**IN THE UNITED STATES DISTRICT COURT**
**FOR THE EASTERN DISTRICT OF TEXAS**
**MARSHALL DIVISION**

| | | |
|---|---|---|
| MOJO MOBILITY INC., | § | |
| Plaintiff | § | |
| | § | |
| v. | § | Civil Action No. 2:22-cv-00398-JRG-RSP |
| | § | |
| SAMSUNG ELECTRONICS CO., LTD.; SAMSUNG ELECTRONICS AMERICA, INC., | § | JURY TRIAL DEMANDED |
| | § | |
| Defendants. | § | |
| | § | |
| | § | |
| | § | |

**DEFENDANTS' INVALIDITY CONTENTIONS**

Pursuant to the Docket Control Order (Dkt. No. 27) and Local Patent Rule ("P.R.") 3-3, Defendants Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc. (collectively, "Samsung" or "Defendants"), hereby disclose these Invalidity Contentions in the above-captioned case to Mojo Mobility Inc. ("Mojo" or "Plaintiff"). On February 28, 2023, Mojo served Samsung with Plaintiff Mojo Mobility Inc.'s P.R. 3-1 and 3-2 Disclosures ("Infringement Contentions") alleging infringement of claim 1 of U.S. Patent No. 7,948,208 ("the '208 patent"), claims 1, 3, 13, and 27 of U.S. Patent No. 9,577,440 ("the '440 patent"), claims 1-4, 9, 11-13, 18, 20, and 23-31 of U.S. Patent No. 11,201,500 ("the '500 patent"), claims 1-4, 8-12, 15, 16, 20-23, and 28-30 of U.S. Patent No. 11,316,371 ("the '371 patent"), claims 1, 2, 5, 6, 8-10, 12, 13, 21-26, 29, and 30 of U.S. Patent No. 11,462,942 ("the '942 patent"), claims 1, 4, 5, 7, 8, 10- 13, 15-18, and 26 of U.S. Patent No. 11,292,349 ("the '349 patent"), and claims 1, 2, 5-11, 13-14, 15, 17, 20-23, and 24 of U.S. Patent No. 11,342,777 ("the '777 patent") (collectively, the "Asserted Claims" of the "Asserted Patents"). *See* Infringement Contentions at 2.

As explained below and in the accompanying exhibits, incorporated by reference herein, Samsung contends that each of the claims asserted by Mojo is invalid under at least 35 U.S.C. §§ 102, 103, and/or 112 (pre-AIA and AIA). In its infringement contentions Mojo identifies alleged priority dates for each of the Asserted Claims, except those of the '349 patent, prior to March 16, 2013, the effective date of the pre-Leahy-Smith America Invents Act, Infringement Contentions at § I(f), which would mean that each of those Asserted Claims falls under pre-AIA law, whereas the '349 patent claims fall under AIA law. Defendants do not concede that any or all of the Asserted Claims of the Asserted Patents are entitled to the alleged priority date, and thus may not be subject to pre-AIA treatment. Although the Local Patent Rules do not require Defendants to provide their alleged priority dates in these invalidity contentions, Defendants note that they may challenge the priority date of the Asserted Claims of the Asserted Patents.

Should any application for one of the Asserted Patents contain or have contained at any time, a claim having an effective filing date of March 16, 2013, or later, or a specific reference under 35 U.S.C. §§ 120, 121, or 365(c), to any patent or application that contains or contained at any time such a claim, the AIA's provisions would apply to every claim to have issued from such an application. *See* AIA § 3(n)(1). As such, these invalidity contentions and the attached exhibits address invalidity under both pre-AIA and AIA patent law. Unless stated otherwise, each citation to any of 35 U.S.C. §§ 101, 102, 103, and/or 112, shall be interpreted as referring to both the pre-AIA and AIA section(s).

For purposes of these Invalidity Contentions, Defendants identify prior art references and provide element-by-element claim charts based, in part, on the apparent claim constructions advanced by Plaintiff in its Infringement Contentions. The citation of prior art herein and in the accompanying exhibits is not intended to reflect Defendants' claim construction positions, which

will be disclosed in due course in accordance with the Docket Control Order, and may instead reflect Plaintiff's apparent (and potentially erroneous) claim constructions based on its Infringement Contentions. Nothing stated herein shall be treated as an admission or suggestion that Defendants agree with Plaintiff regarding either the scope of any of the Asserted Claims or the claim constructions advanced in the Infringement Contentions. Moreover, nothing in these Invalidity Contentions shall be treated as an admission that Defendants' accused technology meets any limitations of any Asserted Claim.

Defendants' Invalidity Contentions herein reflect Defendants' knowledge as of this early date in the present action. Defendants reserve the right, to the extent permitted by the Court and the applicable statutes and rules, to modify and/or supplement their Invalidity Contentions in response to becoming aware of additional prior art or information regarding prior art, any modification or supplementation of Plaintiff's Infringement Contentions, any claim construction by the Court, or as otherwise may be appropriate.

Defendants' Exhibits attached hereto cite to particular teachings and disclosures of the prior art as applied to features of the Asserted Claims. However, persons having ordinary skill in the art ("POSITA") generally view a prior art disclosure in its entirety (e.g., view specific disclosures in the context of the general disclosures), in the context of other publications, literature, products, and understanding and knowledge of such a person. As such, the cited portions of prior art identified herein are exemplary only. Defendants may rely on the entirety of the prior art references listed herein, including un-cited portions of those prior art references, and on other publications, systems, evidence, and expert testimony shedding light on those prior art references or the state of the art in general, including as aids in understanding and interpreting

the cited portions, as providing context thereto, and as additional evidence that the prior art discloses a claim limitation.

Defendants may also rely on documents, systems, products, testimony, and other evidence to establish bases for, and motivations to make, combinations of or modifications to certain cited references that render the Asserted Claims obvious. Defendants may rely upon corroborating documents, products, testimony, and other evidence, including materials obtained through further discovery, investigation, and third-party discovery of the prior art identified herein that describes the invalidating features identified in these contentions; evidence of the state of the art in the relevant time period (irrespective of whether such references themselves qualify as prior art to the Asserted Patents), including prior art listed on the face of the Asserted Patents and/or disclosed in the specification(s) (i.e., applicant admitted prior art); and/or expert testimony to provide context to or aid in understanding the cited portions of the identified prior art.

The references discussed in the Exhibits hereto disclose the elements of the Asserted Claims explicitly, inherently, and/or in combination with other references or the knowledge of one skilled in the art at the time of filing. The references also may be relied upon to show the state of the art in the relevant time frame. To the extent the attached claim charts cite to a reference for each element or limitation of an Asserted Claim, Defendants contend that such reference anticipates that claim or renders it obvious, either alone or in combination with other references. To the extent suggested, obviousness combinations are included in the attached exhibits, they are provided in the alternative to Defendants' anticipation contentions and are not to be construed to suggest that any reference included in the combinations is not by itself anticipatory.

Pursuant to P.R. 3-3 and 3-4, Defendants provide disclosures and related documents pertaining only to the Asserted Claims as identified by Plaintiff in its Infringement Contentions. Defendants will further supplement their P.R. 3-4 document production should they later find additional prior art or obtain translations of previously-produced art. Much of the art identified in the attached Exhibits reflects common knowledge and the state of the art near the filing date of the Asserted Patent.

Each of the Asserted Claims[1] of the Asserted Patents is anticipated by and/or obvious in view of one or more items of prior art identified herein, alone or in combination. Specific examples of this anticipation and obviousness, along with the motivation to combine the selected prior art, are set forth in the attached Claim Charts (Exhibits A-02 through G-113) and Combinations Exhibit (Ex. H). The identification of obviousness combinations is not intended to be exhaustive, as there are many possible combinations of the references that one of ordinary skill in the art would have been motivated to make, and it is not practical to provide details of all such possible combinations, particularly at this early stage of the case.

Defendants also reserve the right to modify, amend, and/or supplement their Invalidity Contentions in light of positions that Plaintiff or its expert witnesses may assert concerning claim construction, infringement, and/or invalidity issues and/or the Court's claim construction order.

## I. Identification of Prior Art – Local Patent Rule 3-3(a)

In addition to the prior art identified in the prosecution history of the Asserted Patents, Defendants also rely upon the prior art identified pursuant to P.R. 3-3(a) in the attached Exhibits in support of these Invalidity Contentions. Defendants' identification of patents and publications

[1] For reasons analogous to those identified herein, Defendants contend all *non-asserted* claims of the Asserted Patent are invalid as anticipated and/or obvious in view of the prior art, patent ineligible subject matter, indefinite, not enabled, and/or not supported by the written description.

as prior art herein and in the attached claim charts includes the publications themselves, as well as the use of the products, devices, apparatuses and/or systems described therein. Although Defendants' investigation continues, information available to date indicates that such products, devices, and systems were known or used before the alleged priority dates of the Asserted Claims. Upon information and belief, these prior art products, devices, apparatuses, and systems, and their associated references anticipate and/or render obvious each of the Asserted Claims. Defendants further intend to rely on inventor admissions concerning the scope of the prior art relevant to the Asserted Patents found in, *inter alia*, the prosecution history of the Asserted Patents and any related patents, patent applications, and/or post-grant proceedings including reexaminations and *inter partes* reviews; any deposition testimony of a named inventor on the Asserted Patents; and the papers filed and any evidence submitted by Plaintiff in conjunction with this litigation.

Discovery is in its earliest stages, and Defendants' prior art investigation, including via party discovery and third-party discovery, is therefore not yet complete. Defendants reserve the right to rely upon additional evidence of invalidity obtained in the future, to the extent that further investigation and discovery yield information forming the basis for such claims.

