The '113 Application does not disclose "**the receiver communicates with the base unit to … verify the continued presence of the receiver near the base unit**." (Ex. PAT-A, 27:35, 27:42-43.) Therefore, the '440 Patent is not entitled to the filing date of the '113 Application as there is no written description support in the '113 Application for claim limitation [1.k] of the '440 Patent. (Ex. PAT-DEC, ¶159.)

For example, the '113 Application's disclosures related to the presence of the receiver concern either the base unit unilaterally detecting the presence of the receiver or the receiver communicating with the base unit to indicate its initial (as opposed to "continued") presence near the base unit:

Ex. PAT-E, [0036] ("In some embodiments the pad can also contain various signaling, and switching or communication circuitry, or means of identifying the presence of devices to be charged.");

Ex. PAT-E, [0046] ("In one embodiment a chip connected to an antenna (for example, the secondary coil or separate data antenna) or another means of transfer of information can be used to provide information about, for example, the presence of the mobile device, its authenticity (for example its manufacturer code) and the devices [] charging requirements (such as its required voltage, battery capacity, and charge algorithm profile).");

Ex. PAT-E, [0049] ("In other embodiments the mobile device can be sensed by means of a number of proximity sensors such as capacitance, weight, magnetic, optical, or other sensors that determine the presence of a mobile device near a coil in the mobile device charger. Once a mobile device is sensed near a primary coil or section of the mobile device charger, the mobile device charger can then activate that primary coil or section to provide power to the secondary coil in the mobile device's battery, shell, receiver module, or the device itself.");

Ex. PAT-E, [0098]-[0101] ("In addition to high efficiency, one method that is required for minimizing EMI and maintaining high overall efficiency is the ability to recognize the presence of a secondary nearby, and then turning on the pad only when appropriate. Two methods for this are shown in Figures 10 and 11 . . . The MCU1 receives input from another sensor mechanism that will provide information that it can then use to decide whether a device is nearby, what voltage the device requires, and/ or to authenticate the device to be charged . . . One of the sensor mechanisms for this information are through the use of an RFID reader 280 that can detect an RFID tag of circuit and antenna in the secondary (i.e. device to be charged) . . . Once a device containing the tag is nearby the pad, the RFID reader can be activated, read the information on the tag memory and compare with a table to determine authenticity / voltage required or other info . . . Other capacitance, optical, magnetic, or weight, etc. sensors can be incorporated to sense the presence of a secondary or receiver and to begin the energy transfer process.");

Ex. PAT-E, [0110] ("In another embodiment, the pad will include a method for detecting the presence of the mobile device/ receiver and taking appropriate action to turn on the coil and/ or to drive the coil with the appropriate pattern to generate the required voltage in the receiver. This can be achieved through incorporation of RFID, proximity sensor, current sensor, etc. . . . The coils in the pad are normally off and periodically powered up sequentially to sense whether the secondary is nearby by measuring the current through the primary coil. Alternatively, proximity sensors under each section can sense the presence of a magnet or change in capacitance or other parameter to know where a device is placed. RFID techniques with localized antennas under each section or such can also be used.)

The aforementioned disclosures cannot provide written description support for limitation [1.k] of the '400 Patent because they concern initial detection of the receiver or portable device, as opposed to detection of a "**continued presence**." (Ex. PAT-DEC, ¶161.)

The '113 Application also discloses "[t]he pad [may] also use the monitoring to find out when and if the first mobile device is removed from the pad or end of charge is reached." (Ex. PAT-E, ¶[0110].) But even this statement does not support claim [1.k]. The statement does not pertain to the **receiver** communicating to the base unit, as required by the claim – "**the receiver** communicates with the base unit to … verify the **continued** presence of the receiver near the base unit." (Ex. PAT-A, 27:35, 27:42-43.) The single disclosure of the base unit using monitoring to find out when and if the first mobile device is removed from the pad (Ex. PAT-E, [0110]) cannot

provide written description support for limitation [1.k] because it fails to disclose communication **by the receiver** to the base unit to verify the receiver's continued presence. (Ex. PAT-DEC, ¶ 162.)

Therefore, the '113 Application's disclosures related to the presence of the receiver are unrelated to the receiver communicating with the base unit to verify its continued presence near the base unit. As discussed below, the Provisional Applications, which are incorporated by reference in the '113 Application, cannot remedy this deficiency in the '113 Application. (Ex. PAT-DEC, ¶163.)

**(2) There is no disclosure that "the receiver communicates with the base unit to … verify the continued presence of the receiver near the base unit" in the Provisional Applications**

There is no disclosure that "**the receiver communicates with the base unit to … verify the continued presence of the receiver near the base unit**" in the '262, '298, '674, or the '816 Provisional Applications. (Ex. PAT-DEC, ¶164.)

For example, the '262, '298, and '674 Provisional Application's disclosures related to the presence of the receiver concern either the base unit unilaterally detecting the presence of the receiver or the receiver communicating to the base unit to indicate its **initial** presence near the base unit. *See e.g.*, (Ex. PAT-G, 6-7 ("[t]echniques employed in RF ID whereby a small chip connected to an antenna (secondary coil or separate data antenna) or other means of transfer of infom1ation can be used to provide information about, for example, the presence of the mobile device, its authenticity (manufacturer code) and the charging requirements (required voltage, battery capacity, charge algorithm profile, etc."); Ex. PAT-G, 8, ("The mobile device charger can sense the mobile device by means of change in the conditions of a resonant circuit in the mobile device charger when the mobile device is brought nearby. In another geometry the mobile device can be sensed by means of a number of proximity sensors such as capacitance, weight, magnetic, optical, or other sensors that determine the presence of a mobile device near a coil in the mobile device charger."); Ex. PAT-H, 5, ("In addition, the pad could contain various signaling, and switching or communication circuitry and means of identifying the presence of devices to be charged."); Ex. PAT-H, 5, ("The receiver may contain circuitry to identify its presence and characteristics to the pad."); Ex. PAT-I, 5, ("[T]he pad can contain various signaling, and switching or communication circuitry and means of identifying the presence of devices to be charged."); Ex. PAT-I, 11-13, ("In

addition to high efficiency, one method that is required for minimizing EMI and maintaining high overall efficiency is implementation of a method to recognize the presence of a secondary nearby and turning on the pad only when appropriate. Two methods for this are shown in Figure 3 . . . The MCU1 receives input from another sensor mechanism that will provide information that it can use to decide whether a device is nearby, what voltage the device requires, and / or to authenticate the device to be charged . . An RFID reader that would detect an RFID tag of circuit and antenna in the secondary (i.e. device to be charged). The information on the tag can be detected to identify the voltage in the secondary required and to authenticate the circuit to be genuine or under license . . . Once a device containing the tag is nearby the pad, the RFID reader would be activated, read the information on the tag memory and compare with a table to determine authenticity/ voltage required or other info . . . In another method, the MCU1 periodically starts the FET driver. The current through the FET driver is monitored through a current sensing method . . . Other capacitance, optical, magnetic, or weight, etc. sensors can be incorporated to sense the presence of a secondary or receiver and to begin the energy transfer process . . . The MCU1 can periodically start the FET driver. If there is a receiver nearby, it would power the circuit in Figure 4 . . . An example would be integration of an RFID transponder chip in the path such as ATMEL e5530 or another inexpensive microcontroller (shown as MCU2) that would upon power-up, modulate the current in the secondary that can be detected as current modulation in the primary (current sensor in Figure 3)."); Ex. PAT-I, 14-15, ("In another embodiment, the pad will include a method for detecting the presence of the mobile device / receiver and taking appropriate action to turn on the coil and / or to drive the coil with the appropriate pattern to generate the required voltage in the receiver. This can be achieved through incorporation of RFID, proximity sensor, current sensor, etc. . . . The coils in the pad are normally off and periodically powered up sequentially to sense whether the secondary is nearby by measuring the current through the primary coil as shown in Figure 3. Alternatively, proximity sensors under each section can sense the presence of a magnet or change in capacitance or other parameter to know where a device is placed. RFID techniques with localized antennas under each section or such can also be used . . . The board will also use the monitoring to find out when and if the first mobile device is removed from the pad or end of charge is reached."). The '816 Provisional Application does not disclose detecting the presence of a receiver.

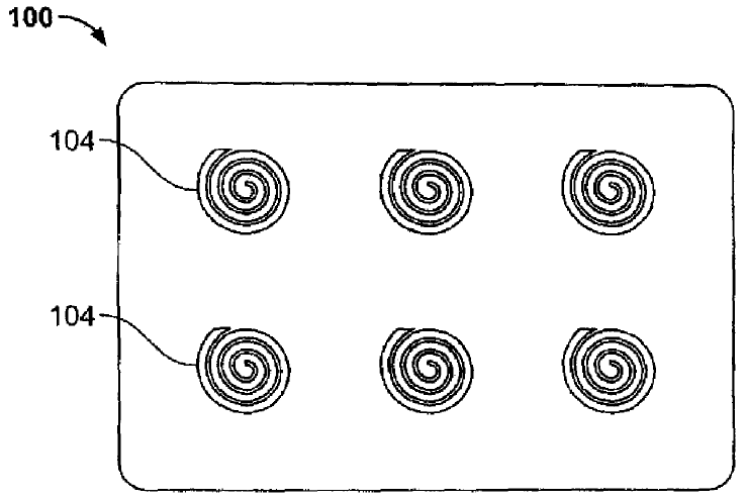
For the reasons articulated in Section VI.B.1.d(1), the aforementioned disclosures cannot provide written description support for limitation [1.k] of the '440 Patent because, while they generally concern identifying the presence of the receiver or portable device, limitation [1.k] requires the **receiver to communicate** with the base unit **to verify the continued presence of the receiver** near the base unit. (Ex. PAT-DEC, ¶165.)