**A. Prior Art Patents**

Defendants contend that the following prior art patents anticipate or render obvious one or more Asserted Claims of the Asserted Patents under Pre-AIA 35 U.S.C. § 102(a), (b), (e), AIA 35 U.S.C. § 102(a), and/or Pre-AIA and AIA 35 U.S.C. § 103.

| Country | Patent/Publication No. | Issue or Publication Date | Inventor (et al.) |
|---|---|---|---|
| US | 2007/0103110 | May 10, 2007 | Sagoo '110 |
| US | 2005/0068019 | March 31, 2005 | Nakamura |
| JP | 2006/141170 | June 1, 2006 | Okada |
| US | 2005/0127868 | June 16, 2005 | Calhoon '868 |
| US | 4942352 | July 17, 1990 | Sano |

| Country | Patent/Publication No. | Issue or Publication Date | Inventor (et al.) |
|---|---|---|---|
| US | 6912137 | June 28, 2005 | Berghegger |
| US | 2006/0202665 | September 14, 2006 | Hsu |
| US | 6960968 | November 1, 2005 | Odendaal ’968 |
| US | 5733313 | March 31, 1998 | Barreras |
| US | 2005/0189910 | September 1, 2005 | Hui ’910 |
| US | 2004/0130425 | July 8, 2004 | Dayan ’425 |
| US | 2010/0070219 | September 21, 2009 (filing date) | Azancot |
| US | 8928284 | August 4, 2010 (filing date) | Carobolante |
| US | 2011/0074346A1 | October 6, 2010 (filing date) | Hall |
| US | 201/20077537 | February 22, 2011 (filing date); September 23, 2010 (provisional date) | Muratov |
| US | 8390249 | June 3, 2010 (filing date) | Walley |
| US | 2008/0296978 | December 4, 2008 | Finkenzeller |
| US | 2010/0007307 | January 14, 2010 | Baarman ’307 |
| US | 8222860 | June 23, 2009 (filing date) | Kamijo |
| US | 8497658 | November 10, 2009 (filing date) | Novak |
| WO | 2008/050917 | October 25, 2006 (filing date) | Kook |
| US | 2007/0228833 | November 13, 2006 (filing date) | Stevens ’833 |
| US | 2008/0079392 | September 29, 2006 (filing date of provisional) | Baarman ’392 |
| WO | 1994/028560 | December 8, 1994 | Pedder |
| US | 5690693 | November 25, 1997 | Wang |
| WO | 2007/015599 | February 8, 2007 | Park ’599 |
| US | 2003/0095027 | May 22, 2003 | Hui ’027 |
| US | 2007/0145830 | June 28, 2007 | Lee |
| US | 2004/0189246 | September 30, 2004 | Bulai |
| JP | 2000/133536 | May 12, 2000 | Kaneko |
| KR | 2003/57251 | July 27, 2004 | Hwang |
| US | 2006/0145660 | July 6, 2006 | Black |
| US | 5808587 | September 15, 1998 | Shima |
| US | 2007/0029965 | February 8, 2007 | Hui ’965 |
| JP | 2005/006440 | January 6, 2005 | Kentaro |
| US | 8004235 | September 29, 2006 (filing date) | Baarman ’235 |
| JP | 2006/230032 | August 31, 2006 | Noboru |
| CN | 1835338 | September 20, 2006 | Su |
| WO | 2005/109597 | November 17, 2005 | Stevens ’597 |
| US | 7109682 | September 19, 2006 | Takagi ’682 |
| US | 2004/0145342 | July 29, 2004 | Lyon |
| US | 2005/0140482 | June 30, 2005 | Cheng |

| Country | Patent/Publication No. | Issue or Publication Date | Inventor (et al.) |
|---|---|---|---|
| US | 2007/0072474 | April 26, 2006 (filing date) | Beasley |
| WO | 2002/037641 | May 10, 2002 | Cho ’641 |
| WO | 2004/105226 | December 2, 2004 | Hussman |
| US | 5583474 | December 10, 1996 | Mizoguchi |
| US | 2006/0087283 | April 27, 2006 | Phillips |
| US | 2005/0127866 | June 16, 2005 | Hamilton |
| US | 8013568 | May 8, 2006 (filing date) | Park ’568 |
| US | 2005/0259448 | November 24, 2005 | Koike |
| WO | 2006/001557 | January 5, 2006 | Jung ’557 |
| US | 8587154 | November 19, 2013 | Fells |
| US | 8912686 | December 16, 2014 | Stoner |
| US | 8975523 | March 10, 2015 | Silva |
| US | 2014/0224267 | August 14, 2014 | Levitz |
| WO | 2008/016273 | February 7, 2008 | Hahn |
| US | 2005/0135129 | June 23, 2005 | Kazutoshi |
| US | 2007/0026826 | February 1, 2007 | Wilson |
| US | 7339353 | March 4, 2008 | Masias |
| US | 2007/0129768 | June 7, 2007 | He |
| US | 2003/0195581 | April 18, 2003 | Meadows |
| US | 2005/0288743 | December 29, 2005 | Ahn |
| US | 2003/0214821 | November 20, 2003 | Giannopoulos |
| WO | 2006/137747 | December 28, 2006 | Tetlow |
| US | 2008/0211455 | February 8, 2007 | Park ’455 |
| JP | 2004260917 | September 16, 2004 | Sato |
| US | 7378817 | May 27, 2008 | Calhoon ’817 |
| US | 2004/0082369 | April 29, 2004 | Dayan ’369 |
| JP | 2004/222285 | August 5, 2004 | Fischer |
| US | 2005/0134213 | June 23, 2005 | Takagi ’213 |
| WO | 2012/095850 Al | July 19, 2012 | Ben-Shalom |
| US | 9178376 | November 3, 2015 | Jung ’376 |
| US | 7211986 | May 1, 2007 | Flowerdew |
| US | 8243049 | August 14, 2012 | Vos |
| WO | 2011/156768A2 | December 15, 2011 | Partovi |
| KR | 2005/039445 | April 29, 2005 | Cho ’445 |
| US | 7791311 | September 7, 2010 | Sagoo ’311 |
| US | 2004/0130916 | July 8, 2004 | Baarman ’916 |
| WO | 2005/024865 | March 17, 2005 | Beart |
| US | 2003/0103039 | June 5, 2003 | Burr |
| US | 2005/0270745 | December 8, 2005 | Chen |
| US | 2007/0229037 | October 4, 2007 | Hayashi |
| US | 2008/0245851 | May 18, 2007 | Kowalski |
| US | 5959433 | August 22, 1997 | Rohde |
| US | 2005/0270805 | May 31, 2005 | Yasumura |
| JP | 2003/111312A | April 11, 2003 | Yoshioka |

| Country | Patent/Publication No. | Issue or Publication Date | Inventor (et al.) |
|---|---|---|---|
| US | 2005/0116683 | May 13, 2003 | Cheng ’683 |
| US | 4459042 | August 2, 1992 | Akiba |
| US | 7612528 | June 18, 2004 | Baarman ’528 |
| US | 6057668 | October 1, 1998 | Chao |
| US | 8855554 | March 4, 2009 | Cook |
| US | 9531501 | February 23, 2012 | Linde |
| US | 2004/0000974 | January 26, 2002 | Odenaal ’974 |
| US | 2015/0102684 | November 11, 2014 | Tanaka |
| US | 8234509 | January 5, 2009 | Gioscia |
| US | 8133764 | August 8, 2007 | Jakubowski |
| US | 1134277 | February 13, 2009 | Kirby |
| US | 8884468 | December 18, 2008 | Lemmens |
| US | 8212518 | October 10, 2007 | Pijnenburg |
| US | 8369905 | October 10, 2008 | Sogabe |
| US | 8497658 | January 22, 2009 | Van Novak |

### B. Prior Art Publications to the Asserted Patents

Defendants contend that the following publications anticipate or render obvious one or more Asserted Claims of the Asserted Patents under Pre-AIA 35 U.S.C. § 102(a), (b), (e), AIA 35 U.S.C. § 102(a), or Pre-AIA or AIA 35 U.S.C. § 103.

| Publication Title | Date | Publisher | Author (et al.) |
|---|---|---|---|
| Qi 1.0.1 Wireless Power Transfer Specification | October 2010 | Wireless Power Consortium | Wireless Power Consortium |
| The Qi Wireless Power Standard | 2010 | IEEE | Wageningen |
| An Inductively Coupled Universal Battery Charger | 2003 | The University of Auckland Department of Electrical & Electronic Engineering | Ryan 2003 |
| An Universal, Inductively Coupled Battery Charger for Robot Power Supplies | 2006 | The University of Auckland Department of Electrical & Electronic Engineering | Ryan 2006 |
| Finite element simulation of a universal contactless battery charging platform | June 27, 2005 | IEEE | Liu |
| Universal Serial Bus Specification | April 27, 2000 | | Compaq |
| Power Transmission of a Desk With a Cord-Free Power Supply | September 2002 | IEEE | Hatanaka |

| Publication Title | Date | Publisher | Author (et al.) |
|---|---|---|---|
| Printed Circuit Board Windings -Based Ultra Low-Profile Power Conditioning Circuits For SDR Application Systems | 2005 | School of Electrical Engineering and Computer Science Kyungpook National University | Lim |
| A Contactless Electrical Energy Transmission System | February 1999 | IEEE | Pedder |

### C. Prior Art Public Use/Disclosure/Sales/Offers for Sale to the Asserted Patents

| System | Earliest Known Date of Public Use/Disclosure/ Sale/Offer for Sale |
|---|---|
| Fulton Innovation eCoupled Car System shown in the following video: https://www.youtube.com/watch?v=CsUxCLxMmq0 | February 15, 2010 |

Discovery is in its earliest stages, and Defendants' prior art investigation, including via discovery and third-party discovery, is therefore not yet complete. Defendants reserve the right to rely upon additional evidence of invalidity obtained in the future as to any prior art public use/sales/offers for sale, including by Plaintiff, that may anticipate or render obvious one or more Asserted Claims of the Asserted Patents.

## II. Local Patent Rule 3-3(b) and (c)

In addition to and including the prior art disclosed in the Exhibits incorporated by reference herein and attached hereto, each of the Asserted Claims of the Asserted Patents is anticipated by and/or obvious in view of one or more of items of prior art identified above in Sections I.A. (list of prior art patents), I.B. (list of prior art publications), and/or I.C. (list of prior art by offered for sale or publicly used or known), alone or in combination. Generally, it would have been obvious to one of ordinary skill in the art to combine or modify any of these references to arrive at the alleged invention. Such a combination or modification would have yielded predictable results, and a POSITA would have had a reasonable expectation of success.

The Asserted Claims of the Asserted Patents are directed to known and/or obvious combinations of old and familiar elements, each performing the same function it has long been known to perform, which yield nothing more than predictable results. Put another way, the claimed subject matter is obvious because it is nothing more than (i) combinations of prior art elements according to known methods to yield predictable results, (ii) simple substitutions of one known element for another to yield predictable results, (iii) applications of known techniques to known devices ready for improvement to yield predictable results, and/or (iv) obvious to try.

Generally, it would have been obvious to one of ordinary skill in the art to combine any of these systems and/or references to arrive at the claimed invention. The combination of familiar elements according to known methods is obvious here because it would have yielded predictable results. Indeed, nothing in any of the Asserted Patents suggests that anything about the claimed systems and methods concerns an unexpected result or anything but a routine and conventional application of known hardware and software components, performing known or routine and conventional functions, to achieve an expected and predictable result.

One of skill in the art would have been motivated to either modify the prior art identified herein, and in the accompanying invalidity exhibits or to combine that prior art in view of, for example, their background knowledge, design incentives, effects of demands known to the design community, or other market forces, in particular the recent widespread adoption of isolating transformers and wireless charging in both stationary and portable devices. Further, the prior art discussed in these contentions relates to the same general field of power systems, devices, and methods, and addresses many of the same as well as different design and operational features of these systems. This would have further motivated one of skill in the art to combine the prior art. In view of the simplicity of the claimed subject matter and its use of well-

known components performing conventional operations, the common sense a person skilled in the art also would have served as a motivation to combine any of the identified references and demonstrates that the Asserted Claims of the Asserted Patents would have been obvious. Moreover, a person of ordinary skill in the art would have had a reasonable expectation of success in configuring and modifying any of the systems, devices, components, processes, and/or functionalities disclosed in the identified prior art references in view of the teachings and/or suggestions in those references and the knowledge of such a skilled person at the relevant time.

Defendants' attached exhibits contain claim charts identifying examples of prior art that anticipates and/or renders obvious each Asserted Claims of the Asserted Patents ("Invalidity Claim Charts"). Specifically, to the extent the attached Invalidity Claim Charts cite to a reference for each element or limitation of an asserted claim, Defendants contend that such reference anticipates that claim. *See* P.R. 3-3(b), (c). Defendants incorporate by reference each and every prior art reference of record in the prosecution of the Asserted Patents and related applications, including the statements made therein by the applicant, as well as the prior art discussed in the specification. Defendants further incorporate by reference all *inter partes* review and/or reexamination proceedings filed in the future that challenge the patentability of any claim of the Asserted Patents, including all prior art, argument, and evidence. In addition, to the extent that the attached Invalidity Claim Charts cite to additional references, Defendants contend, in the alternative, that the Asserted Claims are rendered obvious for the reasons set forth in the attached charts and exhibits. To the extent the attached Invalidity Claim Charts do not identify any explicit disclosures of the prior art for a claim or claim limitation, Defendants contend those claims or claim limitations would have been obvious in view of the reference as a whole and/or the knowledge, skill, common sense, and experience of a person having ordinary

skill in the art. To the extent any obviousness combinations are included in the attached charts and exhibits, they are provided in the alternative to Defendants' anticipation contentions and are not to be construed to suggest that any reference included in the combinations is not by itself anticipatory.

### A. '208 Patent

| Invalidity Claim Charts for the '208 Patent |
|---|
| Ex. A-02: '208 Patent in view of Nakamura |
| Ex. A-03: '208 Patent in view of Okada[2] |
| Ex. A-04: '208 Patent in view of Calhoon '868 |
| Ex. A-05: '208 Patent in view of Sano |
| Ex. A-06: '208 Patent in view of Berghegger |
| Ex. A-07: '208 Patent in view of Hsu |
| Ex. A-08: '208 Patent in view of Odendaal |
| Ex. A-10: '208 Patent in view of Hui '910 |
| Ex. A-11: '208 Patent in view of Dayan '425 |
| Ex. A-25: '208 Patent in view of Wang |

### B. '440 Patent

| Invalidity Claim Charts for the '440 Patent |
|---|
| Ex. B-02: '208 Patent in view of Nakamura |
| Ex. B-03: '208 Patent in view of Okada |
| Ex. B-04: '208 Patent in view of Calhoon '868 |
| Ex. B-05: '208 Patent in view of Sano |
| Ex. B-06: '208 Patent in view of Berghegger |
| Ex. B-07: '208 Patent in view of Hsu |
| Ex. B-08: '208 Patent in view of Odendaal |
| Ex. B-09: '208 Patent in view of Barreras |
| Ex. B-10: '208 Patent in view of Hui '910 |
| Ex. B-11: '208 Patent in view of Dayan '425 |
| Ex. B-25: '208 Patent in view of Wang |

### C. '500 Patent

| Invalidity Claim Charts for the '500 Patent |
|---|
| Ex. C-01: '500 Patent in view of Sagoo '110 |
| Ex. C-02: '500 Patent in view of Nakamura |

[2] All Okada exhibits were prepared using a machine translation of Okada. With these invalidity contentions, Samsung is also producing a certified translation of Okada that discloses teachings corresponding to those identified in the charts and in the machine translation.

| Invalidity Claim Charts for the ’500 Patent |
|---|
| Ex. C-03: ’500 Patent in view of Okada |
| Ex. C-04: ’500 Patent in view of Calhoon ’868 |
| Ex. C-06: ’500 Patent in view of Berghegger |
| Ex. C-08: ’500 Patent in view of Odendaal |
| Ex. C-10: ’500 Patent in view of Hui 910 |
| Ex. C-21: ’500 Patent in view of Kook |
| Ex. C-28: ’500 Patent in view of Lee |
| Ex. C-30: ’500 Patent in view of Kaneko |
| Ex. C-31: ’500 Patent in view of Hwang |
| Ex. C-33: ’500 Patent in view of Shima |
| Ex. C-35: ’500 Patent in view of Kentaro |
| Ex. C-36: ’500 Patent in view of Baarman ’235 |
| Ex. C-37: ’500 Patent in view of Noboru |
| Ex. C-38: ’500 Patent in view of Su |
| Ex. C-39: ’500 Patent in view of Stevens ’597 |
| Ex. C-40: ’500 Patent in view of Takagi ’682 |
| Ex. C-42: ’500 Patent in view of Cheng |
| Ex. C-43: ’500 Patent in view of Beasley |
| Ex. C-44: ’500 Patent in view of Cho ’641 |
| Ex. C-46: ’500 Patent in view of Hussman |
| Ex. C-47: ’500 Patent in view of Mizoguchi |
| Ex. C-48: ’500 Patent in view of Phillips |
| Ex. C-49: ’500 Patent in view of Hamilton |
| Ex. C-50: ’500 Patent in view of Park ’568 |
| Ex. C-51: ’500 Patent in view of Koike |
| Ex. C-52: ’500 Patent in view of Jung ’557 |
| Ex. C-58: ’500 Patent in view of Ryan 2003 |
| Ex. C-61: ’500 Patent in view of Hahn |
| Ex. C-62: ’500 Patent in view of Kazutoshi |
| Ex. C-63: ’500 Patent in view of Wilson |
| Ex. C-64: ’500 Patent in view of Masias |
| Ex. C-65: ’500 Patent in view of He |
| Ex. C-66: ’500 Patent in view of Meadows |
| Ex. C-72: ’500 Patent in view of Sato |
| Ex. C-73: ’500 Patent in view of Calhoon ’817 |

### D. ’371 Patent

| Invalidity Claim Charts for the ’371 Patent |
|---|
| Ex. D-01: ’371 Patent in view of Sagoo ’110 |
| Ex. D-02: ’371 Patent in view of Nakamura |
| Ex. D-03: ’371 Patent in view of Okada |
| Ex. D-04: ’371 Patent in view of Calhoon |
| Ex. D-06: ’371 Patent in view of Berghegger |

| Invalidity Claim Charts for the ’371 Patent |
|---|
| Ex. D-08: ’371 Patent in view of Odendaal |
| Ex. D-10: ’371 Patent in view of Hui ’910 |
| Ex. D-21: ’371 Patent in view of Kook |
| Ex. D-22: ’371 Patent in view of Stevens ’833 |
| Ex. D-23: ’371 Patent in view of Baarman ’392 |
| Ex. D-24: ’371 Patent in view of Pedder |
| Ex. D-25: ’371 Patent in view of Wang |
| Ex. D-26: ’371 Patent in view of Park ’599 |
| Ex. D-27: ’371 Patent in view of Hui ’027 |
| Ex. D-28: ’371 Patent in view of Lee |
| Ex. D-29: ’371 Patent in view of Bulai |
| Ex. D-30: ’371 Patent in view of Kaneko |
| Ex. D-31: ’371 Patent in view of Hwang |
| Ex. D-32: ’371 Patent in view of Black |
| Ex. D-33: ’371 Patent in view of Shima |
| Ex. D-58: ’371 Patent in view of Ryan 2003 |
| Ex. D-59: ’371 Patent in view of Ryan 2006 |
| Ex. D-61: ’371 Patent in view of Hahn |
| Ex. D-62: ’371 Patent in view of Kazutoshi |
| Ex. D-66: ’371 Patent in view of Meadows |
| Ex. D-67: ’371 Patent in view of Ahn |
| Ex. D-68: ’371 Patent in view of Giannopoulos |
| Ex. D-69: ’371 Patent in view of Tetlow |
| Ex. D-70: ’371 Patent in view of Compaq |
| Ex. D-74: ’371 Patent in view of Dayan ’369 |
| Ex. D-75: ’371 Patent in view of Fischer |
| Ex. D-76: ’371 Patent in view of Takagi ’213 |
| Ex. D-78: ’371 Patent in view of Lim |
| Ex. D-84: ’371 Patent in view of Cho ’445 |
| Ex. D-87: ’371 Patent in view of Baarman ’916 |
| Ex. D-88: ’371 Patent in view of Beart |
| Ex. D-89: ’371 Patent in view of Burr |
| Ex. D-90: ’371 Patent in view of Chen |
| Ex. D-91: ’371 Patent in view of Hayashi |
| Ex. D-92: ’371 Patent in view of Kowalski |
| Ex. D-93: ’371 Patent in view of Rohde |
| Ex. D-94: ’371 Patent in view of Yasumura |
| Ex. D-95: ’371 Patent in view of Yoshioka |