**2. Overview of *Partovi***

**a. The *Partovi* Prior Art Specification**

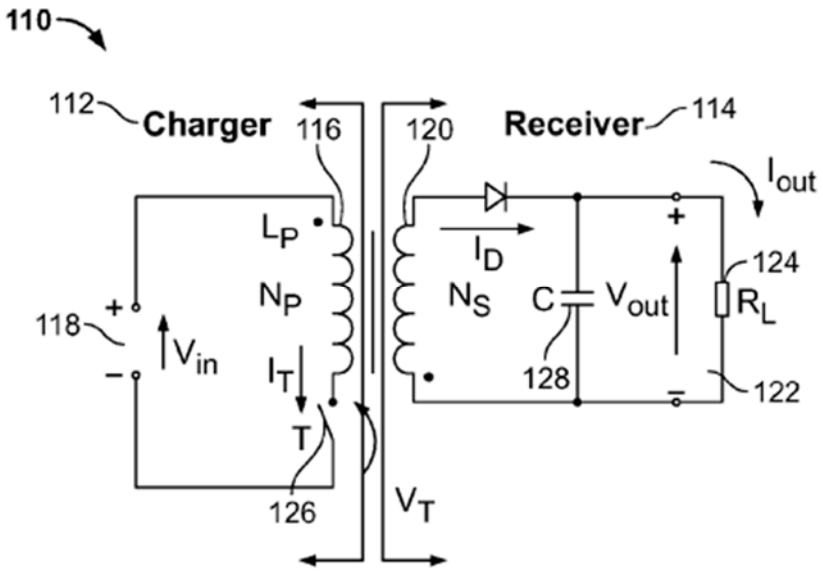
*Partovi* published on April 16, 2009, and qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(b) because claim 1 of the '440 patent is not entitled to the January 30, 2007 filing date of the '113 Application. Because claim 1 is not entitled to the filing date of the '113 application, it cannot have a filing date earlier than May 25, 2011, which is the filing date of the '811 application from which the '440 patent issued. As such, *Partovi* is prior art at least under pre-AIA 35 U.S.C. § 102(b) because its publication date is more than one year before May 25, 2011.[7]

*Partovi* discloses a pad 100 that inductively transfers power to a mobile device. (*See, e.g.,* Ex. PA-4, ¶¶[0104]-[0118], [0128], FIGS, 1, 2.)




[7] To be sure, the '440 patent claims are not even entitled to the May 25, 2011 filing date of the '811 Application because even the '811 Application lacks written description support for the '440 patent claims. But that does not matter for this request. Even assuming *arguendo* that the '440 patent claims could get the May 25, 2011 filing date, *Partovi* would still be prior art.

(*Id.*, FIG. 1.)




(*Id.*, FIG. 2.)

**3. Overview of *Calhoon***

*See, supra,* Section VI-A.3.

**4. Claim 1**

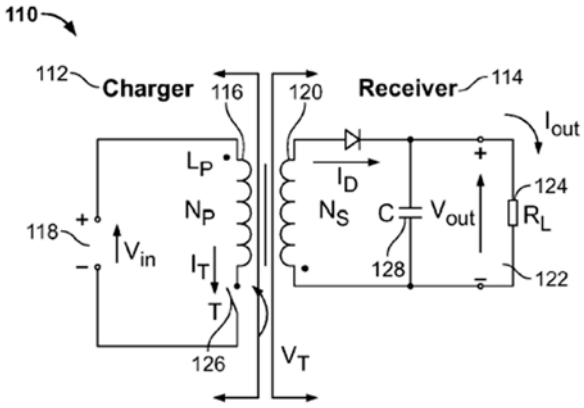
The challenged ’440 patent and *Partovi* (Ex. PA-4) were filed as continuation and continuation-in-part applications, respectfully, of the same parent patent application, which issued as U.S. Patent No. 7,952,322. (Ex. PAT-A, Cover; Ex. PA-4, Cover.) The only substantive difference between the ’440 patent specification and *Partovi* is that the *Partovi* prior art specification—as a continuation-in-part of the same parent to the ’440 patent—has several additional disclosures that were not included in the ’440 patent specification. (*See* Ex. PAT-J (comparison between the ’440 patent specification and the *Partovi* prior art specification) (underline formatting indicates additional subject matter that was included in the *Partovi* prior art specification that was not included in the’440 patent specification; strikethrough formatting indicates text that was included in the ’440 patent specification that was not included in the *Partovi* prior art specification).