### E. ’942 Patent

| Invalidity Claim Charts for the ’942 Patent |
|---|
| Ex. E-01: ’942 Patent in view of Sagoo ’110 |
| Ex. E-02: ’942 Patent in view of Nakamura |

| Invalidity Claim Charts for the ’942 Patent |
| --- |
| Ex. E-03: ’942 Patent in view of Okada |
| Ex. E-04: ’942 Patent in view of Calhoon ’868 |
| Ex. E-06: ’942 Patent in view of Berghegger |
| Ex. E-08: ’942 Patent in view of Odendaal |
| Ex. E-10: ’942 Patent in view of Hui ’910 |
| Ex. E-21: ’942 Patent in view of Kook |
| Ex. E-22: ’942 Patent in view of Stevens ’833 |
| Ex. E-23: ’942 Patent in view of Baarman ’392 |
| Ex. E-24: ’942 Patent in view of Pedder |
| Ex. E-25: ’942 Patent in view of Wang |
| Ex. E-26: ’942 Patent in view of Park ’599 |
| Ex. E-27: ’942 Patent in view of Hui ’027 |
| Ex. E-28: ’942 Patent in view of Lee |
| Ex. E-29: ’942 Patent in view of Bulai |
| Ex. E-30: ’942 Patent in view of Kaneko |
| Ex. E-31: ’942 Patent in view of Hwang |
| Ex. E-32: ’942 Patent in view of Black |
| Ex. E-33: ’942 Patent in view of Shima |
| Ex. E-58: ’942 Patent in view of Ryan 2003 |
| Ex. E-59: ’942 Patent in view of Ryan 2006 |
| Ex. E-61: ’942 Patent in view of Hahn |
| Ex. E-62: ’942 Patent in view of Kazutoshi |
| Ex. E-66: ’942 Patent in view of Meadows |
| Ex. E-67: ’942 Patent in view of Ahn |
| Ex. E-68: ’942 Patent in view of Giannopoulos |
| Ex. E-69: ’942 Patent in view of Tetlow |
| Ex. E-70: ’942 Patent in view of Compaq |
| Ex. E-71: ’942 Patent in view of Park ’455 |
| Ex. E-74: ’942 Patent in view of Dayan |
| Ex. E-75: ’942 Patent in view of Fischer |
| Ex. E-76: ’942 Patent in view of Takagi ’213 |
| Ex. E-77: ’942 Patent in view of Hatanaka |
| Ex. E-78: ’942 Patent in view of Lim |
| Ex. E-87: ’942 Patent in view of Baarman 916 |
| Ex. E-89: ’942 Patent in view of Burr |
| Ex. E-90: ’942 Patent in view of Chen |
| Ex. E-91: ’942 Patent in view of Hayashi |
| Ex. E-92: ’942 Patent in view of Kowalski |
| Ex. E-93: ’942 Patent in view of Rohde |
| Ex. E-95: ’942 Patent in view of Yoshioka |
| Ex. E-96: ’942 Patent in view of Cheng ’683 |

### F. ’349 Patent

| Invalidity Claim Charts for the ’349 Patent |
|---|
| Ex. F-02: ’349 Patent in view of Nakamura |
| Ex. F-16: ’349 Patent in view of Walley |
| Ex. F-39: ’349 Patent in view of Stevens ’597 |
| Ex. F-40: ’349 Patent in view of Takagi ’682 |
| Ex. F-53: ’349 Patent in view of Fells |
| Ex. F-54: ’349 Patent in view of Stoner |
| Ex. F-55: ’349 Patent in view of Silva |
| Ex. F-56: ’349 Patent in view of Levitz |
| Ex. F-57: ’349 Patent in view of Qi 1.0.1 |
| Ex. F-79: ’349 Patent in view of Ben-Shalom |
| Ex. F-80: ’349 Patent in view of Jung ’376 |
| Ex. F-81: ’349 Patent in view of Flowerdew |
| Ex. F-82: ’349 Patent in view of Vos |
| Ex. F-83: ’349 Patent in view of Partovi |
| Ex. F-85: ’349 Patent in view of Sagoo ’311 |
| Ex. F-97: ’349 Patent in view of Akiba ’042 |
| Ex. F-98: ’349 Patent in view of Baarman ’528 |
| Ex. F-99: ’349 Patent in view of Chao |
| Ex. F-100: ’349 Patent in view of Cook |
| Ex. F-101: ’349 Patent in view of Linde |
| Ex. F-102: ’349 Patent in view of Pedder |
| Ex. F-103: ’349 Patent in view of Odenaal |
| Ex. F-104: ’349 Patent in view of Fulton Innovation eCoupled Car System |
| Ex. F-105: ’349 Patent in view of Tanaka |

### G. ’777 Patent

| Invalidity Claim Charts for the ’777 Patent |
|---|
| Ex. G-12: ’777 Patent in view of Azancot |
| Ex. G-13: ’777 Patent in view of Carobolante |
| Ex. G-14: ’777 Patent in view of Hall |
| Ex. G-15: ’777 Patent in view of Muratov |
| Ex. G-16: ’777 Patent in view of Walley |
| Ex. G-17: ’777 Patent in view of Finkenzeller |
| Ex. G-18: ’777 Patent in view of Barmaan ’307 |
| Ex. G-19: ’777 Patent in view of Kamijo |
| Ex. G-57: ’777 Patent in view of Qi System Description |
| Ex. G-106: ’777 Patent in view of Wageningen NPL |
| Ex. G-107: ’777 Patent in view of Gioscia |
| Ex. G-108: ’777 Patent in view of Jakubowski |
| Ex. G-109: ’777 Patent in view of Kirby |
| Ex. G-110: ’777 Patent in view of Lemmens |

| Invalidity Claim Charts for the ’777 Patent |
| --- |
| Ex. G-111: ’777 Patent in view of Pijnenburg |
| Ex. G-112: ’777 Patent in view of Sogabe |
| Ex. G-113: ’777 Patent in view of Van Novak |

To the extent not identified above in Section I, Defendants identify all references listed in the above tables as prior art references anticipating and/or rendering obvious one or more claims of the Asserted Patents and incorporate the identification of those references into Section I.

To the extent that Plaintiff contends that any one of the references in the above Invalidity Claim Charts does not disclose one or more elements of the Asserted Claims, it would have been obvious to combine the references in the Invalidity Claim Charts with one another as discussed more fully in each of the Invalidity Claim Charts (Exs A-02 through G-113), and the Combinations Exhibit (Ex. H). In presenting the obviousness positions identified herein, Defendants do not concede or represent that any element in any of the Asserted Claims is not disclosed or otherwise anticipated by the prior art reference(s) as indicated in Defendants’ anticipation contentions.

All of the Asserted Claims of the Asserted Patents are anticipated, expressly or inherently, and therefore fail to meet one or more of the requirements for patentability, as detailed in the Anticipatory Charts. Additionally, and in the alternative, the Asserted Claims of the Asserted Patents are obvious in view of the state of the prior art (including Admitted Prior Art) alone and/or in combination with the references described in the above-referenced Invalidity Claim Charts. The alleged inventions claimed in the Asserted Claims of the Asserted Patents would have been obvious because the prior art, common knowledge, and the nature of the problems, viewed through the eyes of a person ordinarily skilled in the art, disclosed or suggested the claimed elements. A person of ordinary skill in the relevant fields would have possessed knowledge and skills rendering him or her capable of combining or modifying the

prior art references with knowledge in the field and common sense. Moreover, the Asserted Claims represent well-known combinations of familiar and pre-existing elements, yielding only predictable results. Additional reasons that a person of ordinary skill in the art would have been motivated to combine the identified prior art are provided in the Exhibits attached hereto.

In addition to the specific combinations of prior art and the specific combinations of groups of prior art disclosed, Defendants may rely on any other combination of any prior art references disclosed herein and upon prior art disclosed within the prosecution history of the references cited herein or incorporated by reference into the disclosed prior art. The obviousness combinations set forth in these contentions reflect Defendants' present understanding of the potential scope of the claims that Plaintiff appears to be advocating and should not be seen as Defendants' acquiescence to Plaintiff's interpretation of the Asserted Claims. Defendants will amend or supplement these contentions regarding anticipation or obviousness of the Asserted Claims as appropriate under the applicable rules, including in response to further information from Plaintiff, information discovered during discovery, and/or the Court's claim constructions. Plaintiff has not identified what elements or combinations it alleges were not known to one of ordinary skill in the art at the time of the alleged invention. Therefore, for any claim limitation that Plaintiff alleges is not disclosed in a particular prior art reference, Defendants reserve the right to assert that any such limitation is either inherent in the disclosed reference or obvious to one of ordinary skill in the art at the time in light of the same, or that the limitation is disclosed in another of the references disclosed above and in combination would have rendered the asserted claim obvious.

In an effort to focus the issues, Defendants have cited representative portions of identified references, even where a reference may contain additional support for a particular claim element.

In addition, persons of ordinary skill in the art generally read a prior art reference as a whole and in the context of other publications and literature. Thus, to understand and interpret any specific statement or disclosure within a prior art reference, such persons would rely on other information within the reference, along with other publications and their general scientific knowledge. As noted above, Defendants will rely upon the prior art references identified herein in their entirety, including un-cited portions.

Additionally, any reference or combination of references that anticipates or renders obvious an asserted independent claim also renders obvious any asserted claim dependent on that independent claim because every element of each dependent claim was known by a person of ordinary skill at the time of the alleged invention, and it would have been obvious to combine those known elements with the independent claims at least as a matter of common sense and routine innovation.

Exemplary combinations of references demonstrating the obviousness of the Asserted Claims of the Asserted Patents under 35 U.S.C. § 103 are listed in the Combinations Exhibit. *See* Ex. H. In addition to the specific combinations of prior art references and the motivations to combine discussed in Exhibit H, a person of ordinary skill would have been motivated to address the alleged problems or achieve the purported objectives identified in the Asserted Patents. Moreover, the Asserted Patents admit that numerous claim features were well-known at the time of the alleged invention.[3]

[3] The Local Patent Rules do not require Samsung to identify applicant-admitted prior art in these invalidity contentions.

## III. Local Patent Rule 3-3(d)

In addition to and including the grounds of invalidity set forth above, Defendants contend that the Asserted Claims of the Asserted Patents are invalid under 35 U.S.C. § 112 for at least the following reasons.

### A. Indefiniteness under 35 U.S.C. § 112

The Asserted Claims of the Asserted Patents are invalid because they fail to comply with the definiteness requirement of 35 U.S.C. § 112. *See* 35 U.S.C. § 112(6) ("The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or joint inventor regards as the invention."); AIA § 112(b) (same). "[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). Furthermore, a patent claim is invalid for indefiniteness when it recites "both a system and the method for using that system," because "it does not apprise a person of ordinary skill in the art of its scope. *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005) (holding claim invalid as indefinite where unclear whether infringement occurs when one creates a system that allows user to change predicted transaction information or accept the displayed transaction, or whether infringement occurs when the user actually uses the input means to change transaction information or uses the input means to accept a displayed transaction). The Asserted Claims are indefinite at least because they fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.

In particular, at least the terms or phrases listed below (alone, either in their entirety or in part, in combination, and/or in context) render the Asserted Claims of the Asserted Patents indefinite. To the extent other Asserted Claims contain one or more of these terms or phrases,

either directly or through being dependent on a claim that does, those Asserted Claims are also invalid under 35 U.S.C. § 112.

1. **'208 Patent**

| **'208 Patent** | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | each of the primary coils is associated with a switching circuit in the base unit |
| 1 | switching circuit is capable of being selectively switched to activate its associated primary coil |
| 1 | a direction substantially perpendicular to the surface of the base unit |
| 1 | a capacitive or other component that decreases harmonics |
| 1 | a direction substantially perpendicular to the plane of the primary coils |
| 1 | the plane of the primary coils |
| 1 | a communications interface that the base unit, and the mobile, electronic, or other device and/or battery, battery door, or skin for use with the device, use to communicate with one another during powering or charging |
| 1 | placed upon or close to the surface of the base unit |
| 1 | based on the polling or sensing |
| 1 | activate, only those one or more primary coils which are determined to be most closely aligned with a receiver coil at the mobile, electronic, or other device and/or battery, battery door, or skin for use with the device |
| 1 | periodically thereafter exchange information |
| 1 | substantially perpendicular magnetic field |
| 1 | the base unit, and receiver coil or circuitry associated therewith, use current modulation performed by the receiver coil or its circuitry |
| 1 | provide an indication |
| 1 | determine and regulate one or more of output voltage, current, or power provided by the base unit |
| 1 | within the range of one or more of a value of a required voltage, current, or other power parameter |
| 1 | continued presence |
| 1 | near the base unit |

2. **’440 Patent**

| ’440 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | the battery in the mobile device |
| 1 | the device |
| 1, 3, 27 | an identification component associated with the mobile device or battery |
| 1, 3, 27 | configured to provide wireless identification |
| 1, 3, 27 | a range of parameters |
| 1 | wherein different mobile devices and batteries can have different charging characteristics associated therewith |
| 3 | a receiver and particular charging characteristics associated therewith |
| 27 | wherein different devices and batteries can have different charging characteristics associated therewith |
| 1, 3, 27 | as provided by the identification component |
| 1, 3, 27 | determine and then activate one or more primary coils |
| 1, 3, 27 | near the base unit |
| 1, 3, 27 | information describing the characteristics of the mobile device or the battery |
| 1, 3 | 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 |
| 27 | for use by the base unit to provide power transfer to the receiver and to the device and the battery according to their particular charging characteristics. |
| 1, 3, 27 | [a/the] universal base unit |
| 1, 27 | a magnetic field received in a direction substantially perpendicular to the plane of the receiver coil |
| 3 | a magnetic field is generated in a direction substantially perpendicular to the plane of the primary coil |
| 1, 3, 27 | generally planar shape |
| 3 | the mobile device |
| 3 | a matching secondary coil or coils |
| 3 | placed close to and aligned with |
| 3, 27 | a means for avoiding overcharging one or both of the mobile device |

| ’440 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | and battery inductively |
| 1, 3, 27 | one or more primary coils of the base unit |
| 13 | subsequent transmission of data |

3. **’500 Patent**

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | one or more primary coils that are substantially planar and parallel to a surface of the system |
| 1 | one or more compatible portable devices including batteries and receiver units |
| 1 | a magnetic field in a direction substantially perpendicular to the plane of the one or more primary coils and the surface of the system |
| 1 | one or more portable devices capable of being powered or charged by the system when present and near the one or more primary coils |
| 1 | operate the one or more drive circuits near a first resonant frequency of a circuit |
| 1 | operate the one or more drive circuits near a first resonant frequency of a circuit formed by a primary coil and a drive circuit and a receiver coil and a receiver circuit of a compatible portable device when nearby; |
| 1 | switch the one or more primary coils at a frequency and power level sufficient to transfer power to one or more of the receiver units when near the one or more primary coils for a sufficiently long period of time to activate the one or more receiver circuits and to receive a response from the one or more receiver circuits via the one or more receiver coils which the one or more primary coils sense via the one or more sense circuits as a modulation of one or more primary coil currents |
| 1 | detect, through the one or more sense circuits, communications from the one or more receiver units through the one or more receiver coils including information corresponding to one or more voltages at one or more outputs of the receiver rectifier circuits induced by the one or more outputs of the one or more receiver rectifier circuits induced by the one or more primary coils and the one or more receiver coils and information associated with the one or more communication and control circuits to identify the one or more portable devices and/or receiver units and to determine any one or more appropriate |

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | charging or powering algorithm profiles therefor; |
| 1 | for each portable device, determine the primary coil electromagnetically most aligned with the receiver coil of the portable device; |
| 1 | drive the one or more FET switches associated with the most aligned one or more primary coils; |
| 1 | periodically receive information corresponding to one or more output voltages or currents of the one or more receiver rectifier circuits via the one or more primary coils and the one or more sense circuits; and |
| 12 | The system of claim 1, wherein the system is incorporated into a portable device or battery pack comprising an internal rechargeable battery that can be periodically recharged and can operate the system for inductive charging or powering for a period of time. |
| 23 | a receiver coil which has a substantially planar shape and located parallel to a surface of the portable device so that a magnetic field received from a primary coil in a base unit of an inductive charging system in a direction substantially perpendicular to the plane of the receiver coil is used to inductively generate a current in the receiver coil to power or charge the portable device; |
| 23 | a ferrite material layer placed behind the receiver coil and opposite to the surface of the portable device to provide shielding in the portable device from electromagnetic fields; |
| 23 | a receiver circuit designed to operate near a resonant frequency of a circuit |
| 23 | wherein when a current is generated in the receiver coil inductively by the primary coil in the base unit, the current is rectified by the one or more rectifiers and smoothed by the one or more capacitors in the receiver rectifier circuit and is used to power and activate the receiver communication and control circuit and to power or charge the portable device; and |
| 23 | wherein upon powering and activation of the receiver circuit by a primary coil in the base unit, the receiver circuit: |
| 23 | communicates information corresponding to a voltage at an output of the receiver rectifier circuit and information associated with the portable device and/or receiver unit to enable the base unit to identify the portable device and/or receiver unit, to determine any appropriate charging or powering algorithm therefor, and to identify one or more primary coils of the base unit most aligned with the |

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | receiver coil for use in charging or powering the portable device; and |
| 23 | subsequently, periodically communicates information corresponding to an output voltage or current of the receiver rectifier circuit to the base unit to enable the base unit to regulate in a closed loop manner the output voltage or current of the receiver rectifier circuit during the charging or powering of the portable device |

4. **’371 Patent**

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | a first primary coil that is substantially planar and substantially parallel to a surface |
| 1 | an alternating magnetic field in a direction substantially perpendicular to the plane of the first primary coil and the surface of the system |
| 1 | wherein the operating frequency is within a range of frequencies (i) that are near a resonance frequency |
| 1 | the operating frequency is within a range of frequencies … such that increasing values of the operating frequency within the range of frequencies would correspond to a lower voltage or current induced in an output of the receiver circuit |
| 1 | the operating frequency is within a range of frequencies … that allow activation and powering of the receiver unit and charging the battery of the portable device |
| 1 | a communication and control circuit |
| 1 | activate and power the receiver unit |
| 1 | a charge algorithm profile |
| 1 | a power requirement |
| 1 | continued presence |
| 3 | switch a level of the DC voltage between multiple discrete values |
| 4 | the DC voltage input is configured to connect to and receive a DC voltage from a DC power supply |
| 8 | a high heat conductivity layer |
| 8 | a high heat conductivity layer positioned proximate to the first primary coil |

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 8 | a high heat conductivity layer … at least covering an area surrounding the first primary coil |
| 9 | the PCB coil comprises multiple layers of substantially similar copper thickness |
| 11 | the system is incorporated into the second portable device |
| 12 | a central area of the first primary coil |
| 16 | the first primary coil includes an outer surface to face a surface of the receiver coil and an inner surface to face away from the surface of the receiver coil |
| 16 | a central area of the first primary coil |
| 16 | a planar ferromagnetic layer located proximate to the inner surface of the first primary coil |
| 16 | a metallic layer located proximate to the planar ferromagnetic layer |
| 20 | a receiver coil which has a substantially planar shape and is located parallel to a surface of the portable device |
| 20 | an alternating magnetic field … received through the surface of the portable device from the primary coil in the base unit in a direction substantially perpendicular to the plane of the receiver coil |
| 20 | a side of the receiver coil away from the surface of the portable device |
| 20 | a ferromagnetic layer placed under the receiver coil on a side of the receiver coil away from the surface of the portable device |
| 20 | a receiver communication and control circuit |
| 20 | a set minimum voltage value |
| 20 | a current is generated in the receiver coil |
| 20 | activate the microcontroller |
| 20 | a voltage or current value at the output of the receiver rectifier circuit induced by the primary coil |
| 20 | a charge algorithm profile |
| 20 | a power requirement |
| 20 | periodically communicate to the base unit |
| 21 | a central area of the receiver coil |
| 22 | a maximum value within a safe operating range |
| 28 | a primary coil that is substantially planar and parallel to a surface of |

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | the system |
| 28 | multiple layers of substantially similar patterns |
| 28 | multiple layers of substantially similar patterns of substantially spiral-shaped conductors |
| 28 | a flexible Printed Circuit Board (PCB), multi-turn coil having multiple layers of substantially similar patterns of substantially spiral-shaped conductors of 1 to 4 ounce copper thickness for each layer and having coil patterns electrically connected with vias between the layers |
| 28 | an alternating magnetic field in a direction substantially perpendicular to the surface of the primary coil |
| 28 | a communication and control circuit |
| 28 | activate and power the receiver circuit |
| 28 | operate the drive circuit to inductively transfer sufficient power to the inductive receiver unit to activate and power the receiver circuit |
| 28 | a power parameter |
| 28 | adjusting at least one of the operating frequency, the duty cycle, and the DC voltage input to the drive circuit |
| 30 | a receiver coil having a substantially planar shape |
| 30 | an alternating magnetic field … received through the surface of the portable device from the primary coil in the base unit in a direction substantially perpendicular to the plane of the receiver coil |
| 30 | a side of the receiver coil opposite to the surface of the portable device |
| 30 | a ferrite material layer placed under the receiver coil on a side of the receiver coil opposite to the surface of the portable device |
| 30 | a receiver communication and control circuit |
| 30 | a power parameter |
| 30 | a voltage or current value at an output of the receiver rectifier circuit induced by the primary coil |
| 30 | periodically communicate to the base unit |