Given the additional and comprehensive disclosures of the *Partovi* prior art and the relationship between the ’440 patent and the *Partovi* prior art, there is no genuine dispute that the more extensive *Partovi* prior art specification discloses any and all features that are supported by

the '440 patent as explained. And for a few limited features of the '440 patent that are not entitled to priority filings, *Partovi* in view of *Calhoon* discloses or suggests such features, also as explained below. To be sure, if Patent Owner contends that *Partovi* fails to disclose a limitation of claim 1, that is an admission that the '440 patent does not provide written description support for that limitation.

**a. A mobile device capable of inductive powering or charging by a universal base unit for charging of different mobile devices and/or batteries of different charging characteristics associated therewith, comprising:**

To the extent the preamble is limiting, *Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶126-127.) For example, *Partovi* discloses a pad 100 ("**universal base unit**") that inductively transfers power to a mobile device ("**mobile device**"). (*See, e.g.*, Ex. PA-4, ¶¶[0104]-[0118], [0128], FIGS, 1, 2.) The "mobile device" includes a "battery." (*Id*., [0105].) Each mobile device and/or battery has particular characteristics (e.g. voltage, capacity, etc.) ("**different charging characteristics**"). (*See, e.g., id.,* ¶¶[0107], [0116].)




(*Id.*, FIG. 2.)

The pad 100 is capable of "charging multiple devices or batteries." (*Id*., claim 1, [0107], [0111], [0116].) It is therefore, a "**universal base unit**," under the district court's construction. (*See* Ex. LIT-2, 41 ("A POSITA would understand that a 'universal base unit' is a 'base unit that is capable of charging different mobile devices and/or batteries of different charging characteristics therewith.'").[8]

[8] Requester does not acquiesce to the district court's construction.

**b. a battery, wherein one or both of a mobile device and the battery have particular charging characteristics associated therewith;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶128.) Each mobile device and/or battery has particular characteristics (e.g. voltage, capacity, etc.) ("**different charging characteristics**"). (*See, e.g.,* Ex. PA-4*.,* ¶¶[0107], [0116].) The "battery" may also have a "charging profile." (*Id.*, ¶[0114].) The "charging profile" is a "**charging characteristic**."

**c. a receiver and receiver coil, for one of inductively powering the device or charging the battery in the mobile device, wherein the receiver is one of attached to or incorporated into the battery or the mobile device, and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶129-130.) The mobile device includes a "receiver" having "one or more coils" and that "is used to power or to charge" the "mobile device or battery" inductively. (Ex. PA-4, ¶¶[0013], [0105], [0116]-[0118], [0128], FIG. 2, claim 1 ("a receiver unit, including receiver coil also composed of a non-ferrite material and shaped as a planar spiral coil, which is coupled to or incorporated into a portable device or battery, wherein the secondary coil receives energy inductively from the primary coil and uses it to charge or power the portable device or battery.").) *Partovi* thus discloses "**a receiver and receiver coil, for one of inductively powering the device or charging the battery in the mobile device**." Furthermore, "the receiver can be made part of the battery in the mobile device or of the shell of the mobile device." (*Id*., ¶[0105].) *Partovi* thus discloses "**wherein the receiver is one of attached to or incorporated into the battery or the mobile device**."

**d. wherein the receiver coil has a generally planar shape so that a magnetic field received in a direction substantially perpendicular to the plane of the receiver coil is used to inductively generate a current in the receiver coil;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶131-133.) For example, *Partovi* discloses that the coils "can be printed circuit board (PCB) coils." (Ex. PA-4, ¶[0105].) A POSITA would have understood that PCB coils have a "**generally planar shape**" and are flat. *Partovi* further discloses that that the receiver coil is "shaped as a planar spiral coil." (Ex. PA-4, claim 1.) In a section titled "Efficiency Enhancements through Coil Shape and Materials," *Partovi* explains that the coils may be "for example, flat or planar hexagonal shapes, or spirals." (*Id*., ¶[0225].) *Partovi* thus discloses that "**the receiver coil has a generally planar shape**."

*Partovi* discloses that the "**magnetic field received in . . . the plane of the receiver coil**

**is used to inductively generate a current in the receiver coil**." Specifically, the primary coil in the charging pad creates an AC magnetic field, which is picked up by the receiver coil and that induces a voltage in the receiver coil, which is rectified to charge the battery. (*Id*., ¶[0117].) This means that a "**current**" is generated in the "**receiver coil**." This is confirmed by, for example, claim 13. Specifically, claim 13 recites that "when a current is passed through the primary coil a magnetic field is generated in a direction substantially perpendicular to the plane of the primary coil." (*Id*., claim 13.) And this magnetic field, inductively generates "a current in [the] receiver coil." (*Id*., claim 13 ("wherein the perpendicular magnetic field inductively generates a current in a matching receiver coil or coils within a mobile device or battery placed close to and aligned with the base unit, to charge or power the mobile device or battery").)

*Partovi* further discloses that the received magnetic field is "**perpendicular to the plane of the receiver coil**." *Partovi* discloses that the mobile device is placed on a surface of the charging pad 330. (*Id.*, ¶¶[0031], [0200].) As shown below in Figure 16 of *Partovi*, the mobile device surface and the associated receiver coil are all parallel to the surface of the charging pad (and the primary coil) upon which the cellphones sit. (*Id*., FIG. 16.)

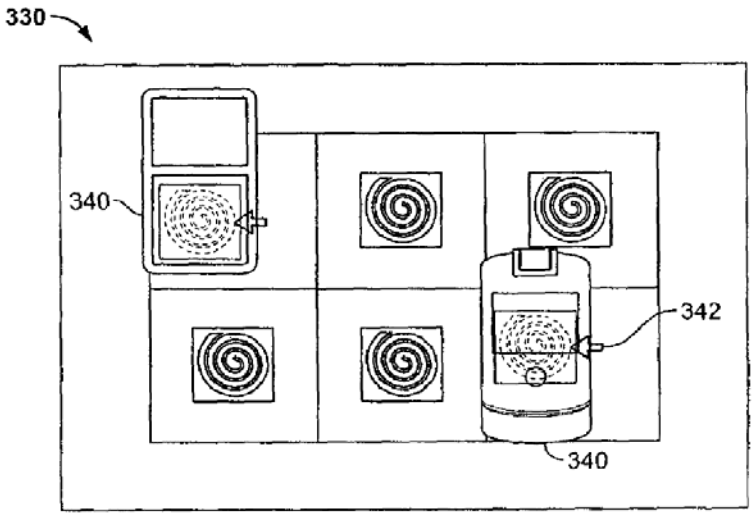



FIG. 16

(*Id.*, Figure 16.)

Because the receiver coil is parallel to the surface of the primary coil, the received magnetic field will be also be perpendicular to the plane of the receiver coil because it is perpendicular to

the surface of the charging pad and the primary coil.[9]

**e. an identification component associated with the mobile device or battery, which is configured to provide wireless identification of the receiver to the universal base unit;**

*Partovi* in view of *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶134-138.) *Partovi* discloses that "the receiver in the battery or mobile device also includes a means for providing information regarding battery manufacturer, required voltage, capacity; current, charge status, serial number, temperature, etc. to the charger." (Ex. PA-4, ¶[0142] (emphasis added).) This information exchange can be through "RFID techniques" (*id*., ¶[0142]) and *Partovi* discloses an RFID tag in the receiver that can be read by an RFID reader in the charger. (*Id*., ¶[0185], ("One of the sensor mechanisms for this information are through the use of an RFID reader 280 that can detect an RFID tag of circuit and antenna in the receiver (i.e. device or battery to be charged or powered.") *Partovi* further discloses "a separate circuit for positive identification of a device to be charged being in proximity can be integrated. These can include wireless identification systems such as RFID, Felicia, Bluetooth, WiFi, WiMax, etc." (Ex. PA-4, ¶[0469] (emphasis added).) Furthermore, *Partovi* discloses that the charger verifies the "identity" of the mobile device or battery before activating charging. (*Id*., claim 4.)

*Partovi* thus discloses that the mobile device includes an "**identification component**" that can provide wireless identification of, for example, the battery or the mobile device to the charger. *Partovi*, however, does not disclose providing wireless identification of the "**receiver**" to the charger. And the claim expressly distinguishes between the "**receiver**" and the mobile device or battery. Thus, *Partovi* lacks disclosure of providing a wireless identification of the "**receiver**" to the charger (i.e., the universal base unit).