5. **’942 Patent**

| ’942 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | a first primary coil that is substantially planar and substantially parallel to a charging surface of the system |
| 1 | an alternating magnetic field in a direction substantially perpendicular to the plane of the first primary coil and the charging surface of the system |
| 1 | wherein the operating frequency is within a range of frequencies (i) that are near a resonance frequency |
| 1 | the operating frequency is within a range of frequencies … such that increasing values of the operating frequency within the range of frequencies would correspond to a lower voltage or current induced in an output of the receiver circuit |
| 1 | the operating frequency is within a range of frequencies … that allow activation and powering of the receiver unit and charging the battery of the portable device |
| 1 | a communication and control circuit |
| 1 | activate and power the receiver unit |
| 1 | a power requirement |
| 1 | continued presence |
| 2 | a charge algorithm profile |
| 6 | a universal serial bus (USB) power supply |
| 6 | the DC voltage input is configured to couple to and receive a DC voltage from a DC power supply via a universal serial bus (USB) power supply |
| 6 | the USB |
| 8 | means for operating the multiple drive circuits to drive a selection of the multiple primary coils |
| 8 | means for operating the multiple drive circuits to drive a selection of the multiple primary coils most magnetically aligned with the receiver coil |
| 9 | activate and power the receiver unit |
| 9 | wherein the period of time is sufficient to activate and power the receiver unit in the portable device and to receive at least part of the received communication of information |
| 10 | the PCB coil comprises multiple metallic layers of substantially |

| ’942 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | spiral-shaped patterns |
| 12 | the system is incorporated into a second portable device |
| 12 | the second portable device is powering the system at the DC voltage input by the DC-to-DC voltage regulator |
| 13 | a central area of the first primary coil |
| 16 | the first primary coil includes an outer surface to face a surface of the receiver coil and an inner surface to face away from the surface of the receiver coil |
| 21 | a coil substantially planar in shape and located parallel to a charging surface of the portable device |
| 21 | an alternating magnetic field … received through the charging surface of the portable device from the primary coil of the inductive charging system in a direction substantially perpendicular to the plane of the coil |
| 21 | a receiver communication and control circuit |
| 21 | a set minimum voltage value |
| 21 | a current is generated in the receiver coil |
| 21 | activate the microcontroller |
| 21 | a voltage or current value at the output of the receiver rectifier circuit induced by the primary coil |
| 21 | a charge algorithm profile |
| 21 | a power requirement |
| 21 | periodically communicate to the base unit |
| 23 | a central area of the coil |
| 24 | a maximum value within a safe operating range |
| 26 | in the inductive power receiving mode |
| 26 | in the inductive power transfer mode |
| 29 | a primary coil that is substantially planar and parallel to a charging surface of the system |
| 29 | multiple layers of substantially spiral-shaped conductor patterns |
| 29 | an alternating magnetic field in a direction substantially perpendicular to the charging surface of the primary coil |
| 29 | a communication and control circuit |

| ’942 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 29 | activate and power the receiver circuit |
| 29 | operate the drive circuit to inductively transfer sufficient power to the inductive receiver unit to activate and power the receiver circuit |
| 29 | a power parameter |

6. **’349 Patent**

| ’349 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | means for positioning the receiver in a power transfer position, proximate to the charger surface, to inductively transfer power to the receiver of the first mobile device |
| 1 | substantially perpendicular to the charger surface at a geometric center of the charger coil area |
| 4 | when the receiver is positioned in the power transfer position and when the charger is operated at an operating frequency near the resonance frequency of the tuned circuit to inductively transfer power from the charger to the receiver, the transfer of power from the charger to the receiver has a power transfer efficiency that exceeds 50% |
| 8 | the Litz wire is selected for operation at a frequency of greater than 205 kHz |
| 11 | a center of the first end of the solenoid is positioned 1 mm or more away from the charger surface when the receiver is positioned in the power transfer position |
| 13 | during non-power transfer operations |
| 17 | communication and control electronics circuits |
| 18 | enclosed volume |
| 26 | means for positioning a receiver in a power transfer position, which is proximate to the charger surface, to inductively transfer power to the receiver, wherein the receiver is included in a mobile device to inductively receive power for the mobile device |
| 26 | substantially perpendicular to the charger surface at a geometric center of the charger coil area |

7. **’777 Patent**

| ’777 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1, 15 | operating in a second mode of operation using a second protocol, wherein the second protocol is an inductive charging communication-and-control protocol that defines bi-directional messaging |
| 1, 15 | wherein the first mode of operation is associated with a first power level and the second mode of operation is associated with a second power level |
| 1, 24 | A . . . system for inductive charging of an electronic device comprising an inductive charging receiver and a battery . . ., the . . . system comprising: . . . a microcontroller, wherein the microcontroller is configured for: . . . regulating power delivered to the battery of the electronic device |
| 5 | wherein the first mode of operation is a subset of the second mode of operation |
| 10 | the power output level of the inductive charging receiver |
| 11 | wherein the operating frequency for the first mode of operation is within a first frequency range and the operating frequency for the second mode of operation is within a second frequency range |
| 14 | wherein the frequency range of the power delivered to the battery for the first mode of operation is based on the first protocol and the frequency range of the power delivered to the battery for the second mode of operation is based on the second protocol |
| 15 | a first communication to an inductive charger, wherein the first communication identifies the first protocol; a second communication to the inductive charger, wherein the second communication identifies the second protocol |
| 23 | wherein the received power is within a first frequency range for the first mode of operation and within a second frequency range for the second mode of operation |
| 24 | wherein the operating frequency for the first mode of operation is associated with a first frequency range and the operating frequency for the second mode of operation is associated with a second frequency range |

### B. Lack of Enablement under 35 U.S.C. § 112

The Asserted Claims of the Asserted Patents are invalid because they are not enabled as required by 35 U.S.C. § 112. *See* 35 U.S.C. § 112(6) ("The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same."); AIA § 112(a) (same). *See AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1244 (Fed. Cir. 2003) ("The enablement requirement is satisfied when one skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation.") (citing *In re Wands*, 858 F.2d 731, 736–37 (Fed. Cir. 1988)). Because the Asserted Patents do not disclose sufficient information to enable a person having ordinary skill in the field of the alleged invention(s) to make and use the full scope of the alleged invention(s), as set forth in the claims, at the time of filing without undue experimentation, the Asserted Claims are invalid for lack of enablement.

In particular, at least the following terms or phrases listed below (alone, either in their entirety or in part, in combination, and/or in context) are not enabled. Samsung reserves the right to supplement these contentions to identify specific claims that are invalid for lack of enablement as discovery continues, in response to any amendment Mojo may be permitted to make to its infringement contentions, and/or after claim construction.

#### 1. '208 Patent

| '208 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | the base unit, and receiver coil or circuitry associated therewith, use current modulation performed by the receiver coil or its circuitry |

2. **’440 Patent**

| ’440 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1, 3, 27 | [a/the] universal base unit |
| 3 | the perpendicular magnetic field inductively generates a current in a matching secondary coil or coils within a mobile device |
| 13 | a data storage component for storage of data, for subsequent transmission of data to or from the mobile device |

3. **’500 Patent**

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | apply an alternating electrical current to the one or more primary coils to generate a magnetic field |
| 1 | one or more sense circuits to monitor the current through the one or more primary coils to sense communications from the one or more receiver coils |

4. **’371 Patent**

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | communicate the information … wherein the received communication of information includes: … a charge algorithm profile |
| 16 | the first primary coil includes multiple layers of copper PCB of similar spiral-shaped coil pattern interconnected by vias; and … the system further comprises:<br>a ferromagnetic core located in a central area of the first primary coil; |
| 20 | communicate to the base unit … a charge algorithm profile |

5. **'942 Patent**

| '942 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 2 | the received communication of information further includes a charge algorithm profile |

6. **'349 Patent**

| '349 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 4 | when the receiver is positioned in the power transfer position and when the charger is operated at an operating frequency near the resonance frequency of the tuned circuit to inductively transfer power from the charger to the receiver, the transfer of power from the charger to the receiver has a power transfer efficiency that exceeds 50% |

7. **'777 Patent**

| '777 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 14 | wherein the frequency range of the power delivered to the battery for the first mode of operation is based on the first protocol and the frequency range of the power delivered to the battery for the second mode of operation is based on the second protocol |

### C. Lack of Written Description under 35 U.S.C. § 112

The Asserted Claims of the Asserted Patents are invalid because they fail to meet the written description requirement of 35 U.S.C. § 112. *See* 35 U.S.C. § 112(6) ("The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms . . . ."); AIA § 112(a) (same). "Specifically, the description must 'clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed. . . . In other words, the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those

skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (citing *Vas–Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991)) (internal citations omitted); *id.* at 1349 ("Although many original claims will satisfy the written description requirement, certain claims may not. For example, a generic claim may define the boundaries of a vast genus of chemical compounds, and yet the question may still remain whether the specification, including original claim language, demonstrates that the applicant has invented species sufficient to support a claim to a genus. The problem is especially acute with genus claims that use functional language to define the boundaries of a claimed genus. In such a case, the functional claim may simply claim a desired result, and may do so without describing species that achieve that result. But the specification must demonstrate that the applicant has made a generic invention that achieves the claimed result and do so by showing that the applicant has invented species sufficient to support a claim to the functionally-defined genus."). Because the Asserted Patents does not describe the limitations or combination of limitations of the Asserted Claims in sufficient detail that a person of ordinary skill in the art would recognize that the inventor possessed the full scope of the alleged invention(s) at the time of filing, the Asserted Claims do not meet the written description requirement.