*Calhoon*, however, discloses providing wireless identification of the receiver to the base unit. *Calhoon*, like *Partovi*, discloses a battery charging system involving inductive charging. (Ex. PA-DEC, ¶136.) *Calhoon* further discloses a battery charger assembly ("**receiver**") and a controller storing a "battery charger identification (ID) number" and "security certificate or digital signature" to authenticate the battery charger assembly. (Ex. PA-3, ¶¶[0042], [0047], [0052]; *supra* Section VI.A.4.e.)

[9] If Patent Owner disagrees that *Partovi* discloses this feature, then there is no support for the feature in the '440 patent.

Based on *Calhoon*, a POSITA would have been motivated to modify the *Partovi* to store additional information of the receiver in *Partovi*'s identification component and transmit the same to the base unit along with the power requirements of the portable device. For example, given *Calhoon*'s teachings, a POSITA would have been motivated to store the receiver's identification information, security certificate or digital signature in *Partovi*'s identification component, and transmit the same to the charger wirelessly to enable the charger to verify the identity and authenticity of the receiver. (Ex. PA-DEC, ¶137.) A POSITA would have been motivated to do so in order to allow for a more secure system in which the charger verifies the identity of the receiver prior to transmitting power to it. (*Id.*) This is confirmed by *Calhoon*, which discloses that the "battery charger identification (ID) . . . can be used for security, data integrity, or other purposes." (Ex. PA-3, ¶[0047].) It is further confirmed by *Calhoon*'s teaching that authenticating the device to be charged "prevents computerized virus infections in the [device to be charged]" from infecting the charger and thus "improves security functions for inductive power arrangements." (*Id*., ¶[0022].) A POSITA would have had a reasonable expectation of success in making the above modifications to *Partovi* given that the modifications would have been a straightforward combination of well-known technologies using known methods and techniques familiar to such a skilled person. (PA-DEC at ¶138.)

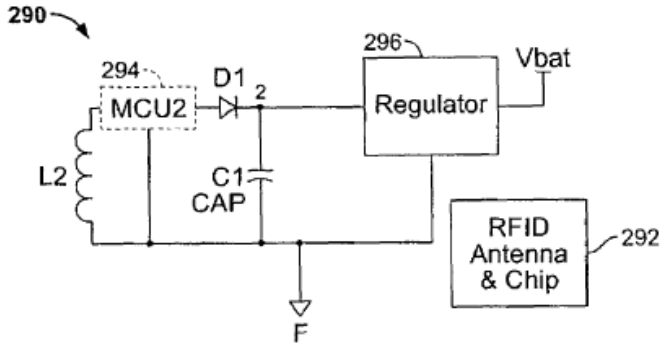
**f. a means for avoiding overcharging one or both of the mobile device and battery inductively; and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶139.) For instance, *Partovi* discloses a regulator or charge management chip in the receiver circuit to avoid overcharging the battery ("**means for avoiding overcharging [the] battery**"). (Ex. PA-4, ¶[0131]; *see also id*., ¶[0103].) The regulator or chip measures the various parameters of the battery (e.g. voltage, degree of charging, temperature, etc.) and uses an internal program to regulate the power drawn from the receiver circuit to ensure over-charging does not occur. (*Id.*)

**g. a regulator, coupled to the output of the receiver or to the battery, that regulates an output voltage or output current provided by the receiver, to the mobile device or battery, to be within a range of parameters for the mobile device or the battery;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶140.) *Partovi* discloses a regulator that regulates the current output by the receiver for charging the battery. (Ex. PA-4, ¶[0103].) A "regulator or charge management circuit can be used before the power is provided to the battery

or the mobile device." (*Id*., ¶[0128].) "The regulator or charge management chip in the receiver can then regulate the current and the load to charge the battery correctly and can end charge at the end." (*Id*., ¶[0142].) As seen in Figure 11 (reproduced below), the regulator 296 is provided between the receiver circuit and the battery.




(*Id*., FIG. 11.)

**h. wherein different mobile devices and batteries can have different charging characteristics associated therewith; and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶141.) *Partovi* acknowledges that each mobile device and its battery ("**different mobile devices and batteries**") has particular characteristics (e.g. voltage, capacity, etc.), and provides several circuit architectures to facilitate charging different devices ("**different charging characteristics**") with a single universal mobile device charger. (Ex.PA-4, ¶[0116].)

**i. wherein the receiver communicates with the base unit to detect, identify and authenticate the receiver with the base unit, as provided by the identification component,**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶142-143.) In particular, *Partovi* discloses, "[p]eriodically, each of the coils [] is powered up in rotation with a short signal such as a short radiofrequency (RF) signal that can activate a signal receiver in the receiver such as an RF ID tag or circuity connected to the receiver coil." (Ex. PA-4, ¶[0110].); *see also* Ex. PA-4, ¶[0185], ("One of the sensor mechanisms for this information are through the use of an RFID reader 280 that can detect an RFID tag of circuit and antenna in the receiver (i.e. device or battery to be charged or powered).") RFID is short for "radio frequency identification." (Ex. PA-4, ¶[0107].) This is done to "tr[y] to identify a return signal from any mobile device, battery (or any receiver) that may be nearby." (Ex. PA-4, ¶[0111].) *Partovi* discloses once a "mobile device, or battery (or a receiver) is detected, the mobile device charger or power supply and the mobile device or battery

proceed to exchange information." (Ex. PA-4, ¶[0112].) *Partovi* thus discloses the receiver and base unit communicating with at least an RFID reader and tag, the identification component to "**detect**" the "**receiver**".

But *Partovi* does not disclose the receiver communicating with the base unit to "**identify**" and "**authenticate**" the "**receiver**" (as opposed to the battery or the mobile device). *Calhoon*, however, discloses such a feature. (*Supra* Sections VI.A.4.e, VI.A.4.i.) Given *Calhoon*'s teachings, a POSITA would have been motivated, with a reasonable expectation of success, to modify *Partovi*'s receiver so that it transmits a security certificate or digital signature of the receiver to the charger to enable the charger to verify the identity and authenticity of the receiver before transmitting power to it. (*Supra* Section VI.B.4.e; *see also* Sections VI.A.4.e, VI.A.4.i.)

**j. [wherein the receiver communicates with the base unit to] … determine and then activate one or more primary coils of the base unit which are aligned with the receiver coil,**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶144-145.) As described in Section VI.B.4.i, *Partovi* discloses the receiver and the base unit communicating information. *Partovi* further discloses "the information exchange between the charger and receiver can be through an RF link or an optical transmitter/detector, RFID techniques . . . or some other method of information transfer. Similarly, the receiver can send signals that can be used by the charger to determine the location of the receiver to determine which coil or section of the charger or power supply to activate." (Ex. PA-4, ¶[0142]; *see also id.*, ¶[0209], ("In accordance with an embodiment, a global RFID system that can identify the approach of a mobile device to the pad can be used to wake up the board. This can be followed by sequential polling of individual coils to recognize where the device is placed in a manner similar to described above . . . the switching of voltage to the coil will not start unless an electronic device with a verifiable RFID tag is nearby thereby triggering the sequence of events for recognizing the appropriate coil to turn on and operate.").) Therefore, *Partovi* discloses (1) conveying information from the receiver's RFID tag to the base unit, (2) the base unit using that information to determine the location of the receiver, and (3) the base unit only activating the primary coils at that location. A POSITA would have understood that activating only the primary coils near the receiver inherently discloses only activating the primary coils that are aligned with the receiver coil.

**k. [wherein the receiver communicates with the base unit to] … verify the continued presence of the receiver near the base unit, and**

*Partovi* in view of *Calhoon* discloses or suggests this limitation. (Ex. PA-DEC, ¶146-147.) *Partovi* does not disclose the receiver in the mobile device communicating with the charger ("**base unit**") to verify the **continued** presence of the receiver near the charger. For example, there is no disclosure in *Partovi* of the **receiver** communicating with the charger to verify the **continued** presence of the receiver near the charger.

*Calhoon*, however, discloses such a feature. *Supra* Section VI.A.4.k. For instance, *Calhoon* teaches a method of polling performed by the source 302 to determine if the battery charger assembly 304 is present. (Ex. PA-3, ¶[0052].) During the powering process, the source 302 periodically polls the battery charger assembly 304 and if no response is received ("**verify the continued presence of the receiver near the base unit**") or inductive coupling is removed, the source 302 changes state from charging mode to return to polling mode. (*Id.*) In other words, the receiver (i.e., the battery charger assembly 304) in *Calhoon* communicates with the charger to verify its continued presence. A POSITA would have been motivated to adopt *Calhoon*'s method of polling (including the response from the receiver to verify its continued presence) during charging in *Partovi* for efficiency purposes. (Ex. PA-DEC, ¶147.) For example, including such a functionality would allow the charger to shut off or stop powering certain coils if the portable device is removed therefrom, thereby resulting in power savings. (*Id*.) A POSITA would have had a reasonable expectation of success in making such a modification given the above teachings of *Partovi* and *Calhoon*, and because the modification would have been a straightforward combination of well-known technologies using known methods and techniques familiar to such a skilled person. (*Id.*)