In particular, at least the following terms or phrases listed below are not sufficiently described. To the extent other Asserted Claims contain one of these terms or phrases, either directly or through being dependent on a claim that does, those Asserted Claims are also invalid under 35 U.S.C. § 112.

1. **’208 Patent**

| ’208 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | a plurality of primary coils arranged behind and parallel to the surface |
| 1 | switching circuit is capable of being selectively switched |
| 1 | the base unit and/or switching circuit includes a capacitive or other component that decreases harmonics in that activated primary coil |
| 1 | poll each of the primary coils, or receive a signal from a sensor associated therewith, to verify the presence |
| 1 | select, based on the polling or sensing, from within the plurality of primary coils, and selectively switch, using their associated switching circuits to activate, only those one or more primary coils which are determined to be most closely aligned with a receiver coil at the mobile, electronic, or other device and/or battery, battery door, or skin for use with the device |
| 1 | determined to be most closely aligned with a receiver coil |
| 1 | periodically thereafter exchange information to provide power transfer to the device and/or battery, including device and/or battery charging or power status or presence |
| 1 | the base unit, and receiver coil or circuitry associated therewith, use current modulation performed by the receiver coil or its circuitry |
| 1 | determine and regulate one or more of output voltage, current, or power provided by the base unit to the device and/or battery to be within the range of one or more of a value of a required voltage, current, or other power parameter |

2. **’440 Patent**

| ’440 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1, 3, 27 | [a/the] universal base unit |
| 1, 27 | the receiver is one of attached to or incorporated into the battery or the mobile device |
| 1, 27 | a magnetic field received in a direction substantially perpendicular to the plane of the receiver coil |
| 3 | a magnetic field is generated in a direction substantially perpendicular to the plane of the primary coil |

| ’440 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 3 | the perpendicular magnetic field inductively generates a current in a matching secondary coil or coils within a mobile device placed close to and aligned with the base unit, to charge or power the mobile device |
| 1, 3, 27 | an identification component associated with the device or battery, which is configured to provide wireless identification of the receiver to the universal base unit |
| 1, 3, 27 | detect, identify and authenticate the receiver with the base unit |
| 1, 3, 27 | determine and then activate one or more primary coils of the base unit which are aligned with the receiver coil |
| 1, 3, 27 | 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 |
| 13 | The system of claim 3, further comprising a data storage component for storage of data, for subsequent transmission of data to or from the mobile device. |

3. **’500 Patent**

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | one or more primary coils that are substantially planar and parallel to a surface of the system |
| 1 | one or more sense circuits to monitor the current through the one or more primary coils to sense communications from the one or more receiver coils |
| 1 | one or more communication and control circuits including one or more microcontrollers coupled to the one or more drive circuits and the one or more sense circuits that detect communications through the one or more sense circuits via the one or more primary coils and control the one or more drive circuits to control the powering or charging of the one or more compatible portable devices; |
| 1 | operate the one or more drive circuits near a first resonant frequency of a circuit formed by a primary coil and a drive circuit and a receiver coil and a receiver circuit of a compatible portable device when nearby; |
| 1 | switch the one or more primary coils at a frequency and power level sufficient to transfer power to one or more of the receiver units when |

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | near the one or more primary coils for a sufficiently long period of time to activate the one or more receiver circuits and to receive a response from the one or more receiver circuits via the one or more receiver coils which the one or more primary coils sense via the one or more sense circuits as a modulation of one or more primary coil currents; |
| 1 | detect, through the one or more sense circuits, communications from the one or more receiver units through the one or more receiver coils including information corresponding to one or more voltages at one or more outputs of the one or more receiver rectifier circuits induced by the one or more primary coils and the one or more receiver coils and information associated with the one or more portable devices and/or receiver units to enable the one or more communication and control circuits to identify the one or more portable devices and/or receiver units and to determine any one or more appropriate charging or powering algorithm profiles therefor; |
| 1 | for each portable device, determine the primary coil electromagnetically most aligned with the receiver coil of the portable device; |
| 1 | drive the one or more FET switches associated with the most aligned one or more primary coils; |
| 1 | periodically receive information corresponding to one or more output voltages or currents of the one or more receiver rectifier circuits via the one or more primary coils and the one or more sense circuits; and |
| 1 | regulate in a closed loop feedback manner the one or more output voltages or currents of the one or more receiver rectifier circuits by adjusting the frequency or duty cycle of the one or more drive circuits during the charging or powering of the one or more portable devices. |
| 2 | The system of claim 1, further comprising one or more voltage regulator circuits that can change input voltages to the one or more drive circuits between two or more levels to accommodate different powers required by the portable devices. |
| 3 | The system of claim 1, wherein the one or more drive circuits, primary coils and associated capacitors are designed to be driven in a Zero Voltage Switching or Zero Current Switching mode during inductive power transfer to a portable device. |
| 4 | The system of claim 1, wherein the one or more communication and control circuits are designed to receive from a receiver unit of a portable device identification information including one or more |

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | codes identifying the manufacturer of the portable device and/or receiver unit, a unique portable device and/or receiver ID code, a charge algorithm profile, and a power requirement of the portable device and/or receiver unit. |
| 9 | The system of claim 1, wherein the one or more communication and control circuits can provide bi-directional digital communication between the one or more primary coils and the receiver coils for a verification process to ensure that a receiver unit that can be charged or powered by the system is present and to determine the voltage or power requirements of the receiver unit. |
| 12 | The system of claim 1, wherein the system is incorporated into a portable device or battery pack comprising an internal rechargeable battery that can be periodically recharged and can operate the system for inductive charging or powering for a period of time. |
| 13 | The system of claim 12, further comprising one or more receiver unit circuits coupled to one or more of the one or more primary coils to enable the system and its internal battery to be charged or powered inductively. |
| 18 | The system of claim 1, further wherein the one or more communication and control circuits use a Proportional-Integral-Derivative control technique to regulate one or more outputs of the one or more receiver rectifier circuits. |
| 20 | The system of claim 1, further comprising a metallic layer designed to remove heat from the one or more primary coils during power transfer. |
| 23 | a receiver coil which has a substantially planar shape and located parallel to a surface of the portable device |
| 23 | a ferrite material layer placed behind the receiver coil and opposite to the surface of the portable device to provide shielding in the portable device from electromagnetic fields; |
| 23 | a receiver circuit designed to operate near a resonant frequency of a circuit formed by the receiver coil, the receiver circuit, and a compatible base unit primary coil and associated circuit when adjacent to the portable device for inductive powering or charging; |
| 23 | a receiver communication and control circuit including a microcontroller and a communication FET to modulate the input impedance of the receiver circuit to communicate with the base unit through the primary coil |
| 23 | communicates information corresponding to a voltage at an output of |

| ’500 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | the receiver rectifier circuit |
| 23 | subsequently, periodically communicates information corresponding to an output voltage or current of the receiver rectifier circuit to the base unit to enable the base unit to regulate in a closed loop manner the output voltage or current of the receiver rectifier circuit during the charging or powering of the portable device |
| 24 | The portable device of claim 23, wherein the communication and control circuit communicates information including one or more codes identifying the manufacturer of the portable device, a unique portable device and/or receiver unit ID, a charge algorithm profile, and a power requirement of the portable device and/or receiver unit. |
| 25 | The portable device of claim 23, further wherein the receiver circuit can additionally receive communication from the base unit via the receiver coil inductively from the primary coil for bi-directional communication. |
| 26 | The portable device of claim 23, further including an output disconnect switch under the control of the receiver communication and control circuit to disconnect the battery from the receiver rectifier circuit output. |

4. **’371 Patent**

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | a first primary coil that is substantially planar and substantially parallel to a surface |
| 1 | a first drive circuit … coupled to a DC voltage input |
| 1 | an alternating magnetic field in a direction substantially perpendicular to the plane of the first primary coil and the surface of the system |
| 1 | wherein the operating frequency is within a range of frequencies (i) that are near a resonance frequency |
| 1 | the operating frequency is within a range of frequencies … that allow activation and powering of the receiver unit and charging the battery of the portable device |
| 1 | wherein the first sense circuit includes a low pass filter |
| 1 | a low pass filter and an amplifier to assist in detecting and amplifying a signal |

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | a communication and control circuit |
| 1 | wherein the received communication of information includes:<br>information corresponding to a voltage or current induced by the first primary coil at the output of the receiver circuit;<br>a unique identification code;<br>a manufacturer code;<br>a charge algorithm profile; and<br>a power requirement |
| 1 | communicate the information … wherein the received communication of information includes: … a charge algorithm profile |
| 1 | operate the first drive circuit according to the power requirement and charge algorithm profile |
| 1 | if the portable device is no longer present or charging is complete, stop operation of the first drive circuit for the provision of power inductively to the portable device |
| 2 | wherein the microcontroller is configured to control the voltage regulator circuit to switch a level of the DC voltage between multiple discrete values |
| 4 | the communication and control circuit is further configured to communicate with the DC power supply via the USB |
| 8 | wherein the system further comprises a high heat conductivity layer positioned proximate to the first primary coil and at least covering an area surrounding the first primary coil to disperse any heat generated during provision of power inductively |
| 9 | further comprising a near field communication (NFC) antenna for communication of data |
| 9 | multiple layers of substantially similar copper thickness and substantially similar spiral-shaped coil patterns connected by vias wherein each layer comprises 1 to 4 ounce (oz) copper thickness material |
| 10 | the system further comprises a near field communication (NFC) antenna for communication of data |
| 11 | the system is incorporated into the second portable device; and<br>the second portable device further comprises:<br>an internal, rechargeable battery and a DC-to-DC voltage converter |
| 11 | the communication and control circuit is further configured to control whether the second portable device is receiving power inductively or charging the first portable device inductively |
| 12 | The apparatus of claim 1 wherein the first primary coil includes a magnetic core of ferromagnetic material within a central area of the first primary coil |