**l. [wherein the receiver communicates with the base unit to] … communicate information describing the characteristics of the mobile device or the battery, for use by the base unit to provide power transfer to the receiver and to the mobile device and the battery according to their particular charging characteristics.**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶148.) *Partovi* discloses that "the receiver in the battery or mobile device also includes a means for providing information regarding battery manufacturer, required voltage, capacity; current, charge status, serial number, temperature, etc. to the charger. In a simplified embodiment, only the manufacturer, required voltage, and/or serial

number is transmitted. This information is used by the charger or power supply to adjust the primary to provide the correct charge or power conditions." (Ex. PA-4, ¶[0142]; *see also id*, ¶[0119] ("The mobile device or battery charger or power supply, after exchanging information with the mobile device or battery, determines the appropriate charging/powering conditions to the mobile device. It then proceeds to power the mobile device with the appropriate parameters required.").)

## VII. Detailed Explanation of the Pertinence and Manner of Applying the Prior Art to the Claims

### A. Bases for Proposed Rejections of the Claims

The following is a quotation of pre-AIA 35 U.S.C. § 102 that forms the basis for all of the identified prior art:

> A person shall be entitled to a patent unless . . .
>
> (e) the invention was described in — (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language . . . .

The following is a quotation of pre-AIA 35 U.S.C. § 103(a) that forms the basis of all of the following obviousness rejections:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negative by the manner in which the invention was made.

The question under 35 U.S.C. § 103 is whether the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention. In *KSR International Co. v. Teleflex Inc*., 550 U.S. 398 (2007), the Court mandated that an obviousness analysis allow for "common sense" and "ordinary creativity," while at the same time not requiring "precise teachings directed to the specific subject matter of the challenged claim[s]." *KSR*, 550 U.S. at 418, 420-421.

According to the Court, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 416. In particular, the Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art." *Id.* at 401. The Court also stated that "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." *Id.* at 417.

The Office has provided further guidance regarding the application of *KSR* to obviousness questions before the Office.

> If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

MPEP § 2141(I) (quoting *KSR* at 417.)

The MPEP identifies many exemplary rationales from *KSR* that may support a conclusion of obviousness. Some examples that may apply to this reexamination include:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;
- Use of a known technique to improve similar devices in the same way;
- Applying a known technique to improve devices in the same way;
- Choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success ("obvious to try")

MPEP § 2141(III).

In addition, the Office has published *Post-KSR* Examination Guideline Updates. *See* Fed. Reg. Vol. 75, 53464 (the "Guideline Updates"). The Guideline Updates discuss developments after *KSR* and provide teaching points from recent Federal Circuit decisions on obviousness. Some examples are listed below:

> A claimed invention is likely to be obvious if it is a combination of known prior art elements that would reasonably have been expected to maintain their respective properties or functions after they have been combined.

*Id.* at 53646.

> A combination of known elements would have been prima facie obvious if an ordinary skilled artisan would have recognized an apparent reason to combine those elements and would have known how to do so.

*Id.* at 53648.

> Common sense may be used to support a legal conclusion of obviousness so long as it is explained with sufficient reasoning.

*Id.*

### B. Proposed Rejections

Pursuant to 37 C.F.R. § 1.510(b)(2), Requester identifies claim 1 as the claim for which reexamination is requested. The proposed rejections below, in conjunction with the analysis in Sections IV-VI above and the attached declaration of Dr. Baker (Ex. PA-DEC), provide a detailed explanation of the pertinence and manner of applying the prior art to claim 1.

#### 1. Proposed Rejection #1

Claim 1 is obvious over *Hsu* in view of *Hui* and *Calhoon* under 35 U.S.C. § 103, as shown by the discussion above in Section VI.A and the declaration of Dr. Baker provided in Exhibit PA-DEC.

#### 2. Proposed Rejection #2

Claim 1 is obvious over *Partovi* in view of *Calhoon* under 35 U.S.C. § 103, as shown by the discussion above in Section VI.B and the declaration of Dr. Baker provided in Exhibit PA-DEC.

## VIII. Conclusion

For the reasons set forth above, the Requester has established at least one substantial new question of patentability with respect to claim 1 of the ’440 patent. The analysis provided in this Request and in the declaration of Dr. Baker (Ex. PA-DEC) demonstrates the invalidity of claim 1 in view of prior art that was not substantively considered by the Patent Office. Therefore, it is requested that this request for reexamination be granted and claim 1 be cancelled.

As identified in the attached Certificate of Service and in accordance with 37 C.F.R. §§ 1.33(c) and 1.510(b)(5), a copy of this Request has been served, in its entirety, to the address of the attorney of record.

Respectfully submitted,

PAUL HASTINGS LLP

Dated: June 28, 2024 By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)