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 12 | the apparatus further comprises a Near Field Communication (NFC) antenna and circuitry for communication of data |
| 15 | a common mode electrical noise filter circuit … to shield the DC voltage input from Electromagnetic Interference (EMI) during the provision of power inductively to the portable device |
| 16 | the first primary coil includes multiple layers of copper PCB of similar spiral-shaped coil pattern interconnected by vias; and …<br>the system further comprises:<br>a ferromagnetic core located in a central area of the first primary coil;<br>a planar ferromagnetic layer located proximate to the inner surface of the first primary coil; and<br>a metallic layer located proximate to the planar ferromagnetic layer, wherein the ferromagnetic layer is located between the first primary coil and the metallic layer |
| 20 | a receiver coil which has a substantially planar shape and is located parallel to a surface of the portable device |
| 20 | an alternating magnetic field … received through the surface of the portable device from the primary coil in the base unit in a direction substantially perpendicular to the plane of the receiver coil |
| 20 | a ferromagnetic layer placed under the receiver coil on a side of the receiver coil away from the surface of the portable device; and |
| 20 | a receiver communication and control circuit |
| 20 | wherein the battery charging circuit … begins drawing current only when the output of the receiver rectifier circuit reaches a set minimum voltage value |
| 20 | communicate to the base unit information corresponding to a voltage or current value at the output of the receiver rectifier circuit induced by the primary coil, a unique identifier code, a manufacturer code, a charge algorithm profile, and a power requirement |
| 21 | further comprising a magnetic core of ferromagnetic material within a central area of the receiver coil |
| 21 | a near field communication (NFC) antenna and circuitry for communication of data with other devices. |
| 28 | a primary coil that is substantially planar and parallel to a surface |
| 28 | flexible Printed Circuit Board (PCB) |
| 28 | multiple layers of substantially similar patterns of substantially spiral-shaped conductors of 1 to 4 ounce copper thickness for each layer |
| 28 | a drive circuit … coupled to a DC voltage input |
| 28 | an alternating magnetic field in a direction substantially perpendicular to the surface of the primary coil |
| 28 | a communication and control circuit |

| ’371 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 28 | a power parameter |
| 28 | from the information communicated by the receiver circuit, determine a power parameter |
| 29 | the sense circuit includes a low pass filter |
| 30 | a receiver coil having a substantially planar shape and located parallel to a surface of the portable device |
| 30 | an alternating magnetic field … received through the surface of the portable device from the primary coil in the base unit in a direction substantially perpendicular to the plane of the receiver coil |
| 30 | a ferrite material layer placed under the receiver coil on a side of the receiver coil opposite to the surface of the portable device |
| 30 | a receiver communication and control circuit |
| 30 | a power parameter |
| 30 | communicate to the base unit a power parameter and a voltage or current value |

5. **’942 Patent**

| ’942 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | a first primary coil that is substantially planar and substantially parallel to a charging surface of the system |
| 1 | a first drive circuit … coupled to a DC voltage input |
| 1 | an alternating magnetic field in a direction substantially perpendicular to the plane of the first primary coil and the charging surface of the system |
| 1 | wherein the operating frequency is within a range of frequencies (i) that are near a resonance frequency |
| 1 | the operating frequency is within a range of frequencies … that allow activation and powering of the receiver unit and charging the battery of the portable device |
| 1 | a first sense circuit, including a low pass filter |
| 1 | a communication and control circuit |
| 1 | wherein the received communication of information includes:<br>information corresponding to a voltage or current induced by the first primary coil at the output of the receiver circuit;<br>a unique identification code; and<br>a power requirement |

| ’942 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | operate the first drive circuit according to the power requirement |
| 1 | if the portable device is no longer present or charging is complete, stop operation of the first drive circuit for the provision of power inductively to the portable device |
| 2 | the received communication of information further includes a charge algorithm profile and a manufacturer identification code |
| 5 | wherein the microcontroller is configured to control the voltage regulator circuit to vary the DC voltage at the DC voltage input |
| 6 | a universal serial bus (USB) power supply |
| 6 | the system is further configured to communicate with the DC power supply via the USB |
| 8 | the system further comprises means for operating the multiple drive circuits to drive a selection of the multiple primary coils most magnetically aligned with the receiver coil to charge the portable device |
| 9 | a period of time |
| 10 | further comprising a near field communication (NFC) antenna for communication of data |
| 10 | a flexible Printed Circuit Board (PCB) |
| 10 | metallic layers of substantially spiral-shaped patterns comprising copper connected by vias wherein each layer comprises 1 to 4 ounce (oz) copper thickness material |
| 12 | the system is incorporated into a second portable device, the second portable device further comprising:<br>an internal, rechargeable battery;<br>a DC-to-DC voltage regulator coupled to the DC voltage input to provide power to operate the system |
| 12 | wherein the second portable device is configured to operate in a first mode in which the second portable device is powering the system at the DC voltage input by the DC-to-DC voltage regulator to provide power inductively through the first primary coil and in a second mode in which the second portable device is receiving power inductively through the first primary coil to power the second receiver circuit and charge the internal, rechargeable battery |
| 13 | wherein the first primary coil includes a magnetic core of ferromagnetic material within a central area of the first primary coil |
| 13 | the system further comprises a Near Field Communication (NFC) antenna and circuitry for communication of data |
| 21 | a coil substantially planar in shape and located parallel to a charging surface of the portable device |
| 21 | an alternating magnetic field … received through the charging surface of the portable device from the primary coil of the inductive charging system in a direction substantially perpendicular to the plane of the coil |

| ’942 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 21 | a ferrite layer positioned under the coil on a side of the coil opposite to the charging surface of the portable device |
| 21 | a receiver communication and control circuit |
| 21 | a ferrite layer positioned under the coil on a side of the coil opposite to the charging surface of the portable device |
| 22 | a flexible Printed Circuit Board (PCB) |
| 23 | further comprising a magnetic core of ferromagnetic material within a central area of the coil |
| 23 | a near field communication (NFC) antenna and circuitry for communication of data with other devices |
| 26 | the portable device further comprises a FET driver and a FET switch |
| 26 | the portable device further … configured to operate in an inductive power receiving mode and in an inductive power transfer mode |
| 26 | the portable device is configured to operate the FET driver to drive the FET switch to apply an alternating current to the coil for providing power inductively to a second portable device |
| 29 | a primary coil that is substantially planar and parallel to a charging surface of the system |
| 29 | flexible Printed Circuit Board (PCB) |
| 29 | multiple layers of substantially spiral-shaped conductor patterns of 1 to 4 ounce copper thickness for each layer |
| 29 | multiple layers of substantially spiral-shaped conductor patterns … with vias interconnecting at least some of the layers of conductor patterns |
| 29 | a drive circuit … coupled to a DC voltage input |
| 29 | an alternating magnetic field in a direction substantially perpendicular to the charging surface of the primary coil |
| 29 | a communication and control circuit |
| 29 | a power parameter |
| 29 | determine a power parameter from the received information communicated by the receiver circuit |
| 30 | the sense circuit includes a low pass filter |

6. **’349 Patent**

| ’349 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1 | the charger further includes a means for positioning the receiver in a power transfer position, proximate to the charger surface, to inductively transfer power to the receiver of the first mobile device; . . . when the receiver is in the power transfer position, the first end of the magnetic core is located proximate to the charger coil area above the charger surface to receive magnetic flux from the charger coil area and guide the magnetic flux in a closed magnetic loop from the charger coil area through the solenoid and return through the charger magnetic layer to the charger coil area to form the closed magnetic loop |
| 4 | when the receiver is positioned in the power transfer position and when the charger is operated at an operating frequency near the resonance frequency of the tuned circuit to inductively transfer power from the charger to the receiver, the transfer of power from the charger to the receiver has a power transfer efficiency that exceeds 50% |
| 5 | The system of claim 1, wherein the charger coil area is at least ten times larger than the area of each of the ends of the magnetic core of the solenoid. |
| 7 | the magnetic core of the solenoid has a cross sectional dimension in at least one end of 1 to 2 mm and has a length along a winding axis of 10 to 20 mm |
| 8 | the Litz wire is selected for operation at a frequency of greater than 205 kHz |
| 11 | a center of the first end of the solenoid is positioned 1 mm or more away from the charger surface when the receiver is positioned in the power transfer position |
| 12 | when the receiver is positioned in the power transfer position, the magnetic core of the solenoid extends beyond the charger coil area in a preferential direction |
| 13 | the charger is incorporated into a second mobile device; the second mobile device includes an internal, rechargeable battery; the second mobile device uses the internal battery to transfer power to and operate the charger for a period of time |
| 13 | the first and second mobile devices comprise Bluetooth communication systems to communicate with each other during non-power transfer operations |
| 26 | means for positioning a receiver in a power transfer position, which is proximate to the charger surface, to inductively transfer power to |

| ’349 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| | the receiver, wherein the receiver is included in a mobile device to inductively receive power for the mobile device . . . when the receiver is in the power transfer position, the first end of the magnetic core is located proximate to the charger coil area above the charger surface to receive magnetic flux from the charger coil area and guide the magnetic flux in a closed magnetic loop from the charger coil area through the solenoid and return through the charger magnetic layer to the charger coil area to form the closed magnetic loop |

7. **’777 Patent**

| ’777 Patent | |
|---|---|
| **Asserted Claim** | **Term(s) or Phrase(s)** |
| 1, 24 | system for inductive charging of an electronic device comprising an inductive charging receiver and a battery . . ., the . . . system comprising: . . . a microcontroller, wherein the microcontroller is configured for: . . . regulating power delivered to the battery of the electronic device |
| 1, 15, 24 | operating in a first mode of operation using a first protocol, wherein the first protocol is an inductive charging communication-and-control protocol that comprises uni-directional messaging |
| 1, 15 | wherein the first mode of operation is associated with a first power level and the second mode of operation is associated with a second power level, and wherein the first power level and the second power level are different |
| 1, 24 | operating in a second mode of operation using a second protocol, wherein the second protocol is an inductive charging communication-and-control protocol that [defines/comprises] bi-directional messaging |
| 1, 15, 24 | operating in a second mode of operation using a second protocol . . . transmitting, by modulating the operating frequency with the coil drive circuit, a frequency-modulated third communication to the inductive charging receiver |
| 5 | wherein the first mode of operation is a subset of the second mode of operation |
| 11 | wherein the operating frequency for the first mode of operation is within a first frequency range and the operating frequency for the second mode of operation is within a second frequency range |
| 14 | wherein the frequency range of the power delivered to the battery for |

| | |
|---|---|
| | the first mode of operation is based on the first protocol and the frequency range of the power delivered to the battery for the second mode of operation is based on the second protocol |
| 23 | wherein the received power is within a first frequency range for the first mode of operation and within a second frequency range for the second mode of operation |

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing document has been served via email on all counsel of record on this 25th day of April, 2023.

*/s/ Allan M. Soobert*
Allan M. Soobert